List of Contents

Water Protection - Overview

1 Introduction and Overview

This Section of the Handbook deals with EC legislation in the Water Protection sector. It contains an introductory overview of the sector followed by individual fiches for selected pieces of legislation. The fiches are presented according to their TAIEX numbering.

1.1 EU Policy on Water Protection

Water is one of the most comprehensively regulated areas of EU environmental legislation. Early European water policy began in the 1970s with the adoption of political programmes as well as legally binding legislation. As regards programmes, the First Environmental Action Programme covered the period 1973-76, and the latest so far is the 5th Environmental Action Programme adopted for the years 1993 - 2000. The Commission is currently preparing a 6th Action Programme as a follow-up. Parallel to political programmes a first wave of legislation was adopted, starting with the 1975 Surface Water Directive and culminating in the 1980 Drinking Water Directive. This first wave of water legislation included water quality standard legislation on fish waters (1978), shellfish waters (1979), bathing waters (1976) and groundwaters (1980). In the field of emission limit value legislation the Dangerous Substances Directive (1976) and its Daughter Directives (1982-1986) on various individual substances were adopted.

A second wave of water legislation followed a review of existing legislation and an identification of necessary improvements and gaps to be filled. This phase of water legislation included the Urban Waste Water Treatment Directive (1991) and the Nitrates Directive (1991). Other elements identified were revisions of the Drinking Water and Bathing Water Directives to bring them up to date (proposals for revisions being adopted in 1994 and 1995 respectively), the development of a Groundwater Action Programme and a 1994 proposal for an Ecological Quality of Water Directive. Also, for large industrial installations, the IPPC Directive (finally adopted in 1996) covered water pollution as well.

There have been, at Member State as well as at European level, basically two different approaches to tackle water pollution[1)]:

- The **Water Quality Objective approach** (WQO) defines the minimum quality requirements of water to limit the cumulative impact of emissions, both from point sources and diffuse sources. This approach therefore focuses on a certain quality level of water in which condition and use is not harmful for the environment and human health. This approach was mainly used in the first wave of water directives (1975 to 1980) such as the Surface Water Directive (1975) or the Bathing Water Quality Directive (1976);

- The **Emission Limit Value approach** (ELV) focuses on the maximum allowed quantities of pollutants that may be discharged from a particular source into the aquatic environment. This approach in fact looks at the end product of a process (waste water treatment, discharges from industry, effect of agriculture on water quality) or what quantities of pollutants may go into the water and was mainly used in the second wave of water legislation during the 1990s: the Urban Waste Water Treatment Directive (1991), the Nitrates Directive (1991) and the IPPC Directive

[1)] Although, the Dangerous Substances Directive (1976) uses both approaches alternatively without integrating them fully.

(Integrated Pollution Prevention and Control Directive, addressing pollution from large industries; 1996).

Since then, the question of which approach is the most appropriate one has been the subject of long scientific and political debate. As a result, more recent legislation both at European and Member State level, is based on a 'combined approach' where ELVs and WQOs are used to mutually reinforce each other. In any particular situation, the more rigorous approach will apply. The new European Water Policy, and its operative tool, the Water Framework Directive, are based on this 'combined approach'. This combined approach is also in accordance with principles established in the Treaty - the precautionary principle and the principle that environmental damage should as a priority be rectified at the source, as well as the principle that environmental conditions in the various regions shall be taken into consideration.

The Treaty provides for a set of principles for EU Water Policy as set out in Box 1 below.

Box 1 Principles of EU Water Policy

- High level of protection;
- Precautionary principle;
- Preventive action;
- Rectification of pollution at the source;
- Polluter pays principle; and
- Integration of environmental protection into other Community Policies - e.g. agriculture, transport and energy.

Based on those principles, the European institutions - Commission, Parliament and Council, agreed that a fundamental review and restructuring process was needed for Community water policy.
The Commission which had already been considering the need for a more global approach to water policy, accepted requests from the European Parliament's environment committee and from the Council of environment ministers . Following a wide-ranging consultation of all interested parties, such as local and regional authorities, water users, enforcement agencies, water providers, industry, agriculture and, not least, consumers and environmentalists and non-governmental organisations (NGOs) the Commission presented, in 1997/1998, its Proposals for a new EU Water Framework Directive. This directive will have the following main objectives:

- expanding the scope of water protection to all waters, surface waters and groundwater;
- achieving "good status" for all waters by a certain deadline;
- water management based on river basins, with a "combined approach" of emission limit values and quality standards;
- getting the prices for water right;
- getting the citizen involved more closely involved; and
- streamlining legislation.

Progress on negotiating the Water Framework Directive in the European Parliament and in Council seems to indicate a final adoption during the year 2000 (reference is made to the fiche for the forthcoming Waste Framework Directive).

1.2 EU Legal Instruments

The water sector contains a range of directives and one Council Decision. The forthcoming Water Framework Directive will not only provide a managerial framework for the whole range of water protection policy and legislation, it will also replace many of the "first wave" legislation after different transition periods: the directive on surface water and two related directives on measurement methods and sampling frequencies and exchanges of information on fresh water quality; the fish water, shellfish water, and groundwater directives; and the directive on discharges of dangerous substances. The provisions of these directives will be incorporated into the Framework Directive, allowing them to be repealed.

The existing and future legal instruments can be categorised as set out in Box 2 below.

Box 2 Legislation in the Water Protection Sector

Water Framework Directive (adoption foreseen year 2000)

- Proposals for a Water Framework Directive (Commission Proposals COM(97)49, COM(97)614 and COM(98)76; Amended Proposal COM(1999)271).
- Proposal for a Decision establishing the list of priority substances in the field of water policy. Council common position of 22.10.99 (COM proposal expected early 2000).

Existing water legislation

Water Quality Objective oriented:

- Bathing Water Directive (76/160/EEC).
- New Drinking Water Directive (98/83/EC).
- Directive on Surface for Drinking Water Abstraction (75/440/EEC as amended by Directives 79/869/EEC and 91/692/EEC).
- Freshwater Fish Directive (78/659/EEC) as amended by Directive 91/692/EEC).
- Shellfish Water Directive (79/923/EEC as amended by Directive 91/692/EEC).

Emission-Control oriented:

- Urban Waste Water Treatment Directive (91/271/EEC, as amended by Directive 98/15/EC) and related decision 93/481/EEC.
- Nitrates Directive (91/676/EEC).
- Ground Water Directive (80/68/EEC as amended by Directive 91/692/EEC).
- Dangerous Substances Directive (76/464/EEC)[2)].
- Directive on Discharges of Mercury from the chlor-alkali electrolysis industry (82/176/EEC).
- Directive on Discharges by Cadmium (83/513/EEC).
- Directive on Discharges of Mercury from other sources (84/156/EEC).
- Directive on Discharges of Hexachlorocyclohexane (84/491/EEC).
- Directive on Discharge of List I Substances (Directive 86/280/EEC as amended by Directives 88/347/EEC and 90/415/EEC).

Monitoring and Reporting

- Directive on the Measurement of Surface (Drinking) Water (79/869/EEC as amended by Directive 81/855/EEC).
- Common Procedures for Exchange of Information (Decision 77/795/EEC as amended by Decisions 84/422/EEC , 86/574/EEC and 90/2/EEC).

[2] The Dangerous Substances Directive 76/464/EEC and its Daughter Directives on mercury, cadmium, hexachlorocyclohexane and list 1 substances provide as a rule an emission control approach. However, as an alternative they allow, under certain circumstances, a water quality objective approach as an alternative.

There are important links between legislation within the water sector and also between legislation within this sector and legislation on other sectors. The most important links with the legislation in other sectors are identified in Table 1.

Table 1 Summary of Key Inter-relationships between Legislation in the Water Sector and other EC Legislation in the Environmental Acquis

Related Sector Legislation	***Relevance***
Horizontal Sector	
Environmental Impact Assessment Directive (85/337/EEC)	Requires an EIA for new projects which are judged to have a significant impact on the environment. The results must be made public and views of the public taken into account in decisions. The impact on water quality is an important and relevant issue to consider in an EIA.
Access to Environmental Information Directive (90/313/EEC)	Requires environmental information held by public bodies to be made available to the general public on request. Most of the water directives specify the collection of water quality information or information concerning permits. As a rule any such information held by public bodies would be covered by this directive.
Reporting Directive (91/692/EEC) and Water Questionnaires (92/446/EEC and 95/337/EEC)	Sets out provisions on the transmission of information and reports concerning certain EC directives from Member States to the Commission. The reporting requirements specified in many water protection directives are modified by this directive.
Waste Sector	
Waste Framework Directive (75/442/EEC and amending directives)	Requires the adoption of waste management plans. Within the plans the siting and operation of waste sites must be such as to avoid water pollution, and the possibility of water pollution occurring must be an issue to be taken into account in the plan.
Hazardous Waste Directive (91/689/EEC as amended by 94/31/EC)	Requires the adoption of hazardous waste management plans, which include provisions to prevent water pollution, e.g. through the permitting arrangements.
Sewage Sludge Directive (86/278/EEC)	Regulates the use of sewage sludge in agriculture in such a way that contamination of soil and pollution of water does not occur from metal contaminants, nitrates and phosphates.
Titanium Dioxide Directives (78/176/EEC, 82/883/EEC and 92/112/EEC)	Aims to reduce and eliminate pollution of water caused by discharges from the titanium dioxide production industry.
Nature Protection Sector	
Habitats Directive (92/43/EEC)	Aims to protect a network of habitats throughout Europe and the flora and fauna they support. Satisfactory water quality is an essential factor in such areas.
Industrial Pollution Control and Risk Management Sector	
IPPC Directive (96/61/EC)	Implements integrated measures for the prevention and control of pollution. Requires permits for prescribed activities which set conditions, including emission limits to water, using the principles of BATNEEC. The draft Water Framework Directive specifically requires that measures in River Basin Management Plans must include those which give full effect to the provision of the IPPC Directive in relation to industries and activities specified in Annex I to the Directive.
Risks of Existing Substances Regulation (793/93) and related Regulations	This regulation applies to existing substances and places obligations on manufacturers and importers to provide data and on Member States to carry out risk assessments. The draft Water Framework Directive specifically requires that in drawing up strategies to deal with water pollution, the Commission must take into account risk assessments of pollutants carried out under the Regulation.
Seveso II Directive (96/82/EC)	This Directive aims to prevent major accident which involve dangerous substances. It requires operators to develop major-accident prevention policies and to provide safety reports outlining how they intend to manage and handle dangerous substances.

2 Development of a Sectoral Strategy and Implementation Plan

The Implementation Management Checklist, presented in Section 2.4 of the Introductory Chapter provides an overall framework for preparing a strategy to implement the legislation contained within this sector. The following text focuses on key issues pertinent to this environmental sector, which are developed in the remainder of this section. Further guidance on implementation is provided in the fiches for individual legal acts.

The water sector consists of a large body of legislation relating to different uses, polluting processes and pollutants. The tasks involved in implementing the legislation require actions by government, through an appointed competent authority. Ideally one agency or Ministry should have this responsibility. The government will also need to set overall policy within the context of the EC directives, for example, establishing the role that taxation or other fiscal measures will have in implementing water quality objectives. In addition, the Urban Waste Water Directive and the directives concerned with use-related water quality (for example the Bathing Water and Drinking Water Directives) will require actions from water and sewerage providers. The Nitrates Directive will require actions from agricultural undertakings and directives addressing various industrial pollutants ('priority substances' under Art. 16) will require actions from industry. The costs of implementing these directives are likely to be very substantial, so careful planning is necessary at the strategy formulation stage.

A number of new strategies will result from the implementation of the forthcoming Water Framework Directive. Specific issues that are important in formulating asectoral strategy include the following.

(i) River Basin Management

The new approach to water management requires water to be managed on the basis of river basins, rather than according to geographical or political boundaries. This enables assessment of all activities which may affect the watercourse, and their eventual control by measures which may be specific to the conditions of the river basin. The Water Framework Directive requires river basin management plans to be drawn up on a river basin basis. It may be necessary to sub-divide a large river basin into smaller units, and sometimes a particular water type may justify its own plan.

Fundamental to this approach is the identification of river basins of a sufficient size to ensure the viability of an organisational framework set up to administer them. Prior to decisions being taken on the type and constitution of any new organisation or using existing ones, the government will need to establish river basin boundaries. The adoption of suitable institutional structures to enable this to be achieved will be one of the challenges to Member States in implementing the directive. No general guidance can be provided from experience gained in the past, as indeed there are successful examples both for centralised and for decentralised administrations achieving the objectives of water protection.

The following are some possible options for an organisational approach to meet the demands of the river basin approach:

a) To utilise existing regional structures, but organise and ensure co-ordination of functions related to each river basin so that decisions are made jointly by cross-boundary institutions, which are based on the needs of the river basin.

b) To appoint a central overseeing body, with river basin based subsidiary departments or institutions to organise and carry out the day-to-day work in the river basins.

c) To appoint individual river basin institutions with direct control over the activities in each river basin.

