MINISTRY OF ECOLOGY AND SUSTAINABLE DEVELOPMENT
Water Department

European Directive 2000/60/EC of the Parliament and of the Council of 23 October 2000, establishing a framework for Community action in the field of water policy

Procedure for preparation of the inventory:

characterisation of the river basin district and the register of protected areas

Organisation of the work between 2002 and 2004

March 2003

ANNEXES:

Preamble

The objective of this guide is to identify the actions to be carried out by the end of 2004, in accordance with the requirements of Articles 5 and 6 of the Directive and in compliance with the subsequent implementation stages of the Directive (implementation of the *monitoring programme*, preparation of the *management plan* and of the *programme of measures*).

The words in italics are the terms used by the Directive.

The Annexes of the Directive are cited in Roman numerals.

An initial version of this guide was distributed in a instruction on 12 February 2002.

This document brings the original guide up to date by including the results of the work conducted in 2002 at national and European level (cf. **Annex 1**).

Following completion of this initial work, the process defined for constructing and determining the content of the inventory, as described in the instruction of February 2002, has been confirmed as suitable and appropriate.

Updating this guide on the procedure for producing the inventory is, however, necessary in order to include the conclusions of the work conducted in 2002, to adjust the work timetables and to more specifically define the methods for constructing the products required in the inventory.

The objective of this guide is to present an operational overview of the work in order to facilitate implementation of the Directive in large river basins.

The technical Annexes describe the principal methods used, supported by more detailed methodological documents. The main documents available (European and national guides, study reports, test results) are cited, these being accessible on the Intranet of the Water Department.

This guide and the documents cited are available on the
Intranet site of the Water Department

http://web/de/PAGES/THEMES/directive_cadre/accueil_cadre.htm

This document is also available on the Internet site of the
Ministry

http://www.environnement.gouv.fr/

Chapter 1 - The fundamentals

1 General introduction to the Framework Directive

Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy was adopted on 23 October 2000 and published in the Official Journal of the European Communities on 22 December 2000 (date of coming into force).
The Directive, which aims to establish a framework for the management and protection of water on the basis of each river basin district, is designed to play a strategic and fundamental role in the area of water policy. It sets ambitious objectives to preserve and restore the status of bodies of surface and ground water.

11 - The principal implementation stages of the Directive

For the Government, the initial deadlines (cf. **timetable opposite**) are for transposition of the Directive and the designation of *competent authorities* for each *district* before 22 December 2003, and notifying the Commission of the geographical areas of the *districts* and of the corresponding *competent authorities* by the end of June 2004.

A bill[1] on transposing the Directive into national law was presented to the Council of Ministers on 12 February. The Government will submit it to Parliament during the course of 2003. The National Water Committee examined the draft bill in the session held on 19 November 2002.

The implementation stages of the Directive are shown on the page opposite. The principal elements required are the following:

- Between now and the end of 2003, the Directive requires that Member States **identify the *river basin districts***, and groups of sub-basins, ensuring that the national areas within international districts are defined consistently;

- Between now and the end of 2004, Member States shall draw up the ***characteristics of the river basin district*** (Article 5), and report on water pricing and application of the principle of recovery of the costs of water services, including environmental and resource costs (Article 9);

- ***Register(s) of protected areas*** shall also be published for each *district* by the end of 2004 (Article 6). This register or these registers will identify all the areas designated as requiring special protection under specific Community legislation. This concerns in particular areas designated for the abstraction of drinking water, sensitive areas, vulnerable areas, bathing water areas, and areas designated for the conservation of habitats and species directly dependent on water.

[1] Available for consultation on the Ministry Internet site.

General timetable for the Directive

2003	- Implementation of the biological *reference networks* and starting the process of *intercalibration* for defining the *good ecological status* of surface water
Dec. 2003	- Implementation of the transposition laws, regulations and administrative provisions (Art. 24) - Designation of the *competent authorities* for *river basin districts* (Art. 3)
Dec. 2004	- Completion of the analysis of *river basin district* characteristics (Art. 5) - Establishment of the *register of protected areas* (Art. 6)
March 2005	- The State submits the overview of district characterisation to the Commission (Art.15)
Dec. 2006	- Operational implementation of the first water status *monitoring programme* (Art. 8) - National measurement of environmental quality standards for priority substances (Art. 16) - Deadline for public consultation on the work programme (Art. 14)
Dec. 2007	- Deadline for public consultation on the principal problems (Art. 14)
Dec. 2008	- Deadline for public consultation on the draft *management plan* (Art. 14)
Dec. 2009	- Publication of the *programme of measures* (Art. 11) - Publication of the first *management plan* (Art. 13)
End 2010	- Implementation of an incentive-based pricing policy (Art. 9)
Dec. 2012	- Operational implementation of the combined approach (Art. 10) - Operational implementation of the *programmes of measures* (Art. 11) - Operational implementation of the second water status *monitoring programme* (Art.11.8)
Dec. 2013	- Completion of the second district characterisation programme (Art . 5).
Dec. 2015	- Achievement of the objective of *good status* for water (Art. 4.1) -1st re-examination of the *programmes of measures* (Art. 11) - Publication of the 2nd *management plan* (Art. 13)
Dec. 2018	- Operational implementation of the 3rd water status *monitoring programme*
Dec. 2019	- Completion of the third district characterisation programme (Art. 5).
Dec. 2021	- Deadline for the first extension related to achieving the objective on *good status* (Art. 4.4) - 2nd re-examination of the *programmes of measures* (Art. 11) - Publication of the 3rd *management plan* (Art. 13)
Dec. 2027	- Last deadline for achievement of the environmental objectives (Art. 4)

The inventory required for the end of 2004 is the first stage of the "project management" procedure to be implemented under the Framework Directive (cf. page opposite).

District characterisation and the register(s) of protected areas are the two documents required for the "inventory" which shall be published by the end of 2004.

- The Directive stipulates implementation of a ***monitoring programme*** (Article 8) by the end of 2006. This will monitor surface water, including coastal water, and groundwater (including quantitative aspects for the latter). The monitoring networks shall comply with the requirements of the Directive, and the *monitoring programme* shall be operational by 2006. For surface water, the monitoring programmes include the *reference networks* and *intercalibration networks* described below. A *surveillance monitoring programme* and an *operational monitoring programme* shall be established for groundwater (cf. **Annex 16**).

  The *ecological status* of surface water is defined using reference sites characteristic of *high status*, thus allowing definition of the lower and upper limits of *good ecological status*.

  The location of the reference sites shall be given in the inventory documents (Annex II.1.3 of the Directive).

  A Europe-wide *intercalibration* network shall then be used to compare the proposals of Member States for *good status*. Draft *intercalibration* sites shall be designated during 2003 to give the European Commission time to publish a draft register of intercalibration sites at the end of 2003, which will be made final by the end of 2004.

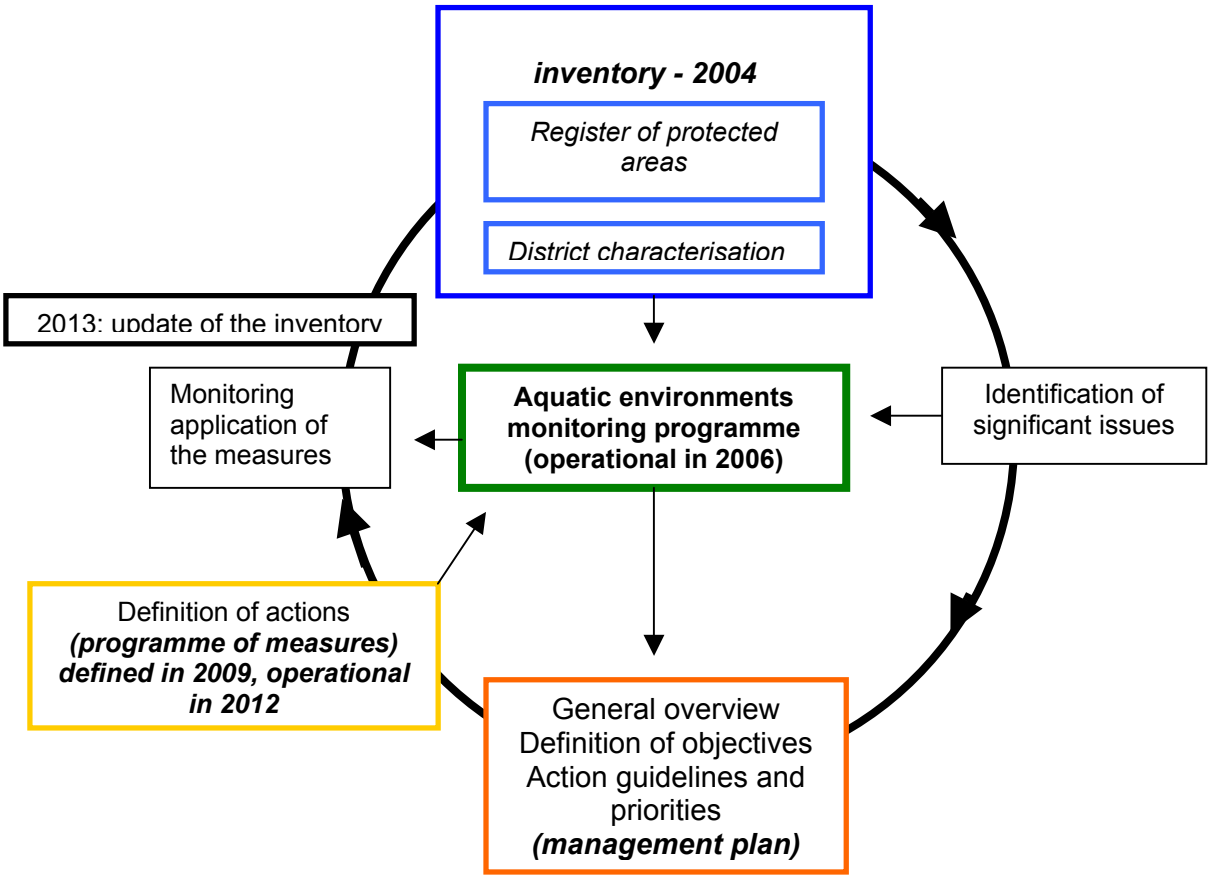
- **The *management plan*** (Article 13), to be adopted between now and 22 December 2009, shall stipulate the water quality and quantity objectives set for 2015.

  The areas covered by the Directive are already covered by master water management plans (SDAGE for “Schéma Directeur d’Aménagement et de Gestion des Eaux”). The elements required by the Directive for the *management plan* will be integrated into the SDAGE. Updating of the SDAGE is therefore necessary.

  The *management plan* defines the provisions and action priorities (or measures in the vocabulary of the Directive) to be implemented in order to achieve the objectives set. The objective of *good status* for water being the rule, the *management plan* allows exemptions to this objective, based on analysis of the technical timetable for the work, on economic analysis, or on constraints related to the natural conditions (including, in particular, pollutant transfer times).

  When preparing the *management plan*, three public consultations are stipulated by the Directive, the dates given being cut-off dates: the first, before the end of 2006, is for the provisional work programme, the second, before the end of 2007, is for *significant issues*, and the third, to be organised before the end of 2008, is for the draft *management plan* (Article 14).

Implementation of the project management process required under the Framework Directive



This diagram shows the project management process defined by the Directive:

⇒ the inventory is used to identify the significant issues;

⇒ the *management plan* stipulates the objectives to be achieved in 2015 following an economic analysis and assessment of social and environmental impacts

⇒ the *programme of measures* breaks the objectives down into actions.

Implementation of the measures shall be monitored in order to identify delayed or abandoned actions which will need to be explained. The Directive thus implements a "quality" procedure: defining objectives, describing what is being done, explaining why something has not been done and, if necessary, implementing corrective measures.

A new inventory is produced in 2013, thus starting a new cycle.

Each stage of this cycle uses the results of the monitoring conducted, or is used to optimise definition of the monitoring networks with a view to the next stage.

- **The *programme of measures*** (Article 11), to be drawn up between now and the end of 2009, will define the statutory provisions or *basic measures* to be implemented for each *district* in order to achieve the objectives defined for 2015 by the *management plan* under Community and / or national legislation (for example: extension of sensitive areas or vulnerable areas, reporting and authorisation system, definition of resource protection areas, discharge control, etc.). These *measures* also include the pricing provisions created to encourage users to manage water better. *Measures* can be drawn up at national level.

  If the provisions above are not sufficient to reach the objectives set, *supplementary measures* shall be implemented. The Directive provides a non-exclusive list of these. These either strengthen the *basic measures*, or take the form of new provisions such as codes of good practice, voluntary agreements, economic and fiscal instruments, providing information to users, etc.

  Additional measures are also defined. They concern in particular the implementation of international conventions.

  The administrative authority will be required to draw up, adopt and implement *measures* of a statutory nature.

  The financial action programmes of water agencies will contain financial incentives, in terms of charges or aid, judged necessary to support or complete statutory initiatives designed to achieve the environmental objectives set.

  Design of the *programme of measures* will thus allow the creation of an effective synergy between regulatory incentives and financial ones.

12 - The innovations introduced by the Directive

Although the Framework Directive renews at European level the principles of management at the scale of the large river basin, as well as balanced management and planning, all of which were defined by the laws of 1964 and 1992, it also introduces important innovations, the full scope of which should be clearly identified. These are as follows:

- Delimitation of *districts*, the management units defined by the Directive, shall be conducted nationally and in consultation with other European countries for international rivers. The Directive requires that Member States co-operate in order to produce a single *international river basin district management plan*, using existing structures derived from international agreements;

- *Public consultations* on the timetable for drawing up the *management plan*, on the identification of principal problems and finally on the draft *management plan* shall be organised;

- Achievement of the objective of *good status* for water is the rule for 2015, the Directive introducing the possibility of exemptions which shall be justified in the *management plan*. Exemptions concern firstly the possible extension of completion deadlines (extension from 2015 to 2021 then 2027) and, then, if necessary, the definition of less stringent objectives. Exemption from the objectives is based on the results of an economic analysis (concept of *disproportionate costs* and cost-benefit analyses) or on examination of the technical feasibility of the work or the natural conditions. The justifications for exemptions are cited in the draft *management plan* submitted for

public consultation, it being possible for the public to consult the studies supporting exemption if requested.

- An adapted objective, *good ecological potential*, is defined for water bodies which have been heavily modified from a hydromorphological point of view, particularly due to economic activities. The *management plan* shall examine the economic, social or environmental interest of maintaining the activities responsible for modification of the environment, the analysis focusing in particular on assessment of the environmental damage caused. This examination shall be renewed every six years when the *management plan* is updated.

  This procedure for identifying heavily modified water bodies thus allows for public debate on the social, environmental or economic justifications for any hydromorphological modifications which might prevent achievement of the *good status* objective.

- The Directive also requires reporting on pricing methods and on application of the principle of recovery of the costs of *water services*, including environmental costs, for each major economic sector, distinguishing as a minimum between households, industry and agriculture, and in accordance with the polluter pays principle.

  Pricing is a *measure* which shall be implemented in order to achieve the environmental objectives of the Directive. This provision thus makes it possible to complement a traditional supply-driven strategy (mobilisation of new resources, treatment of final discharge) with a demand-driven management strategy (incentives to save water, incentives for pollution control at source and/or better environmental practices).

- Water quality *monitoring programmes* shall include specific elements, both in terms of defining monitoring sites, and regarding analyses and their frequency. The Directive in particular requires that monitoring be intensified where it appears that the objectives may not be achieved, in order to better identify responsibilities and the actions to be taken (cf. **Annex 16**).

Finally, it should be remembered that the Directive is a "framework for Community action in the field of water policy". This is achieved in particular:

- by integrating sector-based policies with the water policy. To do this, the Directive requires assessment of the impact of various activities on environmental quality, reporting on land use and specific details on expected developments in light of the land use policy followed;

- by contributing to greater transparency on water policy, through public consultation and the publication of technical and economic data on water use;

- by allowing comparative analyses of the environmental performance of Member States through the definition of Europe-wide analysis repositories on water status.

- through the implementation of a project management process. The Directive therefore includes a process for co-ordinating environmental enforcement actions.

13 - International districts

For the French river basins containing rivers extending over more than one Member State of the Union (Rhine-Meuse and Artois-Picardie), the presentation reports on the *district characteristics* shall be produced by the relevant river basin committees for each French portion of an international district, in order to be able to publish an inventory for the entire international basin through aggregation of national information.

The timetables given in this guide (cf. chapter 5) shall be appropriately adapted for international districts.

The work of international commissions will allow the identification of common requirements in terms of methodologies, data, reports and products. Ensuring consistency of products is necessary to guarantee transparency of water management at international district level.

This process of consultation and co-ordination is already underway, following the decisions of environment ministers from countries bordering the Rhine (January 2001), the Meuse and the Scheldt (November 2001). It is a continuation of, and based on, long experience of joint work conducted within the pre-existing international structures set up to ensure compliance with international agreements.

The river basin co-ordinator prefect shall be responsible for ensuring harmonisation of the work timetables between the national portion and the rest of the international district, and for suggesting any useful adaptation of the river basin work timetables, in compliance with the requirements of the Directive. The recommendations and work of an international commission cannot in any way relieve the State of its responsibility to implement the Directive correctly.

For the Adour-Garonne, Seine-Normandy and Rhone-Mediterranean-Corsica basins, including water courses partially located in another Member State or in Switzerland (the latter is prepared to apply the principles of the Framework Directive to its territory, and therefore in particular to Lake Geneva and its catchment basin), the Ministry of the Environment and Sustainable Development has informed the national authorities regarding commencement of the work to construct the inventory. The river basin co-ordinator prefect can therefore now inform the local authorities of the relevant countries of the work timetable for constructing the inventory report. The existing commissions or working parties of the river basin committee can be expanded to include the representatives of these local authorities in order to allow the necessary consultation for effective co-ordination of the work.

The river basin co-ordinator prefect is required to point out any difficulties which might arise in relation to the respective national and international work timetables.

2 Application of the Framework Directive and revision of SDAGEs

Transposition of the Framework Directive into national law integrates the requirements of the Directive into the SDAGE, in term of objectives, methods and tools.

However, the SDAGE covers, and will continue to cover, a wider area than that of the *management plan* (for example, flood prevention measures, gravel extraction, safety of drinking water supplies, etc.).

The SDAGE will also continue to be an independent entity (with the obligation of "compatibility" for administrative decisions in the field of water policy). The content and thinking behind future SDAGEs will therefore be a natural continuation of the current ones.

Revision of the SDAGE to include the requirements of the Directive regarding the *management plan* will be conducted from 2005 once the inventory has been completed.

Until current SDAGEs have been revised, this being planned for the end of 2009 at the latest, they, and in particular the quality objectives they stipulate, will continue to be the legal benchmark in these matters.

The performance indicators of the SDAGE, submitted periodically by the river basin DIREN (environment department) and the water agency to the river basin committee, will be used as the basis for assessing implementation of the guidelines, objectives and recommendations of the SDAGE. This assessment on implementation of the SDAGE will be carried out in 2003 on the basis of the data available.

This process will result in two documents which can be used to inform the public and consult with partners, one responding to the requirement of the Framework Directive (district characterisation), the other providing a progress assessment on implementation of the SDAGE.

The presentation document on *district characteristics* and the assessment of SDAGE implementation will be used to define *significant water management issues* identified in the river basin.

It should be noted that the products used to assess implementation of the SDAGE will, in many cases, also be the elements necessary for characterisation of the district. They will be particularly helpful for evaluating pressures and impact. The products created through application of the Framework Directive will thus be gradually integrated into the performance indicators of the SDAGE.

3 SAGEs and construction of the inventory

Water Management Plans (SAGE for “Schéma d’Aménagement et de Gestion des Eaux) are drawn up for sub-basins or aquifers and define the guidelines, objectives and adjustments for balanced management of water resources. A Local Water Commission, consisting of representatives from local government, users and State departments, is responsible for drawing up the SAGE and monitoring its implementation.

SAGEs are drawn up after approval of SDAGEs. They each define environmental objectives at their own level. Because of this, any updating of the SDAGE, even in the absence of the Framework Directive, would inevitably require co-ordination of work between the river basin level (SDAGE) and the local level (SAGE).

To date, some ten Water Management Plans have been adopted. Approximately forty are also in the process of being drawn up, the Local Water Commissions having been formed. The site www.sitesage.org provides a progress report on the development of SAGEs.

The SAGE perimeters, when these are defined, constitute an essential step in the examination of the inventory data and identification of the significant issues at the level of river sub-basins.

The active participation of Local Water Commissions in constructing the inventory documents can only facilitate their subsequent involvement in defining draft environmental objectives. This will involve carrying out a regularly repeated procedure between the local level (the sub-basin or the aquifer) and large river basins, the basin committee having the responsibility for organising the work, and defining the consultation, summary, consistency and validation procedures.

Chapter 2 - Objectives and general organisation of the work

1 Meeting the requirements of Article 5 of the Directive

Characterisation of the *river basin district* is to be conducted as stipulated in Article 5 as follows:

"*characteristics of the river basin district,*
review of the environmental impact of human activity
and economic analysis of water use".

This inventory is to be conducted for each district or for each national portion in international districts.

It is not a question of identically repeating the inventory exercise conducted when drawing up the SDAGE, but of strictly complying with the requirements of the Directive in terms of working methods and the products expected.

A reference document shall clearly identify the methods selected to evaluate pressures and impacts of human activity and the origins of data used to construct the inventory. In accordance with Article 14, this document shall be made available on request.

Article 5 refers to Annex II of the Directive, certain provisions of which are further specified in Annex V. Article 5 is also based on Annex III describing economic analysis, and referring to Article 9 on pricing and the recovery of costs. Article 5 expressly requests production of the following:

a/ An analysis of the characteristics of the *water bodies* in the district in accordance with the method described in Annex II:

- For surface water bodies, this analysis shall allow definition of their boundaries and be used to carry out an *initial characterisation*, a *further characterisation* being conducted at a later stage for water bodies identified as being at risk of failing the environmental quality objectives defined by the Directive.

- Particular attention shall be paid to *artificial water bodies* and to *heavily modified water bodies*, the inventory having to identify *artificial water bodies* and to provide provisional identification of *heavily modified water bodies.*

- For groundwater bodies, an *initial characterisation* shall allow definition of their boundaries. This characterisation includes evaluation of pressures and identifies the risk of failure to meet environmental objectives. *Further characterisation* is conducted at a later stage for water bodies identified as being at risk of failing environmental objectives and for trans-boundary water bodies.

  The *initial characterisation* of groundwater shall in particular identify those groundwater bodies which ecosystems and aquatic and terrestrial environments depend on for their water supply.

b/ Identification of *biological reference* sites for defining *high ecological status* of surface water and **intercalibration sites** for defining *good status* under Annex V related to definition of the water status assessment table, to which Annex II refers (cf. **Annex 16**).

c/ Identification of pressures caused by human activities and their impact on the current status of surface water and groundwater.

The first stage of this analysis is a general presentation of the *district* and any human activities. The elements which may be included in the analysis are identification of agricultural areas, forestry and urban centres using "Corine Land Cover" satellite imaging, description of population densities, location of centres of industrial activity, density of livestock farms etc.

The inventory document shall then describe the various usages made of water (water supply, hydropower generation, navigation, leisure activities etc.) and identify, among these usages, *water use*, that is, activities likely to have a significant impact on the status of water bodies (cf. **Annex 12**). For each usage and each *water use*, the technical and economic data available shall be presented in order to specify their impact on water management and their economic significance (**Annex 9** provides examples of technical and economic data for each usage).

Once these activities have been identified, point and diffuse source pressures shall be estimated (**Annex 10**). Pressures with a significant impact on the status of water bodies shall be identified.

Although the Framework Directive does not stipulate use of **pollutant input models and impact models** for characterisation of the *district*, these tools can only facilitate definition and technical optimisation of the *programmes of measures*. As a result, when drawing up the first action plan to upgrade the data, the relevance of developing such models for large river basins should be examined. The 2005-2006 data acquisition plan (cf. point 2 below) will schedule the studies and work required for use of these models if necessary.

d/ Forecasting the situation in 2015: the baseline scenario

Many decisions have already been taken to improve water status (application of the Urban Wastewater Treatment Directive, restoration of rivers, etc.). Definition of the actions to be scheduled between now and 2015 in order to achieve the environmental objectives of the Directive shall therefore include prior evaluation of the foreseeable impact of the programmes already underway or decided on, as well as sector-specific policies on land-use planning. **Annex 11** gives more detail on the construction of this baseline scenario, the objectives of which are to identify:

- under Annex III of the Directive, changes in water supply and demand, from both quantitative and qualitative points of view;

- and, under Annex II of the Directive, the water bodies or groups of bodies identified as being at risk of failing to meet the environmental objectives of the Directive (cf. chapter 3-32).

