DAMS IN EUROPE

THE WATER FRAMEWORK DIRECTIVE AND THE WORLD COMMISSION ON DAMS RECOMMENDATIONS

A LEGAL AND POLICY ANALYSIS

This report was commissioned from Ana Barreira[1] by the WWF International Dams Initiative (January 2004)

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ACRONYMS

AWB	Artificial Water Bodies
CIS	Common Implementation Strategy
CSR	Corporate Social Responsibility
DDP	Dams and Development Project
DG	Directorate General
DPSIR	Driver, Pressure, State, Impact, Response
EC	European Community
ECJ	European Court of Justice
EIA	Environmental Impact Assessment
EU	European Union
FPC	Federal Power Commission
GEP	Good Ecological Potential
GES	Good Ecological Status
HMWB	Heavily Modified Water Bodies
ICJ	International Court of Justice
ICOLD	International Commission on Large Dams
ILA	International Law Association
IMPRESS	Impact and Pressures
MS	Member States
PoM	Programme of Measures
RBMP	River Basin Management Plan
REFCON	Reference Conditions
SIA	Strategic Impact Assessment
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
WATECO	Water and Economics
WCD	World Commission on Dams
WFD	Water Framework Directive

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EXECUTIVE SUMMARY

The Water Framework Directive (WFD) sets out ambitious goals for water management across Europe, aiming at good water status. The recommendations of the World Commission on Dams (WCD) provide a rational framework for decision-making in line with the WFD requirements for non-deterioration, achievement of good water status, stakeholder participation and international cooperation in transboundary basins. The aims of this analysis are to assess the implications for possible dam construction of the legally binding provisions of the WFD on the one hand, and the voluntary WCD guidelines on the other. In addition, the analysis aims at drawing parallels between the WFD and the WCD recommendations.

To achieve the objectives of this project, a number of different tasks have been carried out: consultation of relevant literature, in-depth analysis of the WFD provisions, of the Common Implementation Strategy Horizontal Guidances on the application of the term "water bodies" and public participation, Guidances on IMPRESS, HMWB, WATECO and Planning Process; analysis of the state-of-play regarding European adoption or implementation of the WCD recommendations and consultations with relevant stakeholders to confirm the main findings of this project.

The outputs of this project are presented in this report in four sections:

1. The Water Framework Directive: Implications for New Dams
2. The WFD Common Implementation Strategy Guidances: Implications for New Dams
3. The Recommendations of the WCD & the WFD: A Legal and Policy Analysis of their Synergies
4. Overview of the Recommendations of the WCD and the WFD: Implications for Dams in Europe

The main findings are that synergies between the WFD and the WCD exist. This is not surprising since the WCD's work built on existing and recognised principles and conventions of international law. Some of the WCD recommendations are already part of the of the *acquis communitaire* and are thus legally binding at the EU level. We suggest that at some point the WCD recommendations could be adopted as a methodological guidance at the EU level. Their adoption would be very useful for the implementation of article 4 (7) which establishes specific conditions to be met in order to build new dams that could endanger the achievement of good ecological status or good groundwater status or good ecological potential. However, if this was not to happen, Member States could still not ignore the WCD's recommendations completely since, as our analysis shows, some of them are already legally binding. With the adoption of the WFD by the EU, common and higher environmental legal standards must now be met before new dams can be built in the EU.

1. OVERVIEW OF THE RECOMMENDATIONS OF THE WORLD COMMISSION ON DAMS AND THE WATER FRAMEWORK DIRECTIVE: IMPLICATIONS FOR DAMS IN EUROPE

1. The global water debate has been very intensive since the last decade of the Twentieth century. Among the issues discussed, large dams occupies a prominent position on the list. In 1998, the World Commission on Dams (WCD) was established to review the development and effectiveness of large dams, to assess alternatives for water resources and energy development and to develop internationally acceptable criteria, guidelines and standards for planning, design, appraisal, construction, operation, monitoring, and decommissioning of dams. The WCD started its work in May 1998, and launched its report "Dams and Development: A New Framework for Decision-Making" in November 2000. This report has generated a wide and far-reaching debate over water resources management and development in general, and over dams in particular. Although this report has been interpreted by some as an anti-dams report, it actually does not oppose them[2].

2. Parallel to the WCD process, the European Water Framework Directive (WFD) was being negotiated[3]. This Directive aims to establish a framework for the protection of all waters (inland surface waters, transitional waters, coastal waters and groundwater). To this end, the Directive obliges Member States to prevent further deterioration, enhance and restore the status of aquatic ecosystems. The most important result of its implementation will be the achievement of the good status of waters by 2015. In order to achieve that result, MS are obliged to prevent deterioration of the status of water bodies.

3. Though both instruments are different in nature: the WCD guidelines are non-legally binding while the WFD is binding, there are certain parallels between these instruments. The WCD proposed a framework for options assessment and decision-making processes for water and energy resource development, along with a set of criteria and guidelines for planning, design, construction, operation and decommissioning of large dams. The WFD is a comprehensive legal document which establishes the framework for action in the field of water policy. The WFD intents to put an end to the current fragmentation of European rivers. Accordingly, it included specific provisions dealing with physical modifications, such as dams, that may endanger the achievement of good water status.

4. This section intends to make a brief analysis of the implications of the WCD recommendations and of the WFD for existing dams and planned dams in Europe. It compiles the main findings of three other sections which analyse the implications of the WFD and of the WFD Common Implementation Strategy (CIS) Guidances for new dams in Europe and the synergies between the WCD outcomes and the WFD provisions.

I. The WCD Report

5. One of the main conclusions of the WCD Report is that "dams have made an important and significant contribution to human development, and the benefits derived from them have

been considerable" but, "in too many cases, an unacceptable and often unnecessary price has been paid to secure those benefits especially in social and environmental terms". Having analysed all impacts of dams, the WCD proposed an alternative way forward involving public acceptance, comprehensive options assessment and the mitigation of the negative impacts of new and existing dams. The WCD proposed a rational and logical framework for deciding whether or not to build a dam.

6. The Commission indicated at the outset that improving development outcomes requires an expanded basis for decision-making that reflects a comprehensive understanding of benefits, impacts, and risks with regard to water and energy. It identified five core values consistent with the evolving global development agenda: equity, efficiency, participatory decision-making, sustainability and accountability. These values are embraced in the strategic priorities and guidelines of the WCD report.

7. The WCD indicated that the Strategic Priorities and Best Practice Guidelines were principles to guide decisions, rather than strict rules for compliance[4]. The strategic priorities provide guidelines for a new way forward that is founded on achieving equitable and sustainable development through a process that successfully integrates social, economic and environmental considerations into decision-making on large dams and their alternatives.

8. The guidelines describe in general terms how to assess options and plan and implement dam projects to meet the Commission's criteria. They are also advisory tools to support decision-making and need to be considered within the framework of existing international guidance and current good practice. In the opinion of the WCD, applying these would lead to a more and sustainable outcome in the future.

The WCD Guidelines

Strategic Priority 1: Gaining Public Acceptance
1. Stakeholder Analysis
2. Negotiated Decision-Making Processes
3. Free, Prior and Informed Consent

Strategic Priority 2: Comprehensive Options Assessment
4. Strategic Impact Assessment for Environmental, Social, Health and Cultural Heritage
5. Project-Level Impact Assessment for Environmental, Social, Health and Cultural Heritage Issues
6. Multi-Criteria Analysis
7. Life Cycle Assessment
8. Greenhouse Gas Emissions
9. Distributional Analysis of Projects
10. Valuation of Social and Environmental Impacts
11. Improving Economic Risk Analysis

Strategic Priority 4: Sustaining Rivers and Livelihoods
14. Baseline Ecosystem Surveys
15. Environmental Flow Assessment
16. Maintaining Productive Fisheries

Strategic Priority 5: Recognising Entitlements and Sharing Benefits
17. Baseline Social Conditions
18. Impoverishment Risk Analysis
19. Implementation of the Mitigation, Resettlement and Development Action Plan
20. Project Benefit-Sharing Mechanisms

Strategic Priority 6: Ensuring Compliance
21. Compliance Plans
22. Independent Review Panels for Social and Environmental Matters
23. Performance Bonds
24. Trust Funds
25. Integrity Pacts

Strategic Priority 3: Addressing Existing Dams
12. Ensuring Operating Rules Reflect Social and Environmental Concerns
13. Improving Reservoir Operations

Strategic Priority 7: Sharing Rivers for Peace, Development and Security
26. Procedures for Shared Rivers

II. The WFD and dams: synergies with the WCD recommendations

9. The Collins English Dictionary (Second Edition 1988) defines a **dam** as a barrier of concrete, earth, etc., built across a river to create a body of water, as for a domestic water supply. It also defines it as a reservoir of water created by such a barrier. A dam is a physical alteration that produces changes in the hydromorphological conditions and physico-chemical conditions involving alterations to fauna and changes in primary biological productivity of associated ecosystems[5]. Confronting these impacts with the WFD environmental objectives[6], it is logical that this Directive included specific provisions on the protection of water bodies facing physical alterations. The main articles are 4(3) and 4 (7). These provisions cover existing and new modifications to the physical characteristics of a surface water body or alterations to the level of bodies of groundwaters.

10. In the case of existing dams, the WFD has introduced the concept of heavily modified water bodies (HMWB). Those are bodies of water:

a) physically altered by human activity;
b) substantially changed in character; and
c) designated under Article 4(3).

In order to designate a water body as heavily modified, it must undergo the tests within Article 4 (3). As developed by the CIS Guidance on Designation of HMWB, these tests require consideration whether restoration measures required to achieve "good ecological status" have a significant adverse effect on the activity (use) and whether there are other means of undertaking the activity. The most common physical alteration include dams and weirs, which disrupt the river continuum and cause alterations of the hydrological and hydraulic regime. If it is likely that the water body will fail to achieve good ecological status due to hydromorphological changes then a range of options exist for objective setting. Also relevant is the normative definition of maximum ecological potential in the WFD (Annex V, table 1.2-5) under the hydromorphological elements which reads " … once all mitigation measures have been taken to ensure the best approximation to ecological continuum, in particular with respect to migration of fauna and appropriate spawning and

breeding grounds". This wording should be read in conjunction with the obligation of article 4 (1) (iii) to "protect and enhance all artificial and heavily modified water". Even if the objective of 4(1) (iii) is only good ecological potential", the requirements for maximum ecological potential are only "slightly more demanding". Clearly, any designation of a water body as HMWB due to an existing dam or weir must consider whether "all mitigation measures…." have been taken[7].
The restoration measures could include some of the recommendations under Strategic Priority 3: Addressing Existing Dams of the WCD Report and in particular, guidelines 12 and 13 implying increased compensation flows or fish passages. Therefore, it seems that for existing dams in Europe some of the recommendations of the WCD have been taken into consideration and are implicitly incorporated in the text of the WCD and in the Guidance on Designation of HMWB, which give further specification of this.

11. In the case of new dams, the WFD has included a provision, the "objective derogation" of article 4(7), which allows the execution of projects such as dams even where they modify the physical characteristics in such a way that provokes a failure to achieve good groundwater status, good ecological status or, where relevant good ecological potential or to prevent deterioration in the status of surface or groundwater bodies. However, this possibility is very restrictive in order not to make the WFD an ineffective instrument. Member States will have to prove that all the required conditions are met. Otherwise, there will be a breach of the WFD.

12. The conditions that have to be met are:

d) all practicable steps are taken to mitigate the adverse impact on the status of the body of water;
e) the reasons for modifications are of overriding public interest and/or the benefits to the environment and to society of achieving the environmental objectives are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development;
f) the beneficial objectives served by those modifications or alterations of the water body cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option;
g) it does not permanently exclude or compromise the achievement of the environmental objectives in other bodies of waters within the same river basin district and is consistent with the implementation of other Community legislation[8]; and
h) it is guaranteed at least the same level of protection as the existing Community legislation[9].

13. These are very restrictive conditions. In order to prove that they are met, many tests must be passed. As the text of the WFD does not provide a clear guidance on how to carry out these test, one of the Annexes of the WATECO Guidance developed under the Common Implementation Strategy has elaborated a methodology to carry out the tests following seven steps[10]:

Step 1.- *Identifying and characterising the new modification/activity*
Step 2.- *Assessing the impact of new modification/activity on water status*
Step 3.- *Identifying practical measures to mitigate the adverse effects*

Step 4.- *Identifying the broader impacts on water bodies*
Step 5.- *Assessing the reasons for the new modification/activity*
Step 6.- *Comparing the benefits of the new modification/activity with the benefits of avoiding deterioration of water status*
Step 7.- *Comparing with alternatives that serve the same beneficial objectives*

14. There are many similarities between the legally binding requirements of article 4 (7) and guidance provided by WATECO with the WCD strategic priorities and guidelines, in particular Strategic Priority 2: Comprehensive Options Assessment. In addition, Strategic Priority 1: Gaining Public Acceptance is mirrored in the horizontal CIS Guidance on Public Participation. Another important and legally binding requirement which refers to the obligation not to impact other bodies of water within the same river basin district is equal to Strategic Priority 4: Sustaining Rivers and Livelihoods and to Strategic Priority 7: Sharing Rivers for Peace, Development, and Security in the case of international river basin districts.

15. Articles 4(3) and 4(7) should not be read in isolation with the rest of the WFD provisions and the CIS Guidances. We found other coincidence with some WCD core values, strategic priorities and guidelines:

a) the stakeholder analysis which is contained in Annex 1 on Public Participation Techniques to the Guidance on Public Participation is based on recognising rights and assessing risks in line with the WCD recommendations;
b) WCD guideline 2 on negotiated decision-making processes is reflected in the WFD specifically in the provision on public involvement and public consultation as well as on the horizontal Guidance on Public Participation;
c) the basic programme of measures[11] required by the WFD includes controls on impoundments which could imply the adoption of measures in line with the guidelines of Strategy Priority 3: Addressing Existing Dams;
d) as recommended in Strategic Priority 4, the WFD intends to sustain river ecosystems which are the base for the subsistence of many local communities. The protection of water status within river basins as required by the WFD will provide economic benefits by contributing towards the protection of fish population, including coastal fish populations. The WFD requires to include those areas designated for the protection of economically significant aquatic species in the register of protected areas to be completed by 22 December 2004;
e) Strategic Priority 7 and its guideline are included in the WFD preamble[12], articles 3(4), article 13 (2) and Annex 2.3

16. As a framework Directive, the WFD does not give answers to all and some of its requirements must be complied with following the provisions of the *acquis communitaire.* The *acquis communitaire* shows also parallels with the WCD recommendations:

a) Directives for public participation in certain environmental plans and programmes, Directive on Strategic Environmental Impact Assessment, Directive on Public Access to Environmental Information are in line with Strategic Priority 1;

b) Directives 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment, on Environmental Impact Assessment[13] are legally binding while Guidelines 4 and 5 of the WCD report are only recommendations;
c) Guidelines 17 and 18 are based on SIA and on EIA. However, the European Directives are not so detailed as the guidelines' requirements;
d) the SIA and EIA Directives require to carry out consultations with Member States affected by a plan, programme or project subject to them that may have a transboundary impact as Strategic Priority 7 recommends;

17. As analysed synergies between the WFD and the WCD do exist. This is not surprising since the WCD work built on existing and recognized principles and conventions of international law and on previous similar report. Some of the WCD recommendations are already part of the of the *acquis communitaire.* Accordingly, some of the WCD recommendations are legally binding at the EU level. Although the recommendations were not specifically considered during the WFD adoption process, negotiators from the European Commission, Member States and the European Parliament were aware of the WCD work and final report which inevitably was in the minds of those negotiators.

18. Having analysed the synergies of the WCD and of the WFD it seems reasonable that at some point the WCD recommendations could be adopted as a methodological guidance at the EU level. Their adoption would be very useful for the implementation of article 4 (7). However, if this was not to happen, Member States could still not ignore the WCD's recommendations completely since some of them are already legally binding as this report shows.

19. The WCD report should always be considered as guidance since the WCD itself recognized that their recommendations must be adapted to each country or regional context. Some of the criticism levied against the WCD guidelines, in particular in terms of their complexity, thus appears unwarranted. The WCD recommendations are a valuable tool whose intention is to aid in making decision processes rational, equitable, fair and sustainable. In the EU, many of the WCD recommendation are already integrated into decision-making but some of the WCD guidelines could strengthen the provisions of the WFD.

2. THE WATER FRAMEWORK DIRECTIVE: IMPLICATIONS FOR NEW DAMS

1. Directives are the most common form of EC legislation. They set out a result, which Member States are to achieve but leave it to the Member States to decide how that result will be reached[14]. In the case of the Water Framework Directive (WFD), its purpose is to establish a framework for the protection of all waters (inland surface waters, transitional waters, coastal waters and groundwater). To this end, the Directive obliges Member States to prevent further deterioration, enhance and restore the status of aquatic ecosystems. The most important result of its implementation will be the achievement of the good status of waters by 2015. In order not to compromise that result, the obligation of non-deterioration must be understood as a previous logical obligation to that expected result[15].

2. This section intends to analyse the implications of the relevant Water Framework Directive (WFD) provisions, including preamble and annexes, for new dams. For the purpose of the analysis, a new dam project must be understood as a dam planned after the entry into force of the WFD and whose construction has not started yet, as well as future dam projects. The scope of the analysis is the construction of those dams whose characteristics may compromise the achievement of the WFD's objectives. This section focuses on the identification of those legal requirements applicable to new dam projects as a result of the entry into force of the WFD (22 December 2000). To carry out the intended analysis, we will focus first in the WFD provisions having a direct incidence at the time of developing a new dam project in Europe. Secondly, it will present in a table format a brief analysis of the WFD provisions that have implications for future dam projects.

I. The WFD and new dam projects

3. In order to identify and analyse the most relevant provisions of the WFD for new dam projects, it is necessary to understand what a dam is and what are its main impacts in a river basin. The Collins English Dictionary (Second Edition 1988) defines a **dam** as a barrier of concrete, earth, etc., built across a river to create a body of water, as for a domestic water supply. It also defines it as a reservoir of water created by such a barrier. Therefore, a dam blocks a river producing impacts on the physical, chemical and geomorphological characteristics of a basin involving alterations to fauna and changes in primary biological productivity of associated ecosystems[16].

4. The WFD establishes a common approach, objectives, basic measures and common definitions of ecological status of aquatic ecosystems. Focus is on water as it flows naturally through rivers towards the sea, taking into account natural interaction of surface water and groundwater in quantity and quality and covering the whole of a river basin district including estuaries, lagoons and other transitional waters and coastal waters.

The WFD objectives

5. One of the main goals of the WFD is to prevent further deterioration[17] and protect and enhance the status of aquatic ecosystems and wetlands directly depending on the aquatic ecosystems. In order to achieve its goals, the most important element of the Directive is the setting and achievement of the environmental objectives by 2015 in all bodies of water (surface and groundwater)[18], and possibly additional specific objectives that apply to *protected areas* as defined from other legislation. The environmental objectives consisting on the achievement of a "good" and non-deteriorating[19] "status" for all waters (surface and groundwater) are legally binding. The non-deterioration obligation is in force since 22 December 2000 when the WFD entered into force[20].

6. For surface waters, good status is determined by a "good ecological" and "good chemical" status. The ecological status is determined by biological[21] hydro-morphological[22], and physico-chemical[23] quality elements. The chemical status requires the reduction of the presence of priority substances and the elimination of priority hazardous substances. In the case of bodies of water designated as artificial[24] and heavily modified[25], Member States shall prevent its deterioration and shall protect and enhance them with the aim of achieving good ecological potential and good surface water chemical status by December 2015.