Bear in mind that the river basin approach applies as well to river basins that cross national borders: The Water Framework Directive makes coordination across national boundaries mandatory between Member States, and recommends it with Third Countries. Considerable experience has been gained in international cooperation along rivers such as the Rhine and the Elbe.

(ii) Programme of Measures

Central to each river basin management plan will be a programme of measures to ensure that all waters in the river basin achieve good water status. The starting point for this programme is the full implementation of any relevant national or local legislation as well as of a range of Community legislation on water and related issues. If this basic set of measures is not enough to ensure that the goal of good water status is reached, the programme must be supplemented with whatever further measures are necessary. These might include stricter controls on polluting emissions from industry or agriculture as well as from urban waste water sources; land use planning might in this context be a key issue to be taken into account.

(iii) Combined Approach

The Directive takes a "combined approach" to pollution control:

- limiting pollution at the source by setting emission limit values or other emission controls; and
- establishing water quality objectives for water bodies.

In each case, the more stringent approach will apply. Thus Member States will have to set down in their programmes of measures both limit values to control emissions from individual point sources and environmental quality standards to limit the cumulative impact of such emissions as well as of diffuse sources of pollution. The emissions limit values will have to be set in line with Community, national and regional legislation, inter alia, with the Directive on Integrated Pollution Prevention and Control (IPPC) and the Urban Waste Water Treatment Directive for installations and discharges covered by these Directives.

For relevant pollutants and pollution sources of priority concern ('priority substances' under Art. 16) the new Water Framework Directive will oblige Council and Parliament to establish Community emission controls and water quality objectives. Where environmental quality objectives or emission limit values have been set for particular dangerous substances under the Daughter Directives of the 1976 Directive on Discharges of Dangerous Substances to Water, these will be reviewed and f necessary incorporated into the Framework Directive.

To achieve such a degree of control, the competent authority /authorities should be given sufficient legal powers and resources to be in a position to:

- identify and monitor all types of discharges and other impacts in thecatchment;
- grant permits for the discharge of effluents and enforce compliance with permit conditions; and

- undertake pollution prevention activities by, for example, enforcing protection zones, or by controlling activities which could have adverse impacts on the status of water.

As for waters used for drinking water abstraction, they will be subject to particular protection, Member States being required to set environmental quality standards for each significant body of water that is used for abstraction or that may used be in future. The quality standards must be designed to ensure that under the expected water treatment regime the abstracted water will meet the requirements of the Drinking Water Directive.

The Water Framework Directive also addresses water quantity insofar as it is relevant to water quality. To that aim any abstraction of groundwater or surface water, except irrelevant ones, have to be subject to a permitting procedure. Permits may only be granted if they comply with the objective of a long-term balance between abstraction and recharge rates. In issuing permits, authorities will have to take into account the impact of abstractions on water quality, and the effect that reduced availability of water may have on the effect of effluent discharges on water status.

Assessment and control of water demand require forward planning by regional authorities in conjunction with the authorities or companies that supply drinking water, to assess the future impact of population growth and industrial development on the availability of water in the river basin. The potential impact on groundwater is particularly important in this respect.

(v) Monitoring Programme

Monitoring will be an essential part of the implementation of the Water Framework Directive. Such systematic monitoring of surface water and groundwater quality and quantity will be in several categories:

- surveillance monitoring;
- operational monitoring;
- investigative monitoring; and
- compliance monitoring.

Data on monitoring will be publicly available, and will also form the basis for regular reporting to the Commission, as well as contributing to the monitoring network within the European Environment Agency.

(v) Cost Recovery

Water is essential for a number of economic as well as environmental and health reasons such as the maintenance of drinking water supplies, the irrigation of crops and use in many industries. It is therefore essential to the viability of the population. Watercourses have traditionally been used for the carriage of effluents and wastes, both industrial and human. The application of economic instruments such as charges for use of water as a resource or for the discharge of effluents into watercourses is a policy explicitly endorsed in the new directive. The "polluter pays" principle must be applied, and economic assessment becomes an essential part of water management planning.

If adopted by the European Parliament and the Council, the principle of charges for water reflecting the true costs will be a radical innovation at European level. However, many of the existing EU Member States have been following this approach in their national legislation fully or to a considerable extent for quite some time (Austria, Belgium, Denmark, Finland, France, Germany, Luxembourg, Netherlands, Sweden, United Kingdom).

The financing of programmes to improve water quality and to provide adequate water supply will be a major challenge for all Candidate Countries. Charges reflecting the true costs will contribute to the necessary investments; however, introduction of such charges might also pose a significant problem if they entail considerable changes. The costs will have to be borne by the user/consumer whether domestic, industrial or agricultural, and will have to include construction, financing and maintenance of measures such as extraction, treatment and distribution of water for drinking or irrigation purposes or other uses, and the collection treatment and discharge of waste water.

(vi) Public Consultation

An important aspect of the development of river basin management plans is the need to involve the public. Because much of what is decided will have a direct impact on peoples' lives, for example in the quality of waters in their neighbourhood, but also in terms of the costs of water, the influence of emission limits on industry and on end-uses such as fishing and bathing, the public has a legitimate interest in setting water quality objectives. Competent authorities need to make arrangements to obtain the views of the public and to communicate to them the proposals contained in the plans.

Therefore suitable consultation mechanisms have to arranged in order for the public to see and comment upon the river basin plans. It is important that the citizens, consumer and environmental groups, local communities, but also relevant government departments, water utilities, industry and commerce are fully involved in the discussions on river basin plans as these are likely to affect all of these organisations, and the plans will rely upon actions by such organisations in the achievement of their objectives.

3 Institutions and Relevant Parties

3.1 Stakeholders

A large number of stakeholders have an interest in, or may be affected by, water management. The principal stakeholders, and their roles in the process of developing and implementing a sectoral strategy to achieve compliance with EC policies and legislation on water management, are identified in Box 3. The following subsections focus on the main groups of organisations that are involved in the water sector.

3.2 Central Government Institutions

As a rule the Water Framework Directive is neutral as regards the organisational framework. The EU has got Member States with centralised as well as decentralised or federal constitutional structures, and it is the right of Member States to choose the approach they prefer. Additionally, established practice and tradition might play a key role in distribution of responsibilities between different national ministries and/or regional and local authorities.

However, certain key question should be addressed in any case:

- Decide on a responsible 'lead' ministry for implementing the Water Framework Directive, as well as ensuring the cooperation and decision taking process in case of other ministries being involved. In many cases this involves the Ministry for the Environment, but also those responsible for Health (Drinking Water Directive), Agriculture (Nitrates and Sewage Sludge Directives), Industry (emission control) or Foreign Affairs (in the case of transboundary pollution);

- Decide on the distribution of responsibilities (legislation, implementation) between national, regional and local bodies;

- Arrange for the involvement of other public bodies and agencies (e.g. National Standardisation Institute, Environment Agency, Environment Inspectorate).

Box 3 Principal Stakeholders and their roles in the water quality sector

Stakeholders	**Roles**
Central Government (e.g. a National or Regional Ministry or Department)	➔ Implementation and maintenance of compliance with EC policies and legislation in the water sector. Provision of guidance to affected sectors - farming, industry. Reporting to the Commission on compliance and derogations.
Environmental agencies working on behalf of central government (e.g. regulatory authority, inspectorate, accreditation agency for laboratories or industrial sectors)	➔ Provision of planning, development of environmental quality standards, application of standards, regulation, monitoring and compliance assessment, and technical assistance.
Regional and local government/municipalities	➔ Construction of publicly owned sewer networks, sewage treatment works, water treatment plants.
Water and sewerage providers (public and/or private)	➔ Construction and operation of privately owned water and wastewater treatment works.
Industrial companies	➔ Compliance with permits for water abstractions and effluent discharges.
Public	➔ Involvement in consultation processes for river basin plans. Reporting pollution incidents.
Environmental and Consumer NGOs	➔ Lobbying on behalf of the public with respect to water quality objectives, siting of treatment plants, pollution problems.
Research institutions (e.g. Universities)	➔ Technical research into environmental quality standards, toxicity assessment, water analysis.

3.3 Competent Authorities

Examples of the duties which need to be carried out by the competent authorities in the water sector are illustrated in Box 4. In some countries existing organisations, sometimes within central government, or regional or local bodies already undertake similar work. There may be a need to expand their responsibilities or, if it is not already available, to consider a new organisation.

Competent authorities can be appointed for individual directives, for environmental sectors or across environmental sectors. The last option allows the use of skills (such as permitting, inspection and compliance assessment) which are common across sectors to be utilised efficiently, and also encourages cross-sector issues and the necessary links required by individual legislative instruments to be addressed with the minimum of administrative efforts.

Box 4 Examples of activities that are specifically required to be carried out by a competent authority in the water sector

Planning and Implementation

- Identify river basins (WATER FRAMEWORK DIRECTIVE).
- Prepare river basin plans, programmes of measures (WATER FRAMEWORK DIRECTIVE).
- Identify bathing waters, shellfish waters, freshwater fish (76/160/EEC, 79/923/EEC, 78/659/EEC).
- Identify agglomerations (91/271/EEC).
- Identify sensitive and less sensitive areas (91/271/EEC).
- Identify nitrate vulnerable zones (91/271/EEC).
- Grant derogations (80/778/EEC, 78/659/EEC).
- Identify the industries to which directives apply (76/464/EEC).
- Fix standards applicable to drinking water, bathing water, shellfish water, freshwater fish
- (80/778/EEC, 76/160/EEC, 79/923/EEC, 78/659/EEC).
- Set water quality objectives (76/464/EEC, WATER FRAMEWORK DIRECTIVE).
- Set fixed emission limits (76/464/EEC, 91/271/EEC).
- Specify urban waste water treatment requirements and sewerage designs (91/271/EEC).

Technical Standards

- Develop a methodology for deciding water quality objectives (86/280/EEC).
- Develop a methodology for deciding emission limit values (76/464/EEC).
- Establish procedures for the issue of authorisations (76/464/EEC, 96/61/EEC).

Regulation

- Establish an inspectorate that is authorised to inspect installations, take samples, and take enforcement actions (96/61/EEC, 91/271/EEC).
- Establish laboratories and associated organisations capable of sampling and analysing waters and effluents according to prescribed methods with the application of quality control regimes to ensure harmonisation with directives (79/869/EEC).
- Institute the prior authorisation regimes for industry and for wastewater treatment plants (96/61/EEC, 91/271/EEC).
- Set up monitoring programmes to determine compliance with directives (80/78/EEC, 76/464/EEC, priority substances).
- Establish databases and information systems to allow reports to be made to the Commission and to the general public (91/692/EEC, 90/313/EEC).
- Enforce measures for emission controls of priority substances.

Reporting

- Prepare reports on e.g. implementation, designations, authorisations,derogations etc. (91/692/EEC as amended by Decision 94/741/EEC).

A cross-sectoral (i.e. across environmental sectors) competent authority, provided by a single national body or by regional bodies operating under the same management regime, covering the environment would result in economies of scale and expertise through shared facilities and resources and would represent the closest form of integration on environmental issues. Alternativelysectoral competent authorities would require close collaboration on those issues which are regarded as crosssectoral, and their terms of reference should include the links between sectors.

Where issues of strategic importance to Member States arise these should be dealt with by a national level organisation. The need for specialised technical expertise supplied at a consistently high level also suggests the advantages to be gained by appointing national organisations, with the consequent efficient use of scarce resources.

The Water Framework Directive requires decision-making on a river basin basis. A national competent authority would need institutional structures capable of operating in the geographical areas dictated by the limits of the river basins. The alternative of devolving responsibility to regional bodies which match or which can accommodate the boundaries of river basins should also be considered.

As most elements of the legislation in this sector are linked through the river basin approach and common methodologies, using either quality objectives which apply to waters and/or the application of limit values to effluents, it is advantageous for the competent body for all legislation concerning water quality and pollution control to be the same in each region of the country. Common methods of sampling and analysis are also required and it is possible in this way to avoid duplication of effort and to make savings by using samples for more than one purpose. If individual regional or river basin organisations are appointed as competent authorities, they could share laboratory facilities. Close co-operation is required in this case to avoid differences in testing procedures and interpretation of the results. A national competent authority could operate in river basins by setting up a managerial structure based on river basins.

3.4 Regional and Local Government

The role of regional and local government in the water sector is important for two reasons:

- First, most countries have a tiered administrative structure in which certain powers are devolved to the regional (county, department, Länder) or local level of government (planning authority or municipality). Such decentralisation is stronger in federal states but exists generally;

- Second, the proposed Water Framework Directive is based on a decentralised concept of river basins and involves local people as much as possible in the planning process.

The proposed Water Framework Directive will require the co-operation of regional and local authorities in developing operational objectives which are to some extent also use-related (e.g. waters for drinking water abstraction, waters for bathing). Measures to meet prescribed water quality standards and abstraction limits will in any case require local action.

The provision of water and sewerage services may be the responsibility of the regional or local government. Such bodies will be involved in ensuring that drinking water is safe and that human waste products are disposed of in a satisfactory way so as to minimise public health risks. Regional or local administrations may be responsible for, and be funded to construct water and waste water treatment plants, water mains and sewer networks. In such cases the regional authority may be an appropriate competent authority in the terms of the Drinking Water Directive (80/778/EEC) or Urban Waste Water Treatment Directive (91/271/EEC). The role of the regional or local authority in implementing these directives, and the possible conflict of interest must be considered in such cases, since the authority could be in the position of both the regulator and the regulated.