No cost-effectiveness analysis of the provisions already adopted is required for the inventory. Cost-effectiveness analyses shall only be conducted for optimisation of the *programmes of measures*, and therefore only after 2004. However, sufficient data shall be gathered by the end of 2004 to conduct subsequent cost-benefit and cost-effectiveness analyses. Acquisition of missing data shall be included in the action plan for upgrading the data to be produced by the end of 2004 (cf. point 2 below).

e/ Presentation of pricing methods and application of the principle of recovery of the costs of water services

Under Article 9 cited in Annex III, the inventory document shall:

- provide a summary of the water pricing provisions in force;
- report on the recovery of the costs of services, including environmental costs and resource costs, under the polluter pays principle, for each major category of user.

Annex 13 describes the principles for calculating the recovery of costs.

2 Defining a data upgrading programme in compliance with the requirements of the Directive

The inventory to be produced between now and the end of 2004 will be the first inventory required under the terms of the Framework Directive. For the most part, **the inventory will be constructed using the data currently available (2001 and previous years)**. However, it is clear that current tools and data do not meet all the requirements of the Directive.

Compliance with all data-related requirements by 2004 is not a compulsory part of the Directive. Given the various situations of the Member States, the Directive even suggests the possibility of starting implementation of the Directive with a minimum of data on the quality of environments (cf. Annex II of the Directive). However, as the *monitoring programmes* have to be in place from 2006, the Directive requires that networks for acquiring data on water use and environments be set up.

The inventory shall therefore include an audit of the data used, with respect to the repository required by the Framework Directive. This audit shall examine not only data on environments, but also physical data on activities and pressures as well as associated economic data.

When constructing the inventory, it will be useful to record the sources of data used, their characteristics (measurements, sanctions, etc.) and their calculation method, in order to identify discrepancies between the current situation and the data repository necessary for application of the Directive.

Diagnosis of the data available is underway in each large river basin, in accordance with the requirements of the instruction of 26 March 2002. This diagnosis, the conclusions of which will be available by the end of 2003 at the latest, will then be compared with the data requirements under the Framework Directive. By the end of 2004, the **master water data plan** will then be drawn up in each large river basin.

Given the priority needs identified for producing the *management plan* and the requirements of the Directive, **a first action plan for upgrading data will be drawn up by the end of 2004** at the latest. It will cover the years 2005 and 2006 and will focus on technical and economic data related to environments, activities and engineering structures.

In accordance with Annex III of the Directive, this action plan for upgrading data shall be drawn up *taking account of the costs associated with collection of the relevant data*. This action plan shall be attached to the inventory. It shall be implemented as quickly as

possible (and, if necessary for some data, before the deadline of 31 December 2004), in order to produce:

- from 2005, the technical and economic data on activities, pressures and impact considered essential for constructing the *management plan* and optimising the *programmes of measures*:

- from 2006, the establishment of a *monitoring programme* compliant with Community obligations (cf. **Annex 16**).

The first action plan will focus in particular on completing the economic data necessary:

- to perform the cost-benefit and cost-effectiveness analyses to support the 2015 objectives and to optimise the *programmes of measures*;

- to calculate recovery of costs, including environmental costs, for each category of user.

The first action plan (2005-2006) shall also identify the actions required to facilitate updating and, if necessary, improvement of the protected area registers and their accessibility by the public.

The inventory document shall be updated in 2006, and as often as required, to include the new data available. If necessary, a second action plan covering the years 2007 to 2009 shall then be implemented to upgrade the data.

3 Preparing definition of the management plan and programme of measures

a/ through appropriation of methods and tools

Although the Framework Directive renews the principles of management at the scale of the large river basin and planning, both of which were defined by the laws of 1964 and 1992, it imposes fundamental changes in terms of methods and tools, particularly for defining water status objectives and monitoring networks.

The Directive also introduces the obligation to include methods which encourage the "active involvement" of partners (Article 14).

Effective implementation of the Directive will largely depend on successful appropriation of the Framework Directive methods and tools by the members of the river basin committee and by local partners. Construction of the inventory will facilitate this appropriation by explaining the positioning of the various products required in the process stipulated by the Framework Directive.

This information and explanation phase is essential. The quality of the inventory document and the subsequent *management plan* in relation to the Directive provisions will be largely determined by the success of this phase.

b/ by defining the scale of analysis

Analysis of water use, of related pressures and of their impact on the environment and common practices, will be used to characterise the various water bodies.

The scale of the water body may, however, not be the most relevant for identifying possible actions to achieve the environmental quality objectives set: for example, data is not always available because of how the administrative area is organised, or interaction between different water bodies may already exist. In addition, definition of possible actions, and particularly awareness-raising and prevention measures (water saving, resorption of pollution at source, etc.), will require the analysis of activities and land use.

The analysis scale of the inventory:

In order to facilitate local consultation, it may be appropriate, especially in the larger river basins, to identify geographical areas characterised by several dominant elements related to hydrology, land use and activities (cf. report of the RMC agency on the definition of consistent areas[2]).

The river basin committee is responsible for defining territorial organisation and consultation procedures in order to facilitate collection and summarising of existing data. Local Water Commissions and River Basin Territorial Statutory Bodies (EPTB), when these exist, shall be particularly involved in this work.

The geographical commissions of river basin committees bring together local stakeholders (representatives and technical departments of the Regions and "Départements", nationwide structures, communities of "communes", cities, council assemblies, economic development bodies, associations, universities, etc.) to guarantee the transparency essential for constructing the inventory and to facilitate data collection, the river basin committee overseeing the consistency and territorial continuity of the work.

The analysis scale of the *management plan* and *programmes of measures*:

As described in point c/ below, this work will be used to identify the risk of failure to meet the environmental objectives defined by the Directive, and to validate the summary on implementation of the SDAGE. These elements will allow an initial definition of the *significant water management issues identified in the river basin* (Art. 14 - 1.b.). In addition to measures resulting directly from the application of European directives, and measures resulting from national provisions, the *programmes of measures* shall identify the actions necessary to respond to the *significant issues* thus identified.

For each of these *significant issues*, the most relevant analysis scale shall therefore be defined in order to determine the objectives to be achieved and the actions to be carried out. The analysis scale will therefore be identified on the basis of the territory containing the interconnected links between activities, pressures and impacts lying at the origin of each *significant issue*. For example, in the case of shore-line eutrophication, the scale will be the coastal area and adjoining sub-basin, and for river water eutrophication it will be the large river basin, etc. There is therefore no single scale of analysis applicable to all cases.

[2] Rhone-Mediterranean-Corsica Water Agency - *Quelle échelle territoriale pour l'analyse économique?* (Defining Territorial Scale for Economic Analysis) - June 2002

The analysis scales of the objectives of the *management plan* and *programmes of measures* can therefore only be specified after identification of the *significant issues*.

Article 14 of the Directive states that public consultation on *significant issues* shall take place before consultation on the *timetable and work programme*.

Definition of the *timetable and work programme* implies examination of the consultation procedures necessary to allow the active involvement of water stakeholders, in accordance with the requirements of Article 14. Definition, even if only provisional, of the *significant issues* identified in the river basin is a key element in defining the consultation process for production of the plan.

The dates stipulated by Article 14 of the Directive for public consultations are cut-off dates. The first two public consultations, the first on an *interim overview of significant issues*, and the second on *the timetable and work programme*, can therefore be conducted simultaneously.

c/ by identifying the water bodies at risk of failing to meet the environmental quality objectives set by the Directive

In order to prepare definition of the *management plan* and *programmes of measures*, the inventory shall identify those sectors in which the environmental objectives set by the Directive may not be achieved. **Production of a map on the status of water bodies is not required when drawing up the inventory.**

The process involves global identification of the risk of failing to meet the environmental objectives of the Directive and not specific identification of the levels of pollutants responsible for this divergence from the objective.

The *monitoring programme* and further characterisation of the water bodies can be used at a later stage (i. e. after the inventory) to determine whether this risk has materialised or not.

Identification of this risk of non-compliance will focus on the three types of environmental objective stipulated by the Directive, namely:

- the principle of non-deterioration;
- the objective of *good status* or *good ecological potential* by 2015;
- the progressive reduction of discharges of hazardous substances and the cessation of discharges of priority hazardous substances.

In accordance with the Directive, this risk can be defined:

- either using available environmental data;
- or using models;
- but also on the basis of similar situations encountered in other sectors of the basin in terms of activities and environmental characteristics (based expert judgements).

Annex 11 shows a draft table identifying the risks of failure to meet the environmental objectives set. This method will be further defined during the first quarter of 2003.

Identification of those water bodies at risk of failing to meet the environmental quality objectives will be used to:

- identify geographical sectors where further characterisation of the water bodies is necessary;

- define the *operational monitoring* and *investigative monitoring* to be included in the *monitoring programme* (cf. **Annex 16**);

- identify the *significant issues* and their scale of analysis in order to prepare definition of the environmental objectives for 2015 and the *programmes of measures*.

The corresponding technical studies can be started immediately after identification of the water bodies at risk, that is, at the start of 2004 (without having to describe these studies in the inventory report).

4 The information and consultation procedures

The Directive (Article 14) requires that three public consultations be conducted: the first, before the end of 2006 at the latest, is on the timetable of work to prepare the *management plan*, the second, before the end of 2007 at the latest, is on the identification of *significant issues*. A third consultation, before the end of 2008 at the latest, is on the draft *management plan*.

Independently of these consultations, the Directive requires that **the public be allowed access to the studies** used to prepare the documents submitted for consultation. Once the inventory has been constructed, the procedures for collection, archiving and consultation of these studies shall be defined for each large river basin.

The definition of "public" is the very broad one used by the Aarhus Convention. The consultation procedure therefore goes far beyond the consultations previously conducted when drawing up the SDAGE (cf. **Annex 14**).

Each river basin committee is responsible for drawing up the timetable and information and consultation procedures to be conducted in 2004-2005 in accordance with the guidelines described below.

Before their adoption by the river basin committee, the documents submitted for consultation to the regional and general councils and council assemblies, will be shown to the river basin mission for feedback.

a/ In 2004, prepare for the public consultation by providing information on water management and the current situation

The opinion polls conducted all highlight a significant lack of knowledge on the natural water cycle and the links between the protection of natural environments and preserving drinking water resources.

Public consultation on the *significant issues* identified and the *work timetable* will therefore require prior dissemination of information on water management which is sufficiently global in approach and can be understood by laypeople.

The information should cover, firstly, water management and aquatic environments and, secondly, the current situation. The idea here is to present a global approach to water

management, by identifying the roles of each entity or person. This information intended for the public should not only be related to the issues covered by the Directive. It should also examine all the questions dealt with by the SDAGE. The public would not understand why information should be limited only to water quality issues, without discussing other areas of concern, such as flood prevention measures or the safety of drinking water supplies.

This public information exercise shall be organised by the river basin committees, with the support of their geographical commissions when these exist. The committees can also use the support of local organisations such as local authorities, River Basin Territorial Statutory Bodies, Local Water Commissions, structures responsible for river contracts, council bodies, associations, etc.

This public information phase will facilitate appropriation of the inventory document, thus preparing for the next stage of the Directive process, namely public consultation on *significant issues* and the *work timetable* for constructing the *management plan* and *programme of measures*.

b/ In the second half of 2004, consult regional councils, general councils, regional economic and social councils and council assemblies on initial identification of the *significant issues* and *work programme*.

The objective of the inventory is to identify the significant issues to be examined when revising the SDAGE. This identification of key issues determines the scales of analysis and, as a result, the consultation procedures and the work programme.

During the first half of 2004, and based on the assessment of the SDAGE and the draft inventory produced under the Framework Directive, the river basin committee shall conduct an initial identification of the *significant issues*. It shall define the consultation process and the *work timetable* for revising the SDAGE.

Consultation of general councils, regional councils, regional economic and social councils and council assemblies shall take place in the second half of 2004. This will focus on the identification of *significant issues* and the *work timetable*. The inventory document shall be included in this consultation.

c/ From 2005, consult the public on *the interim overview of significant issues* and on the *timetable* and *work programme* for revising the SDAGE.

In light of the opinions and observations gathered during 2004 from the various assemblies, the river basin committee shall draw up a list of the principal issues to be examined when revising the SDAGE and the work programme, including the consultation procedures.

The two first public consultations stipulated by the Framework Directive (on the work timetable and significant issues) may therefore be conducted by the river basin committee from 2005.

This date shall be adapted in the case of international districts in order to co-ordinate procedures with European neighbours.

Chapter 3 - Characterisation of the river basin district

1 - Identifying districts

The Directive specifies that *districts* shall be made up of one or more *river basins* and of assigned *groundwater bodies* and *coastal water bodies*.

France shall submit a list of the river basins forming each *district* or each national portion of an *international district* to the European Commission by the end of June 2004.

The national districts or national portions of international districts cover the following river basins:

Scheldt, Somme and Channel/North Sea coastal waters (Artois-Picardie basin);

Meuse (Rhine-Meuse basin) and **Sambre** (Artois-Picardie basin);

Rhine (Rhine-Meuse basin);

Rhone and Mediterranean coastal waters (Rhone-Mediterranean-Corsica basin);

Corsica (Rhone-Mediterranean-Corsica basin);

Adour, Garonne, Dordogne, and Charente and Aquitaine coastal rivers (Adour-Garonne basin);

Loire, Vendée and Breton coastal waters (Loire-Brittany basin);

Seine and Normandy coastal waters (Seine-Normandy basin[3]);

Martinique;

Guadeloupe;

Guiana;

Réunion Island.

Under the law of 11 July 2001, **Mayotte** constitutes a river basin. The river basin committee shall start preparing the SDAGE. The general provisions applicable to the SDAGE, integrating the requirements of the Framework Directive over the long term, therefore apply to Mayotte. As the departmental unit of Mayotte is an overseas territory, there is no obligation to report to the European Commission on implementation of the Framework Directive in the Mayotte river basin.

Regarding the specific limits of the *districts*, the European guide on management at river basin level allows for flexibility between the administrative limit of the *district* and the strict river basin limit. The upstream limits of a *district* shall be defined in order not to omit significant discharge or abstraction in these upstream sectors, the stakeholders involved thus being bound by the *management plan* and *programme of measures* defined for this *district*.

The inventory of significant pressures at the limits of *districts* will thus allow specification of the flexibility possible between the strictly hydrographical limits of the *district* and the limits of the existing administrative divisions.

[3] including St Pierre and Miquelon.

As a result, and until the specific limits of the *districts* have been defined, the inventory will be conducted within **wide hydrographic perimeters to create some overlap at the perimeter limits between basins** so as not to prejudge any adjustments to the delimitation of water agency administrative divisions. To do this, neighbouring basins will work closely together so that common data is recorded and presented identically. For each sector located between the limit of a water agency administrative division and the hydrographic limit, the pilot basin shall be designated.

Consultation between river basins shall be conducted systematically using existing structures such as inter-basin joint commissions, when these exist, or commissions created by the river basin committee and appointed to provide an institutional interface.

By the end of 2002, the river basin committees in metropolitan France had all been informed of the inventory scope. The consultation procedures between basins have been drawn up, with commissions being appointed for this purpose.

In early 2003, a draft delimitation of the *districts* will be produced at national level by the Water Department. This draft proposal will be submitted to the river basin committees for feedback (June 2003) and then to the National Water Committee. Delimitation shall be completed by the end of 2003 and the Commission informed of the *precise limits* before the end of June 2004 at the latest.

The delimitation of water agency administrative divisions will be revised at a later date in order to eliminate the most flagrant inconsistencies in relation to the logic of the catchment basin, while at the same time taking into account the administrative limits of territory management on a cantonal basis and with, as required, adjustments at the level of the “commune”.

2 - The technical elements used to characterise water bodies

21 - defining the boundaries of water bodies

The Directive requires that "*water bodies*" or "*groups of water bodies*" be identified. It stipulates conducting an *initial characterisation* of surface water bodies and groundwaters. Water bodies at risk shall undergo *further characterisation* (both surface water and groundwater).

In what follows:

- **prior delimitation** corresponds to the delimitation resulting from application of the method and rules defined at national level,

- the **first characterisation** corresponds to the *initial characterisation* (for surface water and groundwater) required by the Directive. For this first characterisation, the water bodies identified in accordance with the national method can be aggregated (subject to compliance with the requirements of the Directive) or disaggregated (particularly when identifying *artificial* or *heavily modified water bodies*);

  This first characterisation of water bodies shall be conducted by the river basins.

- **more detailed characterisation** corresponds to the *further characterisation* of surface water and groundwater.

  As the 2004 inventory is the first one to be produced, more detailed characterisation of water bodies is not required at this stage. From a technical point of view, more detailed characterisation and definition of the corresponding *monitoring programmes* (cf. **Annex 16**) shall be started from 2004 if possible, so as to prepare identification of the *programme of measures* and definition of the *management plan*. The results of more detailed characterisation will not be recorded in the inventory report.

A water body is identified in order to meet four objectives:

- description of the aquatic environments;

- establishment of monitoring networks to monitor water status;

- definition of the water status objectives;

- definition of the actions required to meet the objectives of the Directive.

The water body is a unit of analysis and assessment.

Prior delimitation of water bodies complies with the methodological requirements of the Directive. Disaggregating a water body into several units is only permitted during the initial delimitation exercise in the following cases:

- the existence of significant differences in the type of usages and pressures exerted within the water body concerned, this disaggregation being judged necessary in order to identify the most locally appropriate *measures*;

- identification, within this water body, of a sufficiently significant heavily modified sector.

The impact of this disaggregation on the definition of monitoring networks should be analysed.

Care should be taken in all cases to ensure that this disaggregation:

- does not result in the production of too many water bodies;

- does not adversely affect a global vision of managing the resource, in particular from a quantitative point of view.

In addition, as pressures and impacts are likely to change over time, it is preferable if the disaggregation of groundwater bodies is based on physical limits in order to guarantee stability of the boundary definitions.

Annexes 5 to 8 cover the delimitation of inland surface waters, coastal waters, transitional waters and groundwater, and the identification of artificial water bodies and heavily modified water bodies. They report on the work of national groups by specifying:

- the methods used for the prior delimitation of water bodies and the products available. The principles to be followed when conducting the *initial characterisation* of surface water bodies and groundwater bodies are also described;

- the method for identifying artificial water bodies and heavily modified water bodies.

22 - the assignment of coastal water bodies and groundwater bodies to the district

Coastal water bodies and groundwater bodies shall be assigned to the most appropriate district, either on the basis of hydrological and hydrogeological characteristics, or in light of the origin of pollutants or the abstractions recorded.

In order to ensure consistency within the basin, a draft assignment of groundwaters and coastal waters to the various districts has been drawn up at national level, in consultation with water agencies and the river basin DIRENs.

The draft proposal on delimitation and assignment of groundwater and coastal water bodies was submitted to the river basins at the start of 2003.

In June 2003, after identification of pressures and impacts, the river basin committees will be able to re-examine the relevance of the assignments originally suggested.

23 - identification of artificial water bodies and heavily modified water bodies

For inland surface water, definition of the characteristics of the district shall include the identification of *artificial water bodies*. An artificial water body is designated when no natural body of water existed before its creation.

For inland water, transitional waters and coastal waters, **provisional identification** of *heavily modified water bodies* shall be conducted on the basis of technical criteria and usage criteria. This provisional identification shall specify the descriptive elements of the water body and its use as stipulated in **Annex 7**.

The *heavily modified* nature of these water bodies **shall be confirmed after 2004**, for preparation of the *management plan*, by carrying out the technical and economic analyses required by the Directive.

The provisional identification of *heavily modified water bodies* shall include local consultation, the geographical commissions of the river basin committees supporting this process. It is essential that the grounds for "provisional identification" are agreed upon by the various users. It is clearly understood that this agreement on the analysis of the current situation will not in any way prejudice the conclusions of additional analyses and debates on whether or not the modifications are irreversible, these debates taking place during preparation of the *management plan*.

If the additional technical analyses are started immediately after this provisional identification (that is, practically speaking from the start of 2004) in order to spread the workload from the years 2004 and 2005, they will not be recorded in the inventory document.

24 - analysis of pressures, impacts and water use

This analysis of *pressures*, impact and water *use* will be conducted as follows:

a/ collecting the data available on water usage, both from a technical and economic point of view. The tables in **Annex 9** show a list of the principal technical and economic data required. The data recorded during preparation of the SDAGE on water usage shall be updated and completed.
The inventory shall also include land-use maps. The principal urban, industrial and agricultural areas shall be identified.

b/ evaluating *pressures* on environments

The usages identified above cause pressure on environments. These are the "driving forces" behind these pressures.
The Directive requires that Member States collect and update information on the type and magnitude of significant anthropogenic pressures to which surface water bodies may be subject in each river basin district (cf. **Annex 10**).
Thus, domestic, industrial and agricultural point and diffuse inputs shall be identified, as well as the collection and purification levels already implemented.
Pressures also include the regulation of water courses, abstraction of water and significant morphological alterations undergone by water bodies.
The Directive specifies that this evaluation of pressures may be based on the information collected under various "water" sector directives.

c/ identifying impacts on the status of water bodies

The impact of pressures on the status of water bodies is evaluated. To this end, the Directive allows the possibility of not only using the results of environmental monitoring, but also modelling techniques and expert judgements.

In the absence of sufficient data on the quality of surface water, input models may be used. However, there is no obligation to use modelling when constructing the inventory.
For priority substances, and in the absence of data on the environment, risks shall be identified on the basis of known situations (relationship between pressures and environments).

d/ identifying *water use*

Usage of water and activities with a significant impact on water status shall be considered as *water use*. **Annex 12** further specifies the definition.
Missing data for the description of usage and pressures shall be recorded in order to contribute to definition of the data acquisition plan to be started on completion of the inventory.
Analysis of data and the formatting of presentation documents (maps in particular) shall be started, taking into account the recommendations of the "impacts and pressures" European group, and the methods for applying them defined by the national group.

At the same time, the SANDRE (French data reference center for water) and RNDE (French water data network) will define the data formats and national products to be completed (cf. **Annex 15**) in order to prepare the summary document that France must submit to the Commission by the end of March 2005 at the latest. This characterisation of usage and *pressures* shall be conducted firstly for the current situation, and secondly, for a "2015" hypothesis resulting from a baseline scenario constructed on the basis of land-use planning documents, the data available on sector-specific policies (transport, agriculture, etc.) and through application of various "water" sector directives. Construction of this baseline scenario is described in point 3 below.

25 - economic analysis of water use

The inventory document will provide economic data on water usage (cf. **Annex 9**). Under Article 9, water-pricing methods and investment funding channels shall be described, and application of the principle of recovery of the costs of water services reported on (cf. **Annexes 12 and 13**).

3 - The baseline scenario

The objective of this "baseline scenario" is to identify changing trends in the quality of environments in view of the decisions taken in the area of water policy and in different sectors (sector-specific policies and land-use planning). The Regions will be invited to submit the studies and documents available on land-use planning decisions and will be involved in the work.