7. For groundwater, good status is determined by its quantitative status and its chemical status.

8. Nevertheless, article 4 also provides for certain exceptions to the binding environmental objectives when all the conditions that it specifies are met. Article 4(4) provides for an extension of the deadline to achieve good water status up to a maximum of two further updates of the river basin management plan (until 2027) except when natural conditions do not allow that status to be achieved by that date. Article 4(5) allows Member States to achieve less stringent environmental objectives when as a result of the characterization to be done by 22 December 2004 is proved that water bodies are so affected by human activity or their natural condition is such that the achievement of the environmental objectives would be infeasible or disproportionately expensive. In both cases, no further deterioration in the status of the affected water bodies is permitted. In addition, the extension of deadlines and the possibility of achieving less stringent objectives is only allowed when:
   a) all the established conditions are met[26];
   b) it does not permanently exclude or compromise the achievement of the environmental objectives in other bodies of waters within the same river basin district and is consistent with the implementation of other Community legislation[27]; and
   c) it is guaranteed at least the same level of protection as the existing Community legislation[28].

9. Article 4(6) allows temporary deterioration in the status of water bodies when it is the result of circumstances of natural cause or *force majeure* which are exceptional or could not reasonably have been foreseen when:
   d) all the conditions that establishes are met;
   e) it does not permanently exclude or compromise the achievement of the environmental objectives in other bodies of waters within the same river basin district and is consistent with the implementation of other Community legislation[29]; and

f) it is guaranteed at least the same level of protection as the existing Community legislation[30].

10. Finally, the most relevant provision for the purpose of this study as we will see below is the "objective derogation" provided in article 4(7). This objective derogation allows Member States to fail achieving good groundwater status, good ecological status or, where relevant, good ecological potential or to prevent deterioration in the status of surface water or groundwater when it is the result of new modifications to the physical characteristics of a surface water body or alterations to the level of bodies of groundwater. This provision also allows a failure to prevent deterioration from high status to good status of a body of surface water when results from new sustainable human development activities. In both cases, this objective derogation is permitted when:
    g) all the conditions that establishes are met;
    h) it does not permanently exclude or compromise the achievement of the environmental objectives in other bodies of waters within the same river basin district and is consistent with the implementation of other Community legislation[31]; and
    i) it is guaranteed at least the same level of protection as the existing Community legislation[32].

Roadmap to achieve good status

11. In order to reach the overriding goal of the Directive, that is to achieve good status in all water bodies, Member States must follow a specified process which is called planning process[33]. The roadmap to achieve those objectives starts with an estimate of the status of water bodies to assess the likelihood of them failing to meet the environmental quality objectives set for them under Article 4 in accordance with the provisions of Article 5 (characterisation of river basin districts). Such an estimate must be finished by 22 December 2004. As part of these tasks it is necessary to identify significant pressures and impacts and assessment of their impacts. Member States must collect and maintain information on the type and magnitude of the significant current anthropogenic pressures such as estimation and identification of the impacts of significant water flow regulation, including water transfer and diversion, on overall flow characteristics and water balances[34]. Therefore, it is necessary to collect and maintain information on the existing dams and after to assess their impacts on water bodies. Member States must report on the current status of water bodies to the European Commission before 22 March 2005.

12. Following the results of the characterisation of river basin districts, the status of water bodies must be classified using information from the monitoring programmes according to article 8. Finally, the status of water bodies must be reported in the River Basin Management Plans[35] and, based on the results of the monitoring programmes for those water bodies being at risk of failing to meet good status a programme of measures will be prepared.

The WFD objectives and their implications for new dams

13. After 22 December 2004 there will be enough data to assess the main characteristics of a body of water and which status could be achieved by 22 December 2015. Then, Member

States will know what is the current status of a water body (high, good, moderate, poor or bad) and be in a position to set the environmental objectives that each water body will be able to achieve by 22 December 2015. For those that cannot achieve good water status less stringent objectives or less stringent environmental objectives can be set provided all the conditions of article 4(4) or 4(5) respectively are met. In these cases, water body deterioration can never occur. This will be confirmed in the River Basin Management Plans (RBMP) to be approved by 22 December 2009 the latest.

14. A dam is a physical alteration that produces changes in the hydromorphological conditions and physico-chemical conditions. Though the hydromorphological quality elements are not used directly in the determination of ecological status, they could be the cause of failure to achieve good or high biological status (See Annex V, 1.2)[36]. Therefore, building a dam in a body of water whose current status allows it to achieve good ecological status[37] by 2015 could endanger the attainment of such a result. In addition, it could also produce a deterioration in the ecological status of that body of surface water and impact on the groundwater status (quantitative status) of a body of groundwater when that groundwater body is connected to the surface body of water where the dam is built. Therefore, the construction of a dam can compromise the achievement of good ecological status, good groundwater status and the prevention of further deterioration and then, it would be a breach of the WFD.

15. The European waters are already very fragmented. The WFD tries to put an end to this situation. Being a sustainable development legal instrument, the WFD has included a provision: the objective derogation, allowing to execute a project such as a dam that modifies the physical characteristics in such a way that provokes a failure to achieve good groundwater status, good ecological status or, where relevant good ecological potential or to prevent deterioration in the status of surface or groundwater bodies. However, this possibility is very restrictive in order not to make of the WFD an ineffective instrument and Member States will have to prove that all the required conditions are met. Otherwise, there will be a breach of the WFD.

16. The conditions that have to be met are:

j) all practicable steps are taken to mitigate the adverse impact on the status of the body of water;
k) the reasons for those modifications are of overriding public interest and/or the benefits to the environment and to society of achieving the environmental objectives are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development;
l) the beneficial objectives served by those modifications or alterations of the water body cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option;
m) it does not permanently exclude or compromise the achievement of the environmental objectives in other bodies of waters within the same river basin district and is consistent with the implementation of other Community legislation[38]; and
n) it is guaranteed at least the same level of protection as the existing Community legislation[39].

17. These are very restrictive conditions. In order to prove that they are met, many tests must be passed. As the text of the WFD does not provide a clear guidance on how to carry out these test, one of the Annexes of the WATECO Guidance developed under the Common Implementation Strategy has elaborated a methodology to carry out the tests following seven steps[40]:

Step 1 - *Identifying and characterising the new modification/activity*

There are two categories of "modifications" that may give raise to a derogation:

- A modification to the physical characteristics of the water body, but without modifying the chemical and ecological dimensions of good water status.
- A modification resulting from new sustainable development activities, although this can only be used for obtaining a derogation when surface waters go from high to good status.

The most complex issue here will be how to define *new sustainable development activity,* which mirrors the difficulties in defining the concept of *sustainability,* which integrates: economic, social and environmental aspects and a temporal dimension (future generations).

Discussing the sustainability of a single economic activity or physical alteration must be put into the context of wide society objectives and goals. This is particularly pertinent for hydropower which is promoted by its proponents as sustainable but often has considerable environmental impacts.

The following questions must be answered:

1. What are the main characteristics of the modification or new activity?[41]
2. What are the beneficial objectives served by the modification or new activity?
3. Is the new activity sustainable?
4. What is the coherence between the proposed modification/activity and existing sustainable plans and strategies?

Step 2 - *Assessing the impact of new modification/activity on water status*

It is only if the new modification/activity has an impact on water status that a derogation is needed.

The implementation of this assessment can be done in two stages:

- Assess the new pressures related to the new modification/activity
- Assess the impact of these pressures in terms of likely changes in ecological quality or quantity of water

A procedure for obtaining derogation should be initiated if the proposed new modification/activity has a negative impact on water status and if the new activity is

sustainable. In the case of a dam project that would have a negative impact on water status that procedure should be initiated. But before authorising the construction of such a dam, the following steps must be carried out in order to know whether all conditions required will be met.

Step 3 - *Identifying practical measures to mitigate the adverse effects*

Article 4(7)(a) specifies that Member States should ensure that all practical steps (or measures) are taken to mitigate the adverse impacts on water body status. Whether those steps are practical or not will depend on them being both technically and financially feasible.

The implementation of this identification will include:

- Define a range of practical mitigation measures based on their:
- Technical feasibility within the timeframe considered
- Financial feasibility, based on their cost vs. available financial resources

- Analyse the likely impact of these mitigation measures on the status of the concerned water body (quantity, quality, ecology)
- Assess the total costs of mitigation measures
- The objective derogation can only be justified if all practical mitigation measures have been taken.

Step 4 - *Identifying the broader impacts on water bodies*

This is an exigency included in article 4(8). Analysing the likely impact on other water bodies may be more difficult than analysing the impact on the local or specific water body (as per Step 2), as it requires a good understanding of the functioning of the hydrological cycle within the river basins and the biophysical relationships between water bodies. For example, it will require understanding the impact of installing a water supply dam in the upstream part of a river on the water status of the river's estuary, 50 kilometres downstream.

This identification will require:

- Assess the likely impact of the new modification/alteration/activity on the status of other water bodies within the same river basin district before mitigation measures
- Assess the likely impact of the new modification/activity with mitigation measures

If new modification/activity is likely to have a significant impact on other water bodies even if mitigation measures are implemented, then Article 4(7) cannot apply and the modification or new activity cannot be implemented. The contrary leads to continuing the analysis and applying the following tests.

Step5 - *Assessing the reasons for the new modification/activity*

Can over-riding public interest be invoked as a reason for the new modification/activity?

The concept of over-riding public interest is not defined in the Directive. Similarly to what is specified in the Habitats Directive, it may cover issues of human health and human safety or other imperative reasons of social or economic nature[42]. Key elements to make that concept practical are:

- Ensuring that the new modification/activity is primarily to fulfil public interests, i.e: not solely in the interest of private companies or individuals;
- The interest must be over-riding and it must be a long-term interest;
- The proposed new modification/activity aims at protecting fundamental values for citizen's lives and society.

The implementation of this assessment will require analysing the following:

- Assess whether the new modification/activity fulfils a public service obligation;
- Assess whether the new modification/activity is in society's long-term interest;
- Assess whether it aims at protecting fundamental values for citizens and society.

The analysis will need to be in proportion with the importance of the new modification/activity in terms of its economic impact, its impact on the quality of waters and of the environment and on sustainable development.

If the new modification/activity is not justify by over-riding public interest, then article 4(7) cannot apply except if the benefits of achieving the Directive's objectives are outweighed by the benefits of the new modification/activity to human health, human safety or sustainable development.

Step 6 - *Comparing the benefits of the new modification/activity with the benefits of avoiding deterioration of water status*

The implementation of this test will require:

- Investigate issues similar to those considered in analysing the "sustainability status" of new activities
- Assess the foregone benefits resulting from the failure to achieve the environmental objectives of the Directive

If the benefits of new modification/activity outweigh the forgone benefits from improved water status, then an Article 4(7) derogation can be invoked

Step 7 - *Comparing with alternatives that serve the same beneficial objectives*

Can alternatives serve the same beneficial objectives with a significantly lower environmental impact? This analysis is similar to that carried out for designating heavily modified waters bodies.

The implementation of this test will require:

- Identify the alternative options that provide the same beneficial objectives. A wide range of cost-effective options should be considered, and not only infrastructure development that may be easier to analyse;
- Compare the environmental impact of the new modification with that of alternatives;
- Estimate the cost of the new modifications versus that of alternatives options.

If the new modification has no alternative with significantly lower environmental impact, then a derogation based on Article 4(7) can be sought.

18. We can say that this methodology developed in the WATECO Guidance follows a logical framework to take a decision similar in many points to the logical framework recommended by the WCD. If steps 3 to 7 are not passed, a dam cannot be built since not only it will be a breach of the WFD but also it could be an environmental damage[43] under the proposal for a Directive on environmental which when passed would trigger its liability regime.

19. All Member States have established legal procedures to allow the construction of a dam. Generally, a dam promoter will obtain a licence after submitting specific documentation, proving certain conditions are met and carrying out an environmental impact assessment. Since the entry into force of the Water Framework Directive, Member States should require that a dam promoter proves all the conditions included in article 4(7), 4(8), and 4(9) are met if the proposed dam can impact on the water status of the selected water body where the dam is built. In such a case, the process specified in Annex III of the WATECO Guidance or a very similar one should be opened. As the RBMP must include identification of instances where article 4(7) has been used[44], the process to prove it conditions are met should be opened to public participation.

II. The implications of the WFD provisions for new dams

20. This part of the report identifies and comments on the provisions of the WFD that have implications for new dams in a table format. The provisions analysed include the preamble since these are of great importance in determining the aims of a Directive. The European Court of Justice approach to interpret an EC legal instrument is to take the words which have to be interpreted and construe them in context, which involves paying particular attention to the objectives pursued by the instrument of which they form part.

Number of Preamble	Comments
(1) Water is a heritage	Principle of sustainable development. To guarantee the availability of sufficient quantities of good quality water to satisfy the needs of future generations of Europeans. This paragraph spells out the need to protect water. A dam, in some cases, may compromise sustainable development.
(11) Objectives and Principles of EC Environmental Law and Policy	One of the objectives is to protect the environment. Protection includes both from abstaining from harmful activities (such as construction of a dam) and taking

	affirmative measures to ensure that environmental deterioration does not occur. In addition, the quality of the environment must be improved. These principles coincide with the objectives of non-deterioration and good status of water. Precautionary Principle: Activities as the building of a dam which may be harmful to the environment must be regulated, and even prohibited. The burden of proof that a dam is not going to deteriorate water status lies with the person likely to cause that deterioration. Principle of preventive action: This principle seeks to minimise environmental damage as an objective itself. It requires action to be taken at an early stage and, if possible, before damage has occurred.
(14) Coherent action Information, consultation and involvement of the public	For the success of the WFD one of the key aspects is to act in a coherent manner, that coherency could be achieved applying the WCD Guidelines to address whether a dam project meets the conditions established in article 4(7) and then it is the most rational and coherent solution. WCD-Strategic Priority 1:Gaining Public Acceptance
(16) Principle of Integration	The Regional, Agricultural and Energy policies must respect and comply with the provisions of the Water Framework Directive. E.g Structural Funds should not be approved for those projects that do not meet the conditions of article 4(7).
(17) Vulnerability of aquatic ecosystems located near the coast and estuaries. Protection of water status within river basins will provide economic benefits	The impacts of dams on downstream and estuarine areas are well documented. When a dam is built these areas are more vulnerable. Non-deterioration of waters contribute to economic revenues (economically significant aquatic species). The hydromorphological impacts of a dam may affect the status of a river and as a result it could negatively affect economically significant aquatic species. Dams can negatively affect fisheries in river and coastal areas.
(19) This Directive aims at maintaining and improving the aquatic environment in the Community	Maintaining the aquatic ecosystem implies the objective of non-deterioration of the aquatic environment. In addition, the following objective is to improve the quality of water. A dam affects the aquatic environment of a river. Therefore, new dams could compromise this aim.

(25) Environmental objectives should be set to ensure that good status of surface and groundwater is achieved...and that deterioration in the status of waters is prevented at Community level"	It reaffirms the objectives of this Directive: good status and non-deterioration. A dam project which may compromise the achievement of these objectives should not be permitted unless the conditions of article 4(7) are met.
(26) Where good water status already exists, it should be maintained	Non-deterioration clause. New dams that may deteriorate that good status cannot be built unless the conditions of article 4(7) are met.
(31) "…where a body of water is so affected by human activity or its natural condition is such…, and all practicable steps should be taken to prevent any further deterioration of the status of waters."	Building a dam in the described bodies of water would have negative repercussions on the their status.
(32) "There may be grounds for exemptions from the requirement to prevent further deterioration or to achieve good water status under specific conditions…"	This implies that prevention of deterioration is a requirement of this Directive
"…if the failure is for reasons of overriding public interest, of new modifications to the physical characteristics of a surface water body…"	Who determines what is public interest? Having in mind the provisions of this Directive on public participation and the Guideline on Public Participation, the public interest should be determine with the participation of those who could be affected by such a decision.
(35) Within a river basin where use of water may have transboundary effects, the requirements for the achievement of environmental objectives established under this Directive, and in particular the programme of measures should be coordinated for the whole of the river basin.	The definition of water use which includes an impoundment, or storage. This paragraph implies that the construction of a dam may have transboundary effects. The upstream country will have to coordinate the requirements for the achievement of environmental objectives with downstream countries. It may happen that a dam construction compromises the achievement of environmental objectives in a body of water in the downstream countries. Should the dam be authorised, then?. The steps to follow to check whether the conditions of article 4(7) are met should be done with the participation of the downstream country.
(41) For water quantity, overall principles should be laid down for control on abstraction and impoundment in order to ensure the environmental sustainability of the affected water systems	Principles for impoundment should be laid down. These principles could be based on the WCD guidelines
(46) To ensure the participation of the general public including users in	This phrase of the preamble provides that it is necessary to involve the general public before measures are adopted.

the establishment and updating of river basin management plans, it is necessary to provide proper information of planned measures and to report on progress with their implementation with a view to the involvement of the general public before general decisions on the necessary measures are adopted.	When an objective derogation is intended to be used, the steps necessary to check whether all its conditions are met should be opened to public participation.
(49) Technical specifications should be laid down to ensure a coherent approach in the Community as part of this Directive…To promote a common understanding and consisting application of the criteria for characterisation.., the Commission may adopt guidelines on the application of these criteria	This paragraph might support the adoption of guidelines such as the WCD ones at the Community level.
(51) The implementation of this Directive is to achieve a level of protection of waters at least equivalent to that provided in certain earlier acts	Non-deterioration

Number of Article	Comments
1-Purpose (General Objectives) (a) prevents further deterioration and protects and enhance the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystem	(a)The building of a dam in a river basin could impede the compliance with the purposes of preventing further deterioration, protection and enhancement of the status of aquatic ecosystems. This kind of infrastructure could also affect to the water needs of terrestrial ecosystems and wetlands depending on deteriorated aquatic ecosystems. The authority that issues a licence to build a dam should check before issuing such a licence that the proposed dam will not endanger conservation of both surface and groundwater resources and that the project will not harm protected areas, terrestrial ecosystems and wetlands. If deterioration is not prevented could impact negatively in territorial and marine waters. A dam affects the water flow arriving to estuaries and coastal waters and also affects their ecosystems.
c) aims at enhanced protection and improvement of the aquatic environment,…	A project to build a dam should demonstrate that it is consistent with this objective.
"…and thereby contributes to: …-the protection of territorial	Where planned dams impact on estuarine areas, they should demonstrate consistency with this objective.