The river basin approach includes the catchments of cross-border rivers. If the competent authorities are based on regional or local authorities, provision must be made for inter-state co-operation. It may be necessary for the central government to reserve some powers for international co-operation on cross-border rivers. The same considerations apply to joint action required in the case of coastal and estuarine waters.

3.5 Private Sector Involvement

EU legislation is completely neutral on the issue of ownership of water infrastructure, and leaves this to Member States, following the principle of subsidiarity. Indeed the present 15 Member States present quite a diverse picture:

- local communities or associations of such communities being the main owners and providers of services related to urban waste water collection and treatment as well as drinking water supply in several Member States;
- large industries constructing and maintaining their own plants or having established partnerships with local communities;
- mixed public-private companies in others; and
- a completely privatised water industry, largely with a monopoly on water supply and waste water disposal, in a major part of one Member State.

Experience gained shows that all the approaches have certain merits in a particular situation, but no general conclusions can be drawn, and the historical development of the sector as well as the political situation has to be taken into account.

Whatever approach is to be taken, clearly defined responsibilities will facilitate both achieving the environmental objectives and the best use of available resources.

3.6 Environmental Inspectorate

Water protection legislation involves a considerable burden in terms of inspection and monitoring. An inspectorate is needed to assess compliance with the requirements of the directives and to take enforcement actions. Details of how to organise such inspectorates are left to the discretion of Member States.

Many of the activities are common to directives in other sectors so there are advantages in establishing an inter-sectoral inspection and enforcement organisation. The inspectorate could be set up within the competent authorities or it could be an independent, separate body. The inspectorate requires specific terms of reference to undertake work within the remit of the directives, and a clear reporting line, to enable enforcement procedures to be instigated. In the water sector an inspectorate could be located within the river basin management organisation, or it could attached to the local government. It must be equipped with sampling and inspection facilities, vehicles, data processing systems, trained staff, and have access to laboratory facilities which themselves need to use methods in accordance with those specified in the directives.

The inspectorate should take responsibility for monitoring adherence to all the directives in the water sector. It is sometimes considered advantageous to use a separate organisation to monitor the drinking water directive as there are health implications in non-compliance and closer links with health authorities could be developed. Local municipalities or authorities could be used to monitor and report upon aspects of the water directives such as drinking water quality or effluent quality, but if this option is used the inspection role should be quite separate from other aspects of implementation such as the operation of works.

3.7 Communication and Consultation

The implementation of the Water Framework Directive will require a review of the environmental impacts of human activity and an economic assessment of water use. This must be followed by the preparation of a river basin management plan and a programme of measures. In order to assess adequately activities within a catchment, consultation with those who live and work in the catchment is essential. Similarly, as the management plan and programme of measures will affect residents and activities in the river basin, consultation is necessary to ensure that the proposals are likely to be achievable and will not lead to an unacceptable burden on those who use the river basin. The directive requires consultation to take place, and the competent authorities should arrange consultation mechanisms with interested parties. The parties to be consulted should include:

- Other central government ministries;
- Regional and local government;
- Water and sewerage companies;
- Industrial users of water;
- Industrial waste water producers;
- Farmers;
- Fishermen and other river users;
- The general public; and
- Environmental NGOs.

Whilst EU water legislation is precise in its objectives, e.g. achieving a maximum elimination rate or minimum effluent concentrations for waste water treatment plants, it is not prescriptive as to the means of achieving this objective. Consultation with all relevant parties might in this context also achieve a best cost effectiveness and identify the best combination of measures on a proportionate level. Therefore preparation of those parts of the Water Framework Directive addressing information and consultation of all stakeholder groups and the public should be subject to serious efforts.

Where the achievement of environmental goals relies upon a change in public attitudes or methods, consultation and publicity is essential. This has proved to be effective in increasing awareness of the impact of activities on water quality, for example in farming practice but also in measures to save water or limit pollution of waste water from domestic sources.

Some directives specify public consultation and the availability of information, e.g. the Environmental Impact Assessment Directive (85/337/EEC as amended by 97/11/EC) and the directive on Access to Environmental Information (90/313/EEC). The competent authorities dealing with the water sector must be aware of, and take action in accordance with, these directives where information relating to the water environment is concerned.

4 Technical Issues

Examples of technical standards within the water sector include:

- Emission standards. Emission standards set maximum concentrations of a substance permissible in a discharge or the maximum quantity of a substance permissible in a discharge over a given period of time;

- Water quality objectives. Quality objectives apply to bodies of water and relate to ambient conditions and are based on the toxicity, persistence and accumulative characteristics of substances. Quality objectives are used as a target standard to aim for in receiving waters;
- Design, construction and maintenance of sewer systems (as in the Urban Waste Water Treatment Directive); and
- Methods of sampling and analysis (in a range of directives).

Earlier EU legislation tried to define the methods, whilst more recent legislation provides references to CEN/ISO standards, at the same time making analytical quality assurance schemes and 'Best Laboratory Practice' mandatory.

Whilst EU water-related standards are clearly defined where mandatory, standards from other international or national bodies might take the character of recommendations. Alternative sources for technical or scientific standards might be WHO, national or international standardisation organisations (DIN, CEN ISO), but also internal industrial and/or accreditation bodies (eg. OECD). As regards standardisation bodies, cooperation within ISO and CEN might facilitate access to information, data and resources.

5 Regulation and Enforcement

5.1 Overview

In order to achieve the objective of maintaining/achieving good status for waters, the measures put in place by the legislation in this sector, and by legislation in other sectors such as the IPPC Directive (96/61/EEC) must be properly implemented and enforced. This can only be achieved by developing a suitable regulatory regime with adequate resources to implement and enforce the law. Regulation in the water sector involves:

- issuing authorisations or permits to abstract water from a water body or discharge waste water;
- monitoring and inspection to ensure that authorisation or permit conditions are being observed;
- taking enforcement action if they are not; and
- reporting of implementation and enforcement measures and their success.

5.2 Authorisations and Permitting

The principal tasks related to authorisations or permitting in the water sector are:

- issuing permits for discharges to water, including quantity and quality of the discharge, setting emission limit values according to European and national legislation and bearing in mind the combined approach, i.e. ensuring compliance with water quality objectives; and
- issuing permits for the abstraction of water (from surface waters and groundwater), bearing in mind the principle of a long-term balance between abstraction and natural recharge / low flow.

Common procedures for assessing applications from thedischarger and issuing permits should be established to ensure conformity throughout the country, to reduce administrative burden and to avoid problems of differing interpretations being applied in various parts of the country. There is a need to ensure that permit conditions reflect what is required by a directive, national legislation and any other conditions which are necessary to achieve environmental targets. Transposing and implementing

European legislation is mandatory; at the same time, Member States have the right to apply more stringent environmental objectives.

In setting conditions, the competent authority may have to take account of the interests of other statutory bodies and others who may be affected by the discharge or activity through consultation. The details of the permit must, as a rule, be available to the public in some readily accessible form under the Directive on Access to Environmental Information (90/313/EEC).

5.3 Monitoring, Inspection and Enforcement

Monitoring will be an essential part of the implementation of the whole range of EU water legislation including the Water Framework Directive. Systematic monitoring of surface water and groundwater quality and quantity will be in several categories:

- surveillance monitoring;
- operational monitoring;
- investigative monitoring; and
- compliance checking.

Proper coordination of monitoring will not only contribute to achieving the environmental objectives, but also reduce the administrative and financial burden of monitoring.

Summarising the water legislation, monitoring must be established for:

- surface waters, for ecological, physico-chemical and morphological parameters;
- groundwaters, for physico-chemical parameters;
- discharges of waste water, parameters depending on the particular case;
- bathing waters during the bathing season, for bacteriological and chemical parameters; and
- drinking water, for bacteriological and physico-chemical parameters.

When preparing the monitoring scheme the future 'absorption' and ensuing repeal of certain legislation under the Water Framework Directive should be duly considered. Establishing the monitoring scheme already along the Water Framework Directive, and implementing it step by step, might considerably cut costs. This refers to:

- Surface Water for Drinking Water Abstraction Directive 75/440/EEC, the related Directive on Sampling and Monitoring 79/869/EEC and the Exchange of Information Decision 77/795/EEC;
- Fish Water Directive (78/659/EEC);
- Shellfish Water Directive 7979/923/EEC;
- Groundwater Directive 80/68/EEC; and
- Dangerous Substances Directive (76/464/EEC).

Monitoring required by the IPPC Directive 96/61/EC may also be accommodated within these base programmes.

Other Directives will require a more targeted and in-depth monitoring in certain sectors:

- Bathing Water Directive 76/160/EEC: monitoring of bathing areas during the bathing season;
- Urban Waste Water Treatment Directive 91/271/EEC: monitoring of discharges, as well as of affected bodies of water; in case of individually designated sensitive areas monitoring for a review of those areas; and

- Nitrates Directive 91/676/EEC: monitoring requires of nitrates contents in surface waters and groundwaters; in case of individually designated vulnerable zones monitoring for a review of those zones.

To ensure appropriate implementation, the competent authority will require suitable powers to take enforcement action if, as a result of inspection or monitoring, the owner of a permit is found to be breaking the terms of the permit. The competent authority, should also have appropriate powers to revoke or alter the terms of a permit, if for example pollution is found to be occurring despite compliance with its conditions.

5.4 Data Collection and Reporting

A summary of the type of data collection and reporting required by EC legislation is given in Table 2.

Table 2 Examples of Reporting and Notification Requirements for the Water Sector

Body responsible	**Receiver of Information**	**Type of Information**
At EU level		
European Commission	European Parliament, Council, general public	• Information on implementation of Directives (e.g. Urban Waste Water Treatment Directive, Nitrates Directive, Water Framework Directive)
European Commission	General public	• Report on quality of bathing waters (under the Bathing Water Directive)
European Commission	General public	• Synthesis report on the quality of drinking water in all Member States (under the Drinking Water Directive)
Member States	European Commission	• Notification of transposition of legislation and main texts (all directives) • Implementation programmes and/or programmes of measures (e.g. Water Framework Directive, Urban Waste Water Treatment Directive, Dangerous Substances Directive, Surface Water for Drinking Water Abstraction Directive) • Reduction programmes for List II substances under the Dangerous Substances Directive 76/464/EEC • Reports at set intervals (Directives on Surface Water for Drinking Water Abstraction and on Bathing Water Quality) • Derogations and waivers (Drinking Water Directive, Bathing Water Quality Directive, Surface Water for Drinking Water Abstraction Directive) • Vulnerable zones; Action Programmes; Codes of Good Practice (Nitrates Directive) • Sensitive Areas (Urban Waste Water Treatment Directive)
Within Member States		
Member State	General public	• River basin plans (under the Water Framework Directive)
Member State	General public	• Reports on state of urban waste disposal and sewage sludge (Urban Waste Water Treatment Directive
Member State	General public	• Report on the quality of drinking water in the Member State (under the Drinking Water Directive)

Organisations with responsibilities for reporting should be made aware of their responsibilities. In particular competent authorities must be given the powers to collect information and their duties should include the requirement to set up data collection and reporting systems. This may be achieved through requirements for licensed waste water dischargers and water abstractors to report information to the competent authority on the activities to which the licence permit relates.

Reporting to the Commission is usually the responsibility of the government of the Member State. In many cases this has been delegated to the competent authority, but in others a Ministry retains the right to make the formal reports.

The Commission has issued a directive harmonising the reporting of water sector data. This replaces the reporting requirements of a number of the water directives (see the Reporting Directive 91/692/EEC as amended by Decision 94/741/EEC and the Water Questionnaires of Decision 92/446/EEC as amended by 95/337/EEC).

6 Priorities and Timing

6.1 Prioritising the Implementation Tasks

In preparing their implementation plans the Candidate Countries will need to prioritise the major tasks to be undertaken.

Legislative Considerations

Candidate Countries must transpose all of the EC directives into national legislation by the date of accession. However, consideration should be given to the order in which the various items are transposed.

Framework-type directives are usefully transposed at an early stage as these will provide the outline for other daughter legislation, and usually the requirements for competent authorities and administrative infrastructure set up to meet the frameworks will suffice for the whole sector. In the water sector, the Water Framework Directive will become the main lead directive. The Dangerous Substances Directive (76/464/EEC) will be the framework for another seven daughter directives, but will itself be brought within the framework of the Water Framework Directive. The Drinking Water Directive 98/83/EC should be implemented early in the implementation plan as it is of great importance to public health and will continue to stand alone. The Urban Waste Water Treatment Directive (91/271/EEC) is an important directive and, in areas with basic sewerage needs, should be implemented at an early stage, at the same time the issue of sewage sludge in the context of wastes legislation has to be addressed as appropriate ways for sewage sludge reuse and/or disposal will be required. The IPPC Directive (96/61/EEC) will also influence the implementation of the Water Framework Directive as its provisions are a means to control pollution from large industrial installations, and it will be one of the foundations of the improvement programmes for river basins.