31 - evaluating pressures and impacts in the year 2015

Construction of the baseline scenario (cf. diagram opposite[4]) shall include:

- analysis of changing trends in surface water and groundwater status over previous years;

- analysis and overview of documents on land-use planning;

  This involves the identification of environments subject to increasing anthropogenic pressures both through growth of populations and activities, and through development related to sector-specific policies (provision of services to urban areas, changes in crop growing, agricultural drainage, transport, etc.);

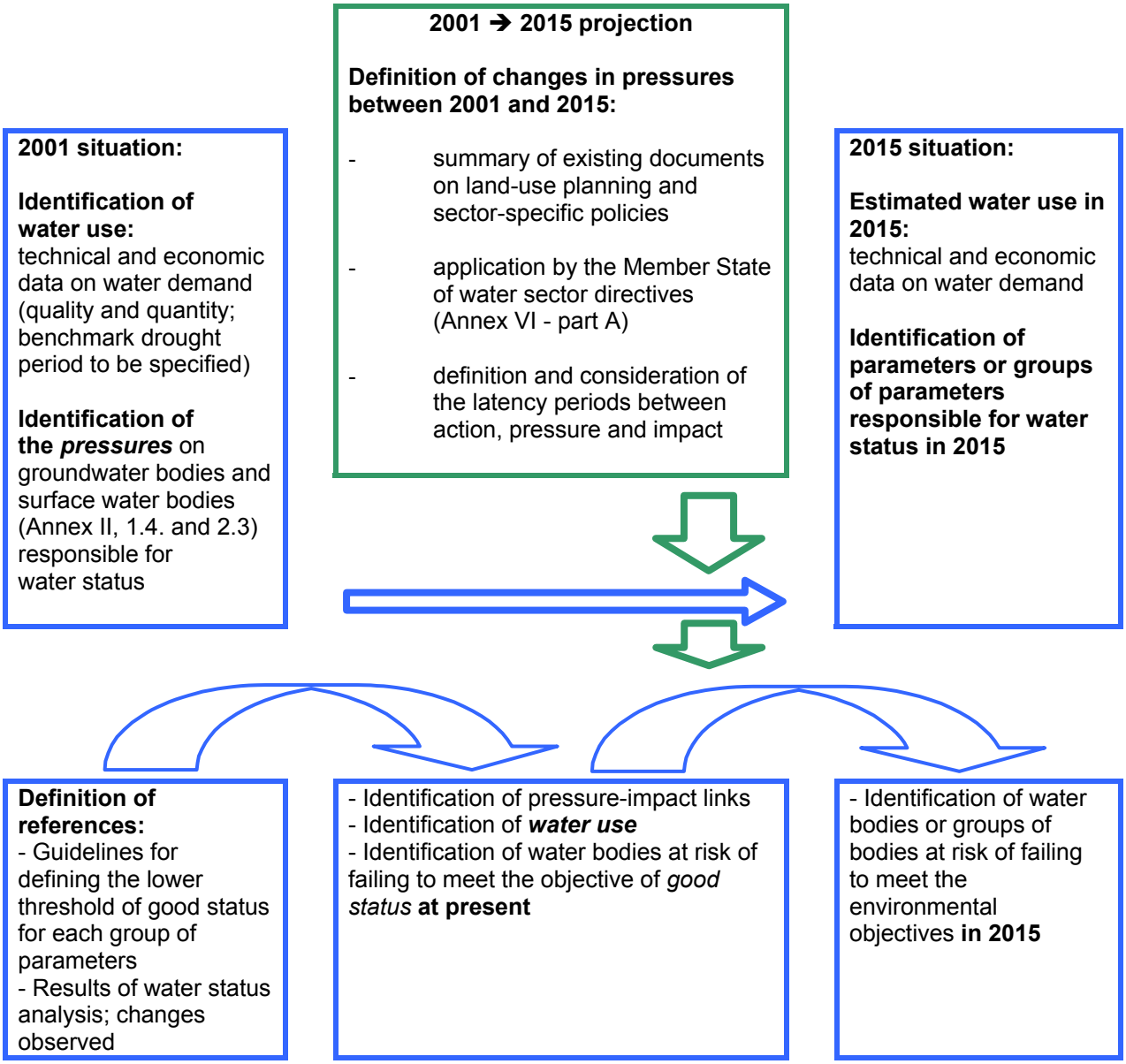
- definition of the impact of land-use planning and sector-specific policies on changing trends in pressures by the year 2015;

- evaluation of residual impact by the year 2015, following the application of European directives (Urban Wastewater Treatment Directive, Nitrates Directive in particular) or any other action plan defined locally (SAGE, river contracts, etc.). Only actions already decided on, or which are an extension of decisions already taken, shall be taken into consideration. Production of a detailed timetable for implementation of the actions planned is not required, but simply an "overview" of the estimated situation in 2015.

[4] The data necessary for defining the current situation is from the year 2001, or if unavailable, from previous years.

Construction of the baseline scenario 2001-2015

Diagram showing the method used



Use of forecasting techniques is not necessary for the construction of this 2015 estimate. However, once the "2015 baseline scenario" has been defined, that is, on completion of the inventory, identification of the different options possible for achieving the 2015 objectives may make use of these forecasting techniques.

The baseline scenario shall define a forecast situation for the year 2015. Given the difficulty of accurately forecasting economic activity more than 3-4 years away, it is unlikely that the baseline scenario will materialise as predicted. By making the connection between land-use planning, activities, pressures and impacts, the baseline scenario will, however, be a helpful reference document which can be used to identify the direction followed, and to diagnose at a later date, if necessary, the reorientation required once the reality of the situation has been taken into account.

To this end, the baseline scenario is one of the tools necessary for implementation of the water management process stipulated in the Directive.

32 - identifying the risk of failure to meet the objectives

This issue will be further developed during the first half of 2003. The initial approach will be to identify those water bodies or groups of bodies at risk, in 2015, of either experiencing a deterioration in their status, or of failing to meet the objectives of *good status*.

To carry out this work, the initial elements for evaluating the *good status* of water are given in **Annexes 3 and 4**.

These initial guidelines will be completed during 2003 as the European work on definition of *good status* progresses.

The risk of divergence from the status objectives set shall be identified for each major category of parameter used to define *good status*:

- for surface water
  - the biological indices available;
  - the principal *physico-chemical parameters supporting the biological quality of environments* and in particular organic pollutant and nutrient content;
  - the content of *priority substances* characterising the *chemical status* of the water. In the absence of local analytical results, the risks shall be identified through analysis of comparable situations in terms of pressures and environments. The presence of activities using these substances will not be a sufficient reason for identifying a risk of non-compliance with the objectives set;
- for groundwater: the vulnerability of the water body, surface pressures and the results of quantitative and qualitative measurement networks.
- for coastal waters: the data on eutrophication of water will be one of the first useable areas of data for identifying the risk of failure to achieve *good status*.

The results shall be presented for each water body or group of bodies using tables to identify the "driving forces" and their development over time, as well as, firstly, the risk of deterioration, and secondly, the risk of divergence from the objectives, both now and by the year 2015. An example of a summary table is shown in **Annex 11**. This method of

presenting the results shall be specified by the relevant national groups (groundwater, coastal waters and inland surface water) in order to secure a homogeneous methodology at national level by the second quarter of 2003.

4 - Reporting on application of the principle of recovery of costs

The inventory report shall record the methods for applying the principle of recovery of costs. This will involve conducting an assessment of:

- the provisions in force for water pricing in the different economic sectors;
- the funding of investment, operational and renewal costs of water services in order to define the costs and prices of these services;
- the impact of pollution and water abstraction on the costs of services in accordance with the polluter pays principle.

This analysis shall be conducted for the current situation.

Annex 13 describes the calculation methods and the products required.

To sum up,

The presentation report on the *characteristics of the river basin district* shall include the following elements:

- delimitation of water bodies, including identification of *artificial water bodies* and provisional identification of *heavily modified water bodies*;

- analysis of usage (technical and economic data), pressures and their impact on environments, and identification of *water use*;

- analysis of pricing practices and the recovery of the costs of services;

- definition of the baseline scenario;

- identification of water bodies or groups of bodies at risk of not achieving the objectives set by the Directive for 2015.

This document, together with the analysis of implementation of the SDAGE, will be used to provide information to the public in the second half of 2004.

In the second half of 2004, the river basin committee

- shall organise a public information exercise on the inventory;

- on the basis of the inventory and the SDAGE analysis, shall conduct an initial identification of the significant water management issues raised in the river basin, their scale of analysis, and the organisation and work timetable for updating the SDAGE.

- shall submit this initial identification of significant issues and the work programme to the regional councils, general councils, regional economic and social councils, and council assemblies for feedback;

- shall draw up the first action plan (2005-2006) for upgrading the data.

From 2005, the river basin committee

- can conduct the first two public consultations simultaneously on the work timetable and on the significant water management issues identified in the river basin, this timetable being adapted in the international districts, in consultation with the district authorities appointed by neighbouring European countries.

Chapter 4 - Registers of protected areas

Article 6 of the Framework Directive requires that, in each district, Member States shall establish "a register or registers of all areas lying within each river basin district which have been designated as requiring special protection **under specific Community legislation** for the protection of their surface water and groundwater or for the conservation of habitats and species directly depending on water".

In addition, Article 11 (point 3(e)), requires that, under the *basic measures* defined, Member States establish a *register or registers of water abstractions*.

1 - Register of protected areas

1.1 - General guidelines

The ***register or registers of protected areas*** shall be completed by the end of 2004. The Directive stipulates that they be regularly re-examined and updated within each district, without specifying the methods to be used, or the frequency of updating.

The purpose is to list protected areas which are covered by statutory water-related provisions of Community legislation drawn up prior to the Framework Directive.

The content of the register is defined by Article 6 of the Framework Directive which refers to Article 7 and Annex IV.

The protected areas are:

- water bodies used for the abstraction of water intended for human consumption providing more than 10m^3 a day or serving more than 50 persons, together with those intended for such future use;
- areas designated for the protection of economically significant aquatic species;
- water bodies designated as recreational waters, including areas designated as bathing waters under Directive 76/160/EEC;
- nutrient-sensitive areas, including areas designated as vulnerable zones under the Nitrates Directive (91/676/EEC) and areas designated as sensitive under Directive 91/571/EEC;
- areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant Natura 2000 sites designated under Directive 92/43/EEC and Directive 79/409/EEC.

The summary version of the register shall include a *description of the Community, national or local legislation* under which each area has been designated.
A European directive can only come into force once it has been transposed into the national law of each Member State. These transposition documents shall be

indicated for each protected area included in the register, in accordance with the requirements of the directives cited in Annex IV.

This stipulation does not imply the inclusion in the register of all areas and water bodies covered by the national and local regulations of each Member State. The laws of each of the Member States remain applicable independently of the Framework Directive.

For the first *register of protected areas*, the **zoning designated under European laws shall therefore be used**.

The registers shall be regularly updated in each district.

1.2 - Methodology

The registers of protected areas shall be established under the authority of the river basin co-ordinator prefects. The latter shall define the process for constructing the registers of protected areas, the river basin committee being informed of progress on the work.

Given the diversity of the areas concerned, and the current existence of products meeting this requirement of the Framework Directive (mapping of administrative areas of the RNDE, Natura 2000 maps, etc.), several registers could be constructed; a register of registers identifying the various products and indicating how to access them (with inclusion of links between servers) could also be set up.

A test was conducted on the Loire-Brittany basin in order to specify:

- organisation of registers of statutory zoning (identification of existing data, of its status, mapping, analysis of difficulties etc.);

- organisation of the register of water bodies used to supply drinking water (current and future);

- organisation of the register of recreational water bodies;

- general organisation of the registers (organisation of information channels, database management, identification of resources, management of access to different registers, etc.).

When this test was conducted, answers were provided to most of the questions raised. For each of the themes cited below, methodological data sheets describing the nature of the area, the legislation, the data source, its paper or electronic status, the difficulties of mapping representation, etc. were produced. These are available on the site www. environnement.gouv.fr/centre

• *Water bodies used for the abstraction of water intended for human consumption providing more than 10m^3 a day or serving more than 50 persons.*

Abstractions of groundwater or intakes of surface water shall be identified which match the definition of the Framework Directive, that is, providing more than 10m^3 a day or serving more than 50 persons.

The data is available in the SISE-EAUX (Health and environment information system) database of the Ministry of Health. Large-scale revision of the location co-ordinates of abstraction points is currently underway. In the future, for groundwater abstractions, data will be available from the ADES (Access to data on groundwater) databank.

Given the confidential nature of the location of drinking water abstraction points, it is requested that the presence of abstractions be indicated at the level of the “commune” without giving the specific co-ordinates of the point.

• *Water bodies intended for future drinking water supplies.*

There is some data in the SDAGEs (e.g. water tables intended for drinking water supplies), but there is no European legislation on the subject and most of these areas do not benefit from statutory status, even under French law. In addition, the identification criteria vary significantly from one basin to another.

Considerable work therefore remains to be done in terms of each river basin, or “département”, in order to define or confirm these areas after local consultation.

As a result, the registers of protected areas will include water bodies intended for future drinking water supplies explicitly designated as such in the SDAGE in the context of a given water strategy. Additional proposals, if required, could be made at a later date, when the SDAGEs are updated and new SAGEs on drinking water are prepared.

• *Areas designated for the protection of economically significant aquatic species.*

This refers to areas in which shellfish are both cultivated and occur naturally for industrial fishing or recreational fishing.

The only sectors known are those subject to sanitary monitoring and those which are monitored by IFREMER (French research institute for exploitation of the sea). Data is available in the RNDE for a certain number of “départments”. For those with no data, it shall be collected from the Departmental Divisions of Maritime Affairs (DDAM): shellfish areas are designated by prefectorial order following a proposal by the Departmental Director of Maritime Affairs and after feedback from the Departmental Division of Health (DDASS).

Shellfish can also be collected, on a very occasional basis, outside these listed areas and sanitary inspections are also conducted,

For the first register of protected areas, it is suggested that only those areas which have been designated by prefectorial order and which are listed be used, with subsequent validation of OIEau (International office for water) data required in the field. This means that the zoning is that of the register of shellfish kept updated by the DDAM, and which is mapped onto the sanitary inspections points. The areas classified A, B, C and D shall be considered, as these environments are expected to recover.

For the other sectors, further work is required to complete the register.

• *Water bodies designated as recreational waters, including areas designated as bathing waters under Directive 76/160*

The "Bathing" Directive is currently being revised to include recreational areas. It is therefore suggested that for the time being these recreational areas are not mentioned in the *register of protected areas*, and instead this subject is worked on within the river basins, in collaboration with the Health Ministry, so as to make progress within the context of the new Bathing Directive.

With regard to bathing waters, as application of the Directive does not give rise to zoning, only the location of measurement points for sanitary monitoring is known. It is therefore suggested that these points be transposed onto maps of the districts, while distinguishing between them in order to identify bathing in rivers, water bodies and the sea. Authorised and tolerated bathing sites can therefore be mentioned, provided that they are subject to monitoring.

Data is available on the SISE bathing database of the Ministry of Health. However, it is often the sanitary inspections points which are recorded and the Lambert co-ordinates are not always given. The OIEau also has a database on coastal bathing areas and on the inland waters of the Adour-Garonne river basin but it has the same weaknesses.

• *Nutrient-sensitive areas, including areas designated as vulnerable zones under the Nitrates Directive (91/676) and areas designated as sensitive under Directive 91/571*

Data is available on the different internet sites of the Ministry of the Environment and Sustainable Development, the water agencies and the DIREN.

• *Areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant Natura 2000 sites designated under Directive 92/43 and Directive 79/409*

Relevant Natura 2000 sites

The criteria used to select the Natura 2000 sites appearing in the register are used at national level with the assistance of the National Museum of Natural History and in consultation with the river basins.

To do this, the following actions are planned at national level:

- to use a list of wetland habitats which was drawn up for a study on wetland areas, this being completed by aquatic habitats and species habitats;

- to set a threshold for taking sites into account;

- and on this basis, to extract a number of sites from the total number of sites put forward by France with the assistance of the Museum.

This exercise can be completed during the first quarter of 2003. The map thus obtained will appear in the analysis of implementation of the SDAGE under the actions proposed for the preservation of wetland areas.

The register of protected areas will only mention the Natura 2000 sites designated by the Commission, and not the draft sites proposed by France to the Commission,

The preparatory documents for the construction of registers of protected areas shall distinguish between two categories:

Natura 2000 areas which have been already designated (procedure completed). These will be part of the first *register of protected areas* in the same capacity as Specially Protected Areas;

The Natura 2000 areas notified to the Commission requiring integration into future updates of the registers (after designation). These will appear in the annex.

It is highly probable that no Natura 2000 sites will have yet been officially designated by Europe in 2004. The only areas which could then be listed are the Specially Protected Areas (Birds Directive) which follow another procedure and which have already been designated.

Water courses designated under the Directive of 18 July 1978

This Directive concerns the quality of waters requiring protection or improvement in order to support fish life. The Directive was transposed into national law by decree n° 91-1283 of 19 December 1991 and by the order of 26 December 1991. This Directive requires that water courses be designated at departmental level by prefectorial order.

This designation has been carried out in some “départments”. These water courses concern in particular the Adour-Garonne river basin (11 “départments”) and, to a lesser extent, the Loire-Brittany and Seine-Normandy basins (2 “départments”), as well as Artois-Picardie and Rhone-Mediterranean-Corsica (1 “département”).

These designated water courses shall be included in the register of protected areas.

1.3 - Other natural environments

Other natural environments which do not benefit from European statutory protection shall be mentioned and identified in the SDAGEs (nature reserves, open spaces in the SDAGEs, wetland areas, etc.). They shall be updated in the context of the procedure for updating the SDAGEs.

These environments will not be recorded in the register of protected areas, but they shall be taken into account when drawing up the management plans and programmes of measures under the WFD (environmental objectives, definition of good status, etc.). Examples are wetland areas and migratory fish.

Regarding wetland areas, the Directive does not explicitly require that they be recorded in the register of protected areas but it does underline their importance several times. One of the primary objectives of the Directive is to prevent any further deterioration, to protect and enhance the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on aquatic ecosystems (Article 1). To do this, the programme of measures could include measures to rehabilitate and restore wetland areas. The Framework Directive mentions wetlands as areas for the protection of habitats and species, but it should be reaffirmed that they play a major role in water management (hydraulic regulation, natural purification, etc.).

2 - Register of water abstractions

Under Article 11.3(e), *a register or registers of water abstractions* shall be established by the end of 2009. These registers are considered to be a "basic measure". Although no details are given on the content and updating of registers of abstractions, the link made with the application of monitoring implies continuous updating. This includes all abstraction of water.

For trans-boundary groundwater bodies, the register of abstractions shall be established on completion of the initial characterisation of the district i.e. just after 2004. The timetable for construction of this register shall be examined with the *competent authorities* of the relevant countries, as the international commissions do not currently deal with the area of groundwater.

Chapter 5 - Products and timetables

1 The products required for the inventory

Article 5 does not specify the documents and maps required for the inventory.

These can, however, be partially identified from Annexes II and VII which cite the elements required for the general description of the characteristics of the district.

Although Annex VII provides information on the products to be completed for the *management plan*, the products required for the inventory should be defined in view of the elements requested and of the logic of the construction process imposed by Articles 5 and 9.

The following are therefore required to characterise surface water:

- a map showing the location and limits of the water bodies. Annex II 1.1 vi also specifies that a map of the location of water bodies according to their type shall be submitted to the Commission;

- a map showing the different types of surface water body in the river basin district and the relevant ecoregions (maps A and B of Annex XI of the Directive);

- documents describing pressures, with estimated point and diffuse source pollution, including a description of land use;

- documents describing quantitative pressures (abstractions, transfers, recharging);

- documents describing the impact of human activities on water status.

Annexes II and VII also identify the elements to be produced for groundwater in the inventory (location and limits of water bodies under Annex VII, estimated point and diffuse source pollution, analysis of the impact of activities on water status, identification of surface water ecosystems and terrestrial ecosystems directly dependent on the status of groundwater bodies etc.). These elements shall be included for each body of groundwater in the initial characterisation sheet.

Annex 15 shows the list of products required by the Framework Directive. These shall be included in the summary dossier to be submitted by France to the Commission after approval of the inventory documents by the river basin committees.

This summary dossier shall be submitted for feedback to the Interministerial Water Mission (MIE) and to the National Water Committee (CNE) during the first quarter of 2005.

During the course of 2003, and at the same time as the work conducted within the river basins, the SANDRE and RNDE will define, in collaboration with the technical groups which worked on the designation of water bodies and their characterisation, and using the work carried out by the river basins:

- the data formats required;

- the products required (cf. **Annex 15**).

For the French portions of international districts, standardisation of maps at the level of the international district shall take precedence over national standardisation. The basic data shall, however, be in SANDRE format, or be translatable into SANDRE format in order to allow the creation of products from the national summary.

The summary RNDE products on the inventory are designed to be integrated into the performance indicators of the SDAGEs.

2 The interim timetables for the principal work

The following pages show:

- a general schedule for 2002-2005;
- project sheets showing the principal deadlines to be complied with when constructing the elements required for the inventory.

These elements are as follows:

1. delimitation of districts and assignment of groundwater and coastal water bodies;
2. definition of the methods used to evaluate the status of surface water bodies;
3. definition of the methods used to evaluate the status of groundwater bodies;
4. analysis of district characteristics: delimitation of water bodies (including artificial and heavily modified water bodies), evaluation of pressures and impacts;
5. construction of the baseline scenario;
6. calculation of recovery of costs by category of user;
7. construction of the *register of protected areas*;
8. information and consultation;
9. transposition and notification to the Commission.

These interim timetables will be completed by the national working groups appointed for this purpose and periodically updated.

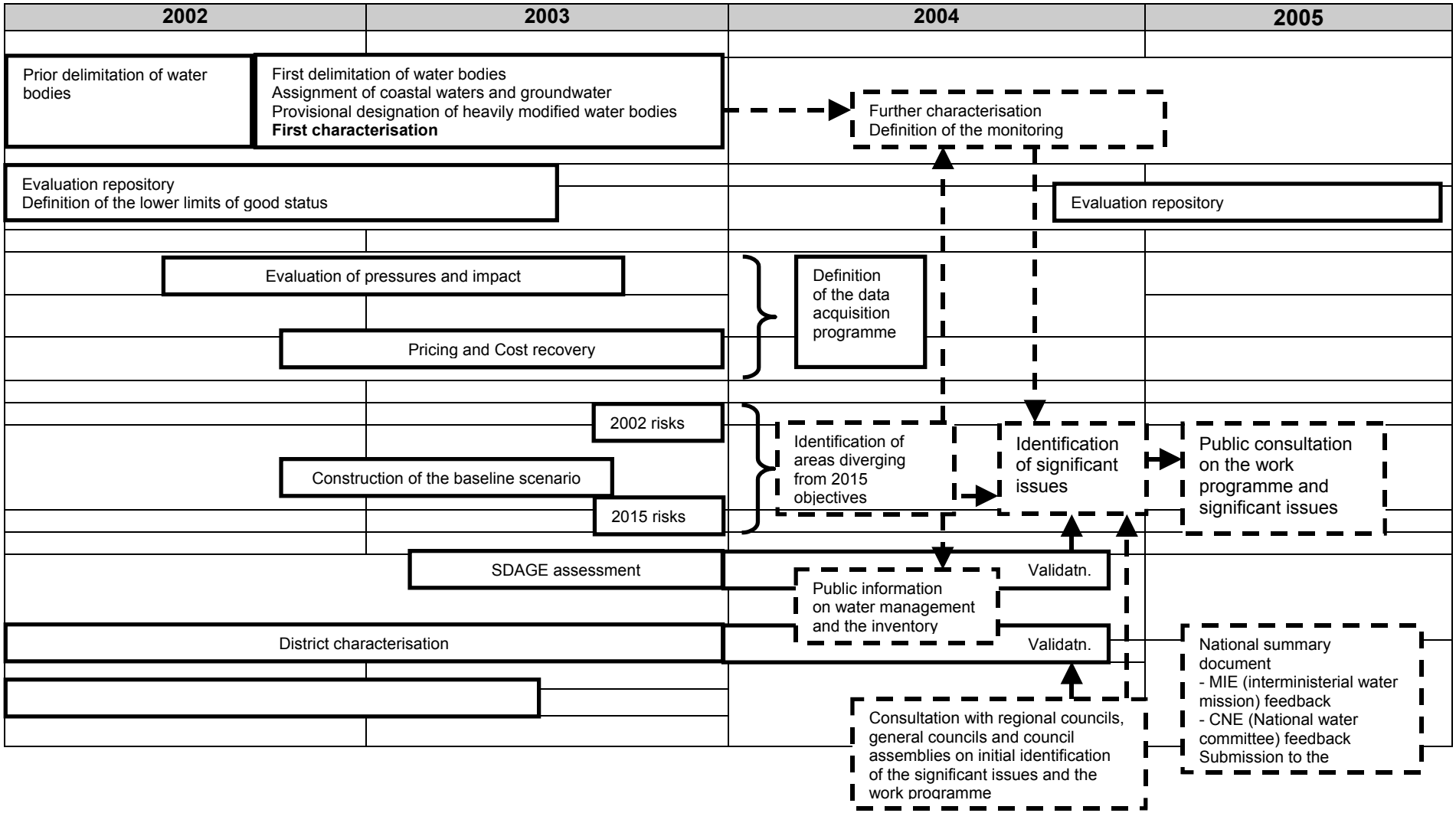
They can be accessed on the Intranet site of the Water Department.

These timetables shall be broken down for each district, in order to guarantee the general consistency of the process and the correct sequencing of tasks.

The consultation process within the river basin committee and the information process aimed at wider audiences and the public in general, shall be specified.

The work timetables for the river basins will be communicated to the Water Department, to ensure consistency with the work undertaken at European and national levels.