and marine waters".	
2- Definitions	
(38) Water services: (a) Impoundment[45] and storage of surface water	Dams are included in this definition.
(39) "Water use" means water services together with…having a significant impact on the status of water	Therefore, a dam is also a water use
3- Coordination of administrative arrangements within river basin districts	Paragraph 4 requires Member States sharing international river basins to coordinate the requirements of the WFD for the achievement of the environmental objectives and, in particular, the programme of measures.
(4) Coordination of programme of measures for an international river basin district	Coordination is required for all actions required by this Directive (i.e.: characterisation, economic and human impact analysis, river basin management plans…). Among the information to be collected on the identification of the significant anthropogenic pressures to which the surface water bodies in each river basin district are liable to be subject listed in Annex II (1.4), are the estimation and identification of the impact of significant water flow regulation, including water transfer and diversion. This information must be shared with transboundary States. What would happen if building a dam would compromise achieving the environmental objectives in the entire river basin? Could the rest of transboundary states or citizens of those States oppose to that construction even when the conditions of article 4(7) are met? Coordination of the programme of measures includes exchange of information on the control and prior authorization for impoundment (Art. 11(3) (e)) . Could transboundary States or citizens of those States oppose to an authorization for impoundment that would endanger the achievement of environmental objectives?
4-Environmental Objectives	
1. In making operational the programmes of measures specified in the river basin management plans: **(a) for surface waters**	
(i) MS shall implement the necessary measures to prevent deterioration of the status of all bodies of surface water	Non-deterioration clause. This obligation to prevent deterioration is a logical precondition for the achievement of the WFD environmental objectives. A dam project may compromise this obligation and only exceptions are permitted in case of temporary deterioration or objective deterioration.
(ii) MS shall protect, enhance and restore all bodies of surface water with the aim of	A dam project may compromise the achievement of this objective.

achieving good surface water status by 2015.	
(iii) MS shall protect and enhance all artificial and HMWB, with the aim of achieving good ecological potential and good surface water chemical status.	A dam project in a HMWB could compromise the achievement of good ecological potential. It would be only allowed if all conditions of article 4(7) are met.
(b) for groundwater	
(i) MS shall implement the measures necessary to prevent the deterioration of the status of all bodies of groundwater	Non-deterioration clause
(c) for protected areas	
MS shall achieve compliance with any standards and objectives at the latest 15 years after the date of entry into force of this Directive, unless otherwise specified in the Community legislation under which individual protected areas have been established	According to article 6(3) of the Habitats Directive 92/43/EEC, when a plan or project not directly connected with or necessary to the management a Natura 2000 site but likely to have a significant effect thereon, either individually or in combination with other plan or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. The Natura 2000 sites include Special Protection Areas for wild birds and Special Areas of Conservation. However, this assessment is also compulsory for Sites of Community Importance in accordance to article 4(5) of the Habitat Directive. Therefore, any dam project or a diversion plan that may have a significant effect on a Natura 2000 site should be subject to an EIA. The plan or project can only be agreed if it is shown that will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public. If there are no alternatives to a project or plan, which have a negative assessment, but it must be executed for imperative reasons of overriding public interest, the MS shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected [46].
3. Designation of a body of water as artificial or heavily modified	Though MS designate a body of water as such, the non-deterioration clause applies to these bodies and MS are under the obligation to achieve a good ecological potential. Then, if a dam project to be built in a heavily modified body of water could deteriorate its status or difficult the achievement of good ecological potential, the project would be in contradiction to the environmental objectives of the WFD, unless all conditions of the objective derogation are met.
4. Extension of the environmental objectives deadlines	Though this paragraph allows extensions to the environmental objectives deadlines under specific conditions, it does not allow further deterioration. The specified conditions do not support the possibility of asking for an extension when environmental objectives cannot be achieved as a result of the construction of a

	dam.
5. Less stringent environmental objectives	This paragraph is only applicable to bodies of waters that are already affected by human activity and it is so determined following article 5(1) by December 2004- after characterisation, human impacts and economic analyses. Therefore, after that date, new dams will not be an excuse to establish less stringent environmental objectives. In addition, this paragraph includes among the conditions to establish less stringent environmental objectives, the condition that no further deterioration occurs in the status of affected body of water.
6. Establishment of the circumstances and applicable conditions when a temporary deterioration of the status of bodies of water shall not be considered a breach of the WFD.	The text of this article: "temporary deterioration in the status of bodies of water shall not be in breach of the requirements of this Directive if..." provides a strong argument supporting the obligation of non-deterioration since those temporary deteriorations not covered under this paragraph will be a breach of the WFD, except in the case of article 4(7). One of the conditions to meet in order to consider a temporary deterioration not in breach of the WFD precisely refers to take all practicable steps to prevent deterioration of the status and to not compromise the achievement of the objectives of the Directive in other bodies of water. Another condition for temporary deterioration refers to take all practicable measures with the aim of restoring the body of water to its status prior to the effects of those circumstances as soon as reasonably practicable.
7. Failures not considered as being in breach of the WFD	This paragraph provides for the possibility of not achieving a good groundwater status, good ecological status or good ecological potential as well as deteriorate the status of a body of surface waters or groundwater when it results from new modifications to the physical characteristics of a surface water body or alterations to the level of bodies of groundwater. A dam represents a modification to the physical characteristics of a surface water body as well as can alter the level of bodies of groundwaters. This paragraph also provides for the possibility to deteriorate the status of a body of surface water from high to good if that deterioration is a result of new sustainable human development activities. A dam could be considered as a sustainable human development activity. Under (c) the reasons for those modifications or alterations are of overriding public interest and/or the benefits to the environment and to society of achieving the environmental objectives are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development. Who decides what implies an overriding public interest? How can be proved that a dam will bring greater benefits to human health than the benefits the

	achievement of environmental objectives brings to the environment and to society? The implementation of the WCD guidelines (Strategic Priority 2, 4 and 5) to build a dam would contribute to transparency and provide clear evidences to support this condition is met
8. The achievement of good water status cannot be compromised in other bodies of water if paragraphs 3,4,5,6 and 7 are applicable.	If all the specified in these paragraphs compromise the achievement of good water status in other bodies of water of the same river basin district, then the exceptions they provided will not be allowed.
9. Guaranteeing the same level of protection as the existing Community legislation.	The designation of an artificial or modified body of water, the extension of deadlines, the achievement of less stringent objectives, a temporary deterioration or failures not in breach of the WFD must provide the same level of protection as provided in the existing Community legislation. Then, if a dam project compromises this level of protection it will be in breach of this Directive.
5-Characterisation and human impacts and economic analysis	The tasks to carry out under the technical specifications of Annexes II, III and V.1.2. will provide relevant information which will condition future actions on water bodies as it could be a dam. These works will offer a radiography of the current status of surface and groundwater. By December 2004, we will know the current impacts on the bodies of water. After that date, it must be proved that a dam project to be built in a body of water that could deteriorate its status or compromise the achievement of good status by 2015 meets all conditions of article 4(7) and 4(8)
8-Monitoring of surface and groundwater status and protected areas	See comments for Annex V
9-Recovery of costs for water services	If a new dam is built that could compromise the achievement of good ecological status or deteriorate the water body but all conditions of article 4(7) and 4(8) are met, then the environmental costs of that dam should be recovered.
11-Programme of measures 1. Basic measures (a) measures required under Community legislation	The Environmental Impact Assessment Directive (85/337/EEC, 97/11/EC and 2003/35/EC) requires a compulsory EIA for works for the transfer of water resources as described in Annex I (12) and for dams and other installations designed for the holding back or permanent storage of water, where a new or additional amount of water held back or stored exceeds 10 Mll. m_. In addition, MS shall decide if an EIA is required for dams or other installations designed to hold water or store it on a long-term basis not included in the above description. Nevertheless, combining the provisions of Annex III of Directive 97/11/EC with those of the WFD, MS do not have any longer the possibility

	of excluding from an EIA procedure any kind of dam that may affect the achievement of the WFD environmental objectives. Directive 2003/35/EC establishes specific obligations for public participation in EIA procedures in line with Aarhus Convention. See comments on the Habitats Directive 92/43/EEC included in article 4(1)(c).
(e) controls, registers and prior authorisations	It is of particular interest for the purpose of this analysis, the obligation to establish controls over impoundments, and prior authorisation for abstraction and impoundments. This measure allows to control and start a prior authorisation procedure for those dams to be built in waters identified as being at risk of failing to meet good status by 2015. Then, the promoter of an impoundment will have to show that the impoundment will not compromise the achievement of the environmental objectives.
(f) controls and prior authorisation of artificial recharge or augmentation of groundwater	Building a dam is among the options to recharge a groundwater water body. However, this alternative is not really used in Europe. This option has been used in California and some very dry countries. However, it has a high cost. Therefore, it is important to have in mind that if a MS decides to build a dam with that objective, it will require a prior authorisation and must evidence that it will not compromise the achievement of the environmental objectives established for the source or the recharged or augmented body of water.
(i) Measures to ensure hydromorphological conditions are consistent for achieving the required ecological status or good ecological potential	Hydromorphological conditions are referred to hydrological regime, river continuity and morphological conditions. In the case of existing dams and new dams in bodies of water at risk of failing to meet good status by 2015, it is obligatory to establish measures that ensure the achievement of the required ecological status or good ecological potential in the case of HMWB. These measures could be fish passes, minimum ecological flow, flow liberation. They require controls such as prior authorisation or registration.
5. Additional actions when environmental objectives are unlikely to be achieved	When this happens, under the actions MS must carry out it is to investigate the causes of the possible failure. It could be that the among the causes the operation of a dam is identified. Then, the permit or authorisation for that dam must be examined and reviewed.

13-. River Basin Management Plans	The RBMP must specify the reasons why exceptions under article 4 have been applied. In close connection with our comments to article 3 (3), we must note that in the case that a common RBMP cannot be produced for a shared river basin district, this cannot be used by any Member State as an excuse for not ensuring that the objectives are not compromised within the entire RBD. The second paragraph of this article clearly states that the separate parts of the RBMP must also "achieve the objectives" of the WFD. The downstream state can afterwards challenge the interpretation of any or all of the tests and criteria that must be applied according to article 4(3) and 4(7).
14. Public Participation	There must be public participation in the implementation of the Directive and consultation on the RBMP. Among the aspects to consult are the exceptions of article 4.

Annexes

Annex II

This annex provides the technical specifications to carry out the analysis of the characteristics of river basin districts and the review of the impact of human activity on the status of surface waters and on groundwater as required by article 5.

1.4. Identification of pressures: Estimation and identification of the impact of significant water flow regulation, including water transfer and diversion, on the overall flow characteristics and water balances	In essence, this annex recognises that a dam cause a pressure and may lead to a significant impact
1.5. Assessment of impact	Identification of bodies of water being at risk of failing to meet the environmental quality objectives. Those will require the programme of measures.
2.3. Review of impact of human activity on groundwaters For those bodies of groundwater which cross the boundary between two or more MS or are identified at risk of failing to meet the environmental objectives…,the following information shall be collected…	
(g) land use in the catchment … including …anthropogenic alterations to the recharge characteristics such as run-off diversion through ….damming…	A dam project that may put at risk the achievement of environmental objectives of groundwaters should not be allowed unless article 4(7) and 4(8) applies.

Annex V

This annex provides the technical specifications for establishing type-specific reference conditions for surface water bodies, for monitoring of ecological status and chemical status for surface waters and of groundwater chemical status, for classification and presentation of ecological status and for groundwater quantitative status. The definitions for high, good and moderate ecological status (1.2.1) shows that the hydromorphological quality elements may be the cause of failure to achieve good or high biological status.

It is important to note the normative definition of maximum ecological potential under the hydromorphological elements (Annex V, table 1.2.5.), which requires all mitigation measures are taken "to ensure best approximation to the ecological continuum, in particular with respect to migration of fauna and appropriate spawning and breeding grounds". This wording should be read in conjunction with the obligation of article 4 (1) (iii) to "protect and enhance all artificial and heavily modified waters". Even if the objective of 4 (1) (iii) is only "good ecological potential" the requirements for maximum ecological potential are only "slightly" more demanding.

Clearly, any designation of a water body as HMWB due to an existing dam or weir must consider whether "all mitigation measures" have been taken. Similarly, this also applies to any new dam or other structures that affect the ecological continuum and thus also to the use of article 4 (7).

Obviously, the "ecological continuum" and the particular focus on "migration of fauna" is equally crucial for all "natural" water bodies, even if it that has not been stated so explicitly in the normative definitions. An *unimpaired* ecological continuum is inherently present in natural water bodies.

Annex VII

Contain a list of the minimum elements that a RBMP should contain. Of relevance are:

1. The summary of significant pressures and impact of human activity on the status of surface water and groundwater including:

- estimation of pressures on the quantitative status of water including abstractions…

2. The inclusion of a list of the environmental objectives established under Article 4 for surface waters, groundwaters and protected areas, including in particular identification of instances where use has been made of article 4(4), 4(5), 4(6) and 4(7).

3. A summary of the controls on impoundment of water.

3. THE WFD COMMON IMPLEMENTATION STRATEGY GUIDANCES: IMPLICATIONS FOR NEW DAMS

1. The Common Implementation Strategy (CIS) of the Water Framework Directive was agreed in May 2001 to support the implementation of this Directive. The main aim of this strategy is to allow a coherent and harmonious implementation of the WFD. Focus is on methodological questions related to a common understanding of the technical and scientific implications of the WFD. Among the key principles of the CIS is to develop common methodologies and approaches. These common methodologies have been and are being developed within a series of working groups established to elaborate guidance documents on certain provisions of the WFD. These guidances are being tested in a series of pilot basins during 2003-2004.

2. The full application, enforcement and implementation of all existing legislation was highlighted as the first of five strategic priorities by the Sixth Environment Action Programme. The CIS is an innovative example that follows the principles laid out in the White Paper on Governance in the EU aiming to avoid from the very beginning wrong implementation and thus, subsequent infringement cases[47]. However the guidance documents are non-legally binding in nature, as their main objective is to present methodologies to guide and assist Member States in the implementation of the Directive. Thus, if a Member State makes a wrong implementation or does not implement the WFD, the CIS cannot serve as an argument to avoid responsibility.

3. The CIS outcomes are, at the most, only intergovernmental guidance without any legal binding effect, neither at the national or EU level. The Commission´s role in this process may give rise to some difficulties in relation to reinforcing the correct, full and timely implementation by Member States. One can not ignore that the CIS cooperation is a double-edged sword. On the one hand, consensus between Member States developed in this way should both strengthen the implementation of the WFD and give more consistency to the implementation across borders. On the other hand, the Commission´s participation on the cooperation may influence its willingness in pointing out shortcomings in Member State implementation publicly and in starting infraction procedures.

4. This section will look at the implications of certain guidance documents for new dams projects. For the analysis, a new dam project is understood as a dam planned after the entry into force of WFD and whose construction has not started yet, as well as future dam projects. The scope of the analysis is the construction of those dams whose characteristics may compromise the achievement of the WFD's objectives. It has to be clear from the beginning that these guidances are non-legally binding in nature, and they only provide us some useful information and methodology to be considered when planning or building a dam. To achieve that goal, we have analysed the most relevant guidance but not all of them.

I. Horizontal guidance document on the application of the term "water body" in the context of the Water Framework Directive

5. The term "water body" is essential for several aspects of implementation, such as the typology, the reference conditions, the classification of the status and the monitoring. This guidance is relevant since the key unit where the implementation and the compliance checking with the Directive's principal environmental objectives has to be done is on water bodies.

6. Identification of water bodies must be consistent and co-ordinated within a river basin district. International river basin districts need to develop common approaches for the whole river basin.

7. The Directive defines a "body of surface water" as a discrete and significant element of surface water such as a lake, a reservoir, a stream, river or canal, part of a stream, river or canal, a transitional water or a stretch of coastal water[48]. The terms "discrete and significant" means that "water bodies" are not arbitrary sub-divisions of river basin districts. Each water body should be identified on the basis of its "discreteness and significance" in the context of the Directive's purposes, objectives and provisions.

8. The water body should be a coherent sub-unit in the river basin district to which the environmental objectives of the Directive must apply. Hence, the main purpose of identifying "water bodies" is to enable the status to be accurately described and compared to environmental objectives.

9. When a new dam is planned it will be necessary to check in which water body it is going to be placed. The developer will also have to take into consideration its current status and its assigned objective for 2015. If the dam project will deteriorate the current status of that water body or will compromise the achievement of the assigned objective for that water body, the project could not be executed unless the developer can prove that all conditions listed in article 4(7) are met. In addition, it must be demonstrated that the new dam will not permanently exclude or compromise the achievement of the objectives of the WFD in other bodies of water within the same river basin district and that the project is consistent with the implementation of other Community environmental legislation[49]. In addition, that project must guarantee at least the same level of protection as under existing Community legislation[50]. Otherwise, the Member State which permits such a project will be in breach of the Water Framework Directive.

10. Among the criteria to identify water bodies this Guidance includes status criteria: a discrete element of surface water should not contain significant elements of different status. Initially, Member States will not have sufficient information to accurately define the status of waters. It may be appropriate to use the analysis on pressures and impacts as a surrogate for status.

11. Combining the definitions of a river, a lake, a transitional water and coastal water with the quality elements for the classification of ecological status, which are included in Annex V,

section 1.1., it becomes clear that the riparian conditions are inherently part of all water bodies from each of these categories of water. The wording varies depending on the category of water, but each of the sections on quality elements in Annex V, section 1.1. makes reference to the riparian part: "structure of the riparian zone", structure of the lake shore" and "structure of the intertidal zone". Clearly, the evaluation of impacts of existing and new dams must also consider the impacts on the riparian zones and the consequences of any impacts on the components of the ecological status.

II. Horizontal Guidance on Public Participation in Relation to the Water Framework Directive

12. This guidance is horizontal since it is of concern to most activities under the Common Implementation Strategy. It provides a common understanding regarding the meaning of public participation in the context of the WFD as a means of improving decision-making, to create awareness of environmental issues and to help increase acceptance and commitment towards intended plans. Public participation for the implementation of the Directive is recommended at any stage in the planning process (see section on the Guidance on the planning process).

13. The key provision of the WFD on public participation is article 14 that establishes three main forms of public participation:
    - Active involvement in all aspects of the implementation of the Directive, especially in the planning process (See section on Guidance on the planning process)
    - Consultation in three steps of the elaboration of the RBMP
    - Access to background information

14. This guidance elaborates the range of possibilities between minimum requirements and best practices for each topic. The first sentence of Article 14(1) deals with encouragement of active involvement of all interested parties in the whole implementation process of the Directive. Interested party can be interpreted as meaning any person, group or organisation with an interest or stake in an issue either because they will be affected or may have some influence on its outcome. The success of this involvement will not be met solely via the three-phased information and consultation procedure pursuant to the second sentence of article 14(1). With respect to consultation the term public is used. As defined in other EC Directive[51], public means one or more natural or legal persons, and, in accordance with national legislation or practice, their associations, organisations and groups. To ensure transparency and acceptance public participation has to start as soon as possible. The timetable, which is linked to the programme cycle of the Directive, is another determining factor in timing public participation.

15. Active involvement of all interested parties in the planning process. The purpose of the participatory requirements of Article 14, including active involvement, is to support effective implementation of the Directive. While this has particular focus on the production, review and updating of the River Basin Management Plans, the encouragement of active involvement of stakeholders in the wider implementation of the Directive also needs to be considered. Although "active involvement" has not been defined in the Directive, it implies

that stakeholders are invited to contribute actively to the process and thus play a role in advising the competent authorities. Member States must make a clear effort to promote and facilitate active involvement. The planning process has already started with the aim at the present moment of knowing the current status quo of bodies of water. Active involvement is an important element that will have to be present not only in the development of the required analysis but also when taking decisions related to the need to use the exceptions of article 4. The tests needed to prove that the conditions of article 4(7) are met should also include interested parties.