Cost-effectiveness

In general, legislation which gives the greatest benefit to the cost of implementation should be given a higher priority than that producing lower cost/benefit ratios. However, legislation which will require major infrastructure renewal or capital spending on industrial improvements should also be given an early place in the phasing process. This is because in order to meet the deadlines in many of the directives, new investment will be needed to be built and operating, and this takes time to plan and implement.

Furthermore, taking into account the provisions of the Water Framework Directive when preparing legislation and implementation will save costs compared to a 'two-step' approach, i.e. first implementing 'old' legislation of the 1970s and then the Water Framework Directive.

Economic Considerations

The Candidate Countries should consider which legislation is likely to have significant consequences for their economies. Legislation which affects industrial or commercial sectors which make a significant contribution to the economy should be addressed before those which relate to small or insignificant industries. In the water sector the Water Framework Directive will, over a period of time, cause considerable costs only if measures under the river basin management plans have to go beyond those under existing legislation on urban waste water treatment (Directive 91/271/EEC), dangerous substances (Directive 76/464/EEC) and IPC (Directive 96/61/EEC). The Nitrates Directive might, depending on the structure of agriculture and the state of surface andgroundwaters, affect the agricultural sector in terms of storage capacities for manure. On a shortertimescale, the implementation of the Dangerous Substances Directive 76/464/EEC and its Daughter Directives is likely to have an immediate effect on certain industries, alongside the IPPC Directive (96/61/EEC) due to the impact of the prior authorisation scheme and the application of best available technology. On a medium and long-term timescale, the measures for the 'priority substances' (Art. 16) will have an additional impact.

6.2 Timescales

It is not possible to give specific guidance on the dates by which the Candidate Countries must implement and comply with EC water directives. This will have to be negotiated case by case during the accession negotiations. Experience from earlier enlargements of the EU shows:

- Greece, Spain and Portugal received certain limited transition periods in the 1980s;
- Germany received transitions periods of up to five years for its newländer in 1990; and
- Austria, Finland and Sweden did not receive transition periods on accession in 1995.

Implementation tasks which will require particular effort include:

- waste water treatment: planning, design and construction of sewerage and waste water treatment plants;
- drinking water supply: upgrading of distribution systems and, where necessary, drinking water treatment to meet quality standards;
- developing and implementing new managerial arrangements to implement the Water Framework Directive; and
- developing and implementing emission reduction programmes and monitoring for 'priority substances' and selected dangerous substances under Art. 7 of 76/464/EEC.

Careful technical and financial assessment will be an indispensable precondition for consideration of any requests for transition periods for implementing EU legislation.

7 Economic and Financial Issues

7.1 Introduction

This section provides guidance on the economic and financial issues that will have to be considered in the implementation of the water legislation. The first two sections describe the types of costs likely to be incurred during implementation, the final sections discuss financial options.

7.2 Institutional Development

Although most Candidate Countries will have institutions devoted to the prevention of water pollution and the permitting of installations, they are unlikely to be developed everywhere to the extent required to implement the entire body of water legislation. The application of new types of standards - emission limits, quality objectives, best available techniques, and the need for extensive monitoring together with facilities and data processing, with a focus on planning within river basins, might sometimes require radical alterations in the method of working and in the institutional arrangements provided. It is therefore important to ensure that adequate budgets are provided for reorganisation and training. Salaries need to be set at a level that enables staff with the necessary training and experience to be retained, and a significant training budget is inevitable. Training needs should be assessed at an early stage and allowance made for any retraining which is necessary.

Human resources are required for:

- Developing strategies and plans;
- Developing water quality objectives and emission limit values;
- Monitoring: sampling and analysing surface and ground waters as well as discharges;
- Issuing permits and authorisations;
- Inspection and sampling of facilities;
- Taking enforcement actions; and
- Data collection, analysis and reporting.

It is not possible to generalise on the costs of providing the institutional structures because of the wide variety of organisational structures already in place and the variations in the size and complexity of the countries, but the aspects which are likely to be most costly are:

- Additional professional and technical staff and their training and development;
- Laboratory testing, analytical services and quality assurance;
- Sampling and monitoring equipment; and
- Data collection, storage, analysis and reporting arrangements.

7.3 Facilities

It will be necessary to upgrade the facilities as a result of implementing the standards of water directives. Finance needs to be raised for capital investment expenditures and the recurrent costs incurred during operations. Ultimately the full costs should be recovered from the users/polluters of waters i.e. the consumers (domestic, industrial and agricultural sector).

The costs incurred in establishing new facilities will depend upon the standards which have to be adopted, and the number, type and size of the facilities required to meet these new standards. The final costs will also depend upon the current levels of treatment available for waste waters, drinking waters, industrial discharges and agricultural practices. Such a wide variety of changes will be needed that it is impossible to give a precise figure of the costs of implementing water legislation.

Few studies are available on the costs of compliance with EC legislation. The Danish Environmental Protection Agency[3)] estimated the cost of complying with the Urban Waste Water Treatment Directive, Drinking Water Directive and the Nitrates Directive for ten Candidate Countries. Assuming that waste

[3] DEPA, 1997. EU's udvidelse mod øst - miljømæssige perspektiver. Miljøstyrelsen.

water treatment is carried out for agglomerations with a population equivalent (pe) of 2000 and more, and that elimination of nitrogen and phosphorus is only carried out for settlements with 10,000 pe or more, DEPA estimated the total cost of compliance for the ten Candidate Countries at DKK 100 billion (EUR 13.2 billion). However this figure is an underestimate as it excludes sewerage works. Implementation of the Drinking Water Directive is estimated at DKK 140 billion (EUR 18.6) while agricultural works to comply with the Nitrate Directive were estimated at DKK 30 billion (EUR 4 billion).

A study[4)] prepared for DG ENV has indicated that for the water sector the total investment costs for the ten Candidate Countries would be EUR 3.5 billion per annum over five years with total short term investment costs of EUR 17.5 billion. In the longer term, in order to achieve full compliance over a period of 20 years, the total cost would be of the order of EUR 50 billion and comes to about EUR 500 per capita.

A DISAE study in Latvia[5)] estimated that capital costs to comply with the Urban Waste Water Treatment Directive (91/271/EEC), Drinking Water Directive (80/778/EEC) and Nitrates Directive (91/67/EEC) would total EUR 810 million.

7.4 Cost Recovery

Part of the EU's environmental principles laid down in the Treaty establishing the European Communities is the "polluter pays principle". This means that anyone whose actions pollute or adversely affect the environment should pay the cost for remedial action. Whilst there are considerable technical difficulties in assessing the value of environmental impacts, it is less difficult to calculate the economic costs of measures such as waste water treatment plants. The polluter pays principle opens the way for the use of economics as an alternative to a regulatory approach for controlling pollution. To implement this, all actions which have a detrimental effect on soil, water or air should have an economic value attached to them which is related to the cost of the environmental damage. It follows that activities which are less damaging will incur a lesser cost, and be therefore more economically justifiable. Whilst compliance with emission limit values and water quality standards has to be ensured, financial incentives such as environmental levies would additionally encourage environmentally sounder approaches. Such an 'instrument mix' is also set out in the Fifth Environmental Action Programme.

What is the attraction of economic instruments? Economic (or market based) instruments rely upon market forces to change the relative prices of goods and services which in turn modifies the behaviour of public and private polluters such that environmental protection or improvements can take place. It is an alternative to regulatory control in that it has the potential to make pollution control economically advantageous to commercial organisations and the citizen.

The main instruments for recovering costs are:

- pricing;
- pollution charges;
- marketable permits;
- subsidies;
- deposit-refund systems; and
- enforcement incentives.

[4] EDC Ltd, May 1997, Compliance costing for approximation of EU environmental legislation in the CEEC.
[5] Halcrow, 1998. Development of the Latvian Approximation Strategy and Programme.

The application of these tools in the water sector is discussed briefly below.

(a) Pricing

Water and waste water tariffs or charges are set at levels which cover the costs for collection plus treatment or abstraction plus distribution, and this can induce organisations to use water-saving devices or bring in recycling or re-use. The costs charged may be set to exceed the actual costs of treatment for example. Marginal cost pricing can reduce water use (and consequent pollution). It is necessary to control the charges for effluent treatment at the same time, in some rational relationship to water use charges. The use of dilution as a means of meeting effluent standards is largely prohibited by EU water legislation. In the water sector the large increases in price for both water supplies and for collection and treatment of waste water, inevitable in Candidate Countries as the standards of quality and environmental protection required in EC legislation are implemented, will probably encourage water saving and reuse of waste water.

(b) Pollution and use charges

Pollution charges or "taxes" are defined as a price to be paid for use of the environment. There are four main types:

- Effluent charges, based on actual quantities and/or pollution loads of effluents or on some surrogate (e.g. size of industrial installation), though they need to be set at a realistic level to encourage reduction in effluents produced. Such charges can be used to fund both the operating costs and loan charges for capital investment;

- User charges, based on water consumption or on some surrogate (e.g. property values). High sewage treatment costs encourage in-house treatment by industry. The use of water meters will be encouraged as water charges rise;

- Product charges, for example applied to the purchase of pesticides or fertilisers that will cause pollution before, during or after consumption. Their effectiveness will depend on the elasticity of demand for the product and whether there are less polluting substances available. This type of charge is useful for the control of non-point source pollution, as rising charges will tend to cause a reduction in usage; and

- Administrative charges, which are used to cover the costs of operating the regulatory system. In some countries, the basic costs of administering the permitting and regulatory procedures, together with costs of monitoring are paid for by an administrative charge which reflects the total costs of regulation. This is an example of applying the polluter pays principle. The charge does not raise sufficient funds for infrastructural improvement.

(a) Tradeable permits

The responsible authority sets a limit on the total allowable emissions of a pollutant and allocates this amongst the sources of pollution by issuing permits to emit a stipulated amount over a specified period of time. After the initial distribution, permits can be bought or sold. Trade can be external between different organisations or internal between different installations within the same organisation. Tradeable permits work best where:

- the number of polluting sources is sufficient to establish a market;
- sources of pollution are well defined and easily measured;

- there are differences in the marginal costs of pollution control in the firms concerned;
- there is potential for technical innovation; and
- the environmental impact is not dependent on the location of the source or time of year.

It is possible to reduce the costs of regulation in this system, and transfers of polluting loads between dischargers becomes a self-regulated issue within an overall permissible limit for the area.

(a) Subsidies

Subsidies can include tax incentives, tax credits, grants and low interest loans. The removal of subsidies can in itself act as an incentive to better environmental performance by forcing innovation and water use reductions.

(b) Deposit-refund systems

Customers pay a surcharge when buying a potentially polluting product. On returning to an approved centre for recycling or disposal their deposit is refunded. This approach could be used for items such as pesticide containers which otherwise would be dumped in the environment and lead to water pollution. The advantage of such a system is that it can be administered by the private sector. The costs of administration may be high.

(c) Enforcement incentives

These are penalties to induce polluters to comply with environmental standards or regulations. They include fines (for exceeding limits), performance bonds (payments to regulatory authorities before a potentially polluting activity is undertaken, which is returned when the correct regulatory levels are met), and liability assignment (where polluters are made liable for any environmental damage they cause).

8 Summary of Key Issues

In order to achieve a successful implementation of water legislation the following key points in Box 5 below should be addressed.

Box 5 Checklist of Key Questions to be considered in implementing EU Water Directives

Is there sufficient knowledge of the existing arrangements for managing water and effluents including particularly:
- existing water quality in surface waters (rivers, lakes, coastal waters) andgroundwaters?
- identity of the dangerous substances of concern for the different river basins?
- identity of current point source discharges of waste water?
- effluent quality, treatment and management regimes?
- environmental impact of existing discharges and diffuse point sources?
- existing drinking water quality and treatment?
- existing legislative, institutional and regulatory arrangements?

Have all significant problems associated with the existing arrangements been identified, in particular:
- the legislative/ institutional/regulatory framework?
- the shortfalls in infrastructure to meet the required standards?
- the training/expertise shortfalls?
- the consultation/communications requirements?

Is the institutional framework capable of being reorganised to operate on a river basin basis, in particular:
- are there organisations with expertise and resources to act as competent authorities?
- is available data capable of being assessed on a river basin basis?
- are the organisations capable of undertaking sampling programmes?
- are there laboratories which can analyse water and effluents in the prescribed manner?
- do laboratories use accredited and standardised methods?

Are there clear links established between the competent authorities, central government, and other organisations which have responsibilities for issues which affect the quality of water?

Are the responsibilities for setting and meeting water quality objectives, limit values and issuing permits identified clearly?

Does the legal/institutional framework give sufficient powers to:
- enter premises?
- inspect and sample?
- authorise or otherwise control industrial effluent?
- regulate urban wastewater discharges?
- regulate the quality of drinking water?
- control activities within river catchments?

Are there arrangements in place for monitoring, surveillance and review of water and effluent quality?

Is there an enforcement regime in place with clear lines of accountability and appropriate penalties?

Is there an adequate data processing system available?