General timetable for construction of the inventory



CONSTRUCTION OF THE INVENTORY DOCUMENTS
Provisional timetable

1 Delimitation of districts and assignment of groundwater and coastal water bodies

2 Definition of the methods used to evaluate the status of surface water

21 - definition of the reference conditions of high status and maximum ecological potential for surface water
22 - definition of the evaluation criteria of good status by typology
23 - definition of the intercalibration network

3 Definition of the methods used to evaluate the status of groundwater

4 Analysis of district characteristics

41 - delimitation and characterisation of water bodies
42 - evaluation of pressures and impacts

5 Construction of the baseline scenario

6 Calculation of recovery of costs of services

7 Construction of the register of protected areas

8 Information and consultation

9 Transposition and notification to the Commission

Project sheet 1 - Delimitation of districts

COMPLETED ACTION	DEADLINE	EXECUTION BY	DOCUMENT
Guidelines for the delimitation of districts (definition of river sub-basin groupings)	February 2002 May 2002	Water Department Water Department	Instruction of 12 February 2002 and map of districts National Steering Committee of 22 May 2002
Guidelines for the assignment of groundwater and coastal waters	May 2002	Water Department	National Steering Committee of 22 May 2002

FUTURE ACTION	DEADLINE	EXECUTION BY	TRANSMISSION TO
Initial method for delimiting districts or national portions of international districts (metropolitan France)	End of January 2003	Water Department	River basin DIREN and water agencies
Identification and recording of pressures close to the set limits Draft delimitation of districts	May 2003	River basin DIREN and water agencies	Water Department via the river basin co-ordinator prefect
Feedback on draft delimitation of districts and any proposed changes to the assignment of groundwater and coastal waters in light of the origin of pressures	June - July 2003	River basin committees (metropolitan France)	Water Department via the river basin co-ordinator prefect
Feedback on modification of the administrative delimitation of the water agency administrative divisions	June - July 2003	River basin committees (metropolitan France)	Water Department

Project sheet 1 (continued) - Delimitation of districts

FUTURE ACTION	DEADLINE	EXECUTION BY	TRANSMISSION TO
Draft legislation completing transposition of the Directive	September 2003	Water Department	
Summary of feedback and presentation of the draft delimitation of districts and assignments	October 2003	Water Department	National Water Committee
Statutory definition - of the codification of water bodies - of sub-basin groupings and assigned groundwater and coastal waters - of district limits	December 2003	Water Department	Official Journal
Notification to the Commission of the geographical areas of the districts	December 2003	Ministry of Ecology and Sustainable Development (MEDD)	Environment DG

Project sheet 2 - Definition of the methods used to evaluate the status of surface water (rivers, lakes, heavily modified water bodies)

21 - definition of the reference conditions of high status and maximum ecological potential for surface water

FUTURE ACTION	DEADLINE	EXECUTION BY	TRANSMISSION TO
Summary of the data available on the draft reference sites, identification of the need for new data	June 2003	Water agencies and DIREN	
List of reference sites with high status or maximum ecological potential by type of water body	December 2003	Water Department, water agencies and DIREN	European Commission
Reference conditions of high status or maximum ecological potential by type of water body	December 2006	Water Department, water agencies and DIREN	European Commission

Project sheet 2 - Definition of the methods used to evaluate the status of surface water (rivers, lakes, heavily modified water bodies)

22 - definition of the evaluation criteria of good status by typology

COMPLETED ACTION	DEADLINE	EXECUTION BY	DOCUMENT
Contribution to defining the risk of failure to achieve good status: methodology for "natural environment" data	December 2002	Water Department (working groups) In consultation with water agencies, DIREN and experts.	Methodological briefing note
General guidelines for the definition of good status (chemical status and ecological status)	December 2002	Water Department (working groups) In consultation with water agencies, DIREN and experts.	

FUTURE ACTION	DEADLINE	EXECUTION BY	TRANSMISSION TO
Draft classification of "good status" or "good potential" by type of water body	September 2003	Water Department (working groups) In consultation with water agencies, DIREN and experts.	Water agencies and DIREN
Draft system for evaluating the status of water bodies	December 2003	Water Department (working groups) In consultation with water agencies, DIREN and experts.	Water agencies and DIREN
Draft environmental quality standards?			
Testing of draft evaluation systems	2003 - 2004	Water agencies and DIREN	

Project sheet 2 - Definition of the methods used to evaluate the status of surface water (rivers, lakes, heavily modified water bodies)

23 - definition of the intercalibration network

FUTURE ACTION	DEADLINE	EXECUTION BY	TRANSMISSION TO
Selection of the intercalibration sites	June 2003	Water Department, water agencies and DIREN	
Publication of the provisional register of intercalibration sites	December 2003	European Commission	
Publication of the definitive register of intercalibration sites	December 2004	European Commission	
Performance of the intercalibration exercise	2005 to June 2006	Water agencies and DIREN	
Results of the intercalibration exercise	December 2006	Water agencies and DIREN	

NB: definitive system for evaluating good status not available before 2007

Project sheet 3 - Definition of the methods used to evaluate the status of groundwater

COMPLETED ACTION	DEADLINE	EXECUTION BY	DOCUMENT
Guidelines for the definition of good status (chemical status and quantitative status) Proposals of the Commission for the "groundwater" daughter directive	December 2002		

FUTURE ACTION	DEADLINE	EXECUTION BY	TRANSMISSION TO
Consultation of experts and partners on the methods for evaluating the risk of failure to meet the environmental objectives	January to April 2003	Water Department (working groups)	
Definition of the risk evaluation method	April 2003	Water Department	Water agencies and DIREN
Publication by the Commission of a draft daughter directive	March 2003	Commission (Environment DG)	
Draft definition of the objectives to be reached for groundwater: • good chemical and quantitative status • prevention and limitation of the introduction of pollutants • non-deterioration and reversal of upwards trend	September 2003	Water Department	

Project sheet 4 - Analysis of district characteristics

41 - delimitation and characterisation of water bodies

COMPLETED ACTION	DEADLINE	EXECUTION BY	DOCUMENT
Inland surface waters			
- Method for prior delimitation of surface water bodies (freshwater)	September 2002	Water Department (in collaboration with water agencies, river basin DIREN, experts, etc.)	CEMAGREF (Institute for agricultural and environmental engineering research) study report on hydro-ecoregions and typologies European guidance document on delimitation of water bodies
- Identification method for artificial water bodies	December 2002	Water Department (in collaboration with water agencies, river basin DIREN, experts, etc.)	Update of the inventory guide HMWB European guidance document
- Identification method for heavily modified water bodies (inland water, coastal and transitional waters)	December 2002	Water Department (in collaboration with water agencies, river basin DIREN, experts, etc.)	Update of the inventory guide HMWB European guidance document
Coastal and transitional water bodies			
- Method for prior delimitation of coastal and transitional water bodies; typology of water bodies	December 2002	Water Department	IFREMER reports
- Definition of assignment districts			
Groundwater bodies			
- First method for delimitation of groundwater bodies and delimitation tests	December 2001	Water Department, water agencies, river basin DIREN	

Project sheet 4 - Analysis of district characteristics

41 - delimitation and characterisation of water bodies (continued)

FUTURE ACTION	DEADLINE	EXECUTION BY	TRANSMISSION TO
Inland surface waters			
- Application of the method for prior delimitation of surface water bodies (freshwater)	June 2003	Water agencies and river basin DIREN	
- Briefing note on the method for prior delimitation of surface water bodies; results of application to river basins	June 2003	Water Department (in collaboration with river basins)	
- Delimitation and first characterisation of surface water bodies, delimitation and characterisation of artificial water bodies, provisional identification of heavily modified water bodies (inland surface water, coastal and transitional waters)	December 2003	Water agencies and river basin DIREN	

Project sheet 4 - Analysis of district characteristics

41 - delimitation and characterisation of water bodies (continued)

COMPLETED ACTION	DEADLINE	EXECUTION BY	DOCUMENT
Groundwater bodies			
- Guide on prior delimitation of groundwater bodies	January 2003	BRGM (Geological and mineral research office), Water Department, water agencies, river basin DIREN	Water agencies and DIREN
- Briefing note on the method for prior delimitation of surface water and groundwater bodies; results of application to river basins	January 2003	Water Department (in collaboration with river basins)	
- Draft assignment of trans-district groundwater bodies	June 2003	Water agencies and river basin DIREN	Presentation to river basin committees
- Delimitation and initial characterisation of groundwater bodies - Delimitation and initial characterisation of coastal and transitional water bodies - Delimitation and first characterisation of surface water bodies - Delimitation and characterisation of artificial water bodies - Provisional identification of heavily modified water bodies	December 2003	River basin committees (water agencies and river basin DIREN)	

Project sheet 4 - Analysis of district characteristics

42 - evaluation of pressures and impacts

COMPLETED ACTION	DEADLINE	EXECUTION BY	DOCUMENT
Publication of guidelines (methods and tools) for the evaluation of pressures related to pollution, abstraction and modification of flow regimes	February 2003	Water Department	European guidance document Study report

FUTURE ACTION	DEADLINE	EXECUTION BY	TRANSMISSION TO
Identification of pressures for each river basin	December 2003	Water agencies and river basin DIREN	
Feedback on the methods and tools used	March 2004	Water Department	

Project sheet 5 - Construction of the baseline scenario (2002 / 2015 projection)

COMPLETED ACTION	DEADLINE	EXECUTION BY	DOCUMENT
Tests conducted	September 2002	Water agencies	Study report on the Oise river basin Report on economic analysis tests on the Sèvre Nantaise river basin Report on the definition of disproportionate costs; case of Alsace water table
Definition of methodology	December 2002	Water Department	Update of the inventory guide

FUTURE ACTION	DEADLINE	EXECUTION BY	TRANSMISSION TO
Identification of likely changes in water status based on data from previous years	June 2003	Water agencies and river basin DIREN	
Summary of guidelines from land-use planning documents	June 2003	Water agencies, river basin DIREN, regional DIREN	
Assessment of prospects for implementation of "water sector" directives	June 2003	Water agencies, river basin DIREN (consultation as required with regional DIREN and MISE (Interdepartemental water mission))	
Finalisation of the baseline scenario of pressures and impacts by the year 2015 Prediction of changes in water supply and demand	Autumn 2003	River basin DIREN and water agencies	River basin committee
Identification of water bodies at risk of deterioration or of failing to meet the 2015 objectives	December 2003	Water agencies and river basin DIREN	River basin committee

Project sheet 6 - Calculation of recovery of the costs of services

COMPLETED ACTION	DEADLINE	EXECUTION BY	DOCUMENT
Availability of technical and economic data on water usage	June 2002	Water agencies, DIREN, OIEau	Test on the Scheldt river basin Availability of data for economic analysis (OIEau report)
Definition of methods to calculate recovery of the costs of services by category of user - Identification of data - Identification of the method - Test on the Loire-Brittany river basin - Specifications on the use of national statistical data - Identification of additional surveys - Draft values table	December 2002	Water Department and IFEN (Frencj institute for the environment)	Study report on calculation of the recovery of costs in the Loire-Brittany river basin Report on the work of the Economics RNDE group

FUTURE ACTION	DEADLINE	EXECUTION BY	TRANSMISSION TO
Estimation of the volumes, prices and costs associated with water usage (Art. 5) - Collection of the data available - Additional surveys and analyses - Definition of missing data	June 2003 Year 2003 End 2003	Water agencies	
Identification of investment funding channels (Art. 9) - 2001 data	End 2003	Water agencies and IFEN	

Project sheet 6 - Calculation of recovery of the costs of services (continued)

FUTURE ACTION	DEADLINE	EXECUTION BY	TRANSMISSION TO
Summary of pricing provisions in force (Art. 9) - Summary of the data from the IFEN-SCEES 1998 survey on the pricing provisions in force (by district) - Acquisition of additional data on pricing for non-domestic users	June 2003 End of 2003	Economics RNDE Water agencies	
Identification of the costs of protective and curative measures (Art. 9) - Summary of the data available - Acquisition of additional data	June 2003 April 2004	Economics RNDE	
Calculation of recovery of the costs of services by district and by category of user (Art. 9) - Use of national statistical data - Report by district	June 2003 December 2003	Water Department (Economics RNDE) Water agencies	
Evaluation of non-industrial damage (Art. 9) - 1st database - Data acquisition	April 2003 From 2003 to 2005	Water Department and Department of the Environment Economics RNDE	

Project sheet 7 - Construction of registers of protected areas

COMPLETED ACTION	DEADLINE	EXECUTION BY	DOCUMENT
Test on the Loire-Brittany river basin	September 2002	Loire-Brittany river basin DIREN	Study report
Examination of the test results and proposal of sectors to be taken into account	December 2002	Water Department	Update of the inventory guide

FUTURE ACTION	DEADLINE	EXECUTION BY	TRANSMISSION TO
Selection of criteria to be taken into account for the Natura 2000 sites and proposal of a national list of sites	June 2003	Water Department, DNP (department for nature and the countryside), river basin DIREN In collaboration with the National Museum of Natural History	
Data collection and construction of the registers of protected areas	September 2003	River basin DIREN(s) In collaboration with water agencies, DRASS and DDASS, DRAM and DDAM, MISE, IFREMER, IFEN, OIEau, etc. Support of RNDE etc.	

Project sheet 8 - Information and consultation

COMPLETED ACTION	DEADLINE	EXECUTION BY	DOCUMENT
Analysis of methods and tools (existing provisions in France and Quebec, DK, NL survey)	October 2002	Water Department - Department of the Environment	*Recherche Développement International* study report; example of practices; Training course dissertation on the CNDP
Consultation on the draft European guide on public participation	December 2002	Water Department, river basin DIREN and water agencies	Summary report

FUTURE ACTION	DEADLINE	EXECUTION BY	TRANSMISSION TO
Briefing note on public participation	April 2003	MEDD in consultation with river basin committees	
Preparation of the inventory; consultations with the local partners	From beginning 2002 to March 2004 (procedures and deadlines to be determined by the river basin committees)	River basin committee	
Informing the public on the inventory	2nd half of 2004	River basin committee	
Consultation of regional councils and general councils on the initial identification of significant issues and the work programme	June - October 2004	River basin committee	
Summary of observations and feedback	November 2004	Water agencies and river basin DIREN	River basin committee
Adoption of the inventory report	December 2004	River basin committee	River basin co-ordinator prefect

Project sheet 9 - Transposition and notification to the Commission

COMPLETED ACTION	DEADLINE	EXECUTION BY	DOCUMENT
Presentation of the transposition draft bill to the National Water Committee	19 November 2002		Draft bill Report on debates

FUTURE ACTION	DEADLINE	EXECUTION BY	TRANSMISSION TO
Presentation of the transposition bill to Parliament	2003		
Preparation of draft decrees and application instructions	2003	MEDD	
Notification of the intercalibration sites to the Commission	End of 1st half of 2003	MEDD	(end of 2003: publication of the draft register of intercalibration sites by the Commission)
Submit the transposition legislation to the Commission	From transposition	MEDD (SGCI)	
Notification of district divisions and *competent authorities* to the Commission	June 2004 at the latest		
Submit the summary reports on district characterisation to the Commission	March 2005 at the latest	MEDD (SGCI)	

List of annexes:

Annex 1 - European strategy for implementation of the Framework Directive

1) Reminder of the context

The desire to strengthen European co-operation in the water sector and the complexity of the Water Framework Directive have led Water Directors to set up an original informal process, aimed at producing a Common Implementation Strategy (CIS) of the Directive, through collaboration between the Member States and the Commission. To do this, they have created working groups to examine the most significant issues requiring clarification in order to secure a common interpretation of the legislation. These are established by agreement between the Member States and the Commission. The working groups are led by one Member State (sometimes two).

The objective of the groups is to produce guidance documents.

2) Scope of the documents

The guidance documents shall be made available to Member States and used by them to implement the Directive. A reflection of the shared vision of the Commission and the Member States on the Framework Directive, they will provide useful information for effective application of the Directive.

Although they do not have any specific legal value, the Commission will certainly refer to them in the event of litigation regarding implementation of the Directive. Member States applying a method other than that recommended will have to prove that the method they have chosen is at least as effective in achieving the objectives of the Framework Directive. The Commission could also refer to these documents in the context of a contentious procedure.

3) The mechanism

- The mechanism is run by the **Water Directors** of the Member States and the head of the Water Unit at the European Commission. They meet every six months during each presidency of the EU. The Water Directors of candidate countries, and those of Norway and Switzerland, are also now an integral part of the process, following the meeting held on November 2002.

- The **strategic co-ordinnation group** (SCG), made up of Director representatives, meets more frequently (every two or three months); it evaluates the results of the thematic groups and prepares for the Water Director meetings. The representatives of candidate countries to the EU also take part and representatives of stakeholders and civil society are invited.

- The thematic groups

A) The mechanism was set up during the year 2001, the first objective being the production of guidance documents for the end of 2002.

Eleven working group have examined the following themes:

- **pressures and impacts** (lead: Germany and United Kingdom).
Objective: to develop the most effective approach to the identification of significant anthropogenic pressures on a river basin and to analyse the potential impact of these pressures.
Document adopted by the Water Directors in November 2002.

- **heavily modified water bodies** (lead: Germany and United Kingdom).
Objective: to specify the application conditions of the Framework Directive to this type of water body (impact and reference conditions).
Document adopted by the Water Directors in November 2002.

- **reference conditions** (lead: Sweden).
Objective: to develop and validate a protocol for identification of reference conditions and of the key class boundaries (good status - moderate status).
The document produced is an interim report but the work will continue. An amended version should be presented in February 2003 for adoption by the Water Directors in the first half of 2003.

- **typology of coastal and transitional waters** (lead: United Kingdom)
Objective: to establish the reference status for this type of water body.
Document adopted by the Water Directors in November 2002.

- **intercalibration** (lead: JRC).
Objective: to establish a basis for the intercalibration exercise required by the Framework Directive.
Like the guidance document on reference conditions, the resulting document is considered to be an interim report and the work should continue in 2003.

- **economic analysis** (lead: France and European Commission).
Objective: to produce a document on economic analysis and recovery of costs in the Framework Directive.
Document adopted by the Water Directors in June 2002.

- **monitoring** (lead: Italy).
Objective: to identify the information necessary for effectively conducting the monitoring required by the Framework Directive.
Document adopted by the Water Directors in November 2002.

- **groundwater** (lead: Austria).
Objective: to specify the conditions for estimating the good status of groundwater and the trends regarding this status.
Document adopted by the Water Directors in November 2001.

- **best practices in river basin planning** (lead: Spain).
Objective: to specify the conditions for implementing the Framework Directive in three areas: designation of districts, preparation of the management plans and public participation.
The first theme has been covered by a document adopted in June 2002. Additional work is necessary for the other two (adoption planned for June 2003).

- **GIS** (lead: JRC).
Objective: to define the geographical information system stipulated by the Framework Directive, ensuring compatibility with the requirements of the European Environment Agency.
Document adopted by the Water Directors in November 2002.

- **testing in pilot river basins** (lead: JRC).
Objective: to test the guidance documents in order to check their consistency (or lack of it).
A document (mandate of the group and work programme) was adopted by the Water Directors in November 2002.

A document on **water bodies** has been produced without setting up a working group for this purpose (lead: European Commission).
Objective: to clarify the conditions for identifying and designating water bodies.
Document adopted by the Water Directors in November 2002.

B) Changes to the mechanism following the Water Directors meeting in November 2002.

Following adoption of many of the guidance documents, the Water Directors have decided to continue work on a common implementation strategy for the WFD. They underlined the **need for clearer designation of priorities**.

Work structure: it was decided to keep the three levels (directors, strategic group and working group). A group works on interrelated subjects in accordance with a programme which changes over time. Its composition is also likely to be modified as a result. The planned mode of operation will make use of small drafting groups. In addition, the networks set up on the basis of the existing working groups (e.g.: economics etc.) will be maintained as required.

Four priority work themes have been established: **ecological status** (lead: Germany, UK and JRC), **integrated management at the level of the catchment basin** (lead: Spain and France), **groundwater** (lead: Austria) and **reports** (lead: Commission).

The four groups are being set up and have organised an initial meeting in the first quarter of 2003.
In the context of the group working on integrated management at the level of the catchment basin, a drafting group on **wetland areas** (lead: Italy) should be set up as quickly as possible.
In the context of the ecological status group, a drafting group (Germany and United Kingdom) on the classification of surface water should be set up as quickly as possible.

Certain activities are being continued in early 2003: the planning process (in liaison with the group on integrated management at the level of the catchment basin), the final meetings of certain current groups, and workshops already planned on transitional waters and pilot river basins.

4) Preparation of future legislation (daughter directive in particular)

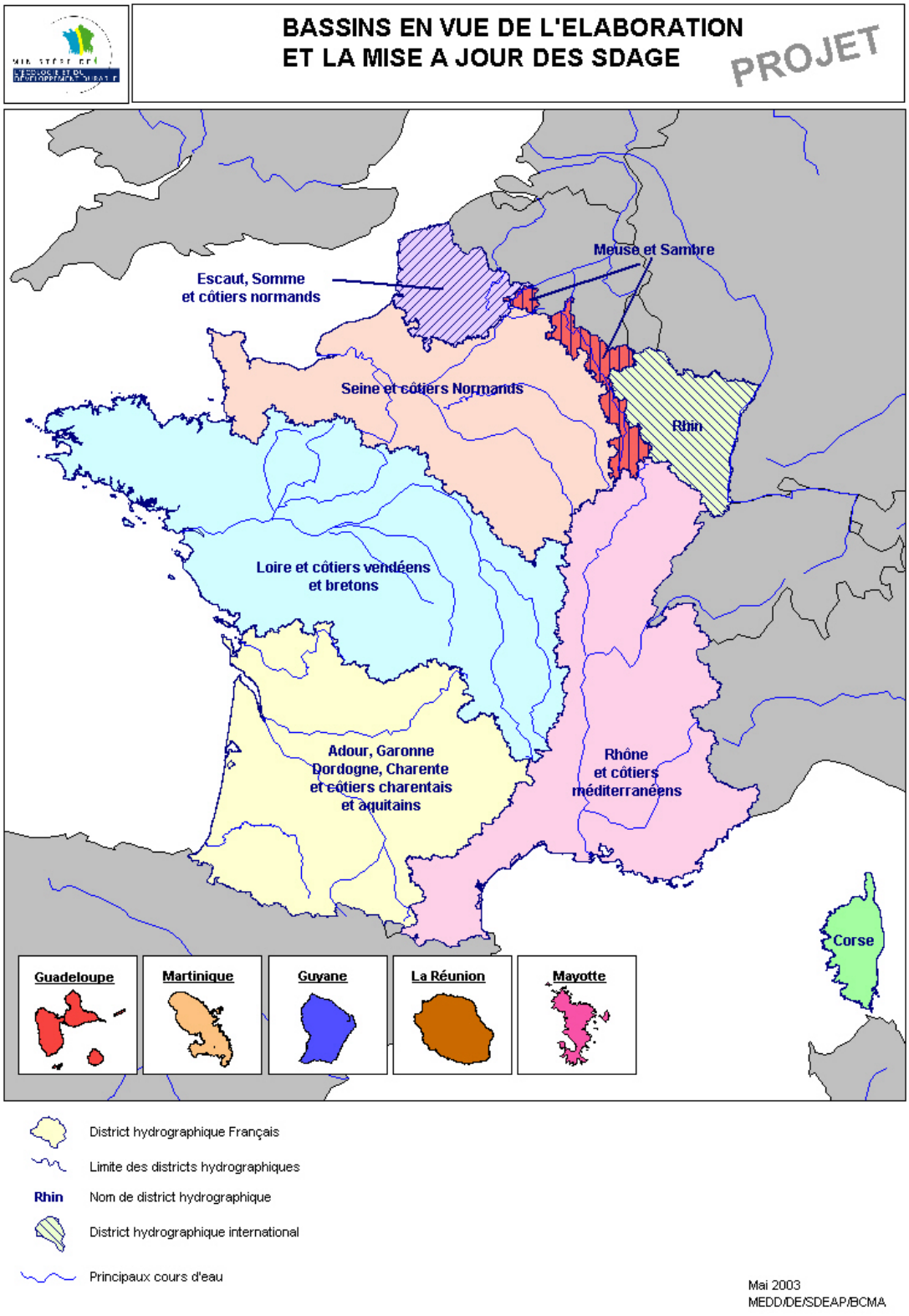
The Framework Directive states that the European Commission shall present a certain number of proposals designed to further specify certain areas of action. This is the case in particular for so-called priority substances and groundwater.

To do this, the Commission has set up Expert Advisory Forums (EAF). The experts invited represent the Member States, the candidate countries, representatives of economic sectors and civil society. This allows the Commission to present proposals informally and to test their political, economic and technical relevance. Once a summary of the work of the EAF has been produced, the Commission puts forward an official proposal.

Three forums have been set up:

- on priority substances. Following adoption of an initial list of priority substances, the Commission is preparing a proposal on emission limit values and on environmental quality standards for these substances which will be presented during the course of 2003.
- on groundwater. The forum is responsible for examining all questions arising from Article 17 of the Directive. The Commission should present a draft directive in June 2003.
- on the production of reports. The Framework Directive stipulates the creation of a more efficient and complete system. The work will continue in 2003.