16. Consultation. It aims at learning from comments, perceptions, experiences and ideas of stakeholders. It is a less intensive form of public participation and is only possible after completion of draft plans and other documents. According to Article 14 consultation concerns the following requirements and timetable for consultation:

December 2006 (the latest)	Timetable and work programme for the production of the plan, including a statement of the consultation measures to be taken
July 2007	Comments in writing
December 2007 (the latest)	Interim overview of the significant water management issues identified in the river basin (*exceptions included in article 4 if they are going to be used)*
July 2008	Comments in writing
December 2008 (the latest)	Draft copies of the river basin management plan available
July 2009	Comments in writing
December 2009 (the latest)	Start implementation of the plan

17. Access to information and background documents. It covers two aspects:

- Sufficient "information supply" in the different implementation steps. In order for stakeholders to participate in the whole planning process they will need sufficient information such as on the significant pressures and impacts or on all the tests to be carried out under article 4(7).
- Access to background documents and information according to Article 14(1) The minimum documents refers to those elements included in Annex VII (e.g. application of exceptions of article 4)

18. Annex I of this Guidance provides guidance on some techniques on public participation such as stakeholder analysis which is in line with Guideline 1 of the WCD Report.

III. Guidance on the Planning Process

19. This document focuses on the interactions and scheduling activities and tasks to accomplish WFD requirements. This guidance provides the process methodology for achieving the WFD results. In order to reach the overriding goal of the Directive, that is to achieve good status, MS must follow a specified process which is called planning process.

20. The first step is to describe the characteristics of each River Basin district in order to assess the current status of water. To know that status, MS must carry out the following tasks by 22 December 2004 (article 5 and 6, Annex II, III, IV and V and , definition of water bodies,

identification of river basin districts, HMAWB, REFCON, IMPRESS and WATECO Guidances):

a) General description of the river basin district that should include the establishment of reference conditions for surface waters
b) Register of protected areas
c) Identification of significant pressures and impacts and assessment of their impacts. MS must collect and maintain information on the type and magnitude of the significant current anthropogenic pressures such as estimation and identification of the impacts of significant water flow regulation, including water transfer and diversion, on overall flow characteristics and water balances. Therefore, it is necessary to collect and maintain information on the existing dams and after to assess their impacts on water bodies.
d) Economic analysis of water uses

21. These tasks will establish the status quo of waterbodies in Europe. Once these tasks have been carried out, MS will know what would be the waterbody´s characteristics (hydromorphological, physicochemical and biological conditions) if there were "no or only very minor alterations" to the body resulting from human activities. These are called reference conditions and represent the high status. MS will also know what areas are subject to higher protection (i.e: areas important for the protection of economically significant aquatic species, Natura 2000 sites). At that time and based on the risk assessment (pressures and impacts) and on the economic analysis, MS will also be able to identify those bodies being at risk of failing to achieve environmental objectives and to provisionally identify artificial or heavily modified water bodies. MS must submit a summary report to the European Commission by 22 March 2005 on the results of the characterisation, the review of pressures and impacts and the economic analysis.

22. With all this information, MS will be in a position to proceed to the second step, that is to set the environmental objectives that each water body will be able to achieve by 22 December 2015. The definition of environmental objectives is not only a question of what exactly the status of a certain water body should be but also a question of when this status should be achieved.

23. The third step consists of the establishment by 22 December 2006 of monitoring programmes for those bodies of water identified of being at risk of failing to meet the environmental objectives.

24. With the results of first step and comparing them with the results from the second step, MS will be able to elaborate the overview of main significant issues for water management in the district. In addition, with the first results of the surveillance monitoring MS will have the necessary information to elaborate the programme of measures for each river basin district in order to achieve the objectives defined by 22 December 2015. Among the basic measures it must be included there are elements covering water quantity to ensure the environmental sustainability of the affected water systems as are the controls and prior authorisation for impoundment.

25. The sixth step is the production of a river basin management plan (RBMP) for each river basin district. The outcome of the planning process (analysis, monitoring, objective setting, consideration of measures to maintain or improve water status) is precisely the RBMP. After the publication of the RBMP the planning process enters in a concrete phase in which the programme of measures is applied. The plans are not the principal mechanism for implementing measures to achieve the environmental obligations imposed by the Directive. Those measures are to be set out in the programme of measures.

26. The plan has a number of functions, but primarily it is intended to record the current status of water bodies within the river basin district and to set out, in broad terms, what measures are planned to meet environmental objectives. The plan to be published by 22 December 2009, shall finalize the quality and quantity objectives to be achieved by 2015. The objective of good water status being the rule, the management plan must justify any derogation from that objective, particularly on the basis of economic analysis. Derogations shall first be studied from the viewpoint of postponing the deadline, followed by a change in the objective if necessary. The plan shall define the provisions and action priorities to be implemented in order to achieve the objectives.

27. The seventh and eight steps relate to the implementation of the programme of measures and evaluation. The implementation of the programme of measures has to be linked with a continuous process of evaluation.

28. As seen in the guidance on public participation, active involvement should be encouraged in each step.

IV. Guidance for the analysis of Pressures and Impacts in accordance with the Water Framework Directive

29. This guidance document focuses on the "review of the impacts of human activity on the status of surface waters and on groundwater" according to article 5 and Annex II (1.4., 1.5 and 2). This helps to develop River Basin Management Plans (RBMP) and Programme of Measures (PoM). The guidance focuses specifically on the 2004 requirements of the Directive regarding the identification of pressures and the assessment of impacts.

30. The roadmap to achieve good water status by 2015 requires an understanding of the current condition of each water body. The identification of pressures and the assessment of impacts is part of the analysis to be undertaken in 2004 that will indicate the current status quo and provide a prognosis for the period to 2015.

31. The WFD already list a series of pressures that are related to dam construction:
    - Effects of modifying the flow regime through abstraction or regulation, and
    - Morphological alterations

32. The analysis of pressures and impacts must consider how pressures would be likely to develop prior to 2015 in ways that would place water bodies at risk of failing to achieve good status if appropriate programmes of measures were not designed and implemented.

This will require consideration of the effects of existing legislation and forecasts of how the key economic factors that influence water uses will evolve overtime, and how these changes may affect the pressures on the water environment. Then, it seems that under this review it will be necessary to analyse the possible impacts of future activities or driving forces such as the construction of dams. In accordance to article 14, this review must be transparent.

33. This guidance provides a common understanding of the terms pressures and impacts using the DPSIR (Driver, Pressure, State, Impact, Response) analytical framework.

Driver: an anthropogenic activity that may have an environmental effect (e.g. agriculture, industry)
Pressure: the direct effect of the driver (for example, an effect that causes a change in flow or a change in the water chemistry)
State: the condition of the water body resulting from both natural and anthropogenic factors (i.e. physical, chemical and biological characteristics)
Impact: the environmental effect of the pressure (e.g. fish killed, ecosystem modified)
Response: the measures taken to improve the state of the water body (e.g. restricting abstraction, limiting point source discharges, developing best practices for agriculture)

34. The pressures and impacts assessment of a water body will be a four-step process:

1- describing the "driving forces", especially land use, urban development, industry, agriculture and other activities which lead to pressures, without regard to their actual impacts,
2- identifying pressures with possible impacts on the water body and on water uses, by considering the magnitude of the pressures and the susceptibility of the water body,
3- assessing the impacts resulting from the pressure, and
4- evaluating the likelihood of failing to meet the objective.

35. The WFD only requires to identify pressures that are significant. This guidance interprets significant as meaning that the pressure contributes to an impact that may result in the failing of an objective. It recognises that hydromorphological pressures can have a direct impact on surface waters in addition to the impact on quantitative status.

Activity or Driving force	*Pressure*	*Possible change in state or impact*
Physical barriers (dams and weirs)	Variation in flow characteristics (e.g. volume, velocity, depth) both up and downstream of barrier	Altered flow regime and habitat

36. This guidance recognises that at the present time there is no single tool capable of performing a complete pressure and impacts analysis for all types of water body. The guidance describes specific tools that consider one particular component of the process or environment (e.g. pressure assessment, surface water, groundwater, biology). The result from more than one tool may have to be integrated to undertake a complete pressure and impact analysis of a water body. The toolbox considers a pressure checklist (contains an uncompleted list of pressures that should be considered as part of the pressures and impacts

assessment) and screening approaches (these techniques will be most helpful in the short term implementation of the Directive).

37. The pressure checklist contains an uncompleted list of pressures that should be considered as part of the WFD pressures and impacts assessment. It is presented in two stages. First, the pressures have been grouped into four main classes of driving forces that may impact the different water body categories and prevent them from meeting the objectives. From this list of driving forces it is of relevance for our study the driving forces related to alteration of hydrologic regime in particular flow regulation works, hydropower works and flow enhancement (transfers). The second table presents a list pressures. It has implication for our study the morphological pressures (flow regulation: hydroelectric dams, water supply reservoirs, flood defence dams, diversions and weirs).

38. The guidance also recognises that for the first pressure and impact analysis, as there is still not much information collected on certain pressures, existing data shall be collected. It provides ideas on how to collect information on water flow regulation and on morphological pressures as well as on impacts.

V. Guidance Document on Identification and Designation of Heavily Modified and Artificial Water Bodies

39. The purpose of this guidance is to introduce the requirements of the WFD with respect to HMWB and AWB identification and designation and to serve as a practical implementation guide. HMWB are bodies of water which, as a result of physical alterations by human activity, are substantially changed in character[52]. AWB are bodies created by human activity[53]. Instead of "good ecological status" the environmental objective for HMWB is good ecological potential (GEP), which has to be achieved by 2015.

40. It is important to highlight that this guidance states that it is exclusively concerned with the designation of HMWB and AWB resulting from existing physical modifications and that implications from planned, new modifications regulated in article 4(7) of the WFD are not considered in this guidance[54]. As analysed in the section on the WFD and new dams, article 4(7) is the most important provision as new dams concerns. However, this guidance provides the designation tests that are useful for carrying out part of the test required in the cases of deadline extensions, less stringent objectives and objective derogation.

41. Article 4 (3) is intended to be applied to major infrastructure projects associated with the listed specified uses. Such water bodies must be substantially changed in character because of hydromorphological alterations. This guidance recognises that uses that requires building a dam such as activities for the purposes of which water is stored for drinking-water supply, power generation or irrigation, water regulation or flood protection tend to require considerable hydromorphological changes to water bodies of such a scale that restoration to "good ecological status" may not be achievable even in the long-term without preventing the continuation of the specified use[55]. Then, in a water body that its current status quo or after the implementation of the programme of measures does not allow it to reach good water status by 2015, a dam cannot be built unless all conditions of article 4 (7) are met.

42. This guidance recognises that physical alterations to a water body produces changes in its hydromorphology and cites among the most common physical alterations dams and weirs, which disrupt the river continuum and cause alterations to the hydrologic and hydraulic regime[56]. To be substantial that change must be:

- Extensive/widespread or profound, or
- Very obvious in the sense that a major deviation from the hydromorphological characteristics that would have been there before the alterations

43. The designation test included in article 4 (3) coincides with one of the test for the objective derogation[57]. This document provides guidance on how to carry out that test. This methodology could be applied to "objective derogation" cases.

44. The designation test of article 4 (3) (b) considers whether the beneficial objectives served by the modified characteristics of the water body can reasonably be achieved by "other means" which are:

- Technically feasible
- Significantly better environmental options
- Not disproportionately costly

The guidance says that water bodies for which "other means" can be found to fulfill these three criteria and which can achieve the beneficial objectives of the modified characteristics of the water body may not be designated as HMWB. In the case of the objective derogation, if there would be other means that achieve the beneficial objectives of the modification or alteration fulfilling these criteria, then the derogation will not be applicable and as a consequence the modification to the physical characteristics of the surface water body as a dam could not be executed. Otherwise, would be a breach to the WFD.

45. The guidance lists among *other means* the following options:

1. Displacement of the specified use to another water body.
2. Replacement of the existing specified use with an alternative option to deliver the beneficial objectives. It provides the example of replacing hydropower with other energy sources. This is in line with WCD Report Strategic Priority 2: Comprehensive Options Assessment.

In the case of objective derogation, other means would consist on the analysis of alternative options.

Assessment of "technical feasibility" of other means

46. It represents a relatively single test and there is clearly no value in assessing the environmental impact of options that are not technically feasible. "Technical feasibility" considerations include the practical, technical and engineering aspects of implementing the "other means". It addresses the question whether "other means" of delivering the beneficial

objectives of an existing specified use exist. For the objective derogation, this test would search for technically feasible alternatives. It should not include consideration of disproportionate costs that is a different component. There may be some circumstances where it is appropriate to consider social issues which constraint the development of "other means". The use of such social constraints should be fully explained within the RBMP.

Assessment of whether other means are better environmental option

47. The purpose of this test is to ensure that proposed "other means" do represent a better environmental option and that one environmental problem is not replaced with another. This test is similar to the article 4 (3) (a) test, which assesses whether possible measures have a "significant adverse effect on the wider environment".

48. When assessing other means as better environmental options, the following issues should be considered:

- Scope of "environment" in better environmental option: it is suggested that in order to ensure a consistent approach with article 4(3)(a) test, the assessment should include- where appropriate- consideration of the "wider environment" such as archaeology and urban and other landscapes.
- Issue of scale: There is a range of scales at which the question of "better environmental options" can be assessed: local, regional, RBD, national or international level. Clearly it may be appropriate to consider the impacts and benefits just on the water environment or on the wider environment (water, land, air). It is clear that the most appropriate scale used to assess "better environmental option" will depend on the types of "other measures" under consideration.

Assessment of disproportionate cost of "other means"

49. Those "other means" which are considered to be "technically feasible" and which represent a "significant better environmental option" should be subject to an assessment of whether they are "disproportionately costly".

50. This assessment is likely to focus on financial/economic costs. However, there may be some circumstances where it may be appropriate to consider social issues as part of the assessment of disproportionality of costs.
51. In undertaking this assessment it is important to take account of likely or planned capital expenditures associated with the existing specified use (with the new modification to the physical characteristics of the surface water body, in the case of the objective derogation). The following two options are recommended for assessing disproportionate cost:

a) Comparison of cost alternatives
Disproportionate costs can be determined by assessing the incremental costs and environmental impacts of the "other means". The main cost elements to be considered are:

- For the existing situation: operational and maintenance costs, and capital costs for necessary replacements (including investment and interest costs)

- For each option/alternative ("other means"): capital costs (including investment an interest cost), operational and maintenance costs, and possible forgone benefits from changes in economic activities (e.g. reduction in agricultural production resulting from the development of a retention area as an alternative to dikes for preventing floods)

b) Comparison of overall costs and benefits
Disproportionate costs can be determined by comparing the overall costs and benefits of the existing modification and the alternative (other means). In this assessment the overall net benefit to society of the modification and of the alternative are compared. The main elements that are to be considered include:

- Costs as listed in a)
- Benefits of the existing specified use; and
- Benefits of the alternative, especially benefits gained from the higher ecological status

52. In order to ensure that the environmental impacts of the existing specified use are properly compared with the "other means", it is recommended to consider the:

- Existing specified use; and
- "Other means" subject to typical sector-specific best environmental practice

53. After having assessed the costs (and in case b) also the benefits) of the existing specified use and the "other means" it has to be decided whether the cost are disproportionate. To pass this test is not sufficient to demonstrate that the costs exceed the benefits. The costs must be disproportionately greater than the benefits.

Will the "other means" allow the achievement of GES?

54. Under some circumstances the "other means" may represent only a **partial** replacement/displacement of the use. In these cases "other means" would fulfil all relevant criteria but GES still cannot be achieved due to physical alterations.

55. In the case of new modifications to the physical characteristics of a surface body the reasons for those modifications must be set out and explained in the RBMP. Therefore, it is subject to the requirements for the provision of public information and consultation as defined by Article 14 and the Guidance on Public Participation.

56. The reviewed test and the requirements of public participation are similar to the WCD Report guidelines contained under Strategic Priority 1 and 2.

VI. Water and Economics (WATECO) Guidance

57. This guidance focuses on the implementation of the economic elements of the WFD in the broader context of the development of integrated river basin management plans but with emphasis on the economic analysis required by 2004.

58. The economic analysis is a process of providing valuable information to aid decision-making and should be an essential part of the overall approach for supporting decisions. It is also a source of information of interest to stakeholders and the public in the context of information and consultation activities.

59. The functions of the economic analysis relevant to the purpose of this study are:

- the economic analysis of water uses
- the assessment of trends in water supply, water demand and investments
- the identification of areas designated for the protection of economically significant aquatic species
- the assessment of the possible derogation resulting from new activities and modifications, based on assessment of costs and benefits and costs of alternatives for providing the same beneficial objective (article 4(7)).

60. This guidance presents the methodology to carry out the economic analysis:

Step 1.- Characterising the river basin in terms of the economy of water uses, trends in water supply and demand and current levels of recovery of the costs of water services. From this phase, MS will be able to know how important water is for the economy and socio-economic development of the river basin and whether certain pressures generated by specific drivers are justifiable in economic terms. The assessment of current levels of cost recovery of water services will provide an understanding whether the price these services pay encourages to use water in a sustainable manner.

Step 2.- Identifying water bodies or group of water bodies not achieving the environmental objective of the Directive;

Step 3.- Supporting the development of a programme of measures to be integrated in river basin management plans through cost-effectiveness analysis and justifying from an economic point of view possible derogation. In this phase it will be evaluated whether costs of the programme of measures necessary for achieving good water status will be disproportionate and then, Member States would propose a time derogation of article 4(4) or the achievement of less stringent objectives of article 4(5). The guidance states that the economic analysis can only formulate recommendations and that the estimation of the need for derogation will ultimately remain a political decision. However, that political decision must be based in analysis justifying that need otherwise, it would be a breach of the WFD provisions.

61. This guidance presents a methodological note of relevance for new dams in one of its annexes[58]. That note integrate economics into the justification for derogation that may be obtained for new modifications and activities that lead to a deterioration in a water body status, in accordance to the provisions of Article 4(7). This annex provides a possible methodology in seven steps for carrying out the analysis aimed at supporting decisions on derogation. It states that ultimately the decision to apply a derogation is likely to be a political one. However, that kind of decisions are not discretionary, it will be necessary to meet all conditions of article 4(7) plus the requirement of article 4(8).

Step 1 - *Identifying and characterising the new modification/activity*

There are two categories of "modifications" that may give raise to a derogation:

- A modification to the physical characteristics of the water body, but without modifying the chemical and ecological dimensions of good water status.
- A modification resulting from new sustainable development activities, although this can only be used for obtaining a derogation when surface waters go from high to good status.

The most complex issue here will be how to define *new sustainable development activity,* which mirrors the difficulties in defining the concept of *sustainability,* which integrate economic, social and environmental aspects and a temporal dimension (future generations).

Discussing the sustainability of a single economic activity or physical alteration must be put into the context of wide society objectives and goals.

The following question must be answered:

- What are the main characteristics of the modification or new activity?
- What are the beneficial objectives served by the modification or new activity?
- Is the new activity sustainable?
- What is the coherence between the proposed modification/activity and existing sustainable plans and strategies?

Step 2 - *Assessing the impact of new modification/activity on water status*

It is only if the new modification/activity has an impact on water status that a derogation is needed.

The implementation of this assessment can be done in two stages:

- Assess the new pressures related to the new modification/activity
- Assess the impact of these pressures in terms of likely changes in ecological quality or quantity of water

A procedure for obtaining derogation should be initiated if the proposed new modification/activity has a negative impact on water status and if the new activity is sustainable. In the case of a dam project that would have a negative impact on water status this procedure should be initiated. However, the following steps must be carried out before the dam is built in order to know whether all conditions required will be met.