Are there adequate means of consultation/reporting with:
- the Commission?
- the public?
- organisations affected by river basin action plans?
- other countries where cross border issues are concerned?

Are there means of undertaking economic assessments of requirements for the water sector?

Is there a means of obtaining adequate funding for the construction of new infrastructure?

Is there an adequate training organisation in place?

The Urban Waste Water Treatment Directive

Official Title: Council Directive 91/271/EEC concerning urban waste water treatment (OJ L 135, 30.5.91), as amended by Commission Directive 98/15/EC (OJ L 67, 7.3.98)

TAIEX Ref. No.: 44

1 Summary of Main Aims and Provisions

The directive concerns:

- the collection, treatment and discharge of urban waste water from agglomerations; and
- the treatment and discharge of biodegradable waste water from certain industrial sectors.

Its objective is to protect the environment from the adverse effects of such waste water discharges. Member States must ensure that urban waste water is collected and treated prior to discharge according to specific standards and deadlines.

In terms of the treatment objectives, secondary (i.e. biological) treatment is the general rule, with additional nutrient removal in so-called sensitive areas (tertiary treatment); for certain marine areas primary treatment might be sufficient.

The deadlines for implementing the directive vary according to the size of the agglomeration and the characteristics of the receiving waters.

2 Principal Obligations of Member States

2.1 Planning

- Identify sensitive areas and less sensitive areas, in accordance with specified criteria, and review the identification of these areas every four years (Arts. 5 and 6 and Annex II).

- Establish a technical and financial programme for the implementation of the directive (Art. 17).

2.2 Regulation

- Provide for prior regulation or specific authorisation for all discharges of urban waste water (Art.12, Annex IB) and of industrial waste water from the agro-food sector (Art.13, Annex III), as well as for all discharges of industrial waste water into urban collecting systems and treatment plants (Art.11, Annex IC).

- Ensure that systems for collection of urban waste water are provided for all agglomerations with a population equivalent of 2000 or more (Art. 3 and Annex IA).

- Ensure that waste water treatment is provided for all these agglomerations, at the level of treatment specified and within the set deadline:
    - The basic rule for the level of treatment is secondary, i.e. biological treatment (Art.4 and Annex IB, table 1).
    - However, the treatment has to be more stringent, i.e. tertiary for discharges into so-called sensitive areas: in those cases, in addition to secondary treatment elimination of nitrogen and/or phosphorus and/or of any other pollutant affecting the quality or specific use of the water has to be provided (Art.5 and Annex IB, table 2).
    - For certain discharges to coastal waters treatment might be less stringent, i.e. primary, under specific conditions and subject to agreement of the Commission (Art. 6 and 8).
    - For agglomerations with a population equivalent of less than 2000, but equipped with a collecting system, 'appropriate treatment' has to be provided, i.e. treatment that ensures good quality of the receiving water (Art.7)
    - The deadlines set for Member States are end-1998, end-2000 and end-2005 respectively, with the more ambitious deadlines for discharges into sensitive areas and for the larger agglomerations (population equivalent above 15000).

- Ensure that the disposal of sludge from urban waste treatment plants is subject to general rules, registration or authorisation; and impose a ban on the disposal of sludge to surface waters (Art. 14).

- Ensure that treatment plants are designed, constructed, operated and maintained to meet specified performance requirements (Art. 10).

2.3 Monitoring

- Ensure appropriate monitoring capacity for:
    - monitoring discharges from urban waste water treatment plants; and
    - monitoring waters receiving discharges of waste water covered by the directive (Art. 15 and Annex ID).

- If you consider applying for derogations (primary treatment for discharges into less sensitive areas), carry out comprehensive studies to determine the effect on the environment of discharges of urban waste water in less sensitive areas (Arts. 6 and 8). Bear in mind that, inter alia, the Baltic Sea, the North Sea, the Black Sea and the Adriatic do not qualify as 'less sensitive areas'.

2.4 Information and Reporting

- Ensure that the relevant authorities publish reports to the public, every two years, on the disposal of urban waste water and sludge in their areas (Art. 16).

- Report to the Commission on:
    - transposition of the directive into national legislation, with texts of the main provisions of national law adopted in the field covered by the directive (Art. 19).
    - implementation programmes (Art. 17 and Commission Decision 93/481/EEC);
    - situation reports on the disposal of urban waste water and sludge (Art. 16);
    - (in the case of applications for a derogation for less sensitive areas) comprehensive studies carried out in respect of discharges in less sensitive areas (Arts. 6 and 8);
    - upon request by the Commission: report on information collected through monitoring (Art.

15);

2.5 Additional Legal Instruments

There are several other legal instruments that should be borne in mind during the implementation of this directive. These include:

- Forthcoming Water Framework Directive.
- Nitrates Directive (91/676/EEC).
- Landfill Directive (99/31/EC).
- Incineration Directives (89/429/EEC and 89/369/EEC).
- Dangerous Substances Directive (76/464/EEC) and its seven daughter directives.
- Sewage Sludge Directive (86/278/EEC).
- Integrated Pollution Prevention and Control (IPPC) Directive (96/61/EC).
- Reporting Directive (91/692/EEC) and Decision 94/741/EEC.
- Directive on Access to Environmental Information (90/313/EEC).
- Environmental Impact Assessment Directive (85/337/EEC).

Particularly relevant issues in these directives concern:

- The provisions under the Urban Waste Water Treatment Directive are an integral part of the basic measures in the programmes of measures under the Water Framework Directive, without any change to the deadlines set under the 1991 Directive;

- The provision of adequate facilities for either incineration or landfill of sewage sludge;

- The quality requirements for sewage sludge used in agriculture;

- IPPC Directive (96/61/EC) covers certain industrial installations covered by this directive as well, setting more stringent objectives and using, as does the Water Framework Directive, a 'combined approach' of emission controls and water quality standards; in each particular case the more stringent approach applies.

3 Implementation

3.1 Key Tasks

The key tasks involved in implementing this directive are set out in chronological order wherever possible in the checklist below.

THE URBAN WASTE WATER TREATMENT DIRECTIVE – KEY IMPLEMENTATION TASKS	
1	**Planning and Administrative Arrangements**
1.1	Ensure a competent authority / competent authorities and institutional arrangements at national, regional and local levels for the implementation and enforcement of the directive. These should include the authority or organisation responsible for developing programmes for construction of new urban waste water treatment infrastructure; providing public finance for construction (i.e. delivering the implementation programme under art.17); and monitoring the progress during construction of infrastructure.
1.2	Ensure adequate laboratory capacities either within the administration and/or commercial laboratories under contract. The laboratories must use the methods specified in Annex I of the directive and be subject to regular quality control.
1.3	Decide whether to identify individual sensitive areas or to apply the more stringent tertiary treatment criteria to the whole territory.
1.4	Identify agglomerations of more than 2000 population equivalents.
1.5	Determine, in cooperation with local and regional authorities, the current state of existing sewerage networks and waste water treatment plants, and identify those which need a sewerage network to collect waste water and the provision of a waste water treatment plant.
1.6	Identify sensitive areas, i.e. those waters fitting into one or more of the criteria set in Annex II. Information may be obtained by carrying out studies and/or using available data.
1.7	Within sensitive areas determine which of the parameters for more stringent treatment stipulated in Annex I.B have to apply in the particular situation. As a general rule most marine waters have nitrogen as the limiting factor for eutrophication, whilst phosphorus is the limiting factor for most freshwaters.
1.8	Identify the catchment limits of sensitive areas. Within the whole catchment of the sensitive area all discharges from agglomerations of more than 10,000 will have to be provided with the more stringent treatment.
1.9	Establish an implementation programme for the construction of sewerage networks and waste water treatment plants, addressing both the treatment objectives and the deadline. As for the deadlines, there are three phased deadlines in the Directive: • by end 1998 sewerage systems and tertiary treatment for all agglomerations in sensitive areas with a population equivalent of more than 10000, • by end 2000 sewerage system and waste water treatment for all agglomerations with a population equivalent of more than 15000, plus appropriate treatment for discharges from the agro-food industry, • by end 2005 sewerage system and waste water treatment for all the other agglomerations covered by the Directive. Derogations from these deadlines ('transition periods') might be part of the Accession Treaty. Careful technical and financial assessment will be an indispensable precondition for all consideration of transition periods. As for the treatment objective: • secondary (i.e. biological) treatment is the general rule, • additional nutrient removal or further measures are mandatory in so-called sensitive areas (tertiary treatment); • in certain marine areas primary treatment (less sensitive areas) might be sufficient; less stringent objectives might also apply for agglomerations in high mountain areas. • For agglomerations with a population equivalent of less than 2000, but equipped with a collecting system, 'appropriate treatment' has to be provided, i.e. a treatment that ensures good quality of the receiving water.
1.10	Assess whether there are marine waters in your territory that might qualify as less sensitive areas. (In this context bear in mind that, inter alia, the Baltic Sea, the North Sea, the Black Sea and the Adriatic do not qualify as 'less sensitive areas').
1.11	Impose a ban on any disposal of sewage sludge to surface waters.
1.12	Ensure a environmentally and technically sound reuse or disposal of sewage sludge. Options may be: • agricultural re-use, subject to the requirements of the Sewage Sludge Directive (86/278/EEC); • incineration, subject to Directives 89/429/EEC and 89/369/EEC on municipal incinerators; • landfill, subject to the Directive on Landfill of Waste.
1.13	Establish treatment and effluent standards for biodegradable waste water from the industrial sectors listed in Annex III of the directive where waste waters do not enter sewer networks for treatment at municipal plants. These may be on a nation-wide basis or specific to the local situation. The standards must be appropriate to the particular industries concerned and will involve consultation with the industry sectors. Bear in mind in this context that the IPPC Directive (96/61/EC) covers certain industrial installations covered by the Urban Waste Water Treatment Directive as well, setting more stringent objectives and using, as does the Water Framework Directive, a 'combined approach' of emission controls and water quality standards; in each particular case the more stringent approach applies. Ensure that such industrial discharges are subject to a prior authorisation regime.
1.14	Specify requirements for industrial waste waters discharging into the sewerage network. Such requirements have to comply with the provisions for pre-treatment according to Annex I C. Ensure that such industrial discharges are subject to a prior authorisation regime.
1.15	Identify a means of recovering costs for design, construction and maintenance of sewerage systems and waste water treatment plants from the users and set up the charging system.
2	**Regulation and Monitoring**
2.1	Provide for a legally binding requirement that agglomerations in the size ranges set out in the directive are provided with collecting systems by the dates specified.
2.2	Provide for a legally binding requirement that discharges of urban waste water are subject to secondary treatment or tertiary treatment (depending on the size of the agglomeration and the characteristics of the receiving water) before discharge.
2.3	Provide for a legally binding requirement that discharges to freshwaters and estuaries from agglomerations with sewerage systems with less than 2,000 p.e., and from agglomerations of less than 10,000 p.e. to coastal waters are subject to appropriate treatment.
2.4	Establish a prior authorisation procedure for discharges of treated urban waste water ensuring permission by the competent authority.
2.5	Establish a prior authorisation procedure for all relevant industrial wastewater discharges from the agro-food industry (Annex III) of more than 4,000 p.e. that are not connected to urban waste water systems.

THE URBAN WASTE WATER TREATMENT DIRECTIVE – KEY IMPLEMENTATION TASKS	
2.6	Establish a prior authorisation procedure for the disposal of sludge under which general rules, registration or authorisation procedures are used to give the competent authority control of the disposal route.
2.7	Establish a monitoring and inspection programme for compliance assessment of discharges from urban waste water treatment plants and for assessing the amounts and composition of sludge.
2.8	Ensure quality control with the laboratories involved. Sampling and analysis methods have to comply with the directive. Accreditation schemes for laboratories are a means of constantly ensuring such quality control.
2.9	Re-assess sensitive and less-sensitive areas at four yearly intervals. Plan for follow-up surveys of all sensitive and less-sensitive areas during this period. Review the criteria to ensure that they remain valid.
3	**Technical Standards**
3.1	The competent authority should develop and issue guidance on the precise definition of sensitive areas to be used in the territory, using the directive standards as the basis. In particular this should specify the scientific criteria by which the eutrophic state of waters is to be judged.
3.2	Prepare, in cooperation with experts as well as local and regional authorities, guidance documents for the design, construction and maintenance of sewerage networks, based at least on the provisions of the directive (Annex I.A). Such guidance documents should also address the issue of limiting pollution from overflows in combined sewage systems. Comparable technical guidance documents from other countries, prepared by national or regional authorities, technical associations or others, might be useful in this context.
3.3	Prepare, in cooperation with experts as well as local and regional authorities, guidance documents for the design, construction and maintenance of waste water treatment plants, to ensure compliance with the provisions of the directive (Annex IB, table 2 "tertiary treatment" for sensitive areas and their catchments, table 1 "secondary treatment" for other waters). Comparable technical guidance documents from other countries, prepared by national or regional authorities, technical associations or others, might be useful in this context. Where appropriate, prepare guidance documents on suitable alternatives (art.3) to collecting systems, ensuring at least the same level of environmental protection.
3.4	Prepare a guidance document for "appropriate treatment" for particular situations, giving examples, at the same time underlining that such treatment has to ensure the necessary good quality of the receiving water.
4	**Consultation and Reporting**
4.1	Ensure adequate cooperation and exchange of information with other Member States in cases where discharges of waste water have a transboundary effect on water quality of shared waters.
4.2	Set up an adequate reporting procedure and data bases so that request from the Commission for information on efficiency of treatment plants and/or water quality of receiving waters as well as national reports can be addressed, and the public has access to relevant information under the Directive on Access to Environmental Information 90/313/EEC. In the case of dealing with the requests by the Commission on waste water treatment plants, an electronic questionnaire on CD-ROM has been developed by the Commission and will be available free of charge.
4.3	Report to the Commission on: • on transposition of the directive into national legislation, with texts of the main provisions of national law adopted in the field covered by the directive (Art. 19). • on implementation programmes (Art. 17 and Commission Decision 93/481/EEC); • on situation reports on the disposal of urban waste water and sludge (Art. 16); • in the case of applications for a derogation for less sensitive areas: on comprehensive studies carried out in respect of discharges in less sensitive areas (Art. 6 and 8); (In this context bear in mind that, inter alia, the Baltic Sea, the North Sea, the Black Sea and the Adriatic do not qualify as 'less sensitive areas'). • upon request by the Commission: on information collected through monitoring (Art. 15); see electronic questionnaire mentioned under 4.2.) • standards applicable to industrial discharges from the agro-food industry (Annex III) to surface waters; • two yearly reports to the public on waste water treatment and disposal of sludge (article 16); • All requests for derogations for using primary treatment only, or for delaying the completion of waste water treatment plants due to technical problems, are subject to individual applications to the Commission.