Annex 2 - Map of the districts



Annex 3 - Evaluation of the good status of continental surface water (freshwater)

1 - Reminder of the requirements of the Framework Directive

1.1 - Definitions

The status of surface water (rivers, lakes) corresponds to the most adverse evaluation given, either in terms of ecological status or chemical status.

The status of surface water is therefore defined using:

- the **chemical status**, determined on the basis of the parameters on priority substances and the substances identified in Annex IX;

- the **ecological status**, determined on the basis of biological elements and of physico-chemical characteristics having an influence on biology (Annex V § 1.2).

Chemical status is used to assess compliance with standards on usage and environmental quality **at Community level**. The parameters evaluated are those appearing in Annex IX and Article 16 § 7 of the WFD (hazardous substances, priority substances), as well as in the context of other relevant Community legislation.

In order to obtain good chemical status, concentrations of pollutants shall not exceed the environmental quality standards which these documents refer to. **Good chemical status** is achieved when **all these standards are complied with**.

Ecological status is based on:

- five classes of status for "natural" water bodies: high, good, moderate, poor and bad;
- four classes for artificial or heavily modified water bodies (cf. Annex V - 1.4.2-ii): good, moderate, poor and bad.

Ecological status is evaluated using biological elements and physico-chemical characteristics having an influence on biology. § 1.4.2 of Annex V of the WFD states that "classification of ecological status is represented by the lowest of the values of the biological and physico-chemical controls for the relevant quality elements".

The ecological status, subdivided into five classes, but not assigned any specific values in Annex V of the WFD, is assessed on the basis of aquatic communities (biological quality elements) and on the physico-chemical characteristics having an influence on biology (physico-chemical quality elements).

The characteristics of hydrology, morphology and, for rivers, continuity (hydro-morphological quality elements) are also relevant, but mostly for highlighting certain causes of failure to meet the environmental objectives, and to identify sites likely to contain reference flora and fauna.

More generally speaking, biological factors can be considered to represent the consequences of disturbances to living communities, while physico-chemical and hydro-morphological factors indicate the causes of these disturbances, and therefore the direction of the restoration work to be carried out.

1.2 - References and reference networks

Good status is established on the basis of a **reference** which is:

- the **high status** for **each type** of "natural" water body;
- the **maximum ecological potential** for **each type** of artificial or heavily modified water body. Its value shall be reviewed every 6 years.

Reference sites will be used to define these two concepts. A **reference site network** shall be set up. It covers rivers, lakes, artificial water bodies and heavily modified water bodies. The sites shall be representative of high ecological status (morphological, physico-chemical and biological aspects) or of maximum ecological potential.

The references can be acquired through measurement networks, modelling or a combination of the two. If these options are not possible, use can be made of experts. The references are established for biological factors (indicators, populations, etc.).

The network shall include a sufficient number of sites for each type of water body. The list of reference sites shall be transmitted to the European Commission in 2003 and the reference conditions in 2006.

1.3 - European intercalibration network

An intercalibration exercise shall be conducted in 2005 to define the probable "blue / green" and "green / yellow" limits of ecological status in order to calibrate the approach by ecological quality ratio (EQR), and to make the approaches used by different evaluation systems equivalent.

To do this, a European intercalibration network will be set up containing the sites used to define these limits; it will be an inter-State network which should cover the types of water bodies shared between the Member States.

In December 2003, the Commission will publish a **provisional register** of the intercalibration network sites and a **definitive register** in December 2004. This implies that Member States will have to submit site proposals from mid-2003 onwards.

The intercalibration exercise shall be conducted by Member States within the 18 months following production of the definitive register and shall therefore be completed by mid-2006. The results will be published by the Commission within the following 6 months, i.e. in December 2006.

From the above timetable laid down by the Framework Directive, it can be deduced that the definitive system for evaluating ecological status will not be available before 2007.

2 - The principal deadlines for "good status"

2.1 - 2003/2004 inventory

The inventory only requires identification of water bodies at risk of failing to meet the environmental objectives set, including good status, by 2015. For this exercise, it will be sufficient to set the provisional limits of good chemical status and good ecological status for mainland France only.

2.2 - Intercalibration exercise in 2005/2006

The objective here is for Member States to compare the sites judged by each of them as representative of the "blue / green" and "green / yellow" limits of good ecological status. The key issue is the "green / yellow" limit. This limit can probably be a range of values rather than a specific value.

It is only after this intercalibration exercise, i.e. at the end of 2006, that the limits of good status can be compared between Member States. Before this date, each country shall conduct some groundwork on these limits in order to identify water bodies at risk of not achieving good status.

2.3 - Management plans in 2007/2008

The management plans will include an inventory of water status established on the basis of the results produced by the monitoring networks which shall be operational in 2006. These plans shall also contain arguments for extended deadlines or less stringent objectives.

3 - Actions to be undertaken in 2003/2004

3.1 - The risk of not achieving the environmental objectives set, including good status or good potential, by 2015

Regarding the risk of not achieving the environmental objectives set, two complementary approaches can be used: significant pressures and the use of data on aquatic environments. These two exercises will be conducted using the existing database. The analysis shall take into account changes in activities, and the effect of environmental protection policies, including compliance with existing European directives.

For "environmental" data, an initial analysis has resulted in the following framework to identify water bodies at risk of not achieving good status.

Caution: this does not in any way prejudice the evaluation system to be selected at a later date for determining "good status".

• For rivers

In order to identify as accurately as possible those water bodies at risk of not achieving good status, and in order to move towards the concept of good status, the following is planned:
- to use the "green and yellow" range of the "biological capacity" water Quality Evaluation System (QES), but the parameters and thresholds to be considered on the basis of water body type have yet to be defined;
- to use biological data, but "resetting" the references of the current biological indices in relation to the water body type;
- to work on modelling a relationship based on pressures-impact-response of biological parameters.

• For lakes

The exercise will be more laborious as there is little data available and the methodologies for evaluating the quality of lakes are less well developed. However, proposals will be made on the basis of existing data, even if this means delaying some subjects instead of dealing with them in an unsatisfactory way.

3.2 - The references network and intercalibration network

These two networks shall be set up as quickly as possible. In the context of the "WFD-surface water" national group, work is underway and shall be continued to meet the timetable of the Framework Directive. Participation in the work of the European groups will also allow the best possible finalisation of the French proposals.

3.3 - Good status and good potential

Work conducted on the delimitation of water bodies and on the risk of non-achievement of good status has highlighted certain points which shall be focused on in order to successfully evaluate the good status of water.

This means:
- starting work on developing a QES type evaluation tool complying with the requirements of the WFD, even if it is only used for adaptation to water body types;
- establishing a breakdown of the biological elements to be considered in order to render Annex V of the WFD operational (indicators, populations, etc.);
- testing the resulting "good status" hypotheses in the field;
- comparing these approaches with those of other Member States, particularly in the context of ad hoc European groups.

Bibliography and documents available:

CIS WFD, 2003 - Guidance on establishing reference conditions and ecological status class boundaries for inland surface waters, 93 p.

CIS WFD, 2002 - Towards a guidance on establishment of the intercalibration network and on the process of the intercalibration exercise, 50 p.

Annex 4 - Groundwater objectives

The Directive defines two categories of objective for groundwater:
- Good quantitative status
- Objectives related to the chemical quality of groundwater.

Quantitative status:

Bodies of groundwater shall have good quantitative status by 2015.
Good quantitative status is defined in Annex V (§2.1.2.) of the Framework Directive. It is achieved if average water abstractions do not exceed the resource available, including on a long-term basis. In addition to this balance between abstraction and resource, the surface water and terrestrial ecosystems in contact with groundwater shall not be affected by abstractions taken from it. In particular, abstractions shall not result in the risk of invasion by salt water.
This therefore concerns all bodies of groundwater experiencing a continuous downward trend in piezometric levels (i.e. the deep water tables of the Gironde) or which no longer allow satisfactory minimum flows in the rivers fed by them (i.e. the water tables of Poitou-Charentes).

Further specification of this definition is not planned in future European legislation.

Chemical status:

Article 4 of the Framework Directive distinguishes between three separate objectives for groundwater:
- obtaining good status by 2015
- preventing or limiting the input of pollutants into groundwater
- reversing any significant and sustained upward trend in the concentration of any pollutant

None of these objectives is very clearly specified in the Directive, the negotiations having reached an impasse on this point when it was being prepared. Article 17 therefore introduces a reference to a future daughter directive on groundwater, which should be proposed by the Commission within a period of two years.
The European Commission has not yet registered the draft legislation. The latest version of a general introduction to the principles of the future text was submitted in December 2002 (discussion paper, draft 2.0), on completion of the work of expert groups co-ordinated by the Commission. This proposal has not been finalised and consensus on it was not reached; it is therefore likely to change during the course of the next few months. However, given the amount of time required to adopt a directive, it is not possible to wait for completion of this process before producing the inventory. The principles which follow are therefore a working hypothesis, used as the basis for the work of initial characterisation of water bodies. In any event, what follows does not in any way constitute the position of the French government in the negotiation of the future Directive.

• *Definition of good chemical status*:

Groundwater which has good status can be used for the production of drinking water and does not endanger the status of associated surface water and terrestrial ecosystems. To provide a simplified definition, a body of groundwater can be considered to have good status if:

- groundwater concentrations comply with the existing standards for distributed water in all points and at all times for
    - nitrates 50 mg/l
    - ammonium 0.5 mg/1
    - pesticides 0.1 microgr/l per substance and 0.5 microgr/l for the total
    - chlorides 250 mg/l
    - sulphates 250 mg/l

  For chlorides and sulphates, waters which naturally exceed these concentrations are not considered to have bad status.
- pollution from former industrial sites is controlled, that is, a management plan for each site has been drawn up, defining appropriate measures, including management of any distribution of pollution, in accordance with the national method defined by the DPPR (Pollution and Risk Prevention Department).
- in specific cases where pollutants of any type introduced into groundwater would play a major role in the degradation of associated terrestrial ecosystems or surface water, or would prevent use of the water for the production of drinking water (natural amounts of certain elements are not included), this groundwater would have bad status.

These conditions shall be complied with by 2015. Changes in pressures and the response of groundwater to these changes shall be taken into account.

• *Preventing or limiting the input of pollutants:*

The molecules listed in Annex I of Directive 80/68 on groundwater shall not be introduced into groundwater by direct or indirect discharge, apart from in cases of historic pollution. In principle, these types of scenarios should be limited, the legislation on installations classified for the protection of the environment having integrated the requirements of this Directive.

• *Non-deterioration of groundwater and reversal of upward trends:*

Concentrations of nitrates, pesticides, sulphates and chlorides should not have at any point increased regularly and significantly for at least five years. For nitrates, an increase of 10 mg/l can be considered significant, for chlorides and sulphates 50 mg/l. For pesticides, because the threshold of good status is very low, the concept of upward trend does not have a great deal of meaning.

Annex 5 - Typology and delimitation of inland surface water (rivers and lakes)

Using the methods and rules defined at national level for prior delimitation of water bodies, the river basin committees shall be responsible for the prior delimitation and characterisation of inland surface waters

1 - Reminder of the requirements of the Directive and its purpose

The Framework Directive lays down a general objective which is the achievement of environmental objectives (good status, non-deterioration of existing status, etc.) for all waters by 2015.

The Directive refers to two concepts: ecological status and chemical status, for which good status shall be obtained. The definition of good status is established in relation to a reference, this being high status. In terms of biological parameters (invertebrate fauna, fish, etc.), the reference conditions are not identical for all water courses or sections of water courses. By way of illustration, a mountain stream and a river running across a plain will not have the same fauna.

In order to take these differences into account, the WFD suggests disaggregation of the aquatic environments on the basis of water body type, while specifying that a water body can only belong to **a single category** (river, lake, etc.) and **a single ecological type**. In addition, a water body can only be assigned **a single environmental objective**.

For complete homogeneity of the water body, it shall also be comparable in terms of **anthropogenic pressures**. This guarantee of double homogeneity will result in a minimum number of water bodies.

This means that the water body shall be considered as a **unit of evaluation** and that its role is above all a technical one. It will be used to construct the technical mechanism for determining and evaluating water status. It is not necessarily a unit of management as such. For management purposes, several bodies of water may be considered together, for example, those in a Water Management Plan (SAGE).

The Framework Directive clearly establishes a link between the typology and the delimitation of bodies of water: their quality is evaluated through comparison to the specific reference conditions for a given type.

The Framework Directive specifies that the quality of rivers or lakes shall be evaluated on the basis of the water body type, and not according to the water body itself, this allowing a statistical approach.

It should also be remembered that the Framework Directive does not require monitoring of each water body. Only a selection of water bodies will be monitored in the context of surveillance monitoring. On the other hand, all water bodies identified as being at risk of not achieving the environmental objectives by 2015 shall be checked through operational monitoring.

2 - The evaluation system used

The Framework Directive (cf. Annex II) allows two systems for delimiting water bodies: either system A or system B.

From the preliminary tests conducted in France using system A, it was found that Mediterranean rivers, and rivers subject to oceanic influences are found in the same ecoregions, whereas the rivers of the Limousin lie within several different ecoregions.

As this situation was not satisfactory, **system B was selected**. The Framework Directive states that if system B is used, it shall be as accurate as system A; this is the case for the system B selected by France. This system B shall be used throughout the national territory (metropolitan France and overseas departments).

System B has also been adopted for stagnant water (lakes): the depth limits used are defined in accordance with the stratification conditions observed in French lakes.

3 - The criteria for delimiting water bodies

The methodology for delimiting water bodies was developed and tested in 2001/2002 in each of the six river basins. The lessons drawn from these tests have been used to finalise and further specify the national methodology.

The process for delimiting water bodies is planned in several stages:
- prior delimitation to be conducted by 2004, based on ecological criteria ("natural" water bodies and with consideration of anthropogenic pressures);
- however, the definitive water bodies will only be known on completion of the intercalibration exercise, that is, after 2006.

Consultation and validation phases are planned at several levels (European, national and river basin) throughout this exercise.

3.1 - for running water (rivers)

At national level, the guidelines selected for **prior delimitation** of water bodies are as follows:

- <u>compulsory methodological elements</u>:

  - **1st order hydro-ecoregions** resulting from the work of CEMAGREF (21 at national level, based on the criteria of geology, geomorphology, relief and climate)

  crossed with:

  - **ordering of rivers based on the Strahler classification** which is broken down into orders (1 to 8).

As the delimitation process requires "one water body, a single ecological type (and therefore identical reference conditions) and a single status", the grouping of the Strahler orders shall endeavour to maintain this rule. As the hydro-ecoregions are not strictly identical (for example, in mountainous or clay-based areas, the network of rivers is more dense than on plains), it is logical that the grouping of orders may follow different rules. However, because some hydro-ecoregions are shared between several river basins, these groupings should be harmonised: CEMAGREF can be used as required and a national framework will be provided.

- secondary elements used to refine certain delimitations:

2nd order hydro-ecoregions resulting from the work of CEMAGREF (107 at national level).
A certain degree of internal variability can exist within a 1st order hydro-ecoregion. Further disaggregation (2nd order hydro-ecoregions) is only justified if the reference conditions are different (significant biological variations, likely to result in different evaluations of ecological status and therefore in a different definition of good status). This process shall also take the accuracy of the evaluation tools available into account: there is no point in differentiating situations which cannot be measured. The logic of the process therefore continues to be one water body / one ecological type / one status.

2nd order hydro-ecoregions can also assist in creating appropriate spatial units for the aggregation of sets of small rivers (Strahler order 1 to 3, for example) which can be processed statistically.

- all rivers are taken into account, from the minimum size indicated in the Directive (as a reminder, catchment basin from 10-100 km^2 with system A)

The Directive states that water bodies with the same reference conditions and which are contiguous shall be aggregated as much as possible, and that only water bodies with significantly different references shall be individualised. For example, an order 4 water course which flows into an order 8 water course cannot be part of the same body of water.

In addition, the Framework Directive does not allow the aggregation of water bodies which are not contiguous. This is also stipulated in the European guide on water bodies. On the other hand, several water bodies can be considered for the evaluation of pressures and impacts, as well as for the implementation of management plans and programmes of measures. Management spread over one or more water bodies will therefore be possible: the logic of the SAGE could be reused for example.

- minimum river sections to be taken into account

In order not to break water bodies down into too many parts, and to conserve consistent evaluation units, the criteria on the minimum river sections for consideration are as follows:

- approximately 2 to 5 km for orders 1 to 3 (1 to 4 for Loire-Brittany);
- approximately 10 to 15 km for orders 4 and 5 (5 and 6 for Loire-Brittany);
- approximately 25 to 30 km for higher orders.

- consideration of pressures

To be taken into account, anthropogenic pressures shall fulfil two criteria:
- sufficient intensity and
- sufficient geographical extent,
in order to avoid unnecessary disaggregation and prevent differentiation of situations which are in fact similar in terms of water body status.

3.2 - for stagnant water (lakes)

For lakes, the WFD requires that water bodies above 50 hectares be defined. In France, approximately 500 lakes of more than 50 hectares are listed.

A typology of lakes has also been established. It is based on the hydro-ecoregions (defined using CEMAGREF methodology) to which the criteria of altitude, basin shape and the presence of a littoral zone have been added. (NB: validation of typology in progress).

Bibliography and products available:

CIS WFD, 2003 - Horizontal guidance on the application of the term "water body" in the context of the Water Framework Directive, 21 p.

WASSON et al., 2002 - *Définition des hydroécorégions françaises métropolitaines. Approche régionale de la typologie des eaux courantes et éléments pour la définition des populations de référence d'invertébrés*. (Definition of hydro-ecoregions in metropolitan France. Regional approach to the typology of rivers and elements for the definition of reference invertebrate populations), Cemagref Report, Lyons Group, June 2002, 190 p.

Annex 6 - Typology and delimitation of coastal and transitional bodies of water and the principle of assignment to river basin districts

Using the methods defined at national level, the river basin committees shall be responsible for conducting the initial characterisation of surface water bodies (rivers, lakes, transitional waters and coastal waters)

The difficulty of this task lies in defining the delimitation criteria which are based on the physical environment, when in fact the water bodies will then be examined in relation to biological criteria for which relative homogeneity is required. This makes system "A" proposed by the Framework Directive immediately unsuitable, particularly as it is based on only two parameters - apart from geographical co-ordinates - for both transitional waters (tidal fall and salinity) and coastal waters (bathymetry and salinity). In addition, system "A" sets thresholds which a priori, result in extreme rigidity of use, and thus make it almost impossible to establish objective links between the physical factors defining the water body and the biological communities living in it.

System B, which is more flexible thanks to the panel of optional factors suggested, has therefore been selected. It will probably make the subsequent definition of ecological repositories easier.

The system of delimitation selected uses two criteria to delimit water bodies, the importance of which has been clearly demonstrated in terms of biology (benthic and pelagic):
- The capacity of the water to renew itself;
- Geomorphological characteristics.

The criteria used

<u>The capacity for renewal</u>

The capacity of the environment to renew itself either through mixing, or through transport is an essential concept which can be used to characterise the sensitivity of the area to terrestrial or non-terrestrial, localised or diffuse inputs. These inputs can be of different origin:

- Diffuse local inputs or inputs transported by rivers; the ability to disperse these inputs influences the water properties and in a general sense the local biology.

- Eggs, fish larvae and other biological vectors can be produced locally or in a contiguous sector and be transported by currents. This is the case of nurseries which are supplied with larvae from the open sea. The ability of these elements to renew themselves in a given sector significantly influences the dynamic of many populations.

- The inputs from large river plumes, the estuary of which may be several dozen, or even hundreds, of kilometres away. These inputs to coastal areas can no longer be proven through the examination of local materials but only through the characterisation of large river plumes. From this point of view, the criterion of salinity is therefore a useful parameter.

In addition, it will be necessary to examine the characteristics of renewal on a larger scale than the strict geographical area stipulated by the Framework Directive, as the environment is in continual movement and the characteristics observed at the coast do not depend only on local conditions. For example, the phytoplanktonic flora observable in waters very close to the Atlantic seaboard (and therefore mixed locally) has the characteristics of a population from stratified areas, thus demonstrating that this flora is the result of transportation from the open sea to the coast.

Geomorphological characteristics

Geomorphological criteria change very little over the course of time unlike the previous parameters. They have a major influence on benthic populations. To varying degrees they are the result of a given hydrodynamic, particularly high frequency currents. Exposure to swell and maximum tidal currents play a major part in the definition of local granulometry.

Presentation of the delimitation method

Application of the criteria described above has made it possible to identify coastal sectors.

In order to start the definition process, the spatial scale of a coastal sector has been taken to be in the order of 20-50 km. This scale has been chosen arbitrarily but with the objective of having a reasonable number of sectors for all coasts.

The water bodies will be defined on the basis of these sectors, through aggregation or disaggregation (to take account in particular of heavily modified water bodies).

Among all the parameters potentially relevant for the delimitation of water bodies, tidal fall and salinity are obligatory criteria.

For this first approach, the following points are therefore suggested:

- Classification of the **tidal fall into 3 ranges** of 0-1 m, 1-4 m and 4-11 m, which identify the 3 seaboards: Mediterranean, Atlantic and Channel. Use of the "tidal fall" criterion on its own is not a discriminating parameter for the dynamic of water bodies.

- **Salinity** can be used to define the boundary between coastal waters and transitional waters. A **threshold of 25 psu** is suggested, without this having any *a priori* hydrodynamic significance. It does, however, appear to correspond to a biological reality, particularly regarding the species recorded in estuaries.

- The **river plumes** of large rivers are likely to influence the ecosystem over considerable distances. It is suggested that areas whose salinity is heavily affected by rivers with an estuary not included in that area, be recorded as a water body under the influence of a large plume. Rather than setting a salinity threshold to observe the influence of a plume, analysis of desalting is suggested, thus eliminating the factor of salinity variation in undisturbed seawater as this can vary significantly for each seaboard. A **desalting threshold of 2 psu** during half the year is suggested in this preliminary approach. This threshold makes it possible to find spatial scales compatible with the choice of scale made above.

- Vertical mixing is a hydrodynamic factor whose influence has been clearly demonstrated on ecology. Use of the **stratification parameter** defined by Simpson and Hunter (1974) is suggested to distinguish mixed, partially stratified and stratified water.

- Currents which move over a longer time scale than that of tides can be used to characterise the renewal of waters through transportation. Use of the information on **residual currents** and their trajectories is suggested to define areas of high, moderately low and very low renewal.

- The **average depth** of the area can, in tidal seas, be used to characterise the size of the foreshore, and in a general sense, the average illumination received on the seabed by the benthic ecosystem.

- Characterisation of the nature of surface sediments is also an optional factor. Use of this characterisation is suggested after initial delimitation and it may, in the case of very heterogeneous areas, be followed by further disaggregation.

These criteria have been applied to the area between Mont Saint Michel and the bay of the Somme, as well as to the Mediterranean.

Bibliography and products available:

European guide: "Guidance on typology, reference conditions and classification systems for transitional and coastal waters"

Annex 7 - Designation of artificial water bodies and heavily modified water bodies

1. Reminder of the Framework Directive requirements

In Article 2, the Framework Directive defines a heavily modified water body as a body of surface water (rivers, lakes, transitional waters, coastal waters) which, as a result of physical alterations by human activity, is substantially changed in character, in accordance with the provisions of Article 4.3.

Article 4.3 states that the alterations made to the **hydro-morphology** of a water body can be left as they are:

- if, to achieve good ecological status of the water body, the work to be undertaken in terms of hydro-morphology would have significant adverse effects on the wider environment and on the activities listed in 4.3 - navigation, recreation, water storage (drinking water supplies, irrigation and power generation), water regulation, flood protection and land drainage, and other equally important sustainable human development activities).

- if the activities with beneficial objectives responsible for, and dependent on, these hydro-morphological modifications cannot be achieved by other means (technical feasibility, disproportionate costs) and under better environmental conditions.

In these cases, designation of a water body as heavily modified is justified. However, the concepts of sustainable development activity, beneficial activity, disproportionate costs, etc. have yet to be further defined. In addition, the adverse effects on the environment should be understood in a wide sense, which could therefore cover several aspects (landscape, noise, heritage, etc.).

It should be noted that consideration of the costs involved in restoring these environments is not taken into account in the designation under 4.3. If the activity having an impact can be conducted by other means or elsewhere (and if this alternative is economically viable, of course), and if restoration would not adversely affect the environment or other activities, the water body cannot be classified as " heavily modified" for reasons of cost or technical feasibility of restoration. Article 4.5 lays down the conditions for consideration of cost and feasibility of restoration.

Article 4.3(b) specifies that the designation, and the reasons for the designation, shall be explicitly mentioned in the management plan of the river basin district and reviewed **every six years**.