Step 3 - *Identifying practical measures to mitigate the adverse effects*

Article 4 (7)(a) specifies that Member States should ensure that all practical steps (or measures) are taken to mitigate the adverse impacts on water body status. Whether those

steps are practical or not will depend on them being both technically and financially feasible.

he implementation of this identification will include:

- Define a range of practical mitigation measures based on their:
- Technical feasibility within the timeframe considered
- Financial feasibility, based on their cost vs. Available financial resources
- Analyse the likely impact of these mitigation measures on the status of the concerned water body (quantity, quality, ecology)
- Assess the total costs of mitigation measures

Step 4 - *Identifying the broader impacts on water bodies*

This is an exigency included in article 4(8). Analysing the likely impact on other water bodies may be more difficult than analysing the impact on the local or specific water body (as per Step 2), as it requires a good understanding of the functioning of the hydrological cycle within river basins and the biophysical relationships between water bodies. For example, it will require understanding the impact of installing a dam supplying water to an urban area in the upstream part of a river on the water status of the river's estuary, 50 kilometres downstream.

The implementation of this identification will require:

- Assess the likely impact of the new modification/alteration/activity on the status of other water bodies within the same river basin district before mitigation measures
- Assess the likely impact of the new modification/activity with mitigation measures

If new modification/activity is likely to have a significant impact on other water bodies even if mitigation measures are implemented, then Article 4(7) cannot apply and the modification or new activity cannot be implemented. The contrary leads to continuing the analysis and applying the following tests.

Step5 - *Assessing the reasons for the new modification/activity*

Can over-riding public interest be invoked as a reason for the new modification/activity?

The concept of overriding public interest is not defined in the Directive. Similarly to what is specified in the Habitats Directive, it may cover issues of human health and human safety or other imperative reasons of social or economic nature. Key elements to make that concept practical are:

- Ensuring that the new modification/activity is primarily to fulfil public interests, i.e : not solely in the interest of private companies or individuals;
- The interest must be over-riding and it must be a long-term interest
- The proposed new modification/activity aims at protecting fundamental values for citizens´ lives and society

The implementation of this assessment will require analysing the following:

- Assess whether the new modification/activity fulfils a public service obligation
- Assess whether the new modification/activity is in society's long-term interest;
- Assess whether it aims at protecting fundamental values for citizens and society.

The analysis will need to be in proportion with the importance of the new modification/activity in terms of its economic impact, its impact on the quality of waters and of the environment and on sustainable development.

If the new modification/activity is not justify by over-riding public interest, then article 4(7) cannot apply except if the benefits of achieving the Directive's objectives are outweighed by the benefits of the new modification/activity to human health, human safety or sustainable development.

Step 6 - *Comparing the benefits of the new modification/activity with the benefits of avoiding deterioration of water status*

The implementation of this test will require:

- Investigate issues similar to those considered in analysing the "sustainability status" of new activities
- Assess the foregone benefits resulting from the failure to achieve the environmental objectives of the Directive

If the benefits of new modification/activity outweigh the forgone benefits from improved water status, then an Article 4,7 derogation can be invoked

Step 7 - *Comparing with alternatives that serve the same beneficial objectives*

Can alternatives serve the same beneficial objectives with a significantly lower environmental impact? This analysis is similar to that carried out for designating heavily modified waters bodies.

The implementation of this test will require:

- Identify the alternative options that provide the same beneficial objectives. A wide range of cost-effective options should be considered, and not only infrastructure development that may be easier to analyse.
- Compare the environmental impact of the new modification with that of alternatives
- Estimate the cost of the new modifications versus that of alternatives options.

If the new modification has no alternative with significantly lower environmental impact, then a derogation based on Article 4(7) can be sought.

4. THE RECOMMENDATIONS OF THE WORLD COMMISSION ON DAMS & THE WATER FRAMEWORK DIRECTIVE: A LEGAL AND POLICY ANALYSIS OF THEIR SYNERGIES

I. Introduction

1. In November 2000, the World Commission on Dams (WCD) published its report titled *Dams and Development*. Established in 1998, the WCD aimed at assessing the experience of existing, new and proposed dams projects in order to improve practices and social and environmental conditions; to develop decision-making criteria for assessing alternatives for energy and water resources development; and to ensure that the positive impacts of dams are maximized. The report concludes that "dams have made an important and significant contribution to human development, and the benefits derived from them have been considerable" but, "in too many cases, an unacceptable and often unnecessary price has been paid to secure those benefits especially in social and environmental terms". Though this report has been interpreted by some as an anti-dams report, it actually does not oppose them[59]. It proposes instead rational and logical framework for deciding whether or not to build a dam. Having analysed all impacts of dams, the WCD proposed an alternative way forward involving public acceptance, comprehensive options assessment and the mitigation of negative impacts of new and existing dams.

2. At the same time as the WCD elaborated its report, the Water Framework Directive[60] was being negotiated. The Water Framework Directive (WFD) aims to provide an umbrella for the implementation of the various instruments of EC water policy as well as to introduce new standards and tools for the protection of the ecological quality of waters. The WFD sets common objectives for water policy and establishes a coherent legal and administrative framework, which may facilitate implementation of these objectives through co-ordinated measures within an overall planning process. The WFD introduces a remarkable change in Community water legislation. The policy moves from protection of particular waters of special interest (a nature area, specific aquatic organisms, drinking water) to protection and use based on overall appreciation of the hydrology and ecology of the entire natural cycle of each river basin[61].

3. Though both instruments are different in nature: the WCD guidelines are non-legally binding while the WFD is binding, there are certain parallels between these two approaches that deserve attention.

4. The WFD is a comprehensive legal document which establishes the framework for action in the field of water policy. The WCD proposed a voluntary framework for options assessment and decision-making processes for water and energy resource development, along with a set of criteria and guidelines for planning, design, construction, operation and decommissioning of large dams.

5. A dam is a physical alteration that produces changes in the hydromorphological conditions and physico-chemical conditions of a body of water as a river basin. The WFD sets out ambitious goals for water management to restore and achieve good status of European waters based, among other elements, on the ecological status of surface water bodies which is determined by biological[62], hydro-morphological[63], and physico-chemical[64] quality elements. Any alteration to these elements may risk the achievement of good status. The WFD tries to avoid those alterations which have contributed to the current fragmentation of European rivers. Accordingly, it included specific provisions dealing specifically with existing and new physical modifications. These articles are 4(3) on Heavily Modified Water Bodies (HMWB) and 4 (7) establishing an objective derogation applicable to the case of new modifications to the physical characteristics of a water body if certain conditions are met.

6. This section analyses the parallels between the WCD guidelines and the WFD. To achieve this aim, it studies the synergies of the WCD guidelines in relation to the WFD. First, since the WFD is part of the wider EU policy framework, the *acquis communitare,* it is necessary to compare the WCD Guidelines with relevant EU policy documents, international legal principles and documents that have been adopted at the Community level or, in some cases promoted by the Community[65]. Secondly, we focus on the analysis of the relevant provisions of the WFD *versus* the WCD guidelines. Then, we will analyse the impact and influence of the WCD Report at the international and national levels, after which some conclusions are drawn.

II. The dams and development report: a new tool for decision making

7. In 1997, the World Bank and IUCN-The World Conservation Union held a meeting in Gland (Switzerland) to address the increasingly antagonistic debate between pro and anti dam lobbies. Participants recommended the establishment of an international independent commission with a clear and achievable mandate. The World Commission on Dams started its work in August 1998 to produce the following outputs:

   - A global review of the development effectiveness of dams
   - A framework for options assessment and decision-making processes
   - Internationally acceptable criteria and guidelines for planning, construction, operation, monitoring and decommissioning of dams.

8. The WCD provides a positive outcome to ensure that the processes, implementation and effectiveness of dams are improved and that the infrastructure built in conjunction with every dam is planned effectively to ensure that it satisfies the need of all.

9. This report has provoked an intense debate around the world with many supporters but also detractors. Once the WCD presented their report, this Commission came to an end. The work of the Commission was inherited by UNEP that launched the Dam and Development Project (DDP)[66] as Type II Partnership in the World Summit on Sustainable Development hold Johannesburg in 2002 with the financial support of public and private entities. The DDP's role is not to oversee implementation of the WCD Report but rather to support those

countries and regions that request assistance in analysing the WCD´s recommendations and determining appropriate responses and actions relevant to prevailing national contexts.

10. The WCD recommended fundamental changes in the way decisions on water and energy projects are made. It offered a tool for decision-making comprising core values, strategic priorities to guide decision-making and supporting guidelines to help decision-makers and all interested parties implement the strategic priorities.

The Core Values

The WCD report identifies five core values that are consistent with the evolving global development agenda and which are embraced in the strategic priorities and guidelines. These are:

a) Equity: that decision made concerning dams should not be biased towards any particular group, and all key stakeholders should perceive the process and outcomes to be fair and legitimate. This requires transparency in the procedures and decision-making criteria.
b) Efficiency: the process should be both cost and time effective, making best use of available resources and knowledge.
c) Participatory decision-making: including a wide range of key stakeholders with particular attention to those with rights and risks.
d) Sustainability: stakeholders include the next generations as well as their own, and that use of natural resources should not lead to environmental degradation.
e) Accountability: all those involved in decision-making should be accountable for their action.

11. The equity principle was described in the International Court of Justice (ICJ) *Continental Shelf Case* as being a ”direct emanation of the idea of justice” and a “general principle directly applicable as law” which should be applied as part of international law “to balance up the various considerations which it regards as relevant in order to produce an equitable result” (ICJ *Rep* 1982). Equity and equitable (use of natural resources) principles are part of diverse international environmental conventions. Principle 3 of the Rio Declaration invokes the “right of development” as a means of “equitably” meeting the developmental needs of future generations. The principle of equitable utilisation is universally accepted as a principle of customary international law basic to the management of waters of an international drainage basin. It was first formulated in the *Helsinki Rules* on the Uses of the Waters of International Rivers (1966)[67] and it is one of the substantive principles of the 1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses[68]. The WFD provides that the framework for protection aims to contribute to “the provision of the sufficient supply of good quality surface water and groundwater as needed for sustainable, balanced and equitable use”[69]. The need not to follow a biased decision-making process is included in the requirement concerning overriding public interest of article 4(7)(c) of the WFD. The transparency requirement of this principle has been included in the text of the WFD[70] and in the Common Implementation Strategy (CIS) horizontal Guideline on Public Participation.

12. Agenda 21 called for making best use of available resources for example it called for "energy efficiency"; the preamble of the Climate Change Convention Preamble also includes this requirement. Agenda 21 also called for using water efficiently in Chapter 18. This principle is embedded in one of the EC Environmental policy objectives which is the prudent and rational utilization of natural resources. The recovery of costs of water services required by the WFD is in line with this principle.

13. The principle of participatory decision-making requires decision-making processes to be transparent involving the provision of information necessary to participate and the participation itself. Public participation in decision making-processes was for the first time included as Principle 10 of the Rio Declaration, a *soft-law* instrument, which inspired the adoption of the 1998 Aarhus Convention[71]. This Convention ratified by most of the EU Member States, has had a significant impact at the European Union level[72]. The requirement of transparency involving the public in decision-making has been included in several documents as the White Paper on European Governance[73], Directive for public participation in certain environmental plans and programmes[74], Directive on Strategic Environmental Impact Assessment[75], Directive on Public Access to Environmental Information[76]. Specifically in the field of water, the requirement of public participation was included in the 1992 Dublin Declaration and in Chapter 18 of Agenda 21 both *soft-law* instruments. The WFD[77] and its Common Implementation Strategy Guidance on Public Participation have also integrated specific provisions on public participation. In addition, the Draft Treaty establishing a Constitution for Europe has included an article on transparency of the proceedings of the Union Institutions[78].

14. Sustainability or sustainable development principle implies that states should ensure the development and use of their natural resources in a manner which is sustainable. This principle coined by the 1987 Brundtland Report which defined it as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" is an evolving principle. The Rio Declaration interpreted as the need to integrate environmental considerations to socio-economic development processes[79]. The European Environment Agency (1995) linked it to the concept of "carrying capacity". One author has provided four elements comprising the legal elements of the concept of "sustainable development" as reflected in international agreements[80]:

    a) the need to preserve natural resources for the benefit of future generations (the principle of intergenerational equity);
    b) the aim of exploiting natural resources in a manner which is "sustainable", or prudent, or rational, or wise, or appropriate (the principle of sustainable use);
    c) the "equitable" use of natural resources, which implies that use by one state must take account of the needs of other states (the principle of equitable use, or intragenerational equity);
    d) the need to ensure that environmental considerations are integrated into economic and other development plans, programmes and projects, and that development needs are taken into account in applying environmental objectives (the principle of integration)

    At the Community level, maximum expressions of this principle are articles 2, 6 and 174 of the Amsterdam Treaty and the EU Sustainable Development Strategy[81] approved at the

Gothenburg European Council. The WFD itself is a legal instrument for sustainable development which recognises the need for integrating economic, social and operational concerns in the development of programme of measures and integrated river basin management plans. Consequently, it allows certain derogations from its environmental objectives.

15. The accountability principle derives from civil liability regimes: those who act wrongfully are under an obligation to make reparation for the consequences of the violation. At the Community level, the proposal for a Directive on environmental liability on environmental liability[82] is an application of this principle. Nevertheless, the WCD accountability principle does not refer to wrongful acts but those involved in decision making should be responsible for their action. This principle is in line with the accountability demanded to corporations under the Corporate Social Responsibility (CSR) main guidelines and instruments[83].

16. As seem, there are clear evidences that the WCD did reflect in its core values universally accepted principles of international law. These principles are also part of the *acquis communitare.*

Strategic priorities and best practice guidelines

17. The policy implications of the WCD report are framed around seven strategic priorities and derive their strength from recognising the rights and assessing the risks of all stakeholders in the process. The WCD indicated that the Strategic Priorities and Best Practice Guidelines were principles to guide decisions, rather than strict rules for compliance[84]. The strategic priorities provide guidelines for a new way forward that is founded on achieving equitable and sustainable development through a process that successfully integrates social, economic and environmental considerations into decision-making on large dams and their alternatives. The guidelines describe in general terms how to assess options and plan and implement dam projects to meet the Commission's criteria. They are also advisory tools to support decision-making and need to be considered within the framework of existing international guidance and current good practice.

18. Among the multitude of decisions to be taken, the WCD identified five critical decision points as having a particularly strong influence on the final outcome. The first two relate to water and energy planning, leading to decisions on a preferred development plan.

    a) Needs assessment: validating the needs for water and energy services. A clear statement of water and energy services needs at local, regional and national levels that reflects decentralised assessments and broader national development goals. An assessment based on participatory methods appropriate to the local context resulting in a clear set of *development objectives* that guide the subsequent options assessment

    b) Selecting alternatives: identifying the preferred development plan from among the full range of options. A mix of alternatives that reflect the needs and meets the *development objectives* has been selected through a multi-criteria assessment of the full range of policy, programme, and project alternatives and included in a preferred *development plan*.

Where a dam emerges from this process as a preferred development alternative, three further critical decision points follow.

c) Project preparation: verifying that agreements are in place before tender of the construction contract. Clearance to tender the construction contract is given by the relevant authority and includes conditions for the award of the contract and operations. Mitigation and monitoring measures are formalised into contracts between responsible parties, and compliance arrangements are in place.

d) Project implementation: confirming compliance before commissioning. Clearance to commission the project is given by the relevant authority after all commitments are met. Relevant elements of performance bonds sureties are released. The operating license is confirmed, including specific requirements for monitoring, periodic review and adaptive management.

e) Project operation: adapting to changing contexts. Conditions for operating under the licence are fulfilled and the licence conditions modified as necessary to adapt to changing contexts. Monitoring programmes feed back into project operation. A process is initiated to decide on reparations, if necessary.

19. The guidelines are advisory tools to support decision-making and need to be considered within the framework of existing international guidance and current good practice.

Strategic Priority 1: GAINING PUBLIC ACCEPTANCE

20. Public acceptance of key decisions is essential for equitable and sustainable water and energy resources development. Acceptance emerges from recognising rights, addressing risks and safeguarding the entitlements of all groups of affected people, particularly indigenous and tribal peoples, women and other vulnerable groups. Decision-making processes and mechanism enable informed participation by all groups of people, and result in the demonstrable acceptance of key decisions. Where projects affect indigenous and tribal peoples, their free, prior and informed consent is to be secured.

The guidelines under Strategic Priority 1 are:
1. Stakeholder Analysis
2. Negotiated Decision-Making Processes
3. Free, Prior and Informed Consent

21. This strategic priority and the three guidelines are about transparency and public participation. They are one of the main principles for effective water governance[85] and essential for a participatory democracy[86]. These guidelines are the implementation of the requirements of Principle 10 of Rio Declaration, of Chapter 18 of Agenda 21, and of the Aarhus Convention in the process to take a decision on dam construction. The WSSD Plan of Implementation also recommended to facilitate access to information and public participation in support of policy and decision-making related to water resources management and project implementation[87]. The Draft of the Revised International Law

Association (ILA) on the Equitable Use and Sustainable Development of Waters[88] includes public participation not only as a general principle of international law applicable to water[89] but also as a right[90]. Information is also included in the chapter devoted to rights and duties of people.

22. At the European Union level, we find diverse policy and legal instruments requiring transparency and public participation: the White Paper on European Governance, the Sixth Community Environment Action Programme[91] the Directive for public participation in certain environmental plans and programmes, Directive on Strategic Environmental Impact Assessment, Directive on Public Access to Environmental Information, the WFD and its Common Implementation Strategy Guidance on Public Participation.

23. The contents of this Strategic Priority are also in line with the requirements of CSR which demand to corporations more transparency with, communication to and involvement of stakeholders.

24. The stakeholder analysis which is contained in Annex 1 on Public Participation Techniques to the Guidance on Public Participation is based on recognising rights and assessing risks in line with the WCD recommendation. The Annex defines a stakeholder as any relevant person, group or organisation with an interest in the issue, either because he is going to be affected by the subject (victim, gainer) or because he has influence, knowledge or experience with the subject.

25. The negotiated decision-making process is at the core of the Directives cited in paragraph 22. However, their requirements on the process are not so stringent as the WCD recommends. The idea of negotiation is reflected in the WFD specifically in the provision on public involvement and public consultation as well as on the horizontal Guidance on Public Participation.

26. The key elements of prior informed consent are:

    a) "prior": before the construction of a dam takes place;
    b) "informed": implies giving sufficient information on the alternatives and potential benefits and harmful consequences of a dam, and
    c) "consent": as having the competency, freedom from coercion and authority to make a decision[92].

27. In an international legal context, prior informed consent (PIC) has been most worked out in the regulation of the transboundary movement of hazardous wastes. It first appeared in the Basel Convention (1989), but has since been extended to other international conventions such as the Rotterdam Convention on Prior Informed Consent (1998). The Convention on Biological Diversity (CBD) includes the principles of PIC and PIA (prior informed agreement) to issues regarding access to genetic resources[93] and biosafety[94] but it is not only applicable to indigenous communities but also to local communities. The CBD Vth Conference of the Parties has also extended both principles to the scope of traditional knowledge[95]. The Draft United Nations Declaration on the Rights of Indigenous People (1993) is of particular relevance for dams. This draft urges States to recognise indigenous

rights to their land, culture, knowledge, flora, fauna and genetic resources[96]. Though there is not a UN formal definition on indigenous people, it relied on the following definition for the elaboration of the Draft UN Declaration on the Rights of Indigenous People:

a) have a historical continuity with pre-invasion and pre-colonial societies that developed on their territories;
b) consider themselves distinct from other sectors of the societies now prevailing in those territories;
c) form non-dominant sectors of society;
d) are determined to preserve and transmit to future generations their ancestral territories as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal systems.