3.2 Phasing Considerations

Implementation of the Urban Waste Water Treatment Directive ranks amongst the most challenging and expensive tasks throughout the range of EU legislation. This is why early and careful consideration of the environmental and technical aspects of the Directive is of significant importance.

There are a number of tasks that must be carried out at a very early stage in order to be able to proceed. These relate primarily to the administration of the directive and the collection of data to enable plans to be developed. The later stages involve construction of sewers and waste water treatment facilities and the timescale will depend upon the availability of finance, and construction engineering resources in the Candidate Country. A key issue will be the phasing of programmes to enable the construction work to be accomplished at an achievable and affordable rate.

The first phase of implementation should include:

- Identify the 'agglomerations' in your country covered by the Directive;

- Identify sensitive areas in your country;

- Identify existing infrastructure (sewerage systems and waste water treatment plants), and assess where improvements are required;

- Assess your existing monitoring and inspection system, and provide for adaptation to the requirements of the Directive where necessary; and

- Prepare the institutional and administrative structure (establishment of competent authorities, authorisation system) and other institutional structures.

The second phase should involve:

- Establish, based in particular on the findings of the first phase on numbers/locations of 'agglomerations', 'sensitive areas' and 'existing infrastructure', an implementation programme for the construction of sewerage networks and waste water treatment plants. Within such a programme the issue of reuse and/or disposal of sewage sludge will have to be addressed as well. Such an implementation programme will also be a major factor in all considerations as regards transition periods, i.e. derogations from compliance with certain obligations by the time of Accession. Careful technical and financial assessment will be indispensable. The services of the European Commission (DG Environment) will be available for information, advice and interpretation;

- Prepare, based on the environmental and technical requirements established, investment plans;

- Ensure a system of cost recovery for sewerage and waste water treatment, considering inter alia construction and maintenance costs;

- Make monitoring and inspection schemes operational, as well as enforcement of the standards laid down in national legislation (pursuant to the directive); and

- Reviewing sensitive and less sensitive areas every four years.

The third phase will involve

- Completion of the construction and upgrading of infrastructure (sewerage networks, waste water treatment plants).

Time for completion including, where appropriate, transition periods, will form an important part of the negotiations on Accession. Careful technical and financial assessment will, in this context, be indispensable.

5 Costs

The main types of costs arising during the implementation of this directive are given in the checklist below.

Checklist of the Types of Cost Incurred To Implement the Directive

Initial set-up costs

- Identifying agglomerations, sensitive areas, less sensitive areas.
- Establishing administrative structure and permitting system.
- Establishing implementation programme including investment for new infrastructure.

Capital Investment
- Construction of new and upgrading of existing sewerage networks.
- Construction of new and upgrading of existing waste water treatment plants in accordance with the set secondary treatment.
- Construction of tertiary treatment plants in sensitive areas.

On-going costs
- Operation and maintenance of infrastructure (sewerage, treatment plants).
- Monitoring.
- Administrative costs.

The major factors influencing the costs of investment have been found to be:

- the initial state of the infrastructure for the collection and treatment of urban waste water before the implementation of the directive;

- the improvements required in terms of collection of waste water within the agglomerations addressed by the Directive, including those for prevention of leaks and for reduction of pollution from overflows in combined systems;

- improvements required to urban waste water treatment plants to comply with the standards set by the Directive;

- constraints due to urban planning and site requirements, and climatic factors; and

- costs of labour and equipment.

There are also considerable preparatory costs due to the amount of assessment required to identify agglomerations and sensitive and less sensitive areas, and the introduction of an adequate sampling and monitoring system.

Costs can vary widely between Member States. The 1998 Commission Report "Implementation of Council Directive 91/271/EEC concerning Urban Waste Water Treatment, as amended by Commission Directive 98/15" provides figures both on the overall investment forecasts and on investment per population equivalent.

The Nitrates Directive

Official Title: Council Directive 91/676/EEC on the protection of waters against pollution caused by nitrates from agricultural sources (OJ L 375, 31.12.91)

TAIEX Ref. No.: 46

1 Summary of Main Aims and Provisions

The objectives of the Directive are twofold:

- to reduce water pollution caused or induced by nitrates from agricultural sources; and
- to prevent further pollution of this type.

To this aim Member States must identify waters affected by such pollution and waters which could be affected by such pollution and designate them and all known areas draining into those waters as 'vulnerable zones'. For these zones they must then establish and implement action programmes to reduce pollution. Such action programmes contain mandatory measures including maximum amounts of manure that can be applied to land every year. For areas outside the vulnerable zones reduction of pollution has to be promoted by (voluntary) codes of good agricultural practice. Member States are in this context obliged to monitor the nitrate concentrations in groundwaters and surface waters as well as eutrophication in surface waters.

2 Principal Obligations of Member States

2.1 Planning

- Identify, based on comprehensive monitoring, waters that are, or that could be, affected by pollution by nitrates from agricultural sources (Art. 3 and Annex I). Criteria under Annex I are:
  - waters that contain or could contain more than 50 mg/l of nitrate;
  - waters which are found to be eutrophic or in the near future may becomeeutrophic.

Note that these criteria apply to ALL waters. You therefore required to assess all waters, not just those currently used for the abstraction of drinking water.

- Designate as ‘vulnerable zones’ all known areas of land in your territory which drain into the identified waters under the above criteria.

Such a designation of vulnerable zones is not necessary if action programmes (under Article 5, below) are implemented throughout the whole territory.

Designations of vulnerable zones should be reviewed every four years. (Art. 3).

- Establish a code (or codes) of good agricultural practice to be implemented by farmers on a voluntary basis, and, where necessary, establish a programme to promote the application of the codes (Art. 4 and Annex IIA).

- Establish and implement action programmes, either in respect of designated vulnerable zones or throughout the whole territory. These programmes must take into account certain information and must contain, as a minimum, the measures specified in the Directive (Art. 5 and Annex III).

2.2 Monitoring

The Directive distinguishes between two different kinds of monitoring rules. These are presented in Article 5 and Article 6:

- If you have chosen to apply mandatory action programmes throughout your territory under article 3(5): You are required 'to monitor the nitrate content of waters (surface waters and groundwater) at selected measuring points which make it possible to establish the extent of nitrate pollution in the waters from agricultural sources.': article 5(6). At the same time Member States applying mandatory action programmes throughout their territory are exempt from the monitoring requirements under article 6.

- If you designate individual vulnerable zones: Article 6 provides guidance as to the monitoring methods for all waters. It is necessary to review theeutrophic state of fresh surface waters, estuarial and coastal waters every four years. Monitor nitrate concentration in fresh waters every four-year period. The only exception to this and subsequent revisions is for sampling stations with values below 25 mg/l nitrate for all previous samples, where a new factor likely to increase nitrate content has appeared; in such a case the monitoring programme might be repeated at intervals of eight years.

2.3 Reporting

- Report to the Commission on:
    - designation of vulnerable zones (Art. 3);
    - codes of good agricultural practice (Art. 4);
    - changes made to action programmes (Art. 5);
    - implementation of the Directive, every four years (Art. 10 and Annex V);
    - measures taken to comply with the Directive (Art. 12); and
    - transposition, with texts of the main provisions of national law adopted in the field covered by the Directive (Art. 12).

- The Commission is obliged to provide a Summary Report to the European Parliament and to the Council, based on Member States' reports (Article 11). In parallel, the Commission regularly publishes an Implementation Report to the European Parliament and to the Council

2.4 Additional Legal Instruments

A number of other legal instruments should be borne in mind when implementing this directive. These include:

- Draft Water Framework Directive.
- Urban Waste Water Treatment Directive (91/271/EEC).
- Drinking Water Directive (98/86/EC).
- Directive on Surface (Drinking) Water (75/440/EEC).
- Sewage Sludge Directive (86/278/EEC).

Particularly relevant provisions in these instruments include:

- River basin management plans and programmes of measures, ensuring 'good status' for all surface waters and groundwaters under the Water Framework Directive: The implementation of, inter alia, the Nitrates Directive, will be part of the basic measures under the Water Framework Directive, 'vulnerable zones' being part of the 'protected areas' under Annex IV of that Directive.

- Identification of sensitive areas in the Urban Waste Water Treatment Directive (91/271/EEC): This identification should be seen in close context with the Nitrates Directive and its identification of vulnerable zones, as both directives address in many cases the same phenomenon, pollution of waters by nitrates. The Urban Waste Water Treatment Directive sets the obligation for more ambitious treatment (nutrient removal) inter alia for waste waters discharges into waters and catchments subject to eutrophication (or in danger of become eutrophic) and/or subject to nitrate contents above 50 mg/l.

3 Implementation

3.1 Key Tasks

The key tasks to implement the Nitrates Directive are summarised in the checklist below. The tasks are grouped under key headings and arranged in chronological order wherever possible. Some of the tasks might be found in parallel under more than one heading.

THE NITRATES DIRECTIVE - KEY IMPLEMENTATION TASKS	
1	**Planning**
1.1	Competent authority: Appoint a competent authority / competent authorities to implement the directive.
1.2	Laboratory capacity: Ensure the necessary laboratory capacity for measuring nitrate in surface waters and groundwater, as well as for carrying out measurements to determine the degree of eutrophication of surface waters.
1.3	Decide whether to: • identify nitrate vulnerable zones on an individual basis, • establish action programmes for the whole of their territory. Such a decision by the Competent Authority must take into account the binding criteria of the directive, but might as well look for cutting costs for regular monitoring and assessment in the case of individual vulnerable zones.
1.4	Develop criteria for eutrophication and for other affected waters: Prepare criteria and issue guidance on how to identify the degree of eutrophication of surface waters and the identification of waters affected by nitrate pollution. The criteria should include those set out in Annex 1 of the Directive. Scientific advice on what constitutes eutrophication, taking account of the natural physical and environmental conditions in the territory, should be considered in drawing up the criteria. Experience gained in the framework of international water protection conventions such as OSPAR (for the North-East Atlantic) and HELCOM (for the Baltic Sea) might be valuable in this context. Bear in mind that there is no choice between EU legislation and obligations under International Conventions: You will have to comply with the rules under EU water legislation and those under International Conventions such as HELCOM, if you are a EU Member State and a Signatory Party to a convention.
1.5	Identification of sampling points for surface waters and groundwaters. Surface waters should include estuaries, coastal and marine waters. As regards sampling stations, consider making use of already established ones (under your national monitoring systems, or Directive 75/440/EEC or Decision 77/795/EEC), or other stations representative of surface and or groundwater conditions of the country. Or stations representative of groundwater aquifers of the country. Initial monitoring: Set up monitoring programme which would include sampling and testing over at least one year initially to obtain data on nitrate levels and the degree of eutrophication of surface and groundwaters, and be repeated at least every four years. The sampling programme should apply to inland freshwaters, estuaries, coastal and marine waters where agricultural land can drain to these either directly or via rivers. (If you have chosen to apply mandatory action programmes throughout your territory under article 3(5), you are exempt from the monitoring obligations under article 6. However, your sampling and monitoring system has to provide information on the extent of nitrate pollution as well as on the progress achieved by implementing the action programmes.)
1.6	Review of data obtained: Set up a procedure to review the data obtained from the sampling programmes. The competent authority may undertake the review on a national or local scale.