2. Objectives: good chemical status and good ecological potential

In the context of environmental objectives (Article 4.1(a)), the Directive stipulates that Member States shall:

- implement the measures necessary to prevent deterioration in the status of all surface water bodies (including, therefore, heavily modified and artificial bodies);

- protect and enhance all artificial and heavily modified water bodies, with the aim of achieving good ecological potential and good chemical status of the surface water at the latest 15 years from the date of entry into force of this Directive.

The difference in relation to other water bodies is that artificial and heavily modified water bodies do not have to achieve "good ecological status" but instead "good ecological potential". However, this good ecological potential will certainly be just as difficult to achieve for artificial and heavily modified water bodies as good ecological status will be for "natural" water bodies.

In the Framework Directive, the gap between "good ecological potential" and "maximum ecological potential" is defined in the same way as the gap between "good ecological status" and "high ecological status". A given "irrefutable fact" is simply taken into account: restoration of the hydromorphology cannot be envisaged for the reasons stated in Article 4.3. Maximum ecological potential is therefore the best status which can be obtained, given the inevitable physical (hydro-morphological) alterations.

However, "all practicable steps to mitigate" the effects of these alterations shall be taken, particularly in order to "ensure the best ecological continuum" (Annex V 1.2.5). The work required for water bodies designated as artificial or heavily modified is therefore quite comparable to that stipulated for other water bodies.

Article 4.2 of the Framework Directive specifies that, when a water body is assigned an objective under the WFD (good potential, for example), and a different objective under another European directive, the most stringent objective shall apply.

Finally, as for other water bodies, the deadlines of the environmental objectives under the WFD may be extended and their definitions made less stringent (Articles 4.4 and 4.5).

3. The issues at stake

Restoration of the hydro-morphological characteristics necessary to achieve good status can, firstly, adversely affect certain human activities which it is not desirable to affect in this way, and secondly, cause such environmental damage that the interest of restoring the water body is called into question.

For example, classification of a navigable water course as "heavily modified" allows confirmation of the modifications to the hydro-morphological characteristics of the water body which are absolutely necessary for the continuation of this activity (succession of reaches, etc.) despite the impact on ecological status. However, this does not exempt those responsible from implementing all practicable steps to mitigate the impact of these measures, such as the construction of mechanisms to cross obstacles to migration, or returning banks to their natural state.

The classification of water bodies as artificial or heavily modified means that these activities and their effects can therefore be included in the overall mechanism of the Directive. Without Article 4.3, these activities would be called into question.

4. Artificial water bodies

Artificial water bodies are "bodies of surface water created by human activity", that is, when no body of water existed before the human activity. This being said, they should satisfy the same rules as heavily modified water bodies.

In particular, they shall meet the criteria of Article 4.3. Thus, a body of water created by human activity but which is capable of achieving good ecological status (of a similar natural water body) shall not be classified as artificial. The "natural" equivalent of this water body may, however, be difficult to identify. Finally, it is rare for human activity to be responsible for aquatic environments the size of a water body.

The concept of good ecological potential is easier to understand for artificial water bodies. This is the best status possible, given the function of the artificial water body. For example, the function of a canal is to allow the passage of boats and it cannot therefore be called into question under the WFD. On the other hand, it is possible to restore the banks in order to create an optimum habitat.

5. Provisional identification of artificial water bodies and heavily modified water bodies

Using the methods defined at national level, the river basin committees shall be responsible for conducting provisional identification of heavily modified water bodies (rivers, lakes, transitional waters and coastal waters)

In the context of the inventory, artificial and heavily modified water bodies shall be provisionally identified by the end of 2004, on the basis of usage or pressure criteria (see the tables below). This provisional identification does not require in-depth economic analysis at this stage.

To be classified as a "heavily modified water body", the morphology must be substantially modified or so affected by human activity that good ecological status of the water body cannot be achieved (recital 31, Article 2, definition 9). Identification of pressures will provide elements of response as this includes, among other things, the identification of "significant morphological alterations to which water bodies are subject" (Annex II, point 1.4).

After completion of the inventory, Member States shall conduct the analyses stipulated in Article 4.3 to justify the designation of these water bodies as "heavily modified" in view of, firstly the impact that restoration of the water body would have on the activities listed in Article 4.3(a) and secondly, in view of the technical feasibility or disproportionate costs of the alternatives [cf. work of WATECO and HMWB European groups].

5.1. Criteria table for inland surface water

The table below, taken from the guide produced by the "heavily modified water bodies" European group in 2002, provides an initial approach on usage and its potential impact on the environment. The objective of the table is to assist with the provisional identification of artificial and heavily modified water bodies.

human activities modification of environments	navigation	flood protection	hydropower generation	agriculture /forestry	water supply	urbanisation
physical alterations						
change in river profile	x	x	x	x		x
disruption in river continuum and/or sediment transport	x	x	x	x	x	
channel maintenance; dredging of material	x		x	x		
channelisation	x	x	x	x	x	x
bank reinforcement/fixation/embankment	x	x	x		x	x
detachment of wetlands	x	x	x	x	x	x
restriction of the flood plain		x	x			x
other impacts						
low/reduced flows			x	x	x	
direct mechanical damage to fauna and flora	x					
artificial discharge regime			x			
land drainage				x		x
soil erosion				x		

On the basis of the above, the national group has produced a list of the types of modification most likely to give rise to provisional identification as an artificial or heavily modified water body, under the definition given in Article 4.3 regarding considerations of reversibility, size and intensity of impacts and pressures.

TITLE	*CRITERION*
Impoundments, "run of river" dams	*Size* *Expert judgement*
Downstream of impoundments	*Confluences and expert judgement*
Canal and canalised water course	*Expert judgement*
Urban traverse	*Pop, density or surface*
Dyke (and quarry in floodplain)	*linear %* *distance/low-flow channel* *Expert judgement*
Succession of sills	*Irreversibility* *Density* *Expert judgement*
Abstraction (direct or from water table)	*Expert judgement*
Diversion	*Expert judgement*
Bank reinforcement/fixation/embankment	*linear %*

The thresholds for taking the criteria in the above table into account will be specified and measurement ranges given (exercise underway in collaboration with the river basins).

Water abstractions and diversions are only to be taken into account to the extent that they have an impact on the hydro-morphology of the water course.

5.2. Criteria table for coastal and transitional waters

The previous table can be applied and adapted to coastal and transitional waters as follows:

human activities modification of environments	navigation -dredging	extraction	shellfish culture-fishing	protection (floods-coast line)	urbanisation
physical alterations					
change in river profile or coastline	x			x	x
disruption in river continuum and/or sediment transport	x	x		x	
modification of river/sea bed	x	x	x	x	
channel maintenance; dredging of material	x	x			
channelisation	x			x	x
bank reinforcement/fixation/embankment	x			x	x
restriction of the flood plain				x	x
other impacts					
direct mechanical damage to fauna and flora	x	x	x		
artificialised flow regime	x				

The following bodies of water could be provisionally identified:

- Coastal and transitional water bodies subject to dredging: ports and access channels. For practical reasons, and for the sake of simplicity and readability, for provisional identification, heavily modified areas will be considered to be the port administrative divisions in their entirety.

- Coastal bodies of water:
with dredged spoil dumping zones, mineral permits for gravel extraction, anchorage areas or harbours with protection reinforced by embankments, areas of marine culture causing deposits (tables, posts) and therefore requiring periodic maintenance and deep fishing areas for scallop (seabed totally reworked part of the year through fishing techniques: scraping).

- For transitional waters
Areas in which the salinity, flow speeds and tidal range have been modified through disruption of hydraulic continuity (embankments, dams, removable dams installed on estuaries, fjords or adjoining areas of water supplying marshes).
Areas of marine culture in estuaries or shoreline ponds causing deposits (tables, posts) and therefore requiring periodic maintenance.
Channelised estuaries (although the hydromorphology is only slightly affected, the same cannot be said for good ecological status, given that habitats are often totally modified).
As in the case of freshwater, the thresholds for taking the above criteria into account will be specified.

Bibliography and products available:

CIS WFD, 2002 - Guidance document on identification and designation of heavily modified and artificial water bodies, 117 p. (NB: a "toolbox" has also been produced from the different studies conducted by Member States).
Work of the WATECO group (for economic criteria).

Annex 8 - Delimitation of bodies of groundwater and the principle of assignment to river basin districts

> ***Using the methods defined at national level, the river basin committees shall be responsible for conducting the initial delimitation and characterisation of groundwater bodies.***

1. The requirements and issues at stake in the Framework Directive

Article 2 of the Framework Directive defines groundwater as "*all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil*". Article 4 of the Directive requires that all groundwater be subject to the measures necessary to prevent or limit the input of pollutants into these waters and to reverse any significant and sustained upward trend in the concentration of any pollutant resulting from the impact of human activity.

At the same time, Article 2 also defines a body of groundwater as "*a distinct volume of groundwater within an aquifer or aquifers*" and an aquifer as "*a subsurface layer or layers of rock or other geological strata of sufficient porosity and permeability to allow either a significant flow of groundwater, or the abstraction of significant quantities of groundwater*". The Framework Directive requires that Member States identify all bodies of groundwater and assign them to the closest or most appropriate river basin district. It specifies that groundwater bodies shall be protected, enhanced and restored with the aim of achieving good quantitative and chemical status by 2015. The concepts of good quantitative and chemical status are defined by the Directive.
In addition, all water bodies shall undergo initial characterisation; those which are identified as being at risk failing to achieve good status by 2015, and those which are trans-boundary, shall undergo detailed characterisation.

To an even greater extent than for surface water, the definitions given by the Directive allow a fairly wide range of possible interpretations. Chapter 4 of the European guide "Horizontal guidance on the application of the term water body in the context of the Directive" produced jointly by the Member States provides different recommendations and further detail on identification and delimitation. The rules defined at national level described below are consistent with the recommendations in this document.

2. The procedure used to define the "principles and rules of delimitation"

From the second half of 2001, in order to develop a sufficiently accurate national methodology for producing consistent and homogeneous delimitation within the different river basins, the Water Department, with the support of hydrogeologists from the water agencies and river basin DIREN, started work and test exercises on the delimitation of water bodies within the 6 river basins. A few simple instructions were given from the outset: delimit water bodies principally on the basis of physical criteria connected to the hydrogeology, produce a limited number of water bodies (in the order of a few hundred) and of sufficient size (more than 300 Km^2) to simplify and facilitate both their monitoring and management and to avoid complicating reporting to the Commission.

The typology and rules for delimiting bodies of groundwater described below were thus produced collectively within the "water bodies" technical group co-ordinated by the WD with the technical support of the BRGM, and involving hydrogeologists from the DIREN, river basin managers and water agencies. They were developed over a period of time: the "theoretical principles" drawn up were tested in exercises to delimit the water bodies within the 6 basins, and then modified and completed following assessment of the results obtained. The typology definitions and rules for delimitation resulting from this joint and regularly repeated work are now almost complete. They will appear in an illustrated technical guide, in the process of being finalised by the BRGM, with a planned publication date of January 2003. At the same time, instructions on cartographical representation of bodies of groundwater will be given in order to allow the production of national summaries.

Although some of the current delimitations will change, particularly in order to take account of local specific factors or questions of pressure, the number of water bodies should remain around 500; this number was already very close to that achieved during the very first delimitation exercise (511) and has not significantly changed since.

At the same time, work is being done on the characterisation of these water bodies with the aim of: specifying the content of initial characterisation of a water body, producing a standard characterisation data sheet, listing the information to be collected and how to present it, giving recommendations and a set of useful information for evaluating the risk of a water body failing to meet the objectives set by the Directive (i.e. limitation of pollutant discharge, non- deterioration of water quality and achieving good quantitative and chemical status).

3. The main principles for delimiting water bodies

The method used for identifying the boundaries of water bodies follows the main principles described below:

The water bodies are delimited on the basis of hydrogeological criteria, while ensuring that the water bodies obtained are of sufficient size. This principle shall be the general rule, and disaggregation into smaller water bodies to take account of the real or potential impact of anthropogenic pressures (for example, point source pollution from former industrial sites, low groundwater levels connected to overexploitation) shall be for special cases only. The limits of water bodies shall be stable and sustainable and based in all cases on physical limits, in particular geological limits, stable groundwater ridges and flow lines.

Like surface water bodies, **delimitation of bodies of groundwater is organised using a typology**. This typology is based on the geological nature and hydrodynamic behaviour or "global" functioning of aquifer systems (flow type and speed etc.). It includes 2 levels of characteristics (principal and secondary); further details are given below.

Water can be exchanged between different bodies of water, on condition that they can be correctly defined.
All abstractions providing more than 10m^3/day of drinking water or used for supplying water to more than 50 people shall be included in a body of water; those present in generally impermeable or little permeable areas, are included in a specific type of water body known as "locally aquiferous impermeable systems" or are attached to the overlying water body.

In contrast, deep aquiferous systems, without connections to water courses and surface ecosystems, which are not subject to abstraction and are inappropriate or unexploitable for the supply of drinking water for technical or economic reasons, will not be considered *a priori* as water bodies. (Geothermy is not considered to be abstraction if reinjection takes place).

Given its size, **a water body may have a certain spatial heterogeneity in its qualitative and quantitative status; in this case it must be correctly described**. This may be due to its intrinsic characteristics (hydrogeological systems naturally have a certain spatial heterogeneity), or because of the human activities it is subject to: abstractions and pollutant pressures connected to land use. To characterise its status, different areas shall therefore be identified: areas of highest pollution, of highest abstraction, areas at risk (particularly because of surface activities) and sensitive areas in terms of activities or pressures; action programmes can then be broken down spatially in accordance with the areas thus identified.

4. Presentation of the typology

4.1 . A two-tier typology

The groundwater bodies typology is based, with some adaptations, on the results of the work carried out in the context of revising the database of France's hydrogeological repository (RHF DB). The initial work consisted of defining 3 levels of "hydrogeological entity" (national, regional and local) on the basis of different themes (sedimentary, basement, alluvial, volcanic, folded and karstic).
The typology adopted is therefore based essentially on characteristics which are intrinsic to (significance and type of permeability in particular) and functional (flow type and speed etc.) of hydrogeological systems. It largely reuses the definitions corresponding to the regional level entities of version 2, and has two levels of characteristics:

- a 1st level of **principal characteristics** sufficient to determine which of the 6 typology classifications the water body belongs to, and sufficient to define its boundaries. Within each class of water body type, a differentiation is made depending on whether flows are unconfined or confined (an important characteristic regarding the vulnerability of the water body);

- a 2nd level of **secondary characteristics** which may apply to all or part of a water body and can be added one to the other. They can be related to different types of water body. They must not result in further disaggregation of the body of water. The secondary characteristics used are: karstification, the presence of a littoral fringe (in relation to the risk of saltwater intrusion) and the character of aggregated disconnected aquifers.

These characteristics represent the essential elements required to evaluate the intrinsic vulnerability of bodies of groundwater. Other more complex characteristics (connections with associated surface water and terrestrial ecosystems, connections between bodies of groundwater, etc.) should be analysed during characterisation of the water body.

4.2. The 6 types of water body

The 6 types of groundwater body identified are described below:

- **water body dominated by non-alluvial sediment**: the water body, made up of regionally extended non-alluvial aquiferous sedimentary strata, contains one or more superposed aquifer systems with close hydraulic connections. These water bodies can be unconfined, confined or include unconfined and confined parts. This type of water body, essentially with interstitial porosity, represents more than half the number of water bodies identified. Among these, almost 30% are karstic in nature.
The significant unconfined parts, and particularly the aureoles of aquifer systems in large sedimentary river basins, are delimited laterally into several unconfined water bodies: preferably for each catchment basin of the large tributaries or half catchment basin (depending on whether the flows into the water course are symmetrical or not). If the groundwater ridge is very variable over time and if the water course constitutes a hydraulic limit, the delimitation is made on the basis of each interfluve.

- **alluvial type water body**: water bodies identified by a specific lithology different from that of the enclosing rock, are characterised by good connections with the water course. In general, they have highly contrasting permeability with the enclosing rock, and although in some cases they may not have a significant contrast in permeability, they must be frequently used for abstractions, particularly drinking water supplies, or have potential strategic importance in terms of drinking water supplies. Longitudinal delimitation can occur at the point of the confluence with large tributaries or in sensitive areas in terms of pressures or activities (strategic interest, competition for use, high pollutant pressures, etc.). Some of these water bodies can then be small in size (less than 100 km^2).

- **composite hydraulic system water bodies specific to mountain fold belts**: these water bodies correspond to recently tectonised mountain fold belts (the Alps and Pyrenees). They are made up of alternating aquiferous and impermeable entities of greatly varying size and extension, the limits of have often not been fully mapped. Delimitation occurs at the intersection between large litho-structural masses and the limits of large river basins, or if flows are unsymmetrical, large water courses (interfluve limit). The bodies of water thus determined are few in number and often large in size. The basement massifs and principal sedimentary areas included in these fold belts will be identified as specific water bodies when they are sensitive in terms of pressures or activities (thermalism for example).

- **basement type water body**: this type of water body is identified on the surface by a discontinuous modified horizon based on a fractured substratum creating a globally permeable horizon, although the permeability is highly variable. Surface runoff is preponderant compared to groundwater runoff. Delimitation is based on the limits of river basins. In order to create water bodies of a significant size, contiguous basins responding to the same issue in terms of pressure, will be grouped together within the same water body.

- **volcanic type water body**: these are Tertiairy or Quaternary volcanic structures of more than 100 km^2 having conserved an identifiable geometry, morphology and volcanic structure; the contours of the water body correspond to the extension area of the volcanic structure.

- **water bodes in locally aquiferous impermeable systems**: this type of water body corresponds to sedimentary formations which are globally little- or non-aquiferous and locally enclose small disconnected, disseminated aquifers, the limits of which have often not been fully mapped. Some can be very extensive (e.g. Molasse in the Adour-Garonne covering almost 20,000 km^2). This type represents approximately 10% of the total number of water bodies. The contours of this type of water body correspond to areas defined by the outcrops of the formations. Classification of this type of water body means that small aquifers used for drinking water supplies can be taken into account, as specified in the general rules. For these water bodies, management measures will be located in the aquiferous areas.

4.3. Some special rules

An aquifer system can be entirely unconfined, entirely confined (supplied only through leakage), or, and this is the most common type, partly unconfined and partly confined. In the latter case:
- the system can be considered as a single body of water with "associated unconfined and confined parts", distinguishing between whether the unconfined part is dominant ("mostly unconfined") or the opposite ("mostly confined"),
- or, and this is most common, the system can be disaggregated into two separate water bodies, one unconfined and the other confined, which allows more accurate evaluation of the intrinsic vulnerability of the water body (a confined water body, because covered over, is at little risk of pollution from surface activities).

The extension limits of the confined part correspond upstream to the limit of cover, and downstream to the limit of potential use for water drinking supplies (abstraction possible under current technical and economic conditions).

A body of groundwater is characterised as karstic if it has active and functional karsts (special hydraulic functioning with a specific drainage organisation). Water bodies of this type are characterised by the presence of extremely vulnerable surface areas and particularly fast groundwater runoff.

The possibility of aggregating disconnected hydrogeological entities belonging to the same type of water body and subject to the same stresses in term of pressure, essentially affects entities disconnected horizontally (e.g. aggregation of the alluvial areas of small coastal Mediterranean water courses into a single water body).

5. The principles for assigning trans-district water bodies

The Framework Directive states that each body of groundwater shall be assigned to a district, this being the unit for reporting the status of water bodies to the European Commission. When a water body lies across two or three districts, it is known as trans-district. In this case, the Directive requires that the body of groundwater be assigned to the closest or most appropriate district.

The principles and rules selected for delimiting water bodies were intended to limit the number of trans-district water bodies; in particular, the principle of disaggregation of the outcropping parts of groundwater bodies, preferably so that they follow the limits of river basins whenever this is possible in hydrogeological terms (which is not always the case, especially when the water body should be managed globally as, for example, the Beauce), reduces these situations (there are currently only 35 of these).

When trans-district water bodies are identified, the first step is to rapidly characterise the body in terms of pressures or activities i.e. use of the water table (usually abstraction) and evaluation of the risk of pollution due to land use at the level of the water body or in its recharge area. The water body is assigned to the district as follows:

- assignment to the district containing the largest part of the water body;
- if the water body is equally distributed between districts, assign the water body on the basis of the direction of flow to the district located downstream, or to the district in which the pressures or activities are most significant.

Trans-district volcanic structures are disaggregated into several water bodies on the basis of the river basin limits, each being assigned to the corresponding district.

For water bodies characterised by karstic circulation, the limit of the drainage area should be used if this is known; otherwise, and until this has been determined following additional investigation, a plausible theoretical limit should be used.

The Water Department has produced a summary table of the first trans-district water bodies identified in the river basins and the proposed assignments; this table, accompanied by a guidance note, was examined in the meeting on 22 May 2002. Using the table, an initial presentation of the trans-district water bodies identified and their assignment was made to the river basin committees. On the basis of these assignment proposals, the relevant basins are starting work on characterisation of these water bodies.

Documents available:

Methodology guide "Identification and delimitation of groundwater " February 2003.
Characterisation data sheet and instructions on the evaluation of risk, to be published April 2003

Annex 9 - Technical and economic data on usage and pressures

Article 5 of the Directive and Annex III state that an economic analysis of water use shall be conducted for each river basin district.

This analysis shall identify the various uses of water and specify the economic data associated with these uses.

To do this, the principal uses of water shall be mapped and quantified in both technical terms (volumes abstracted, discharges) and economic terms (prices). These economic assessments shall include "the costs for the environment and for the resource". This is the equivalent of creating "water accounts" for the river basin.

The following tables show the principal uses of water and the economic data which can be associated with them.

Not all of this data will be available at the scale of the water body simply because of the complexities involved in the administrative organisation of collecting and processing such data. Not all data necessary can therefore be identified at the scale of the water body.

TABLE 1
THEME: WATER ABSTRACTION

DRAFT

ISSUE RELATED TO WATER USE	TECHNICAL DATA Identification of the data	ECONOMIC DATA Identification of the data
Drinking water	Volumes abstracted and volumes distributed in m^3 Location of abstractions taking the quality of the resource into account Leakage rate Degree of protection and mapping the protective perimeters of water abstraction	Price of drinking water depending on the level of treatment Cost of the curative and protective measures taken (*denitrification cost, pesticide treatment, moving abstractions, etc.*) Average cost of protection facilities Cost of replacement water (*bottled water 3l/person/day*)
Industrial water	Volumes abstracted in m^3 depending on use (industry, power generation) Location of abstractions taking the quality of the resource into account	Price per cubic metre depending on the type of water and the supplier (*independent, river authority, distributor*) Cost of the curative and protective measures taken following these abstractions Economic characteristics of the activity (employment, approx. added value per m^3 abstracted depending on activities - industry, power generation)
Agricultural water	Volumes abstracted in m^3 Location of abstractions taking the quality of the resource into account Surface areas irrigated and crops grown	Price per cubic metre depending on the irrigation mechanisms used Cost of the curative and protective measures taken following these abstractions Additional yield per m^3 abstracted or per hectare

TABLE 2
THEME: DISCHARGES

DRAFT

ISSUE RELATED TO WATER USE	**TECHNICAL DATA** **Identification of the data**	**ECONOMIC DATA** **Identification of the data**
Domestic sanitation (and connected industries)	Location and assessment of collective sanitation discharges Population affected by non-collective sanitation facilities (Estimation of diffuse discharges for each sub-basin)	Price of collective sanitation Cost of tertiary treatment (elimination of nitrogen and phosphorous) Cost of the curative and protective measures taken following these discharges Cost of non-collective sanitation Cost of the curative and protective measures taken following these discharges
Industrial sanitation (isolated industries)	Location and assessment of discharges	Cost of pollution clean-up Cost of the curative and protective measures taken following these discharges
Purification of agriculturally produced discharges	Number of livestock farms, assessment and location of herds Estimation of pollution produced by livestock Surface areas of crop dusting Nitrogen input per ha of AAU/crop area Pesticide input per ha of AAU/crop area	Value of production resulting from livestock Value of crops related to these inputs (yield/ha)
Diffuse pollution	Contamination of water by nitrates and pesticides (all origins)	Cost of the curative and protective measures taken following this pollution

TABLE 3
THEME: WATER USAGE

DRAFT

ISSUE RELATED TO WATER USE	TECHNICAL DATA **Identification of the data**	ECONOMIC DATA **Identification of the data**
Recreational fishing	Number of anglers, distinguishing between the different types of fishing activity Mapping of fish categories and presence of migrating fish	Annual expenditure of anglers (equipment, travel, accommodation) and/or economic significance of fishing Estimate of the profit derived from the activity
Industrial fishing **Aquaculture** **Pisciculture**	Location and mapping of activities: continental water, shellfish culture, aquaculture, pisciculture Volume of activity (tonnage) Suitability of environments for this use: classification of fishing areas, etc.	 Annual turnover Economic significance of uses Protection expenses (purification, etc.)
Seashore fishing	Location Suitability of environments for this use: classification of fishing areas, etc.	Frequency with which areas are used Estimate of the profit derived from the activity (per kg price of shellfish)
Water-related tourism	Number of water-related tourist-days and mapping	Average daily expenditure per river user (hire costs, etc.)
River transport	Tonnage transported and mapping	Specific cost of the water resource to supply canals (boosting of minimum flows) Annual turnover
Nautical activities: kayaking, sailing, etc.	Number of days of use and mapping Suitability of the water for this use	Average daily expenditure per kayaker Cost of damage caused (destruction of spawning grounds, etc.) and management (boosting of minimum flows, etc.)