Prior informed consent gives indigenous communities the power to veto projects and to negotiate under what conditions they can proceed[97], but the Draft Declaration has not been adopted yet. Originally the scope of PIC has been indigenous and tribal peoples but today it is being extended to local communities. Though the WCD guideline refers to indigenous and tribal peoples, looking at the evolution of PIC and to the Thematic Review I.2- "Dams, Indigenous Peoples and Ethic Minorities"[98] it seems logical that PIC in the case of dams should also apply to local or indigenous communities. Otherwise, it will not be reasonable. The WCD guideline states that PIC should be broadly representative and inclusive, therefore, there must be a previous appropriate selection of community representatives.

Strategic Priority 2: COMPREHENSIVE OPTIONS ASSESSMENT

28. Alternatives to dams do often exist. To explore these alternatives, needs for water, food and energy have to be assessed and objectives clearly defined. The appropriate development response is identified from a range of possible options. The selection is based on a comprehensive and participatory assessment of the full range of policy, institutional, and technical options. In the assessment process social and environmental aspects have the same significance as economic and financial factors. The options assessment process continues through all stages of planning, project development and operations.

The guidelines under Strategic Priority 2 are:

4. Strategic Impact Assessment for Environmental, Social, Health and Cultural Heritage Issues
5. Project-Level Impact Assessment for Environmental, Social, Health and Cultural Heritage Issues
6. Multi-Criteria Analysis
7. Life-Cycle Assessment
8. Greenhouse gas emissions
9. Distributional Analysis of Projects
10. Valuation of Social and Environmental Impacts
11. Improving Economic Risk Assessment

29. This strategic priority requires a very comprehensive analysis of options before taking a decision to build a dam. Since 2003, the analysis of options has been introduced for the

design of EU policies. The European Commission introduced an integrated impact assessment process[99] to improve the quality and coherence of policy design. This is a comprehensive process which include a preliminary assessment statement[100] and an extended impact assessment[101]. Thus, the Commission bases its decisions on sound analysis of the potential impact on society and on a balanced appraisal of the various policy instruments available. The WFD, as it will be analyse in the next section, requires a comprehensive analysis of options before building a dam that may endanger the achievement of good ecological status[102].

30. The Strategic Impact Assessment was adopted at the European level in 2001 by Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (SIA Directive). This Directive will have to be implemented into Member States legislation by 21 July 2004[103]. It obliges Member States to carry out an environmental assessment before approving a plan or programme related to agriculture, forestry, fisheries, energy, water management, tourism, among others, setting the framework for future development consent of projects listed in Annexes I and II of the Environmental Impact Assessment Directive[104]. This environmental assessment is also required for those plans and programmes which also require an assessment pursuant the Habitats Directive[105]. The assessment will be incorporated in an environmental report which must contain specific information such as[106]:

a) the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;
b) the likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors;
c) the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.

31. The SIA Directive also contains specific provisions on the obligation to carry out early and effective public consultations on the environmental report and draft plan or programme before the adoption of the plan or programme or its submission to the legislative procedure[107]. Member States shall also ensure once the plan or programme has been adopted that the public is informed on[108]:

a) the plan or programme as adopted;
b) how the environmental considerations have been integrated into the plan or programme and how the opinions expressed by the public have been taken into account, and the reasons for choosing the plan or programme as adopted, in the light of the other reasonable alternatives dealt with.

32. Looking at the SIA Directive, we can say that Guideline 4 of the WCD Report will become a legally binding requirement for EU Member States by 21 July 2004, deadline for Member States to implement this Directive into national legislation.

33. The Project-level impact assessment was reflected in Principle 17 of the Rio Declaration as the need to carry out an environmental impact assessment for those activities having a negative impact. At the EU level, this requirement is part of the *acquis communitaire* since 1985[109]. Under the EIA Directive[110], Member States are obliged to carry out an environmental assessment of dams and other installations designed for holding back permanent storage of water, where a new or additional water held back or stored exceeds 10 million m_. It leaves to the decision of Member States to carry out an IA of dams and other installations designed to hold water or store it on a long-term basis not included in the other definition[111]. It also requires Member States to provide information to the public on the project[112] within a reasonable time in order to give the public concerned the opportunity to express an opinion before the development consent is granted[113]. Member States are also obliged to provide information to the public on the final decision[114]. Directive 2003/35/EC has amended the EIA Directive to strengthen its requirements on public participation and to introduce provisions on access to justice. Accordingly, from 25 June 2005 when this Directive will have to be implemented into national law, MS will have to give early and effective opportunities to the public to participate in the environmental impact assessment decision-making procedures. They also must give reasonable time-frames for the different phases of decision-making allowing sufficient time for informing the public concerned[115] to prepare and participate effectively. When a decision is taken, MS must inform of the final decision specifying how the contributions of the public were taken or not into consideration and offer mechanisms for a review procedure. The public concerned must also have the opportunity to participate in environmental transboundary impact assessment processes.

34. The review of the EIA legislation of the European Community allows us to conclude that many of the requirements of the described guideline of the WCD are already compulsory for Member States.

35. Some of the requirements of the rest of the guidelines included under this strategic priority are being developed in the EU and others are not reflected in the *acquis communitaire*. The Communication Towards a Thematic Strategy on the Sustainable Use of Natural Resources[116] emphasises the need to de-couple the link between economic growth and negative environmental impacts and to carry out life-cycle analysis. Life-cycle analysis is already used in the energy sector. The EU Member States have all ratified the Kyoto Protocol and the Union has adopted specific measures to comply with the Protocol requirements. However, there are no specific measures regarding emissions from dams. The improvement of economic risk assessment is at the core of the economic requirements of the WFD and specifically in the CIS Guidance on Water and Economics (WATECO).

Strategic Priority 3: ADDRESSING EXISTING DAMS

36. Opportunities exist to optimise benefits from many existing dams, address outstanding social issues and strengthen environmental mitigation and restoration measures. Dams and the context in which they operate are not seem as static over time. Benefits and impacts may be transformed by changes in water use priorities, physical and land use changes in the river basin, technological developments, and changes in public policy expressed in environment, safety, economic and technical regulations. Management and operation

practices must adapt continuously to changing circumstances over the project's life and must address outstanding social issues.

37. The guidelines under Strategic Priority 3 are:

    12. Ensuring Operating Rules Reflect Social and Environmental Concerns
    13. Improving Reservoir Operations

38. The essence of this strategic priority and these two guidelines has been reflected in the WFD. The WFD considers impoundments as a water service[117] and as such MS shall recover their the costs by 22 December 2010, including environmental and resource costs[118]. In addition, the basic programme of measures required for those bodies of water being at risk of achieving good status must include controls over impoundments of fresh waters[119]. In addition, the programme of measures must also include measures to ensure that the hydromorphological conditions of the bodies of water are consistent with the achievement of the required ecological status or good ecological potential for bodies of water designated as artificial or heavily modified[120]. Some of those controls and measures could include some of the measures recommended under guidelines.12 and 13 such as : compensation; releases to the downstream river to satisfy drinking water and environmental requirements; periodic safety inspection, sediment management; provision of clear responsibilities and procedures for emergency warning. As we will analyse below, the guidance on HMWB is also very relevant to existing dams.

Strategic Priority 4: SUSTAINING RIVERS AND LIVELIHOODS

39. Rivers, watersheds and aquatic ecosystems are the biological engines of the planet. They are the basis for life and the livelihoods of local communities. Dams transform landscapes and create risks of irreversible impacts. Understanding, protecting and restoring ecosystems at river basin level is essential to foster equitable human development and the welfare of all species. Options assessment and decision-making around river development prioritises the avoidance of impacts, followed by minimisation and mitigation of harm to the health and integrity of the river system. Avoiding impacts through good site selection and project design is a priority. Releasing tailor-made environmental flows can help maintain downstream ecosystems and the communities that depend on them.

40. The guidelines under Strategic Priority 4 are:

    14. Baseline ecosystem surveys
    15. Environmental Flow Assessments
    16. Maintaining Productive Fisheries

41. Chapter 18 of Agenda 21 already pointed out the importance of sustaining rivers and livelihoods. There is a clear coincidence of the purposes of the WFD with this strategic priority. The WFD intends to sustain river ecosystems which are the base for the subsistence of many local communities. The characterisation of river basin district[121] to be finalised before 22 December 2004 will establish the link between the hydrological regime of the river and its associated ecosystems. The protection of water status within river basins

as required by the WFD will provide economic benefits by contributing towards the protection of fish population, including coastal fish populations. The WFD requires the inclusion of those areas designated for the protection of economically significant aquatic species in the register of protected areas to be completed by 22 December 2004. As we will see in the next section, as new dams can cause a deterioration in the status of water or impede the achievement of good ecological potential, it will be necessary to include mitigation measures such as environmental flow release.

42. As analysed, the implementation of the WFD implies the need for Member States to undertake activities or implement measures which are in line with the WCD Strategic Priority 4.

Strategic Priority 5: RECOGNISING ENTITLEMENTS AND SHARING BENEFITS

43. Joint negotiations with adversely affected people result in mutually agreed and legally enforceable mitigation and development provisions. These provisions recognise entitlements that improve livelihoods and quality of life, and affected people are beneficiaries of the project. Successful mitigation, resettlement and development are fundamental commitments and responsibilities of the State and the developer. They bear the onus to satisfy all affected people that moving from their current context and resources will improve their livelihoods. Accountability of responsible parties to agreed mitigation, resettlement and development provisions is ensured through legal means, such as contracts, and through accessible legal recourse at national and international level.

44. The guidelines under Strategic Priority 5 are:

    17. Baseline Social Conditions
    18. Impoverishment Risk Analysis
    19. Implementation of the Mitigation, Resettlement and Development Action Plan
    20. Project Benefit-Sharing Mechanisms

45. This strategic priority is in line with the philosophy behind CSR which is to create value for society instead of short-term benefits. Companies integrate social and environmental concerns in their business operations and in their interaction with stakeholders on a voluntary basis. It is important to have in mind that many dams are built by public initiative and it will be the responsibility of the administration to promote CSR in those cases. However, none of the main documents establishing principles on CSR are so specific as the guidelines under this priority.

46. Guidelines 17 and 18 are based on SIA and on EIA. However, the European Directives are not as detailed as the guidelines. Concerning the other two guidelines, specific instruments requiring them cannot be identified.

47. We find a reflection of the idea behind guideline 19 in article 14 of the Draft of the Revised ILA Rules on the Equitable Use and Sustainable Development of Waters, which establishes a duty to compensate[122]:

States individually or jointly, shall compensate persons or communities displaced by a water programme, project or activity and shall assure that adequate provisions are made for the preservation of the livelihoods and culture of displaced persons or communities

Strategic Priority 6: ENSURING COMPLIANCE

48. Ensuring public trust and confidence requires that governments, developers, regulators and operators meet all the commitments made for the planning, implementation and operation of dams. Compliance with applicable regulations, criteria and guidelines, and project-specific negotiated agreements is secured at all critical stages in project planning and implementation. A set of mutually reinforcing incentives and mechanism is required for social, environmental and technical measures. These should involve an appropriate mix of regulatory and non-regulatory measures, incorporating incentives and sanctions. Regulatory and compliance frameworks use incentives and sanctions to ensure effectiveness where flexibility is needed to accommodate changing circumstances.

49. The guidelines under Strategic Priority 6 are:

    21. Compliance Plans
    22. Independent Review Panels (IRP) for Social and Environmental Matters
    23. Performance Bonds
    24. Trust Funds
    25. Integrity Pacts

50. This Strategic Priority and its guidelines refer to legally binding rules but also extend to voluntary agreements. It is clear that legal requirements for dam construction must be complied with and enforced, while voluntary agreements are left to the discretion of companies. This Strategic Priority is also in line with the CSR philosophy and it is under the domain of business operations and public procurement[123]. The integrity pacts guideline is in line with the 1997 OECD Convention to Combat Bribery which entered into force on 15 February 1999. The Convention makes it a crime to offer, promise or give a bribe to a foreign public official in order to obtain or retain international business deals. This Convention was signed by OECD Members which include EU Member States and some enlargement countries[124].

Strategic Priority 7: SHARING RIVERS FOR PEACE, DEVELOPMENT AND SECURITY

51. Storage and diversion of water on transboundary rivers has been a source of considerable tension between countries and within countries. As specific interventions for diverting water, dams require constructive co-operation. Consequently, the use and management of resources increasingly becomes the subject of agreement between States to promote mutual self-interest for regional cooperation and peaceful collaboration. This leads to a shift in focus from the narrow approach of allocating a finite resource to the sharing of rivers and their associated benefits in which States are innovative in defining the scope of issues for discussion. External financing agencies support the principles of good faith negotiations between riparian states.

52. The guideline under Strategic Priority 7 is called Procedures for Shared Rivers. This Strategic Priority and its guideline reflect fundamental principles of international law related to international watercourses: the principle of equitable and reasonable utilization and participation and the obligation not to cause significant harm. These principles are at the core of the 1992 UNECE Convention on the Protection and Use of Transboundary Watercourses and Lakes (the "Helsinki Convention"[125]which entered into forced on 6 October 1996[126] and of the 1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses which has not entered into force yet.

53. The WFD has introduced the concept of river basin district.[127] In the case of a river basin covering the territory of more than one Member State, it has to be assigned to an international river basin district. This provision is included in its preamble[128], articles 3(4), article 13 (2) and Annex 2.3.

54. The SIA and EIA Directives also require consultations to be carried out with Member States affected by a plan, programme or project that may have a transboundary impact.

55. Therefore, this strategic priority and corresponding guideline are part of the *acquis communitaire.*

56. We can conclude this section devoted to an in-depth analysis of the WCD recommendations stating that:

a) its core principles are integrated into the European Union values and are part of the *acquis communitaire*;
b) Strategic priorities 1, 2, 3, 4 and 7 and some of their guidelines are in line with the *acquis communitaire*, thus legally-binding;
c) Strategic priorities 5 and 6 are linked to the domain of business operations and public procurement. Some relevant guidelines are being developed at the European Union level[129] but these will not be legally binding.

III. The implications of the WFD for dams and its parallels with the WCD recommendations

57. The WFD establishes a common approach, objectives, basic measures and common definitions of ecological status of aquatic ecosystems. Focus is on water as it flows naturally through rivers towards the sea, taking into account natural interaction of surface water and groundwater in quantity and quality and covering the whole of a river basin district including estuaries, lagoons and other transitional waters and coastal waters.

58. One of the main goals of the WFD is to prevent further deterioration[130] and protect and enhance the status of aquatic ecosystems and wetlands directly depending on the aquatic ecosystems. In order to achieve its goals, the most important element of the Directive is the setting and achievement of the environmental objectives by 2015 in all bodies of water (surface and groundwater)[131], and possibly additional specific objectives that apply to

protected areas as defined from other legislation. The environmental objectives consisting on the achievement of a "good" and non-deteriorating[132] "status" for all waters (surface and groundwater) are legally binding. The non-deterioration obligation is in force since 22 December 2000 when the WFD entered into force[133].

59. For surface waters, good status is determined by a "good ecological" and "good chemical" status. The ecological status is determined by biological[134] hydro-morphological[135], and physico-chemical[136] quality elements. The chemical status requires the reduction of the presence of priority substances and the elimination of priority hazardous substances. In the case of bodies of water designated as artificial[137] and heavily modified[138], Member States shall prevent its deterioration and shall protect and enhance them with the aim of achieving good ecological potential and good surface water chemical status by December 2015.

60. A dam is a physical alteration that produces changes in the hydromorphological conditions and physico-chemical conditions. Though the hydromorphological quality elements are not used in the determination of ecological status, they could be the cause of failure to achieve good or high biological status (See Annex V, 1.2). Therefore, existing dams and new dams could endanger the attainment good status by 2015. In addition, it could also produce a deterioration in the ecological status of that body of surface water and impact on the groundwater status (quantitative status) of a body of groundwater when that groundwater body is connected to the surface body of water where the dam is built. Therefore, the construction of a dam and existing dams can compromise the achievement of good ecological status, good groundwater status and in the case of new dams, the prevention of further deterioration.

61. The WFD has foreseen these situations including specific provisions which are applicable to water bodies where a dam was built and to bodies of water where it is intended to build a dam of such characteristics that could compromise the achievement of the Directive's main objectives.

62. In the case of existing dams, the WFD has introduced the concept of heavily modified water bodies (HMWB). Those are bodies of water:

    a) physically altered by human activity;
    b) substantially changed in character; and
    c) designated under Article 4(3).

    In order to designate a water body as HM, it must undergo the tests within Article 4 (3). As developed by the CIS Guidance on Designation of HMWB, these tests require consideration whether restoration measures required to achieve "good ecological status" have a significant adverse effect on the activity (use) and whether there are other means of undertaking the activity. The most common physical alteration include dams and weirs, which disrupt the river continuum and cause alterations of the hydrologic and hydraulic regime. If it is likely that the water body will fail to achieve good ecological status due to hydromorphological changes then a range of options exist for objective setting. In some cases, restoration measures can be taken. The restoration measures could include some of the recommendations under Strategic Priority 3:Addressing Existing Dams of the WCD

Report and in particular, guidelines 12 and 13 implying increased compensation flows or fish passages. Therefore, it seems that for existing dams in Europe some of the recommendations of the WCD have taken into consideration and have been incorporated in the Guidance on Designation of HMWB.

63. In the case of new dams, the WFD has included a provision: the "objective derogation" of article 4(7), allowing to execute a project such as a dam that modifies the physical characteristics in such a way that provokes a failure to achieve good groundwater status, good ecological status or, where relevant good ecological potential or to prevent deterioration in the status of surface or groundwater bodies. However, this possibility is very restrictive in order not to make of the WFD an ineffective instrument. Member States will have to prove that all the required conditions are met. Otherwise, there will be a breach of the WFD.

64. The conditions to be met are:

a) all practicable steps are taken to mitigate the adverse impact on the status of the body of water;
b) the reasons for those modifications are of overriding public interest and/or the benefits to the environment and to society of achieving the environmental objectives are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development;
c) the beneficial objectives served by those modifications or alterations of the water body cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option;
d) it does not permanently exclude or compromise the achievement of the environmental objectives in other bodies of waters within the same river basin district and is consistent with the implementation of other Community legislation[139]; and
e) it is guaranteed at least the same level of protection as the existing Community legislation[140].

65. These are very restrictive conditions. In order to prove that they are met, many tests must be passed. As the text of the WFD does not provide a clear guidance on how to carry out these test, one of the Annexes of the WATECO Guidance developed under the Common Implementation Strategy has elaborated a methodology to carry out the tests following seven steps[141]:

Step 1.- *Identifying and characterising the new modification/activity*

There are two categories of "modifications" that may give raise to a derogation:

- A modification to the physical characteristics of the water body, but without modifying the chemical and ecological dimensions of good water status.
- A modification resulting from new sustainable development activities, although this can only be used for obtaining a derogation when surface waters go from high to good status.

The most complex issue here will be how to define *new sustainable development activity,* which mirrors the difficulties in defining the concept of *sustainability,* which integrates: economic, social and environmental aspects and a temporal dimension (future generations).

Discussing the sustainability of a single economic activity or physical alteration must be put into the context of wide society objectives and goals.