THE NITRATES DIRECTIVE - KEY IMPLEMENTATION TASKS	
1.7	If you have decided to identify individual nitrate vulnerable zones: Use the results of sampling, and information concerning agricultural activities to identify waters which are affected by nitrate pollution. Plan for the development of: • a code or codes of good agricultural practice across your whole territory. • an action programme or several action programmes for the vulnerable zones, including those measures that have to be mandatory (minimum storage capacities, restrictions to application of manure in terms of time and location, etc.). Plan for disseminating information on those codes and on the action programmes in cooperation with other interested and involved parties (brochures, information meetings, training, pilot projects). 'Vulnerable zones': Identify those waters which are above 50 mg/l or in danger of becoming so, and those which are subject to eutrophication (or in danger of becoming eutrophic; compare with the criteria in Annex I or with further criteria developed by the competent authority to identify eutrophic waters). Identify and establish the hydrological boundaries of land draining into waters polluted by nitrate pollution. Plan for developing an action programme or several action programmes including those measures that have to be mandatory (minimum storage capacities, restrictions to application of manure in terms of time and location, etc.). Arrange for information on those action programmes in cooperation with other interested and involved parties (brochures, information meetings, training, pilot projects). However, stress within this information the mandatory character of the forthcoming measures.
1.8	If you have decided to apply mandatory action programmes throughout your territory: Plan for developing an action programme or several action programmes including those measures that have to be mandatory (minimum storage capacities, restrictions to application of manure in terms of time and location, etc.). Arrange for information on those action programmes in cooperation with other interested and involved parties (brochures, information meetings, training, pilot projects). However, stress within this information the mandatory character of the forthcoming measures.
2	**Regulation, Monitoring and Enforcement**
2.1	Prepare legislative measures for the mandatory measures under the action programmes (e.g. minimum storage capacities, restrictions to applications of manure in terms of time and location, maximum amount of nitrogen per hectare and year). Of the restrictions listed in Annex III, the most significant are: • land application of fertilisers to be based on a balance between nitrogen requirements of the crops and the nitrogen supply to the crops from the soil and from fertilisation, • maximum of 170 kg of nitrogen per hectare per year to be applied to land in the form of animal manure. There is an option for derogations, but only on condition that they are justified on the basis of objective criteria, do not prejudice the achievement of the objectives of the directive, and are subject to approval by the Commission.
2.2	Establish an enforcement regime to ensure compliance with the regulations.
2.3	Identify other actions that will contribute to a reduction in nitrate levels in water bodies, e.g. from industrial and urban waste water sources.
2.4	Monitoring cycle and review of measures: • Repeat the monitoring programme and assessment of designated waters, and all other waters (except where nitrate levels are less than 25 mg/l), every four years in order to designate further zones if necessary • Set up a review process to check the effectiveness of the measures, in particular the action programmes in nitrate vulnerable zones, as a basis for the necessary follow-up measures along the same lines, along more stringent lines etc.
3	**Preparation of Technical Advice and Guidance Notes**
3.1	Prepare a voluntary code or several codes of good agricultural practice for reducing nitrate pollution from agricultural sources. The code should take account of the issues set out in Annex II of the directive. Prepare dissemination of information on those codes in cooperation with other interested and involved parties such as farmers' associations, regional and local authorities, other ministries. Means of information might include brochures, booklets, information meetings, training schemes, pilot projects etc.
3.2	Prepare an action programme (or several action programmes) for nitrate vulnerable zones. The action plan has to take account of the issues set out in Annex III of the directive. Prepare dissemination of information on those action programmes, including those measures that have to be mandatory (minimum storage capacities, restrictions to application of manure in terms of time and location, maximum amount of nitrogen to be applied per hectare and year, etc.). Preparation of those activities should be done in cooperation with other interested and involved parties such as farmers' associations, regional and local authorities, other ministries
4	**Communication and Consultation**
4.1	Assess with relevant Ministries and other bodies at national, regional and local level, as well as farmers' organisations the scope of options for awareness raising and training about the implications of the directive, and decide on the necessary steps
4.2	If you have chosen the option of applying mandatory action programmes throughout your territory, arrange for information on the requirements (minimum storage capacities, restrictions to application of manure in terms of time and location, etc.), in cooperation with other interested and involved parties (brochures, information meetings, training, pilot projects).
4.3	If you have chosen to designate individual vulnerable zones, arrange for information on codes of good agricultural practice in cooperation with other interested and involved parties (brochures, information meetings, training, pilot projects.
4.4	Arrange your government's representation at the Management Committee established under articles 8 and 9 of the directive.

5	**Reporting**
5.1	Establish a reporting system and databases to enable the recording and reporting of information gathered as a result of implementing the directive's requirements.
5.2	Ensure the necessary reporting by a body within your administration on: • designation of nitrate vulnerable zones, including monitoring results; • action programmes, including storage requirements and restrictions in manure application; • codes of good agricultural practice; • review of designations of vulnerable zones; • timescales for expected improvements.

3.2 Phasing Considerations

There are several distinct phases in the implementation of this directive which require early involvement and careful consideration. These are set out below in chronological order, distinguishing whether individual vulnerable zones are identified or action programmes are applied throughout the national territory:

Designation of individual nitrate vulnerable zones:

Phase One:

- Establishing a measuring and monitoring programme to collect information from which it is possible to identify the waters that are polluted by nitrates. This requires the collection of data over a period of at least one year.

- Identifying the areas of agricultural land that may be classified as vulnerable zones.

- Identifying the causes of high nitrate levels in waters from activities in the adjacent areas of land, and identifying means to reduce the nitrate inputs to water, including consultation with farmers and others to differentiate agricultural from non-agricultural sources.

Phase Two:

- Preparation of Action Programmes including mandatory measures and the preparation of voluntary codes of good agricultural practice for each vulnerable area.

Phase Three:

- Implementing the Action Programmes, undertaking training of farmers and establishing an ongoing monitoring programme and undertaking a review of their effectiveness every four years.

Application of Action Programmes throughout the national territory

Activities are restricted to two phases:

Phase One:

- Identifying the causes of high nitrates throughout the country and preparation of a series of measures within a Action Programme or several Action Programmes to improve nitrate levels throughout the country. There could be different Action Programmes for different parts of the country.

Phase Two:

- Implementing the Action Programme or several Action Programmes and establishing a programme to monitor and review the effectiveness of the measures taken to reduce nitrate pollution in intervals of four years.

4 Implementation Guidance

Planning

- This directive encourages ministries of environment and agriculture to collaborate in identification of waters vulnerable to nitrate pollution and to reduce inputs of nitrate by controllingfertiliser usage and manure spreading. The ministry of health could also be involved relating to the pollution of drinking water. In deciding upon the most appropriate body to be appointed to the position of competent authority for the implementation of this directive the relationships between the proposed bodies should be examined to ensure that there are effective consultation arrangements and links between them. The directive requires action to be taken by the farming industry, and in most Member States a Ministry of Agriculture will have jurisdiction over farming issues. An effective code of good agricultural practice could be drawn up by the Ministry of Agriculture in consultation with the environment ministry or agency, or drawn up with the advice of specialists within the Ministry of Agriculture.

- The relationship with the Urban Waste Water Treatment Directive (91/271/EEC) is an important consideration as the designation of “sensitive areas” under that directive uses similar criteria, and requires action plans which may have an impact on action taken under this directive.

- Surface waters and groundwater areas must be designated as vulnerable zones if they contain or could contain more than 50mg/l of nitrate.

- There are two options in the way this directive may be implemented. The directive requires the identification of land which drains into waters which are affected by pollution by nitrates to be designated as “vulnerable zones”, and to establish action plans to improve the situation in each zone. Under Article 3(5), however, a State may choose to apply an action plan to the whole of its territory. The first alternative requires extensive monitoring and investigation. The second option limits the amount of monitoring which must be undertaken in the first instance, but applies any agricultural changes that are required to the whole country.

Examples of Designation of Vulnerable Waters

Five Member States have chosen to designate their whole territory as vulnerable zones.

In one Member State (UK) the decision was taken to designate individual areas which are eutrophic or exceed the drinking water nitrate limit. The basis for this was that restrictions on fertiliser usage where the water was not vulnerable or where there were other reasons for high nitrate (such as sewage works discharges) would unnecessarily increase crop production costs for farmers living outside the vulnerable zones. Step by step procedures were issued by the Ministry of Environment on how to identify vulnerable zones. These specify the chemical and biological criteria for surface freshwaters, marine waters and groundwaters.

In one Member State (Fin) a decision was made to designate all waters where nitrate level was above 15 mg/l. On this basis four areas with a concentration greater than 25 mg/l and seven with a concentration above 15 mg/l have been designated.

Action plans were officially adopted by regulations issued in 1996. These incorporate the provisions in the directive and specify the amount of nitrate manure to be used as that containing a maximum of 170 kgN per hectare, subject to certain exceptions. It may be necessary to store manure at certain times of the year and this is also specified by the regulations. Farm grant schemes have been made available to help farmers inside vulnerable zones to pay for the construction of manure storage facilities in accordance with Council Regulation 2328/91/EEC (as amended by 2843/94/EEC). Enforcement of the regulations is a matter for the national Environment Agency. A Code of Good Agricultural Practice has been drawn up by the Ministry of Agriculture.

In another Member State (EL) some coastal gulfs have been designated. Another Member State which identified eutrophic coastal waters, found that the problems were due to phosphate and therefore not relevant to this directive.

In a third Member State (F) the investigations were carried out on a river basin basis, involving the establishment of a "working group" and incorporating a high level of consultation. About half the available agricultural land falls within designated vulnerable zones in the areas so far surveyed.

In a fourth Member State (S) monitoring is carried out at a number of different levels, national, regional and local. Marine waters are sampled at outstations and along the coast. In addition nitrogen transport to coastal areas from the larger estuaries is calculated. The effects of agriculture are measured in small so-called representative areas. All inland waters have been found to be less than 50mg/l and no freshwaters have been designated. However, significant portions of the coastline were found to be eutrophic and the waters draining into these areas have been designated as vulnerable.

Another Member State (P) has found that groundwater has exceeded the criteria and five vulnerable zones have been established, whereas surface waters are eutrophic due to phosphate, and no surface waters have been designated. Furthermore, a Vulnerable Zones Integrated Action Plan has been adopted and three vulnerable zones have been designated on the basis of groundwater nitrate concentrations that exceed the drinking water limit for nitrates. Only farmers living in vulnerable zones have been involved in this Action Plan, and no compensation has been granted to farmers living within them.

- In drawing up Action Plans the possible role of non-agricultural sources of nitrates in causing an exceedance of the 50 mg/l limit for drinking waters or as a contribution to eutrophication, must be taken into account. The most likely source of non-agricultural nitrate is from domestic sewage works. This is an important issue if the decision has been taken to implement the directive through the identification of individual zones. The implementation of the Urban Waste Water Treatment Directive (91/271/EEC) may have a significant impact where nitrate removal is installed in waste water treatment plants on the grounds that the sewage effluent discharges into a sensitive area under the terms of that directive. The relative contributions of nitrate from agriculture and sewage effluent are not always easy to determine. Ensuring that plans made under the nitrate directive take account

of the plans to be implemented for the Urban Waste Water Treatment Directive (91/271/EEC) should be a duty undertaken by the competent authority.

Examples of Member State Action Plans

In one Member State (S) action plans were transformed into laws to ensure that nutrient supplies matched the needs of plants. Measures included maintaining a higher proportion of vegetation cover near the coast, a reducing farming intensity, restricting the level of manure spreading during autumn and winter, and increasing manure storage capacity. Economic instruments such as grants for catch-crop cultivation, manure storage construction and environmental taxes on nitrogen have been used.

Another Member State (DK) has set mandatory standards for the design and operation of such facilities as manure stores and milking parlours. The times that manure may be spread are specified in law, and mandatory crop rotation and fertiliser plans must be submitted to the authorities. Some crops such as catch crops, and crops with long growing seasons are known as green crops and 65% of the growing area must be used for these. Fertiliser use plans must be drawn up and submitted. The minimum storage capacity for manure must be six months. There are maximum limits for manure applications based on livestock numbers.

In one Member State (P), because there is no experience of deciding whether nitrates come from agriculture or sewage effluents, a decision was taken to implement the Vulnerable Zones Integrated Action Plans.

Technical Advice and Guidance

- In order to identify waters which are subject to eutrophication, common criteria, such as levels of chlorophyll-a, or the presence of excessive algal growths should be established. Existing definitions developed by organisations such as PARCOM for coastal and estuarial waters (nitrate, algal blooms), and OECD for freshwater (phosphate, chlorophyll, Secchi disc) may be useful for this purpose. Sampling to establish eutrophication should take account of seasonal variations in the parameters selected. Guidance documents should be prepared prior to the final assessment. To provide a consistent application of the directive throughout the country, a network of sampling points should be established. The guidance for this directive must not conflict with that issued under the Urban Waste Water Treatment Directive (91/271/EEC) for the identification of sensitive areas. If different competent authorities are appointed, consultation should be arranged between them on this issue. (See fiche on Urban Waste Water Directive for guidance on defining eutrophic status of waters).