TABLE 4
THEME: WATER-RELATED ECONOMIC ACTIVITIES

DRAFT

ISSUE RELATED TO WATER USE	TECHNICAL DATA Identification of the data	ECONOMIC DATA Identification of the data
Extraction of river and sea gravel	Volume of activity: tonnage, number of extraction companies Location: low-flow channel, floodplain, massive rock, estuary	Cost of gravel extraction (floodplain, marine environment, massive rock) Cost of curative measures following these extractions (clean-up operations); Cost of damage caused by extractions (civil engineering structures, water abstraction, etc.)
Hydropower generation	Location and mapping of facilities; installed power capacity	Cost of curative measures (crossing structures) Cost of damage caused to fish populations Value of the "energy prejudice"
Tourism requiring clean bathing water	Accommodation capacity and number of tourist-nights Classification of bathing waters	Average expenditure/tourist/day
Other types of economic production: reedbeds, salt marshes, thermalism, etc. **Human sites exposed to flooding**	Inventory of production Mapping of the areas affected Functioning of environments for flood protection and regulation	Turnover for each activity Evaluation of potential damage Value of the goods derived Cost of curative and protective measures: land acquisition, maintenance of water courses, construction of flood protection structures, etc.

Documents available:

European guide on "Economies and the environment: the implementation challenge of the Water Framework Directive: a guidance document" (Annex III.III Possible Reporting Tables; assessing the existing information and knowledge base for the economic characterisation of river basins)

Annex 10 - Identification of pressures and impacts

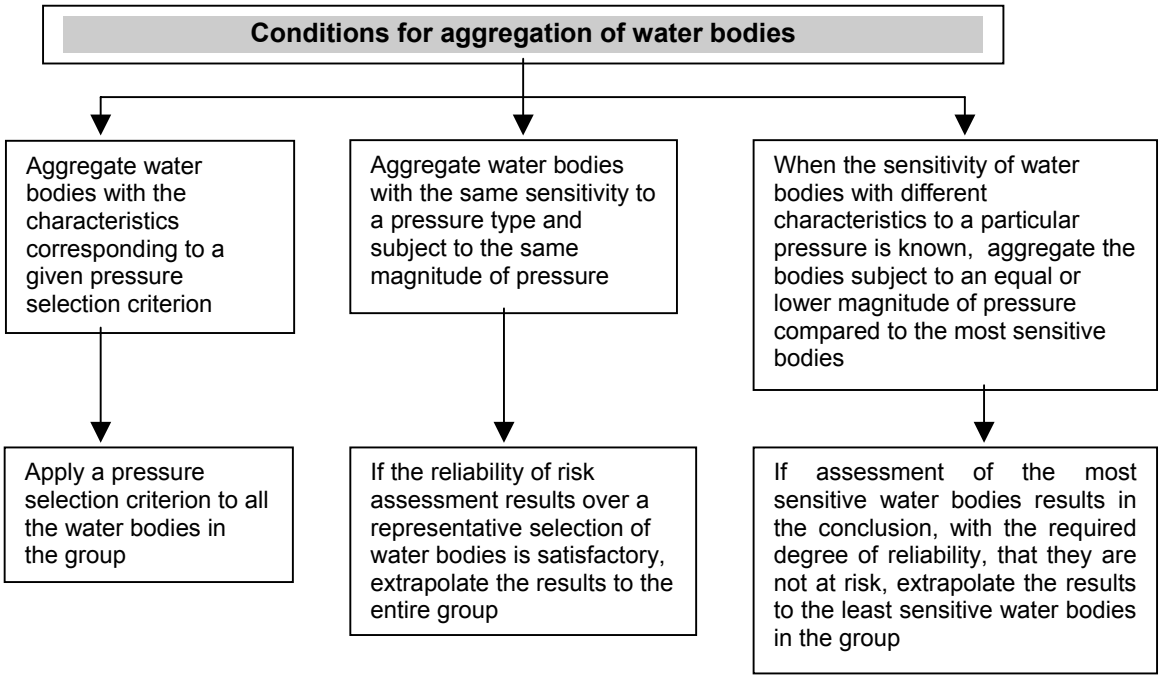
1. The requirements of the Framework Directive

1.1. Surface water

Annex II (paragraph 1.4) requires that Member States collect and maintain information on the type and magnitude of the "significant anthropogenic pressures to which the surface water bodies in each river basin district are liable to be subject": point source pollution, diffuse source pollution, water abstraction, water flow regulation, morphological alterations and other anthropogenic impacts on surface water.

A "significant pressure" should be understood as a pressure which in itself, or combined with other pressures, may result in one of the Directive objectives not being achieved.

Pressures shall be assessed in terms of the water body or groups of body identified above. Aggregation of water bodies, provided that this is done on a valid scientific basis, will also help to guarantee the most efficient approach for analysing pressures and impacts. The group of water bodies analysed may be formed of neighbouring water bodies or of water bodies with the same characteristics and/or subject to the same pressures, as the following figure illustrates.



a/ Pressures on water quality

Member States shall identify the pollution resulting from urban, industrial, agricultural and other activities. The document describing these pressures shall distinguish between these various origins.

For point source pollution, information is required on the principal pollutants listed in Annex VIII, particularly on the basis of the information gathered under the following Directives:

- 91/271 on urban wastewater treatment (Art. 15 and 17)
- 96/61 on integrated pollution prevention control
- 76/464 on hazardous substances
- 75/440 on (surface) drinking water
- 76/160 on bathing water
- 78/659 on fish water
- 79/023 on shellfish water

For diffuse source pollution, information is required on the principal pollutants listed in Annex VIII, particularly on the basis of the information gathered under the following Directives:

- 91/676 on nitrates (Art. 3, 5 and 6)
- 91/414 on plant protection products (Art. 7 and 17)
- 98/8 on marketing of biocides
- 75/440 on (surface) drinking water
- 76/160 on bathing water
- 76/464 on hazardous substances
- 78/659 on fish water
- 79/923 on shellfish water

b/ Pressures on water volumes

The following shall be identified and assessed:

- significant abstraction of water of all types (urban, industrial, agricultural, etc.) as well as the total annual demand, seasonal variations and water loss from the distribution system;
- significant regulation of water flow (transfers and diversions);
- significant morphological alterations undergone by water bodies. These morphological alterations may be defined by taking the criteria for identifying heavily modified water bodies into account (Article 4.3(a));
- without forgetting "*other significant anthropogenic pressures*" on the status of surface water.

In addition, Member States shall estimate "land use patterns, including identification of the main urban, industrial and agricultural areas and, where relevant, fisheries and forests". This requirement is in fact an assessment of medium- and long-term changes likely in the pressures identified above while taking land-use policies into account. This provision allows integration of a water policy into various other policies (agriculture, urbanisation, transport, etc.), this being one of the principal objectives of the Framework Directive[1].

[1] "Further integration of protection and sustainable management of water into other Community policy areas, such as energy, transport, agriculture, fisheries, regional policy and tourism is necessary. This Directive shall provide a basis for a continued dialogue and for the development of strategies towards a further integration of policy areas." (recital 16).

1.2. Groundwater

Using existing data, the initial characterisation shall define:

- the location and boundaries of the groundwater body or bodies;
- the pressures the body is subject to (diffuse and point sources of pollution, abstractions and artificial recharges), which thus includes hazardous substances, although these are not mentioned;
- the nature of the land and its use;
- the surface water bodies and aquatic environments fed by this groundwater.

This initial characterisation shall be based on a standard data sheet (to appear at the end of March 2003) which, in addition to the elements listed above, will include assessment of the risk of failure to meet the objectives set.

2. Methods

2.1. Pollutants

a/ for traditional pollutants:

- updating of the pressure inventory maps produced during preparation of the SDAGE
- use of the tools developed by IFEN for the European Environment Agency (continental waters ETC).
- for agriculture, use of the agricultural surplus model validated by the EEA and CORPEN (Policy committee for the reduction of nitrate pollution in water) with use of CORINE Land Cover to include land use.

b/ for priority substances:

(the data available and the products required will be defined by the "priority substances" national group in collaboration with its European counterpart and with the "Impact and pressures" European group)

pesticides: the data on use of pesticides and herbicides in large-scale farming (SCEES survey) shall be completed by the identification of other sources of pesticide input (market gardening, arboriculture, vineyards, mosquito eradication, road maintenance, etc.); examination of the data available on the contamination of environments downstream of these activities; identification of sectors which may be contaminated.

heavy metals: the data available on the geochemical background shall be completed by examination of the data available on the contamination of environments downstream of the activities responsible for discharges; identification of sectors which may be contaminated.

other priority substances: examination of the data available on contamination of environments downstream of the activities responsible for the discharges; identification of sectors which may be contaminated.

2.2. Abstraction and use of water: significant abstraction of water of all types shall be identified (urban, industrial, agricultural, etc.) as well as the total annual demand, seasonal variations and water loss from the distribution system. All abstraction of drinking water providing more than $10m^3$/day or serving more than 50 persons shall be identified.

2.3. Modifications of water flows: significant regulation of water flow shall be identified (transfers, diversions, rainwater routing, runoff due to impermeabilisation, dams, drainage, etc.).

2.4. Hydromorphological impacts: this concerns any significant morphological alterations experienced by water bodies. These may be recorded using the data of the CSP (French fisheries council) and when heavily modified water bodies are identified.

2.5. Other anthropogenic impacts: this has yet to be further specified on the basis of the definitions given by the corresponding European group.

In a second operation, after identification of pressures, "the susceptibility of the surface water status of bodies to pressures" shall be assessed, that is, the impact of these pressures shall be evaluated.

Documents available:

European guide on "Guidance for the analysis of pressures and impacts in accordance with the Water Framework Directive"
National guide on pressures and impacts (publication in March 2003)

Annex 11 - Construction of the baseline scenario

1 - The place of the baseline scenario in the management cycle of the Directive

Annex III of the Directive requires Member States to define "long term forecasts of supply and demand for water" in the river basin district. In addition, Annex II makes reference to "land use" and "territorial development plans", thus underlining the need to report on various sector-specific policies and their impact on water management during characterisation of the river basin district (Art. 5).
This stipulation on predicting changes in water supply and demand is to be carried out in several stages during implementation of the Directive:

- the first stage shall be completed by the end of 2004, and involves the initial characterisation of the river basin district as stipulated in Article 5, this culminating in an initial identification of water bodies at risk of failing to meet the objective of good status or good ecological potential by 2015. This initial diagnosis will be used to define water bodies requiring further monitoring and further characterisation.

- the second stage shall be completed by the end of 2006, in order to assess the work required in order to achieve good status by 2015.

The management plan shall describe these "long term forecasts of supply and demand for water" (Annex VII - A.6) and include a summary of the economic analysis of water use.

Paragraph 5 of Article 11 on the definition of programmes of measures states that "where monitoring or other data indicate that the objectives set under Article 4 for the body of water (environmental objectives) are unlikely to be achieved, the Member State shall ensure that the monitoring programmes are reviewed and adjusted as appropriate". In order to apply this provision, the baseline scenario must first be updated in order to assess the risk of non-achievement of the environmental objectives. This regular updating of the baseline scenario is necessary, given the high likelihood that forecasts made for a decade's time may not be accurate. They will need to be consolidated and reoriented over time. This regular updating of the baseline scenario and of the forecast situation in 2015 is an essential element in the water management process underpinned by the Directive.

In addition to the first deadline at the end of 2004, the baseline scenario shall be a regular working instrument for river basin organisations. It should be possible to regularly produce a summary based on it, so that its conclusions can be included in the performance indicators of the SDAGE, enabling this tool to have a full supporting role in the management of water policies.

Construction of the baseline scenario, mentioned in Annex III, is therefore a key factor in the process of implementing the Directive. It is used to connect the initial diagnosis (characterisation of water bodies) with identification of the actions required between now and 2015 to achieve good status.

2 - How should the baseline scenario be constructed?

Forecasting the situation in the year 2015 requires identification of the "driving forces" responsible for water status. Member States shall thus identify the activities, and therefore the most significant pressures on water status, and examine whether the "measures" which it has already been decided to implement do, in fact, suggest that the objectives of "good status" or "non-deterioration" will be achieved by 2015.

Because of this, construction of the baseline scenario goes beyond simple extrapolation of the trends observed in previous years. In particular it shall include:

- Changes in water demand, due to foreseeable growth in populations, and agricultural or industrial activities;

- Changes in point or diffuse source discharges, following application of the directives on urban wastewater treatment and on nitrates of agricultural origin and application of the legislation on classified installations in relation to priority substances. An overview of the forecast situation in 2015 shall be described here without detailing the timetable for implementation of these regulations.

The baseline scenario is constructed in four stages:

A/ Reconstruction of changes in water quality and availability over previous years

This retrospective analysis will largely use the performance indicators of the SDAGE, both in terms of changes in water quality and changes in the situation of groundwater resources.

It can include a summary of changes in land use, with reference in particular to Corine Land Cover maps.

B/ Forecasting changes in activities by the year 2015

The objective here is to estimate the quantitative and spatial changes in the principal activities which make use of water and have an impact on water status.

The principal documents on land-use planning should be taken into account here.

> **Collective Service Plans** (SSC) implement the strategic choices made in the context of national policy on land use and sustainable development. They are intended to constitute a steering tool and a strategic reference framework for public action (decree of 18 April 2002). They break down national guidelines in order to take account of territorial diversity. The plans organise the public policies for local and regional development over a twenty-year timeframe. The eight Collective Service Plans will be taken into account for the information they provide on changes in pressures; the service plans on transport, energy and natural and rural landscapes (which cover agricultural and forestry production) will be particularly useful for this study.

Regional Land Use and Development Plans (SRADT) are planning documents drawn up by the regions prior to the Collective Service Plans. They have been reviewed to take account of the SSCs and cover medium-term planning. They should include a future analysis document and a regional charter describing the draft regional land-use and sustainable development plan.

Certain territories with important development issues are covered by **Land Use Directives** (DTA), land-use planning documents drawn up by the State.

Single Programming Documents (DOCUP) provide useful elements on regional development and land use up to 2006, and have **environmental profiles** produced by the DIREN.

For overseas river basins, **Regional Development Plans** (SAR) set out the principal provisions of land-use planning.

Summarising these documents with respect to water management should be conducted in collaboration with the existing **interregional interministerial missions on land-use planning** (MIIAT), bringing together, under the authority of the *préfet* of the region, the decentralised services of the State for joint forecasting work in order to strengthen the research departments in the regions.

The river basin committee will have to involve the regions in this work, by asking them in particular to submit the available documents, this work being an integral part of the SDAGE updating process.

C/ Interim assessment of the implementation of actions already decided on

The aim of the third stage is to assess pressures in the year 2015 after implementation of measures already decided on: implementation of the Urban Wastewater Treatment Directive, the Directive on Nitrates of Agricultural Origin, reduction in the discharge of priority substances, restoration of wetland areas, etc. The 2015 forecast situation shall be defined without having to specify the timetable for completion of the work.

Similar work has been conducted for several years to assess the impact of the construction of water treatment plant on the physico-chemical quality of water. The data and methods are, however, very incomplete in terms of the biological parameters for water quality.

The work done on physico-chemical quality will therefore be completed by examining the data currently available on the physical quality of environments (fishery plans or the Environmental Observation Network of the CSP). The results obtained for the current situation will then be corrected to take account either of land development projects (drainage, provision of services to outlying urban areas, etc.), or environmental restoration initiatives (SAGE or river contracts).

D/ Assessment of impact on the status of water bodies

Having traced likely changes in the pressures experienced, the baseline scenario shall forecast the resulting impact. In other words, the relative sensitivity of the environment to each parameter shall be specified in order to identify those pressures capable of "inducing" impact. For reasons of simplicity, the analysis of the 2015 situation will only examine these "driving forces". The purpose is to identify the risk of non-achievement of good status and not to quantify the predicted divergence from the objective of good status.

The Directive allows three methods to assess the status of environments, without establishing a hierarchy between them: measurement, use of models or expert judgement (cf. Annex II - 1.3). By analogy, construction of the baseline scenario will use these different methods, any existing uncertainties being subsequently resolved through further characterisation and the work of the monitoring networks.

For the initial characterisation of the district, systematic use of modelling to determine water quality is therefore not required. Models will only be used if they are already operational. However, their development should be planned for future years.

This assessment work can be materialised in the form of tables identifying, for each sector of study (group of water bodies, sub-catchment basin or group of neighbouring sub-basins), activities and "driving force" pressures, the significance of any changes and the likelihood of risk of divergence from the objectives set (cf. point 4 below).

3 - The analysis scale and consultation

Regarding estimated changes in pressures and their impact, the level of analysis shall be that of the sub-basin, or groups of neighbouring sub-basins, these units being characterised by the homogeneity of their hydrological systems and socio-economic contexts. The area covered by a geographical commission in the river basin committee, a SAGE or an EPTB, may be the most appropriate level of analysis.

The initial work conducted shall be presented to the local consultation structures set up under the auspices of the river basin committee for implementation of the Directive (geographical commissions or departmental commissions) in order to obtain feedback and opinions from local partners, who may also provide additional information.

If construction of the baseline scenario has been conducted on a sector-by-sector basis, the consistency of the diagnoses made should then be examined, particularly at the boundaries of each sector.

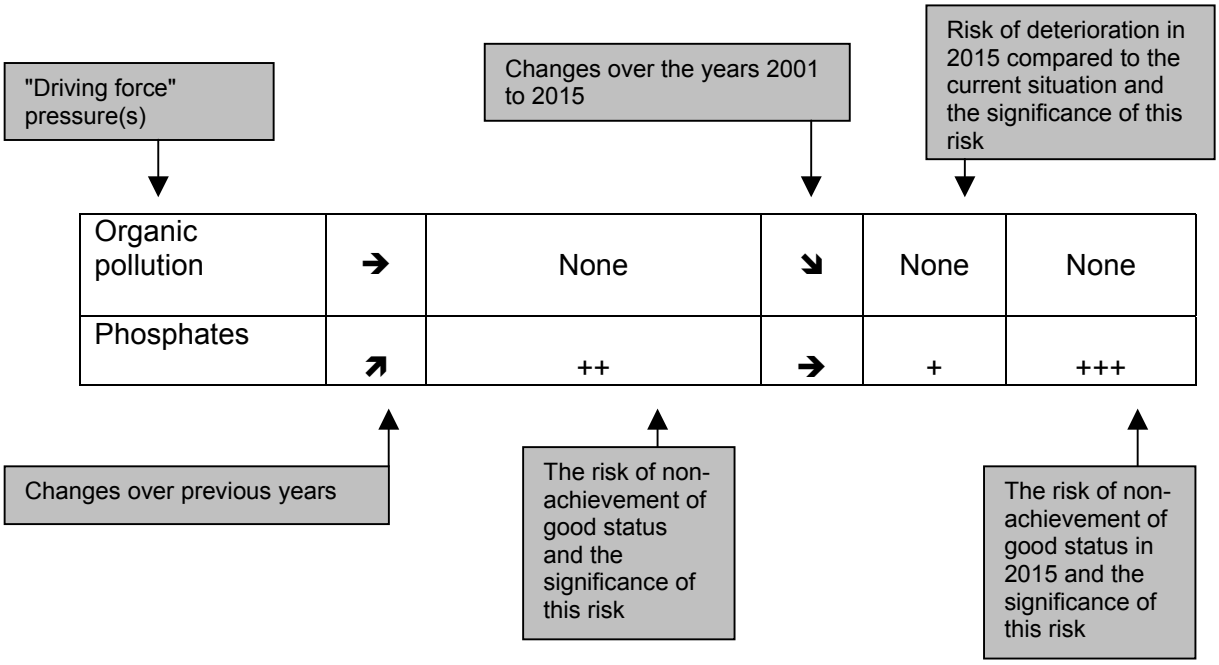
4 - Identification of water bodies at risk of not achieving the environmental objectives by 2015

The objective here is to identify those water bodies or groups of body at risk of not complying with good status by 2015 and the parameters which appear to be responsible for this. For bodies of groundwater, assessment of the risk of not achieving good status by 2015 should be conducted for each water body.

This risk shall be assessed in relation to the various environmental objectives of the Directive (non- deterioration, good status, priority substances) for the principal groups of parameters related to the driving forces.

The products used to define the relationship of "pressures - impacts - risks" will be developed by the national groups during the first quarter of 2003.

The results could be presented in the form of tables for each water body or group of water bodies, mentioning:



The "surface water" and "groundwater" groups will specify the structure of these presentation tables and conduct prior tests in the first quarter of 2003.

Documents available:

on www.eaufrance.fr. especially the section on "scénario d'évolution"

Definition of methods:

European guide on "Economies and the Environment - The Implementation Challenge of the Water Framework Directive - A guidance document" (Annex IV. I - Baseline scenario)

Conducting tests:

Loire-Brittany Water Agency: *Test de méthode d'analyse économique pour la mise en œuvre de la directive cadre européene eau* (Economic analysis test method for implementation of the European Water Framework Directive) - AscA, February 2002.

Rhone-Mediterranean-Corsica Water Agency: *Définition de zones cohérentes* (Definition of Coherent Areas); Water Agency, July 2002.

Seine-Normandy Water Agency: *Réalisation de scénarios de référence sur le bassin de l'Oise et de l'Aisne* (Construction of Reference Scenarios in the Oise and Aisne River Basins) - Ecodécision, 2002.

BRGM - Case study of disproportionate costs; Rhine-Meuse Water Agency; July 2002.

PowerPoint presentations:

Rhine-Meuse Water Agency and river basin DIREN - "Economics" workshop on the international district of the Rhine; Metz, 22 and 23 October 2002.

Annex 12 - Definition of water services and use

1 - "Water use"

The use of water is defined in relation to "*water services*" and "*any other activity*" identified under Article 5 and Annex II:

- Article 5 requires that Member States define the characteristics of the river basin district, undertake a review of the impact of human activity on the environment and an economic analysis of water use (reporting on the recovery of costs for each economic sector).

- Annex II describes the characterisation of water bodies. In point 1.4 (surface water), Annex II requires that Member States estimate point and diffuse source pollution, in particular by substances listed in Annex VIII (principal pollutants) from urban, industrial, agricultural and other installations and activities, based, inter alia, on information gathered under the directives on "urban wastewater treatment", "nitrates" and "plant protection products". The "bathing water" directive is also mentioned as, in this context, bathing constitutes a "pressure" on the water bodies concerned (the same goes for water-related leisure activities under the draft revision of the bathing directive).

  Regarding groundwater, point 2.1. of Annex II requires that Member States define the pressures to which the groundwater body or bodies are liable to be subject, and in particular diffuse sources of pollution and water abstraction. When the water body is at risk of failing to meet the objectives set under Article 4, point 2.3. requires that Member States supply information on land use in the catchments from which the groundwater body receives its recharge.

"*Water use*" means water services or any other activity having a *significant impact on the status of water*.

This concept of *water status* refers to the chemical status and ecological status for surface water and, for groundwater, to the chemical status and balance between abstraction and renewal.

"*Water use*" shall therefore include not only the abstraction or discharge of water, but also any activities (domestic, industrial or agricultural) which have an impact on water status.

Large-scale farming activities, even if they do not include irrigation, shall therefore be considered as "*water use*" under the terms of the Framework Directive, as they are listed as being one of the pressures exerted on the water bodies (without however being a "*service*").

In semi-rural areas, the same can be said for individual sewage facilities, the pressure exerted then being the cause of a deterioration in water status.

In contrast, canoeing, fishing or bathing, if they do not have an impact on water status, shall not be classified as "*water use*". These water-related activities are, however, "pressures" and they shall therefore be listed and taken into account in the cost-benefit analysis.

Annex II, by connecting given activities with pressures on water bodies, as a result creates a wide definition of the concept of "*water use*", including domestic, industrial and agricultural activities which have an impact on the status of water bodies.

2 - "Water services"

These "services" concern households, public institutions and all economic activities.