The following questions must be answered:

- What are the main characteristics of the modification?[142]
- What are the beneficial objectives served by the modification?
- Is the new activity sustainable?
- What is the coherence between the proposed modification/activity and existing sustainable plans and strategies?

66. Question number 2 requires to understand the beneficial objectives of the new modification. As recognised in WATECO Guidance[143], this will be based on a comparative analysis whereby the proposed activity should be compared with alternative options from an environmental and economic point of view. Given the examples of beneficial objectives that this Guidance provides (i.e: employment or rural development). Accordingly, it seems that the alternative options should also consider the social perspective. Question number 3 requires to check whether the modification is sustainable and to carry out a comprehensive assessment of its implications from an economic, social and environmental perspective. We can say that this first step is in line with Strategic Priority 2: Comprehensive Options Assessment of the WCD and with the core principle of sustainability.

Step 2.- *Assessing the impact of new modification/activity on water status*

It is only if the new modification/activity has an impact on water status that a derogation is needed.

The implementation of this assessment can be done in two stages:

- Assess the new pressures related to the new modification/activity
- Assess the impact of these pressures in terms of likely changes in ecological quality or quantity of water

A procedure for obtaining derogation should be initiated if the proposed new modification/activity has a negative impact on water status and if the new activity is sustainable. In the case of a dam project that would have a negative impact on water status that procedure should be initiated. But before authorising the construction of such a dam, the following steps must be carried out in order to know whether all conditions required will be met.

67. This step will require an environmental impact assessment in accordance to EU legislation but also in line with guideline number 5 of the WCD.

Step 3.- *Identifying practical measures to mitigate the adverse effects*

Article 4(7)(a) specifies that Member States should ensure that all practical steps (or measures) are taken to mitigate the adverse impacts on water body status. Whether those steps are practical or not will depend on them being both technically and financially feasible.

The implementation of this identification will include:

- Define a range of practical mitigation measures based on their:
- Technical feasibility within the timeframe considered
- Financial feasibility, based on their cost vs. available financial resources
- Analyse the likely impact of these mitigation measures on the status of the concerned water body (quantity, quality, ecology)
- Assess the total costs of mitigation measures

The objective derogation can only be justified if all practical mitigation measures have been taken.

68. The considerations of this step should be included in an EIA procedure which was recommended by the WCD. Options assessment as Strategic Priority 2 recommends and decision-making around river development prioritises the avoidance of impacts, followed by minimization and mitigation of harm to the health and integrity of the river system is a priority. Avoiding impacts through good site selection and project design is a priority. Thus, we can also see in this third step some similarities with Strategic Priority 4: Sustaining Rivers and Livelihoods of the WCD.

Step 4.- *Identifying the broader impacts on water bodies*

This is an exigency included in article 4(8). Analysing the likely impact on other water bodies may be more difficult than analysing the impact on the local or specific water body (as per Step 2), as it requires a good understanding of the functioning of the hydrological cycle within the river basins and the biophysical relationships between water bodies. For example, it will require understanding the impact of installing a dam supplying water to an urban area in the upstream part of a river on the water status of the river's estuary, 50 kilometres downstream.

This identification will require:

- Assess the likely impact of the new modification/alteration/activity on the status of other water bodies within the same river basin district before mitigation measures
- Assess the likely impact of the new modification/activity with mitigation measures

If new modification/activity is likely to have a significant impact on other water bodies even if mitigation measures are implemented, then Article 4(7) cannot apply and the modification or new activity cannot be implemented. The contrary leads to continuing the analysis and applying the following tests.

69. This fourth step is completely in line with the requirements of Strategic Priority 4: Sustaining Rivers and Livelihoods and its corresponding guidelines of the WCD Report.

Step5.- *Assessing the reasons for the new modification/activity*

Can over-riding public interest be invoked as a reason for the new modification/activity?

The concept of over-riding public interest is not defined in the Directive. Similarly to what is specified in the Habitats Directive, it may cover issues of human health and human safety or other imperative reasons of social or economic nature[144]. Key elements to make that concept practical are:

- Ensuring that the new modification/activity is primarily to fulfil public interests, that is that it is not solely in the interest of private companies or individuals;
- The interest must be over-riding and it must be a long-term interest;
- The proposed new modification/activity aims at protecting fundamental values for citizen's lives and society.

The implementation of this assessment will require analysing the following:

- Assess whether the new modification/activity fulfils a public service obligation;
- Assess whether the new modification/activity is in society's long-term interest;
- Assess whether it aims at protecting fundamental values for citizens and society.

The analysis will need to be in proportion with the importance of the new modification/activity in terms of its economic impact, its impact on the quality of waters and of the environment and on sustainable development.

If the new modification/activity is not justify by over-riding public interest, then article 4(7) cannot apply except if the benefits of achieving the Directive's objectives are outweighed by the benefits of the new modification/activity to human health, human safety or sustainable development.

70. All stakeholders must participate in the assessment of overriding public interest, it should not be left to the administration of a country. Considering all provisions of the WFD and particularly article 14 as well as the horizontal Guidance on Public Participation, it seems reasonable to think that in these cases a stakeholder forum will be involved when taking this decision. This step is clearly in line with Strategic Priority 1: Gaining Public Acceptance and with Strategic Priority 2: Comprehensive Options Assessment.

Step 6.- *Comparing the benefits of the new modification/activity with the benefits of avoiding deterioration of water status*

The implementation of this test will require:

- Investigate issues similar to those considered in analysing the "sustainability status" of new activities

- Assess the foregone benefits resulting from the failure to achieve the environmental objectives of the Directive

If the benefits of new modification/activity outweigh the forgone benefits from improved water status, then an Article 4(7) derogation can be invoked.

71. Article 4 (7) (c) specifies that even if the new modification is not of over-riding public interest, a derogation based on this article could still be obtained if the benefits of the new modification in terms of human health, human safety or sustainable development outweigh the benefits of achieving the objectives of the Directive in terms of water status. It will then be necessary to investigate issues related to the improvement of human health and in human safety. The assessment of foregone benefits will be based on the evaluation of the environmental, economic and social water-related benefits. We can see in this step a clear relationship or synergy with Strategic Priority 2: Comprehensive Options Assessment of the WCD.

Step 7.- *Comparing with alternatives that serve the same beneficial objectives*

Can alternatives serve the same beneficial objectives with a significantly lower environmental impact? This analysis is similar to that carried out for designating heavily modified waters bodies.

The implementation of this test will require:

- Identify the alternative options that provide the same beneficial objectives. A wide range of cost-effective options should be considered, and not only infrastructure development that may be easier to analyse;
- Compare the environmental impact of the new modification with that of alternatives;
- Estimate the cost of the new modifications versus that of alternatives options.

If the new modification has no alternative with significantly lower environmental impact, then a derogation based on Article 4(7) can be sought.

72. This step is clearly in line with Strategic Priority 2: Comprehensive Option Assessment of the WCD and with the whole philosophy behind the WCD Report.

73. The WATECO Guidance continues recognizing that these steps will require a wide range of information, expertise and knowledge. It recommends some approaches to be used to gather this information as:

a) Qualitative description of the situation or impact;
b) Assessment of functional impacts;
c) Consultative Forum. Involving stakeholders for providing information and their assessment of various alternatives and options. This approach that takes account of social issues and cultural/local perceptions is clearly in line with the encouragement to involve all interested parties as required by Article 14 of the WFD. This recommendation is clearly in line with Strategic Priority 1 of the WCD.

d) Expert group panels. Involving a (subjective but well-justified and transparent) technical assessment of alternative options by a multi-disciplinary team of experts. This recommendation is in line with Guideline 22 on Independent Review Panels for Social and Environmental Matters.
e) Economic assessments. Good for comparing the cost of different alternatives for delivering the beneficial objectives considered, for comparing the benefits and foregone environmental benefits linked to new activities, for comparing the environmental impact of different options. This recommendation is in line with Strategic Priority 2 of the WCD.

From the previous analysis on the synergies of the WFD with the WCD recommendations, we have found many similarities between both documents. We have recognized Strategic Priorities 1, 2, 3, 4 and 7 as being implicit in the WFD, particularly in the management of HMWB and in the process to take a decision leading to the construction of a new dam. This is not surprising since both the WCD recommendations and the WFD were developed almost in parallel. There are increasingly converging views in many places with regards to water resources management. The essence of the WFD is to put an end to the fragmentation of European rivers, while the WCD aims to avoid impacts to rivers and people from dams. The WFD is wider in its scope but many of the principles are the same.

IV. The WCD report and its influence at the international and national levels

74. At the beginning of this section we mentioned that the WCD Report built on previous assessments. For example, the International Energy Agency report *Hydropower and the Environment: Present Context and Guidelines for Future Action* launched before the work of the WCD included similar recommendations for best practices in the hydropower sector.

75. Since publication of the report, the messages of the WCD are being promoted by UNEP under the DDP. DDP sponsored follow-up processes and meetings have taken place in a range of countries including South Africa, Vietnam, Argentina and Germany which demonstrates that the WCD framework for decision-making can be used as a basis for dialogue at national and regional levels.

76. The OECD Development Assistance Committee has incorporated a review of WCD recommendations as part of programme to harmonise environmental guidelines. The OECD also agreed on December 2003 to strengthen their common approaches for evaluating the environmental impact of infrastructure projects, including large dams, supported by their governments' export credit agencies with a view to ensuring that these meet established international standards. The Ministers of the Environment G8 made a reference to the WCD recommendations in their communiqué of the meeting hold in Trieste in 2001.

77. COP 8 of the Ramsar Convention on Wetlands adopted Resolution VIII.2 on the Report of the WCD and its relevance to the Ramsar Convention. This resolution recognises the WCD recommendations as non-binding guidelines. It encourages Contracting Parties to use the information provided by the WCD when they face with managing or assessing the impact

of dams on sensitive riverine and wetland ecosystems. It also requests Contracting Parties to engage fully in national and basin level processes to assess options for, alternatives to, and improvements in the development and operation of dam infrastructure. It also urges them to undertake systematic implementation of environmental flow assessments. This recommendation shows that though non-binding, the WCD recommendations are recognised as an important, useful and even necessary.

78. At the European level, the proposal to amend the Directive establishing a scheme for greenhouse gas emission allowance trading within the Community[145] for introducing the Kyoto Protocol provisions on Joint Implementation (JI) and the Clean Development Mechanism includes provisions for JI CDM credits for hydropower plants. However, it calls on Member States to take account of environmental and social impacts of project activities in which they participate or which are undertaken by legal entities they authorize to participate, which should avoid projects entailing negative environmental and social impacts, in particular from large hydroelectric power production as identified by the WCD.

79. Some European Union countries have made attempts adopt the WCD report at national level. For example, the UK Government published a Consultation Draft Report on the WCD Report[146]. From this draft, it appears that the UK agreed with many of the recommendations of the WCD particularly for UK international policy such as bilateral development assistance and export credit agencies. However, the report has not been finalized and no changes have been made to export credit procedures. The UK, together with the governments of Germany, the Netherlands and Sweden government is providing financial support to UNEP DDP.

80. The WCD recommendations are binding standards for German development cooperation. It seems that German government and stakeholders such as industry also approved the approach and the principles of the WCD, despite some criticisms to specific points[147].

V. Conclusions

81. This report has shown how the WCD work was influenced by previous work and took into consideration relevant documents of international law (*hard and soft law*). Many of its recommendations were and are part of international law and of international environmental law. At the same time, its recommendations have generated a wide and far-reaching debate over water resources management and development in general, and over dams in particular. Though the WCD disbanded after completion of its mandate, the Report remains a major reference in the debate on dams and development.

82. Some of the WCD recommendations are inherent in the *acquis communitaire.* Not surprisingly, the WFD has many synergies with the WCD recommendations. The fact that the WFD is a legally binding document makes it stronger than the WCD recommendations at the European Union level. Considering that the WFD applies to proposed new dams, it would seem logical at some point to adopt the WCD recommendations in the form of a methodological non-binding guidance. However, if no such an agreement can be reached, member states are already obliged to consider many aspects which are in line with the WCD recommendations.

83. The WCD report should always be considered as guidance since the Commission itself recognized that their recommendations must be adapted to each country or regional context. Some of the criticism levied against the WCD guidelines, in particular in terms of their complexity, thus appears unwarranted. The WCD recommendations are a valuable tool whose intention is to aid in making decision-processes rational, equitable, fair and sustainable.

ANNEX I- Table checking conformities and synergies of the WFD legal and policy instruments with the WCD Recommendations.

NOT AS STRINGENT OR NOT AS SPECIFIC AS THE WCD

IN LINE WITH THE WCD RECOMMENDATIONS

More stringent than the WCD Recommendations- legally binding

WCD Recommendations	WFD	Other instruments
Strategic Priority 1: Gaining Public Acceptance	PREAMBLE: PAR 14 & 46 ***Article 14*** ARTICLE 4 (7) (C)-FIFTH STEP HORIZONTAL GUIDANCE ON PP	AARHUS CONVENTION DIRECTIVES ON ACCESS TO ENVIRONMENTAL INFO; ON PUBLIC PARTICIPATION ON PLANS AND PROGRAMMES AND ON SIA. CSR
1. Stakeholder Analysis	GUIDANCE ON PP (ANNEX 1) ARTICLE 4 (7)	N/A
2. Negotiated Decision-Making Process	GUIDANCE ON PP	AARHUS CONVENTION DIRECTIVES ON ACCESS TO ENVIRONMENTAL INFO; ON PUBLIC PARTICIPATION ON PLANS AND PROGRAMMES AND ON SIA.
3. Free, Prior and Informed Consent	Not included	UN 1993 Draft Declaration on the Rights of Indigenous People
Strategic Priority 2: Comprehensive Options Assessment	ARTICLE 4 (7)- FIRST STEP ARTICLE 4 (7) (C)-FIFTH STEP ARTICLE 4 (7) (C)-SIXTH STEP ARTICLE 4 (7) (D)-SEVENTH STEP	N/A
4. SIA for Environmental, Social, Health and Cultural Heritage Issues	N/A	***SIA Directive*** ***Habitat Directive***
5. Project-Level Impact Assessment for Environmental, Social, Health and Cultural Heritage Issues	Article 4 (7)- second step Article 4 (7) (c)-sixth step	***EIA Directive***
6. Multi-Criteria Analysis	Not included	No similar requirement found
7. Life Cycle Assessment	Not included	TOWARDS A STRATEGY ON THE SUSTAINABLE USE OF NATURAL RESOURCES
8. Green house emissions	Not included	Not included in Kyoto
9. Distributional Analysis of Projects	Not included	N/A
10. Valuation of Social and Environmental Impacts	Not included	N/A
11. Improving Economic Risk Assessment	WATECO GUIDANCE	N/A
Strategic Priority 3: Addressing Existing Dams	ARTICLE 9 AND 11(3)(E) GUIDANCE ON HMWB	N/A
12. Ensuring Operating Rules Reflect Social and Environmental Concerns	ARTICLE 9 AND 11(3)(E) GUIDANCE ON HMWB	N/A
13. Improving Reservoir	ARTICLE 9 AND 11(3)(E)	

Operations	GUIDANCE ON HMWB	N/A
Strategic Priority 4: Sustaining Rivers and Livelihoods	**ARTICLE 5, ANNEXES II AND III** ARTICLE 4 (7)(A)-THIRD STEP ***Article 4 (8)-step 4***	N/A
14. Baseline Ecosystem Surveys	***Article 5, Annexes II and III*** ***Article 4 (8)-step 4***	N/A
15. Environmental Flow Assessment	**Article 4 (7)** ***Article 4 (8)-step 4***	N/A
16. Maintaining Productive Fisheries	**PREAMBLE 17** ***Article 5, Article 6, Annex III*** ***Article 4 (8)-step 4***	N/A
Strategic Priority 5: Recognising Entitlements and Sharing Benefits	N/A	CSR
17. Baseline Social Conditions	N/A	Some connection to SIA and EIA Directives
18. Impoverishment Risk Analysis	N/A	Some connection to SIA and EIA Directives
19. Implementation of the Mitigation, Resettlement and Development Action Plan	N/A	N/A
20. Project Benefit-Sharing Mechanisms	N/A	N/A
Strategic Priority 6: Ensuring Compliance	Not included	Enforcement of laws **CSR**
21. Compliance Plans	Not included	Enforcement of laws **CSR**
22. Independent Review Panels for Social and Environmental Matters	ARTICLE 4 (7)	N/A
23. Performance Bonds	N/A	N/A
24. Trust Funds	N/A	N/A
25. Integrity Pacts	N/A	**1997 OECD CONVENTION TO COMBAT BRIBERY**
Strategic Priority 7: Sharing Rivers for Peace, Development, and Security	***International river basin districts,* PREAMBLE 35, *Articles 3(4), 13 (2), Annex 2.3. Article 4 (8)***	**1992 HELSINKI CONVENTION** **1997 UN CONVENTION ON THE LAW OF THE NON-NAVIGATIONAL USES OF INTERNATIONAL WATERCOURSES**
26. Procedures for Shared Rivers	**PREAMBLE 35**, ***Articles 3(4), 13 (2), Annex 2.3.*** ***Article 4 (8)***	***SIA and EIA Directives***

Endnotes

[1] Lawyer, LL.M Environmental Law (London University), LL.M in International Legal Studies (New York University. She is the President of the Instituto Internacional de Derecho y Medio Ambiente (Madrid, Spain).

[2] There is no page in this report stating that never again a dam should be built. The WCD Report "unequivocally affirms that in response to growing development needs, dams remain one important option… but an informed choice it must be and that is what the Report aims to support" (Prof. Kader Asmal at the ICOLD 69th Annual Meeting, Dresden, Symposium "Benefits and Concerns about Dams, 13 September 2001, www.germanatcom-icold.de/symposium) In fact, *Dams and Development* built on accepted principles of international law and on other previous analysis containing similar conclusions and/or proposals. Two examples are: the International Energy Agency report titled *Hydropower and the Environment: Present Context and Guidelines for Future Action* (May 2000) and ICOLD´s 1997 Position Paper on Dams and Environment.

[3] The first proposal for this Directive was published on 26/2/1997 (COM (97) 49 final). The European Commission modified twice this proposal on 26/11/1997 (COM (97) 614 final) and on 17/2/98 (COM (98) 0076). The final text was adopted as Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

[4] "Our report offers a new tool for decision making. If developers- public or private- can employ it, or adapt it to respond to the challenges of society today, and to the controversies in the world to which we all must return, then dams will continue to be built and improved upon" Prof. Kader Asmal at the Symposium on "Benefits and Concerns about Dams" *op cit*

[5] Chapter 3 of the World Commission on Dams Report. The International Energy Agency report titled *Hydropower and the Environment: Present Context and Guidelines for Future Action* Volume I recognises that "as for all other power generation options, hydropower is the source of both significant and unavoidable environmental and social impacts. The most important unavoidable impacts of hydropower are generally related to the flooding of land in the impoundment zone upstream of a dam and to changes to water flows and water levels downstream of a dam"(pg 9). This report follows identifying measures to avoid or mitigate the social and environmental impacts of hydropower.

[6] These objectives are: good surface waters and good groundwater status in addition to the protection of special areas. Good status of surface water is achieved when the ecological status (biological, hydromorphological and physico-chemical conditions) and chemical status of a surface water body are at least good. Good groundwater status is achieved when the quantitative and chemical status of a groundwater body are at least good.

[7] Similarly, this also applies to any new dam or other structures that affect the ecological continuum and thus also to the use of article 4 (7).

[8] Article 4(8).

[9] Article 4(9).