In the absence of information to the contrary, this service shall be considered as collective or autonomous. According to the definitions of Eurostat, the services cover "collective activities" and also "own-account activities".

"*Water services*" include "*abstraction, impoundment, storage, treatment and distribution of surface water or groundwater, as well as wastewater collection and treatment facilities which discharge into surface water*". Groundwater is not mentioned in relation to purification, as prohibition of direct discharges of pollutants into groundwater is a minimum requirement of the Directive (Article 11(j)).

To sum up, a "*water service*" can be considered to be in existence as soon as water is abstracted and enters a pipe. Abstraction of water for cooling, navigation, the generation of hydropower, irrigation, drinking water supplies, as well as agricultural drainage, can all be considered as "*water services*" if they have an impact on water status.

Documents available:

European guide on "Economics and the Environment - The Implementation Challenge of the Water Framework Directive - A guidance document" (Annex II.III Water uses and water services)

Annex 13 - Methods for calculating recovery of costs of services by user category

The inventory shall report on the methods of pricing and application of the principle of recovery of the costs of services. These elements shall be presented for all services, both public and private, individual and collective, independently of their impact on water status, in order to present an overview of water economy in the river basin.

The inventory to be produced for the end of 2004 will, for the first time, report on the application of the principle of recovery of costs. Not all the data will be available at the level of each district. In this case, data which may be available at national level should be used. The inventory shall list any missing data and define the actions required to improve knowledge on the costs incurred.

The products required are as follows:

1/ a description of the pricing in force (prices and tariff structures)

This data shall be presented at the level of the district. There is no obligation to produce a more detailed scale of analysis.
For the price of domestic water, the data from the 1998 IFEN-SCEES survey on water and purification services may be used. The results are available for each large river basin, each "département" and each RNDE sub-basin (with the exception of small RNDE sub-basins). This data can be completed by the results of river basin observatories.

These surveys do not, however, provide data on the special prices which may be charged to large consumers. The study on the price of drinking water in the industry (cf. bibliography) provides some information which should be completed by specific surveys.

Regarding the pricing of irrigation water in a collective system, a survey shall be conducted on the principal services concerned.

2/ calculating the recovery of costs

Calculating the recovery of costs involves, in particular, identifying service production costs, the revenue of producers and the payments of service users.

Analysis of the recovery of costs shall usually allow identification of the subsidies received by services for both investments and operating.

A description of the investment funding channels shall be given to provide better legibility of the water policy.

21/ presentation of the investment funding conducted by water services:

The identification of investment funding channels shall be based on surveys conducted on the different categories of organisation likely to provide capital assistance from the European Union, the State, "Départements", Regions and Water Agencies. A distinction shall be made between what is financed through taxes and what is financed through the water prices (FNDAE and environment taxes).

22/ recovery of the costs of water services

For the inventory, the calculations shall be made at district level. It should be pointed out, however, that when the programmes of measures are drawn up, it may be necessary to calculate the cost recovery ratio over smaller geographical areas (RNDE sub-basins for example) in order to determine whether expenditure is disproportionate or not, and its impact on the various categories of user.

To analyse recuperation of current expenses, the following three questions should be asked:

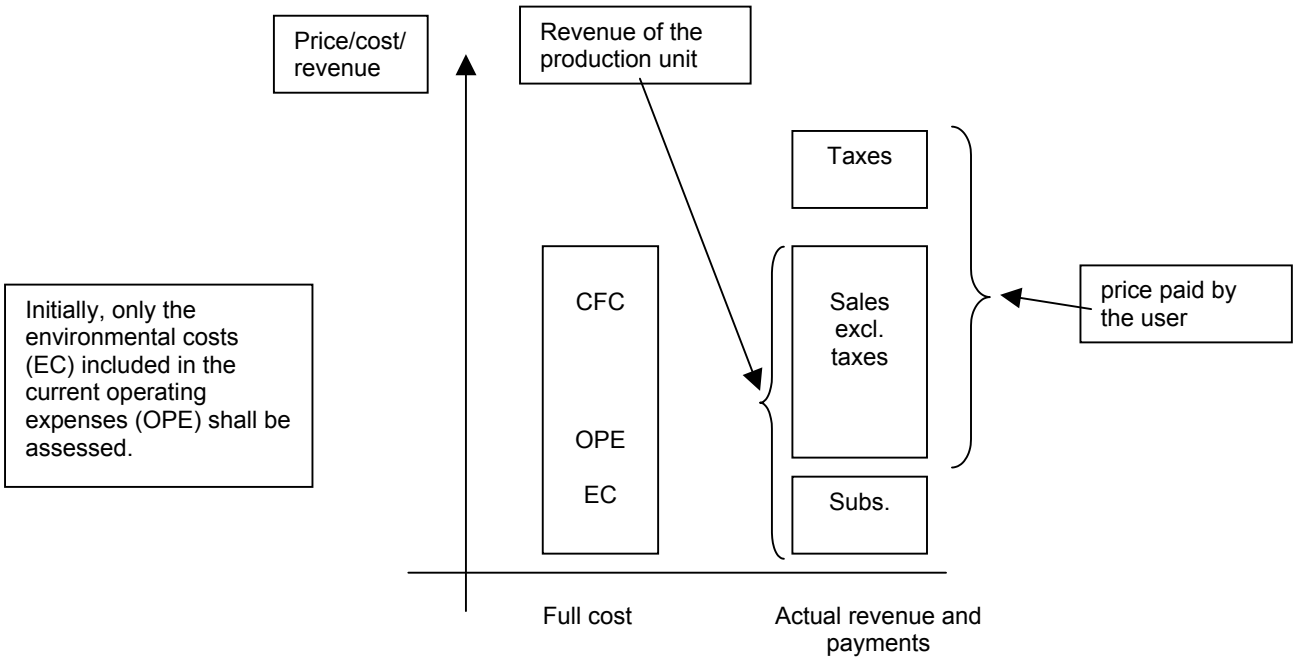
- what is the cost of services for producers?
- how do users pay for services? In particular, do they pay more or less than the full production cost?
- how are the costs of producers covered? in particular, are explicit or implicit subsidies added to the direct payments of users?

The price of the service shall be analysed in terms of the full cost (including operating costs, depreciation costs and the cost for the environment and resources).

Costs and user payments shall be given exclusive of VAT. Environment taxes (exchange value, abstraction charges) and consumption charges (FNDAE: National fund for drinking water supply systems) are subtracted from the production costs and charged directly to users.

The data gathered can be used to compare costs (operating costs OPE and consumption of fixed capital CFC) with user payments exclusive of VAT.

(OPE + CFC) <=> user payments excl. VAT



The difficulties involved in assessing costs shall be identified in order to specify the data to be gathered and the surveys to be conducted for construction of the management plan.

3/ analysis of the costs of protective and curatives measures to deal with the impact of pollution
A table identifying the different items of expenditure shall be produced in order to provide the unit costs for calculating the cost of protective and curative measures.

4/ assessment of non-commercial damage
A table of tutelary values shall be produced and gradually completed in order to provide, by 2005, the data judged necessary to analyse and assess the action programmes.

Documents available:

European guide on "Economics and the Environment - The Implementation Challenge of the Water Framework Directive - A guidance document" (Annex IV.I - Information sheets: Estimating costs and benefits; Reporting on cost recovery; Pricing as an economic instrument.)

Report on the work of the RNDE Economics group (March 2003)

Annex 14 - Public information and consultation

An information of the public shall be organised before the consultations stipulated in the Directive.

To this end:
- ***The methods and tools used for this information process shall be identified at national level, in order to ensure homogeneity of access to the information throughout the national territory;***
- ***The river basin committee preparing this information phase shall involve local water management partners in the construction of the inventory.***

1. What does the Framework Directive stipulate?

Article 14 is based around two principal points, one related to interested parties, the other related to the general public.
Thus, "the Member States shall ***encourage*** the active involvement of all interested parties in the implementation of this Directive, in particular in the production, review and updating of the river basin district management plans."

This therefore covers the ***active involvement of interested parties*.**

In addition, "the Member States shall ***ensure that***, for each river basin district, they publish and make available for comments to the public, including users (...)" the preparatory documents for the management plans.
In addition, "on request, ***access shall be given*** to background documents and information used for the development of the draft river basin management plan".

This therefore covers ***informing and consulting the general public*.**

It should be noted that there is convergence between the Framework Directive and the Aarhus Convention. The latter was signed in Aarhus on 25 June 1998 and transposed by decree 2002-1187 on 12 September 2002 (O.J. 21 September 2002 p. 15563), and states that "citizens shall have access to information, be allowed to participate in decision-making and have access to justice in environmental matters".

In accordance with the Aarhus Convention, the Framework Directive stipulates that public consultation on the content of the management plan shall be started a long way upstream of the final decision. Member States are required to organise the consultation in three principal stages from 2006. The following shall therefore be submitted to the public: definition of the work programme by 2006 at the latest, identification of the significant issues raised in the river basin by 2007 at the latest, the draft management plan by 2008 at the latest. At each stage, the interested parties have "*at least six months to comment in writing on those documents*".

In order to ensure transparency and justify the decisions made, the management plan shall then provide a summary of the public information and consultation measures taken, their results and the changes made to the plan as a consequence (Annex VII of the Directive).

2. How should the inventory stage be implemented?

Prior public information on the Framework Directive process

The public shall be informed of the process and objectives of the Directive as early as possible. It would appear that it will also be necessary to raise the awareness of citizens on issues involved in water protection and to strengthen environmental education, both for school students and adults. It is important that the public has access to all the relevant information at the beginning of the procedure, as the quality of the information given beforehand will determine the success of the consultation process.

In a general sense, transparency is an important part of the Framework Directive: giving access to appropriate information on the measures envisaged, reporting on the progress of implementing these measures, involvement of the public before adoption of the final decisions on the measures necessary, etc.

Public information on the results of the inventory

In addition to the necessary information on the entire process of the Framework Directive, it is also necessary to **give the public access to the data in the inventory**.

The Directive does not require public consultation on the inventory report. However, it requires that the public be given access to all the information used and the background documents. The inventory report is a background document used to construct the management plan and shall therefore be made available to the public.

In addition, it is also obvious that the *significant water management issues identified in the river basin* (submitted for public consultation) should be defined in light of the inventory.

Finally, implementing the formal procedure described by the Framework Directive from only 2006 onwards will not be enough: the public should be involved further upstream.

Public consultation on the summary of issues will therefore be much better prepared for if the public has already been informed of the results of the district characterisation study.

The river basin committees shall be responsible for providing this information from 2004.

Making the report available on the Internet will not be sufficient for ensuring proper distribution of the information. The river basin committees will play a major role here in preparing this public information phase, by ensuring **distribution of the information to local partners** and identifying **the perceptions and expectations of the general public**.

The results of the analyses (district characterisation, impact of human activities and economic analysis) shall be made available to the public while taking into account the **need for legibility in the design of the documents**. In other words, care should be taken to make the documents produced understandable to laypeople. One of the difficulties to be overcome if informing the public is to be successful, is the highly technical nature of the data required by the Directive. It will therefore no doubt be necessary to clearly distinguish between the background documents, presenting a summary of the technical information necessary, and the products introducing and describing the inventory which will be designed for the general public. The results should be explained in **the most educational way possible**.

Consultation of stakeholders during production of the inventory

In the context of the active involvement of interested parties, as required by the Directive, it is essential to involve river basin groups in the production of the inventory. It is therefore desirable to inform and consult river basin groups on the studies in progress and to get their feedback. Successful involvement of river basin groups is essential for the next stage of the work. It determines production of a shared diagnosis between stakeholders on the status of the district, and through this, prepares for consultation on the definition of the measures necessary for water bodies to achieve the objective of good status.

This consultation will be largely based on existing consultation structures (river basin committees, geographical commissions, local water commissions, etc.), developed through the important work carried out in the field over the last few years. The methods for implementing the Framework Directive shall be shared and described: in this perspective, the role of the river basin committees and their geographical commissions is essential. Consultation of stakeholders on the inventory will make it possible to set up a functional organisation operating between the different stakeholders and territorial levels, which can be mobilised again for the consultation exercises required in 2006, 2007 and 2008.

3. The work in progress

At European level

A guidance document has been prepared by the European working group in order to further specify the requirements of the Framework Directive on public participation. The final version of this document was validated by the European Water Directors at the end of November 2002.
The European working group allowed limited prior distribution of a first version in September within the Member States in order to test its feasibility.
The resulting consultation organised in the river basins has led to the collection of useful feedback, both for improving the European document, and for developing a national document.

At national level

A working group was set up in May 2002 in order to define the methods for applying Article 14.
An assessment of practical methods for organising public consultations in France and other countries was first completed, in order to identify existing methods and tools (procedures for collecting and processing comments in particular).
With the support of the National Commission on Public Debate (CNDP), the tools and methods required to ensure homogenous processing at national level will be specified, in consultation with the river basins.
On the basis of these multiple feedback exercises and the European document, the national working group intends to define guiding principles and identify methods in a briefing note planned for the beginning of the second quarter in 2003.

At district level
Action plans derived from the national briefing note shall be drawn up in accordance with local specific features in each district.

Documents available:

- *Etude comparée des modalités d'information et de consultation du public* (Comparative study on public information and consultation methods) (Quebec, Netherlands, Denmark), Study report, Recherche Développement International, September 2002
- Feedback from the CNDP, training course report, MEDD - Water Department, Juanita Soehike, September 2002
- European guidance document on public participation, November 2002

Annex 15 - List of the products required for district characterisation

Products required	Information necessary	References in the Framework Directive
Geographical area of the district		
Map of the district	Geographical area Name of principal rivers Accurate indication of the boundaries	Annex I point i
Characterisation of surface water bodies		
Position and boundaries of the surface water bodies		Annex I ii Annex II 1.1. and 1.2. Annex VII A. 1.1.
Ecoregions and types of surface water body	Types of river Types of lake Types of coastal and transitional waters including artificial and heavily modified water bodies	Annex II 1.1. and 1.2. Annex VII A. 1.1.
Identification of reference conditions for the types of surface water body		Annex II 1.3. Annex VII A. 1.1.
Pressures on surface water bodies	Point source pollution, Diffuse source pollution, including map of land use	Annex II 1.4. Annex VII A. 2
Impacts on surface water bodies		Annex II 1.5. Annex VII A. 2
Trends in surface water body pollution		
Identification of areas failing to comply with the 2015 objectives		
Characterisation of groundwater bodies		
Position and boundaries of the groundwater bodies		Annex II 2.1. and 2.2. Annex VII A. 1.2.
Pressures on groundwater bodies	Point source pollution, Diffuse source pollution, including map of land use Groundwater abstractions and recharges	Annex II 2.1. and 2.2. Annex VII A. 1.2.
Impacts on groundwater bodies		Annex II 2.3. Annex VII A. 2.
Trends in groundwater body pollution		
Identification of areas failing to comply with the 2015 objectives		

Maps of the protected areas		
Maps of the protected areas	- areas designated for the abstraction of water intended for human consumption - areas designated for the protection of economically significant aquatic species - bodies of water designated as recreational waters, including bathing water - nutrient-sensitive areas, including areas designated as vulnerable zones and sensitive areas - areas designated for the protection of habitats or species, including relevant Natura 2000 sites	Article 6 Article 7 Annex IV Annex VII A. 3. and A. 4.3.
Results of the economic analysis		
Tables showing the results of the economic analysis, in particular the initial degree of cost recovery		Annex III

Annex 16 - Monitoring networks

The objective of this Annex is to describe the mechanism required by the Framework Directive: the monitoring programme and the different types of monitoring involved, and specific features of groundwater monitoring.

The monitoring mechanism is made up of a monitoring programme and different types of monitoring.

"*In order to establish a coherent and comprehensive overview of water status*", a monitoring programme shall be established within each river basin district over the period covered by the management plan (Article 8 - Annex V). It shall be operational by the end of 2006 at the latest. In accordance with Articles 8 and 21 of the Directive, the technical specifications and standardised methods for analysis and monitoring of water shall be laid down by the regulatory committee set up to assist the Commission (Article 21).

1 Surface water

The monitoring programme for surface water bodies shall examine:
- the volume and level or rate of flow;
- the ecological and chemical status and ecological potential.

It is used to classify water bodies on the basis of their ecological status and their chemical status. The parameters used are those judged to be relevant with respect to the status of water bodies.

The monitoring programme includes three types of additional programmes:

- a programme of "***surveillance monitoring***", the purpose of which is to monitor the general development of the water bodies in the district and to assess long-term changes;

- a programme of "***operational monitoring***", the purpose of which is the specific monitoring of water bodies identified *a priori* as problematic, and assessment of the effect of the measures implemented on them;

- a programme of "***investigative monitoring***", the purpose of which is to determine causes when a problem is noted in a water body;

- and, for certain bodies of surface water listed on the register of protected areas (waters used for drinking-water supplies, Natura 2000 areas), a programme of "***additional monitoring***".

The monitoring networks and the results of the monitoring programmes shall be mapped in the management plan.

In accordance with Article 15, a summary report on the establishment of the monitoring programmes shall be submitted to the Commission by 22/03/2007 at the latest.

11. Surveillance monitoring

The objective of surveillance monitoring is to:

- supplement and validate the impact assessment procedure, in order to **determine the operational monitoring and investigative monitoring programmes required** for inclusion in the management plan and the programme of measures;

- **assess long-term changes** in natural conditions and those resulting from widespread anthropogenic activity.

The monitoring points shall be selected so as to "*provide an assessment of the overall surface water status within each catchment or sub-catchment*".
Paragraph 1.3.1 of Annex V specifies the criteria to be used when selecting monitoring points:

- surveillance monitoring is conducted at "sample" points representative of the district, including large lakes and reservoirs;

- monitoring is compulsory for large water bodies across a Member State boundary;

- it shall also allow estimation of the pollutant load which is transferred into the marine environment (cf. Helsinki, OSPAR and Barcelona conventions referred to in recital 21).

The surveillance monitoring sites shall be designated in accordance with the Information Exchange Decision 77/795/EEC.

Surveillance monitoring is carried out for each monitoring site for a period of one year during the period covered by the management plan. It covers **all the parameters indicative of ecological and chemical status**, unless the results of the previous surveillance monitoring exercise were good and the anthropogenic pressures on the water body have not changed (in this case, surveillance monitoring shall be carried out once every three management plans).
Frequency of monitoring is determined by the objective of "*achieving an acceptable level of confidence and precision*". These levels of confidence and precision shall be indicated in the management plan. The frequency table in §1.3.4 of Annex V for each "*quality element*" is given "*as a guideline*". In particular, greater intervals would be justified on the basis of technical knowledge and expert judgement.

12. Operational monitoring

Operational monitoring shall be undertaken in order:

- to accurately establish **the status of those bodies identified as being at risk of failing to meet their environmental objectives** (including water bodies which receive discharges of substances on the list of priority substances and those included in protected areas);

- and at a later date, to monitor and assess **the effects of the programme of measures** on this status.

The monitoring points are selected on the basis of the instructions given in paragraph 1.3.2. of Annex V. **The parameters monitored depend on the pressures which the water bodies monitored are subject to** (point source pressures, both qualitative and quantitative diffuse source pressures and hydromorphological pressures).

Frequency of monitoring is determined by each Member State in compliance with the instructions given in paragraph 1.3.4 of Annex V. As in the case of surveillance monitoring, the frequency of operational monitoring is determined by the objective of "*achieving an acceptable level of confidence and precision*". The frequency table in §1.3.4 of Annex V for each "*quality element*" is given "*as a guideline*". In particular, a reduction in frequency is allowed if the impact of the pollution recorded is found not to be significant or the relevant pressure is removed.

13. Investigative monitoring

Investigative monitoring shall be carried out:

- to ascertain the magnitude and impacts of accidental pollution;
- where surveillance monitoring indicates that a body of water is unlikely to meet the environmental objectives set and this has not been anticipated, and where, as a result, no operational monitoring has yet been established. In this case, the causes of the divergence observed and/or of non-achievement of the objectives shall be ascertained.

In both cases, Member States shall provide the information necessary for establishing a programme of measures to deal with the problem identified, and an operational monitoring programme to monitor changes in the water body and the effect of the measures taken.

14. Additional monitoring

This additional monitoring is for protected areas (Annex V, paragraph 1.3.5):

- bodies of surface water which provide more than 100 m^3 a day as an average. This additional monitoring covers "all priority substances discharged and all other substances discharged in significant quantities which could affect the status of the body of water and which are controlled under the provisions of the Drinking Water Directive" (Annex V, paragraph 1.3.5).
- water bodies which are designated as habitat and species protection areas where, on the basis of the impact assessment and the surveillance monitoring, they are identified as being at risk of failing to meet their environmental objectives under Article 4 (Annex V, paragraph 1.3.5).

Additional monitoring is not related to the risk of current or future non-compliance with the objectives. Monitoring is carried out to assess the magnitude and impact of all relevant significant pressures exercised on these bodies of water and, if necessary, to evaluate changes in the status of the said bodies following the programmes of measures. Monitoring shall continue until the areas satisfy the water-related requirements of the legislation under which they are designated and meet their objectives under Article 4.

2. Specific features of groundwater monitoring

The programme for monitoring groundwater bodies shall examine quantitative status and chemical status, and allow classification of water bodies on the basis of their quantitative status and chemical status.

21. The quantitative status monitoring network

The monitoring network shall be designed so as to provide a reliable assessment of the quantitative status of all groundwater bodies or groups of bodies, including assessment of the available groundwater resource. Very general information is given in the Directive on the density of monitoring sites and the frequency of observations which shall be "*sufficient to estimate the groundwater level in each groundwater body or group of bodies taking into account short and long-term variations in recharge*" (Annex V, paragraphs 2.2.2 and 2.2.3). The wording of point 2.2.2 implies increasing the density of sites for water bodies identified as being at risk of failing to meet the objectives under Article 4, and for groundwater bodies lying across Member State boundaries.

22. The chemical status monitoring network

"*Surveillance monitoring*" of chemical status is conducted using a "*groundwater monitoring network*" (Annex V, paragraph 2.4.1) established in accordance with the requirements of Articles 7 (water bodies used for drinking water supplies) and 8 (general programme for monitoring the status of water bodies). This network shall provide a "*coherent and comprehensive overview of groundwater status within each river basin*", thus allowing the possibility of monitoring at 'sample' sites. Here again, it is not a question of having knowledge of all water bodies, but of having a representative view of the pressures recorded and of the river basin district characteristics.

Surveillance monitoring shall be carried out on water bodies expected to achieve good status. For those water bodies identified as being at risk of failing to meet the objectives, surveillance monitoring shall be supplemented by operational monitoring. The management plan shall indicate the level of confidence and precision regarding the results.

The monitoring sites shall be defined in order to allow the identification of long-term upward trends, both as a result of changes in natural climatic conditions, and through anthropogenic activity (Article V, paragraph 2.4.2).

In accordance with the requirements of paragraph 2.4.1 in Annex V, **surveillance monitoring** is defined on the basis of the initial characterisation. It shall be reviewed and supplemented to produce the detailed characterisation of water bodies or groups of bodies at risk. In these areas, the significance of the risk shall be more precisely assessed by strengthening the operational monitoring networks. The results produced by these networks shall be used to complete and validate the impact assessment of human activity on groundwater status.

The wording of point 2.4.2 in Annex V implies increasing the density of the measurement sites for water bodies lying across Member State boundaries and water bodies identified as being at risk of failing to meet the objectives under Article 4.

Assessment of impacts on water bodies and subsequent definition of the monitoring programme is an ongoing and repeated process. In fact, the initial inventory on water bodies shall allow adaptation of the monitoring programme in accordance with the problems observed. Conversely, the results of surveillance monitoring shall highlight new pressures or impacts so that the monitoring programmes can be adapted by setting up new operational monitoring programmes.

A surveillance monitoring programme shall be conducted during each management plan, i.e. every six years. The results are used to define the operational monitoring necessary during the remaining period of the plan.

Operational monitoring is defined on the basis of the results of surveillance monitoring (Annex V, paragraph 2.4.3). It is carried out in the periods between two surveillance monitoring programmes. The frequency of the observations "*shall be sufficient to detect the impacts of relevant pressures but at a minimum of once per annum*".

It shall be carried out for those groundwater bodies or groups of bodies which are "*identified as being at risk of failing to meet the objectives*" (Annex V, paragraph 2.4.3).

It shall be used to "*establish the presence of any long-term anthropogenically induced upward trend in the concentration of any pollutant* (Annex V, 2.4.3) … *and the reversal of such trends*" (Annexe V, 2.4.4).

Additional monitoring only applies to surface water and is not mentioned for groundwater.

Documents available:

European guide: "Guidance on Monitoring for the Water Framework Directive"
Specifications for the development of groundwater monitoring networks in France (March 2003)