[10] Annex IV.II of WATECO Guidance specifies this methodology.

[11] Article 11(3).

[12] Paragraph 35.

[13] Annex I.

[14] The European Court of Justice (ECJ) hold in the case C-337/89 Commission v United Kingdom on the drinking water directive that "Member States must ensure that the results required by the directive are achieved and, except within the limits of the derogations laid down in the directive, they cannot rely on special circumstances to justify their failure to achieve those results", the results have to be achieved. In the case C-56/90 Commission v United Kingdom on the bathing directive the ECJ hold that it was clear from the directive that states were to ensure that bathing waters actually conformed to the directive's standards within ten years. It was therefore not enough for a state to say that it has "done its best". If a result is laid down, it must be achieved.

[15] The letter of Catherine Day, Director General of DG Environment, expressing some Commission ideas on the "non-deterioration" objective states the following: " It must be noted that this objective of deterioration prevention precedes the objective of achieving good status for the two types of water concerned".

[16] Chapter 3 of the World Commission on Dams Report. The International Energy Agency report titled *Hydropower and the Environment: Present Context and Guidelines for Future Action* Volume I recognises that "as for all other power generation options, hydropower is the source of both significant and unavoidable environmental and social impacts. The most important unavoidable impacts of hydropower are generally related to the flooding of land in the impoundment zone upstream of a dam and to changes to water flows and water levels downstream of a dam"(pg 9). This report follows identifying measures to avoid or mitigate the social and environmental impacts of hydropower.

[17] In line with the objectives and principles of EU environmental policy, in particular the objective of conservation and the principle of prevention, other Water Directives already mentioned the objective of non-deterioration. The

preamble of Council Directive 75/440/EEC reads: "Whereas the increasing use of water resources for the abstraction of water for human consumption necessitates a reduction in the pollution of water and *its protection against subsequent deterioration*…"(emphasis added). Council Directive 76/160/EEC states in its preamble the following: "whereas, in order to protect the environment and public health, it is necessary to reduce the pollution of bathing water and to *protect such water against further deterioration"* (emphasis added).

[18] A "body of surface water" means a discrete and significant element of surface water such as a lake, a reservoir, a stream, river or canal, part of a stream, river or canal, a transitional water or a stretch of coastal water (Article 2 (10)). A "body of groundwater" means a distinct volume of groundwater within an aquifer or aquifers. (Article 2 (11)).

[19] Then, the objectives may also depend on the current status of the water body.

[20] See WWF Position Paper "Prevention of water deterioration duties-European Community Water Framework Directive (2000/60/EC), June 2003.

[21] For rivers the elements that define biological quality are: phytoplankton, macrophytes and phytobentos, benthic invertebrate fauna and fish fauna.

[22] For rivers the elements that define hydromorphological conditions are: hydrological regime, river continuity and morphological conditions.

[23] For rivers the elements that define physico-chemical quality elements are: General conditions (nutrient concentrations, levels of salinity, pH, oxygen balance, acid neutralising capacity and temperature) and specific synthetic and non synthetic pollutants.

[24] An artificial water body is a body of surface water created by human activity (article 2(8))

[25] A heavily modified water body means a body of surface water which as a result of physical alterations by human activity is substantially changed in character, as designated by the Member States in accordance with the provisions of article 4 (3).

[26] See articles 4 (4) and 4(5).

[27] Article 4(8).

[28] Article 4(9).

[2929] Article 4(8).

[30] Article 4(9).

[31] Article 4(8).

[32] Article 4(9).

[33] See CIS Guidance on the Planning Process

[34] Annex II- 4.

[35] Article 13

[36] Whenever the biological quality elements deviate more than slightly, there is an obligation to examine hydromorphology and physico-chemistry. We must have present that in addition to the biota being used as an indicator of ecological status, nevertheless, several hydromorphological and physico-chemical elements must be monitored routinely, including flow and volume of water.

[37] The ecological status classification for a body of water is represented by the lower of the values for the biological and physico-chemical monitoring results for the relevant quality elements (see notes 7 and 9).

[38] Article 4(8).

[39] Article 4(9).

[40] Annex IV.II of WATECO Guidance specifies this methodology.

[41] This will be done through collecting information on the modification or activity such as dimension and capacity of a dam, length of river modified.

[42] The publication of the European Commission on "Managing Natura 2000 sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC" published in 2000 includes specific guidelines on how MS must examine imperative reasons of overriding public interest. It considers that overriding public interest implies that "not every kind of interest of a social or economic nature is sufficient, in particular when seen against the particular weight of the interests protected by the Directive. In this context,… the public interest can only be overriding if it is a long-term interest; short-term economic interest or other interests which only yield short-term benefits for society would not appear to be sufficient to outweigh the long-term conservation interest protected by the directive"(pag 44-45). A US Court in a case involving an hydroelectric power project license hold that public interest includes aesthetic, conservational and recreational aspects, that "public interest cannot be evaluated only in dollars and cents" and that the Federal Power Commission "in viewing the public interest, the Commission's vision is not to be limited to the

horizons of the private parties to the proceeding" (Scenic Hudson Preservation Conf. V. FPC (I) *354 F. 2d.608, 619 (2d Cir.1965)*).

[43] See Common Position (EC) No 58/2003 adopted by the Council on 18 September 2003 on the proposal for a Directive on environmental liability with regard to the prevention and remedying of environmental damage. Article 2(1)(b) defines environmental damage as water damage, which is any damage that significantly adversely affects the ecological, chemical and/or quantitative status and/or ecological potential, as defined in Directive 2000/60/EC, of the waters concerned, with the exception of adverse effects where Article 4(7) of that Directive applies. Article 3 establishes that the Directive applies to the environmental damage caused by any of the occupational activities listed in Annex III, and to any imminent threat of such damage occurring by reason of any of those activities. Among the activities listed in Annex III is water abstraction and impoundment of water subject to prior authorisation in pursuance of Directive 2000/60/EC.

[44] Annex VII (5).

[45] The Collins English Dictionary defines the verb **impound** (n. impoundment) as to collect (water) in a reservoir or dam, as for irrigation.

[46] DG Environment published a non-binding document in November 2001 on the Assessment of plans and projects significantly affecting Natura 2000 site providing a Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive.

[47] "A common strategy could limit the risks of bad application of the Directive and subsequent dispute" page 5 of the CIS.

[48] Article 2(10).

[49] Article 4(8).

[50] Article 4(9).

[51] Directive on Strategic Environmental Impact Assessment (2001/42/EC)

[52] Article 2(9).

[53] Article 2(8).

[54] Pag 21.

[55] Pag 23.

[56] Pag 38

[57] One of the conditions to be met for objective derogation establishes that "the beneficial objectives served by those modifications or alterations to the water body cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option" (art. 4(7)(d)).

[58] Annex IV.II Analysis of derogation for new modifications/activities and for designating heavily modified water bodies

[59] There is no page in this report stating that never again a dam should be built. The WCD Report "unequivocally affirms that in response to growing development needs, dams remain one important option… but an informed choice it must be and that is what the Report aims to support" (Prof. Kader Asmal at the ICOLD 69th Annual Meeting, Dresden, Symposium "Benefits and Concerns about Dams, 13 September 2001, www.germanatcom-icold.de/symposium) In fact, *Dams and Development* built on accepted principles of international law and on other previous analysis containing similar conclusions and/or proposals. Two examples are: the International Energy Agency report titled *Hydropower and the Environment: Present Context and Guidelines for Future Action* (May 2000) and ICOLD´s 1997 Position Paper on Dams and Environment.

[60] The first proposal for this Directive was published on 26/2/1997 (COM (97) 49 final). The European Commission modified twice this proposal on 26/11/1997 (COM (97) 614 final) and on 17/2/98 (COM (98) 0076). The final text was adopted as Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

[61] Olsen, A. "The New Water Framework Directive for the European Union and its Possible Effects on the Mediterranean Insular Context" conference proceedings of the I Balearic Congress 2015: Water, Future Perspectives (1-2 February, 2001).

[62] For rivers the elements that define biological quality are: phytoplankton, macrophytes and phytobentos, benthic invertebrate fauna and fish fauna.

[63] For rivers the elements that define hydromorphological conditions are: hydrological regime, river continuity and morphological conditions.

[64] For rivers the elements that define physico-chemical quality elements are: General conditions (nutrient concentrations, levels of salinity, pH, oxygen balance, acid neutralising capacity and temperature) and specific synthetic and non synthetic pollutants.
[65] One of the objectives of the EC Environmental Policy is to foster measures at international level to deal with regional or worldwide environmental problems (Article 174(1) Amsterdam Treaty).
[66] www.unep-dams.org
[67] These Rules were elaborated by the International Law Association.
[68] Even though this Convention has not entered into force, this principle is a binding one.
[69] Article 1.
[70] Preamble paragraphs 14 and 46, article 14 and Annex VII paragraphs 9 and 11.
[71] UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, adopted on 25th June 1998 in Aarhus (www.unece.org).
[72] The EC has recently adopted a proposal for a Council decision on the conclusion, on behalf of the European Community, of the Convention on access to information, public participation in decision making and access to justice regarding environmental matters. COM (2003) 625 final. Brussels 24/10/2003.
[73] COM (2001) 428 final, Brussels, 25/7/2001.
[74] Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC (OJ L 156, 25/6/2003).
[75] Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment (OJ L 197/30 of 21/7/2001)
[76] Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC (OJ L 041, 14/02/2003).
[77] Preamble paragraphs 14 and 46, article 14 and Annex VII paragraphs 9 and 11.
[78] Article 49. CONV 850/03, Brussels 18 July 2003.
[79] Principle 4 of the Rio Declaration.
[80] Sands, Philippe *Principles of International Environmental Law,* Manchester University Press (1995), p. 199.
[81] Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development. COM (2001) 264 final, Brussels 15/5/2001. Adopted at the European Council at Gothenburg in June 2001.
[82] Common Position (EC) No 58/2003 adopted by the Council on 18 September 2003 on the proposal for a Directive on environmental liability on environmental liability with regard to the prevention and remedying of environmental damage. Article 2(1)(b) defines environmental damage as water damage, which is any damage that significantly adversely affects the ecological, chemical and/or quantitative status and/or ecological potential, as defined in Directive 2000/60/EC, of the waters concerned, with the exception of adverse effects where Article 4(7) of that Directive applies.
[83] Main documents on CSR are the UN Global Compact, the Global Reporting Initiative, OECD Guidelines for Multinational Enterprises. The European Commission published a Communication title "Corporate Social Responsibility a business contribution to Sustainable Development" (COM (2002) 347 final, Brussels July 2002).
[84] "Our report offers a new tool for decision making. If developers- public or private- can employ it, or adapt it to respond to the challenges of society today, and to the controversies in the world to which we all must return, then dams will continue to be built and improved upon" Prof. Kader Asmal at the Symposium on "Benefits and Concerns about Dams" *op cit*
[85] Global Water Partnership, *Dialogue on Effective Water Governance*, 2002. Water governance refers to the range of political, social, economic, and institutional systems that are in place to develop and manage water resources and the delivery of water services. www.gwpforum.org/gwp/library/Governance.pdf
[86] Barreira, Ana "The Participatory Regime of Water Governance in the Iberian Peninsula" in *Water International,* Volume 28, Number 3, Pages 350-357, September 2003.
[87] Chapter IV- Protecting and Managing the Natural Resource Base of Economic and Social Development.
[88] This Revision is expected to be approved at the biannual ILA meeting to be held in Berlin in August 2004.
[89] Article 4 establishes "States shall take reasonable steps to assure that persons likely to be affected are able to participate in the process whereby decisions are made concerning the management of waters".
[90] Article 10 provides "In the management of waters, States, acting individually or jointly, shall assure that persons subject to the State's jurisdiction and likely to be affected by water management decisions are able to participate,

directly or indirectly, in processes by which those decisions are made and have a reasonable opportunity to express their views on plans, programmes, projects or activities relating to waters".

[91] Decision No 1600/2002/EC of the European Parliament and of the Council of 22 July 2002 laying down the Sixth Community Environment Action Programme (OJ L 242/1, 10/9/2002).

[92] Ideas extracted from the Monthly Bulletin of the Canadian Indigenous Caucus on the Convention of Biological Diversity. No 15

[93] Article 15(5).

[94] Article 19(3).

[95] Article 8 (j). Decision 5/16 for the first time clearly applies the term "prior informed consent" to indigenous knowledge including local communities. The Programme of Work establishes: "Access to traditional knowledge, innovations and practices of indigenous and local communities should be subject to prior informed approval from the holders of such knowledge, innovations and practices"

[96] Articles 26, 29 and 30. Article 30, in particular states: " Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands, territories and other resources, including the right to require that States obtain free and informed consent prior to the approval of any project affecting their lands, territories and other resources, particularly in connection with the development, utilisation or exploitation of mineral, water or other resources. Pursuant to agreement with the indigenous peoples concerned, just and fair compensation shall be provided for any such activities and measures taken to mitigate adverse environmental, economic, social, cultural or spiritual impact". Many of the requirements included in this article were included in the WCD Guidelines.

[97] Aaron Goldzimer, "Prior Informed Consent of Project-affected Indigenous People" www.ksg.harvard.edu/krs/article_AG.htm.

[98] Authored by Marcus Colchester (www.dams.org)

[99] Communication from the Commission on Impact Assessment. COM (2002) 276 final, Brussels 5/6/2002.

[100] The components are: 1. Problem Identification; 2. Objective of the Proposal; 3. Policy Options; Impacts (economic, social and environmental)- positive and negative; 5. Follow-Up.

[101] Its components are: 1. Analysis of the Issue; 2. Identification of the Policy Objective; 3.Identification of Policy Options and Alternative Instruments; 4. Analysis of the Impact (economic, social and environmental)it includes identification of impacts and their assessment; 5. Implementation, Monitoring and Evaluation Ex-Post.

[102] Article 4(7). The contents of this Strategic Priority are also in line with the requirements of CSR which demand to corporations more transparency with, communication to and involvement of stakeholders.

[103] Article 13.

[104] Article 3 (2)(a).

[105] Article 3 (2)(b).

[106] Annex I.

[107] Article 6.

[108] Article 9.

[109] Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (OJ L 175, 5/7/1985) amended by Directive 97/11/EC (OJ L 73, 14/3/1997) and by Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC (OJ L 156, 25/6/2003).

[110] Annex I.

[111] Annex II.

[112] The description of the information that Member States must facilitate is included in article 5.

[113] Article 6 (2).

[114] Article 9.

[115] Public concerned is defined as the public affected or likely to be affected by, or having an interest in, the environmental impact assessment decision-making procedures. For the purpose of this definition, non-governmental organisations promoting environmental protection and meeting any requirements under national law shall be deemed to have an interest.

[116] COM 2003 (572) final, Brussels 1.10.2003

[117] Article 2 (38) (b).

[118] Article 9.

[119] Article 11(3)(e).
[120] Article 11 (3)(i).
[121] Article 5 and Annexes II and III
[122] This Article builds upon the language of the 1996 ILA *Articles on Private Law Remedies* which impose obligations on States to give equal access to administrative and judicial remedies for persons who are damaged by the inequitable or unreasonable use of the waters of an international drainage basin. Article 1 defines damage to include personal injury, property loss and damage to the environment including reparation. Equal access to information, preventive measures and relief for individuals and non-governmental organizations are set out in Articles 2 and 3.
[123] Though exclusively related to environmental concerns, the European Commission published a Commission interpretative communication on the Community law applicable to public procurement and the possibilities for integrating environmental considerations into public procurement (COM (2001) 274 final, Brussels 4/7/2001).
[124] Czech Republic, Hungary, Poland, Slovakia and Slovenia
[125] Signed on 17 March 1992, it entered into force on 6 October 1996 (www.unece.org).
[126] All MS have ratified this Convention as well as the European Community with the exception of the UK and Ireland (www.unece.org).
[127] River basin district means the are of land and sea, made up of one or more neighbouring river basins together which their associated groundwaters and coastal waters, which is identified as the main unit for management of river basins.
[128] Paragraph 35.
[129] Two examples are the Communication on "Corporate Social Responsibility: a business contribution to sustainable development" and the Commission interpretative communication on the Community law applicable to public procurement and the possibilities for integrating environmental considerations into public procurement (COM (2001) 274 final, Brussels 4/7/2001).
[130] In line with the objectives and principles of EU environmental policy, in particular the objective of conservation and the principle of prevention, other Water Directives already mentioned the objective of non-deterioration. The preamble of Council Directive 75/440/EEC reads: "Whereas the increasing use of water resources for the abstraction of water for human consumption necessitates a reduction in the pollution of water and *its protection against subsequent deterioration*…"(emphasis added). Council Directive 76/160/EEC states in its preamble the following: "whereas, in order to protect the environment and public health, it is necessary to reduce the pollution of bathing water and to *protect such water against further deterioration"* (emphasis added).
[131] A "body of surface water" means a discrete and significant element of surface water such as a lake, a reservoir, a stream, river or canal, part of a stream, river or canal, a transitional water or a stretch of coastal water (Article 2 (10)). A "body of groundwater" means a distinct volume of groundwater within an aquifer or aquifers. (Article 2 (11)).
[132] Then, the objectives may also depend on the current status of the water body.
[133] See WWF Position Paper "Prevention of water deterioration duties-European Community Water Framework Directive (2000/60/EC), June 2003.
[134] For rivers the elements that define biological quality are: phytoplankton, macrophytes and phytobentos, benthic invertebrate fauna and fish fauna.
[135] For rivers the elements that define hydromorphological conditions are: hydrological regime, river continuity and morphological conditions.
[136] For rivers the elements that define physico-chemical quality elements are: General conditions (nutrient concentrations, levels of salinity, pH, oxygen balance, acid neutralising capacity and temperature) and specific synthetic and non synthetic pollutants.
[137] An artificial water body is a body of surface water created by human activity (article 2(8))
[138] A heavily modified water body means a body of surface water which as a result of physical alterations by human activity is substantially changed in character, as designated by the Member States in accordance with the provisions of article 4 (3).
[139] Article 4(8).
[140] Article 4(9).
[141] Annex IV.II of WATECO Guidance specifies this methodology.
[142] This will be done through collecting information on the modification or activity such as dimension and capacity of a dam, length of river modified…
[143] Annex IV.II page 5.

[144] The publication of the European Commission on "Managing Natura 2000 sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC" published in 2000 includes specific guidelines on how MS must examine imperative reasons of overriding public interest. It considers that overriding public interest implies that "not every kind of interest of a social or economic nature is sufficient, in particular when seen against the particular weight of the interests protected by the Directive. In this context,… the public interest can only be overriding if it is a long-term interest; short-term economic interest or other interests which only yield short-term benefits for society would not appear to be sufficient to outweigh the long-term conservation interest protected by the directive"(pag 44-45). A US Court in a case involving an hydroelectric power project license hold that public interest includes aesthetic, conservational and recreational aspects, that "public interest cannot be evaluated only in dollars and cents" and that the Federal Power Commission "in viewing the public interest, the Commission's vision is not to be limited to the horizons of the private parties to the proceeding" (Scenic Hudson Preservation Conf. V. FPC (I) *354 F. 2d.608, 619 (2d Cir.1965)*).

[145] COM (2003) 403 final, Brussels 23.07.2003.

[146] www.fco.gov.uk

[147] See speech by Erich Stather, Germany State Secretary for Economic Co-operation and Development at ICOLD 69th Annual Meeting, Dresden, Symposium "Benefits and Concerns about Dams, 13 September 2001.