Monitoring and Regulation

- The competent authority, in collaboration with other relevant ministries and experts, should identify periods for each zone (or more generally) when application of fertilisers or manure must be prohibited (by reference to meteorological conditions, soil characteristics and farming practices). These should be made mandatory. The codes of good agricultural practice may refer to the use of fertilisers in terms of when and how they should be used, and the precautions to take to prevent run-off from land into watercourses which may occur during their application, particularly from land which is close to watercourses and direct run-off may occur under conditions such as steeply sloping land, or in very wet periods. Nitrate release from ploughing of land should also be discussed in the codes. The need for manure storage facilities should be covered. Such codes are voluntary but Candidate Countries should consider what means are available to encourage their general adoption by farmers.

- Adequate training in the new techniques of farming is essential, and a training programme should be a feature of the Action Plans. A means of judging the effectiveness of training should be set up.

Examples of Codes of Good Agricultural Practice

Codes of good agricultural practice have been drawn up in most Member States. These usually comprise a single document. However, in several Member States such codes were already part of existing agricultural legislation. In at least two states which have designated the whole of their territory as vulnerable zones, the measures within the codes of good agricultural practices have been combined with the action plans into a single law.

In one Members State (UK) although the code of good agricultural practice is voluntary, it has been given a statutory basis. This means that if a farmer causes pollution and is subsequently prosecuted, the Court can take the degree to which the farmer adhered to the code into account in its decision. This is seen as a significant encouragement for the adoption of the code by farmers.

- It is a requirement of the directive that Member States monitor the effectiveness of the measures implemented to reduce nitrate pollution. This means not only monitoring to assess the level of nitrate pollution in order that new designations can be made, or existing designations reviewed, but also the effectiveness of the agricultural regime put into place.

Consultation and Reporting

- It is important to involve the farming community in consultation over the action required by the directive as the action plans may result in farmers having to alter the ways in which they have worked for many years, including changes to the cropping patterns, and how they deal with livestock and livestock wastes. The storage of wastes during parts of the year may be required, and the construction of new storage facilities may be required. It is difficult to visit and inspect farms over a large area at frequent intervals, and therefore the cooperation of farmers in ensuring that they accept and incorporate the new methods into their everyday working practices is important. Consultation with farmers, their representative bodies and their Ministry is essential. Such consultation may be useful in resolving disputes where the boundaries of vulnerable zones cross individual farm boundaries and more than one farmer is involved in meeting the improvement criteria.

5 Costs

In accordance with the 'polluter pays' principle of the Treaty establishing the European Communities, the costs of measures necessary to change current practices to reduce nitrate pollution should be borne by agricultural operators. The checklist below shows the main areas of cost generated from implementation of this directive.

Checklist of the Types of Cost Incurred To Implement the Directive

Initial set-up costs

- Establishment of the competent authority/authorities
- Laboratory capacity.
- Initial sampling programme and analysis.
- Data interpretation of first survey.
- Consultation with farmers.
- Designating vulnerable zones and preparation of action programmes.
- Preparation and publication of codes of good agricultural practice.

Capital Expenditure

- Construction of manure storage facilities.

On-going costs

- Changes to farming practices
- Follow-up surveys at four yearly intervals.
- Designation of additional zones (unless action programmes cover whole country).
- Preparation of additional action programmes.

The Dangerous Substances Directive

Official Title: Council Directive 76/464/EEC on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community (OJ L 129, 18.5.76)

TAIEX Ref. No.: 47

1 Summary of Main Aims and Provisions

The aim of the directive is to eliminate, or to reduce, pollution of water by certain dangerous substances listed in the directive. The implementation of this directive must be closely co-ordinated with the implementation of the proposed Water Framework Directive. In respect of discharges of listed substances, Member States must set emission standards, establish a system of prior authorisation, and implement programmes to prevent or reduce pollution. Selected substances are regulated further by 'daughter directives' (see list below), which establish emission limit values and water quality objectives for List I substances. The daughter directives establish emission limit values and water quality objectives for List I substances. In tackling water pollution from substances prescribed under this directive and its daughter directives, Candidate Countries should use the "combined approach" set out in the Water Framework Directive (see Section 2 of the Sector Overview). That is to say, rather than basing emission standards on emission limit values or on water quality objective, both approaches should be used to mutually reinforce each other. In any particular situation, the more rigorous approach will apply.

The daughter directives are:

- Council Directive 82/176/EEC on Limit Values and Quality Objectives for Mercury Discharges by the Chlor-alkali Electrolysis Industry (OJ L 81, 27.3.82), TAIEX Ref. No. 48;
- Council Directive 83/513/EEC on Limit Values and Quality Objectives for Cadmium Discharges (OJ L 291, 24.10. 83), TAIEX Ref. No. 49;
- Council Directive 84/156/EEC on Limit Values and Quality Objectives for Mercury Discharges by Sectors other than the Chlor-Alkali Electrolysis Industry (OJ L 74, 17.3.84), TAIEX Ref. No. 50;
- Council Directive 84/491/EEC on Limit Values and Quality Objectives for Discharges of Hexachlorocyclohexane (OJ L 274, 17.10.84), TAIEX Ref. No. 51; and
- Council Directive 86/280/ EEC on Limit Values and Quality Objectives for Discharges of Certain Dangerous Substances included in List I of the Annex to Directive 76/464/EEC (OJ L 181, 4.7.86), TAIEX Ref. No. 52 as amended by Directive 88/347/EEC and Directive 90/415/EEC.

The directive applies to inland surface water, territorial waters, and internal coastal waters (referred to below as 'waters'). Groundwater is regulated through Directive 80/68/EEC and is not covered by this directive.

The proposed Water Framework Directive (WFD) will repeal directive 76/464/EEC and its daughter directives. The current status of the integration of the directive into the future Water Framework Directive can be summarised as follows:

- Art. 6 of Directive 76/464/EEC (which authorises the Council to lay down limit values for emission standards for various dangerous substances) will be repealed on the date of entry into force of the Water Framework Directive (Art. 21(2) of the WFD).

- The list of priority substances adopted under the Water Framework Directive will replace the list of substances set out in the Commission Communication to the Council of 22 June 1982 (Art. 21(3a) of the WFD). Articles 10 and 16 of the Water Framework Directive sets out the requirements for controlling priority substances (see fiche on proposed Water Framework Directive).

- The whole of Directive 76/464/EEC will be repealed after 13 years of the date of entry into force of the Water Framework Directive (Art. 21(2) of the WFD).

- Member States may apply the principles and procedures laid down in the Water Framework Directive for the purpose of implementing Article 7 of the Dangerous Substances Directive (which obliges Member States to establish programmes to reduce water pollution caused by List II substances) (Art. 21(3b) of the WFD).

- The Commission within two years of the date of entry into force of the Water Framework Directive will review the Daughter Directives under Directive 76/464/EEC. The provisions for controlling water pollution by substances on the priority list under the Water Framework Directive will need to be revised. The review will consider the repeal of controls for all other substances (Art. 16(8) of the WFD).

- As will be seen from the above, although the directive is to be repealed in the future, it is still in force. Candidate Countries will therefore still need to transpose and implement the requirements of the Directive. However, it is crucial that in doing so they take into account the way in which the proposed Water Framework Directive will impact the implementation of the Dangerous Substances Directive.

As a general rule, Candidate Countries should be able to use the programmes under Directive 76/464/EEC to fulfil the relevant parts of the requirements of the Water Framework Directive (for example the provisions of Art. 11 relating to the adoption of a programme of measures to achieve the environmental objectives set out in Article 4 of the WFD; and Article 13 which contains provisions relating to river basin management plans).

To assist in the smooth transition from Directive 76/464/EEC to the proposed Water Framework Directive, the European Commission will be carrying out a study on the " Assessment of programmes under Article 7 of Council Directive 76/464/EEC. The study should start in December 1999 with a final report by the end of 2000.

The fiche deals with the principal obligations and implementation requirements and guidance that are common to the framework directive and its daughter directives. Obligations and implementation requirements that are specific to particular daughter directives are dealt with in separate sections on the relevant directives.

2 Principal Obligations of Member States

2.1 Planning

- Draw up an inventory of discharges into waters that may contain List I substances (Art. 11).

- Establish and implement programmes:
    - to avoid or eliminate pollution of waters by certain List I substances (Art. 5 of 86/280);
    - to avoid or eliminate pollution of waters by certain mercury discharges (Art. 4 of 84/156); and
    - to reduce pollution of waters by List II substances (Art. 7).

2.2 Regulation

- Take measures to eliminate pollution of waters by substances in List I and to reduce pollution of waters by substances in List II (Art. 2 and Annex).

- Issue authorisations laying down emission limit values for discharges of List I substances into waters and sewers. These emission limit values must not exceed the limit values specified in the relevant daughter directives or, alternatively, they must ensure that the quality objectives laid down in the daughter directives are met and maintained in areas potentially affected by the discharge (Art. 3, 6 and Annexes to daughter directives). These standards must take into account the best technical means available, and must not be less stringent than the most nearly comparable limit value set out in Directive 86/280.

- Issue authorisations laying down emission limit values for discharges of List II substances. These emission limit values must be based on the quality objectives laid down in the relevant daughter directives (Art. 3, 7 and Annexes to daughter directives).

- Require prior authorisation (which would include emission limit values) of discharges liable to contain List I and List II substances (Arts. 3, 5, 6 and 7, and Annexes to daughter directives).

- Only grant authorisations to new industrial plants if those plants apply standards corresponding to best technical means available necessary for elimination of pollution or to prevent distortion of competition.

- In cases of non-compliance with emission standards, take steps to ensure compliance with conditions of authorisation and, if necessary, prohibit the discharge (Art. 5).

- Ensure that measures adopted to implement the requirements of the directive do not increase pollution of waters not covered under the directive, or increase pollution of waters covered by the directive. Such measures would include a prohibition against all acts that circumvent the provisions of the directive (Art. 8 and 9).

2.3 Monitoring

- Establish monitoring procedure to check whether discharges comply with emission limit values.

- Carry out monitoring of:
    - discharges (Annexes to daughter directives);
    - waters affected by discharges (Annexes to daughter directives); and
    - waters affected by discharges, where it is necessary to prove to the Commission that quality objectives are being met and maintained, as an alternative to limit values (Art. 6).

2.4 Consultation and Reporting

- Co-operate with other Member States, with a view to harmonising monitoring procedures, where discharges also affect their waters (Art. 4 or 5 of daughter directives).

- Report to the Commission on:
    - the results of monitoring (Art. 13);
    - the selection of appropriate quality objectives (Annexes to daughter directives);
    - summaries of programmes and results of their implementation (Art. 7);
    - other relevant information, as requested (Art. 13, Arts. 5 or 6 of daughter directives, and Council Directive 91/692/EEC amended by Directive 97/741/EEC; and Water Questionnaire Decision 92/446/EEC as amended by 95/337/EEC);
    - reasons why measures to be authorised do not correspond to best technical means (Art. 3 of daughter directives);
    - reasons for non-compliance with the cadmium quality objective (Annex II of Council Directive 83/513/EEC);
    - results of inventory of discharges into waters containing List I substances;
    - measures taken to comply with the directive (Arts. 6 and 7 of daughter directives); and
    - transposition, with texts of the main provisions of national law adopted in the field covered by the directive (Arts. 6 and 7 of daughter directives).

2.5 Additional Legal Instruments

The Dangerous Substances Directive is a framework directive for controlling the discharge of certain dangerous substances. Implementation of this directive is linked to a series of daughter directives listed in Section 1. This group of directives is also linked to several other legal acts including:

- Council Position on the adoption of Draft Water Framework Directive.
- Groundwater Directive (80/68/EEC).
- Integrated Pollution Prevention and Control (IPPC) Directive (91/61/EEC).
- Reporting Directive (91/692/EEC) as amended by Decision 94/79/EEC.
- Directive on Access to Environmental Information (90/313/EEC).

Under the proposed Water Framework Directive River Basin Management Plans must contain water quality objectives for additional substances of regional concern that are not regulated within the framework of Article 16 of the Directive (i.e. provisions relating to priority list substances).

Many of the industries that discharge dangerous substances will be controlled through the authorisation procedures set up to implement the IPPC Directive (91/61/EEC).

3 Implementation

3.1 Key Tasks

The Dangerous Substances Directive requires Member States to control all discharges of dangerous substances into water by an authorisation procedure. List I substances must be *eliminated* and action must be taken to *reduce* pollution from dangerous substances in List II.

The Dangerous Substances Directive requires Member States to control all discharges of dangerous substances into water an authorisation procedure. List I substances have to be eliminated where for list II substances emission reduction programmes have to be established including water quality objectives. Where these objectives are exceeded authorised emission limit values have to be set.

Authorisations should be time limited in order to review whether the measures were successful to meet the objectives. The defaults in the Directive for list I substances are minimum requirements and therefore Member States can set more stringent values if necessary. So far 17 substances are considered to be list I and have been regulated at Community level in Daughter Directives under 76/464/EEC. The results of the programmes and measures under the Directive have to be reported to the Commission every five years.

Under Directive 76/464/EEC the Candidate Countries still have to decide whether they want to use a 'emission limit based approach' or a 'water quality based approach'. However, both approaches have certain drawbacks for the efficient reduction and elimination of dangerous substances in the aquatic environment.

The proposed Water Framework Directive will be a step forward by introducing the 'combined approach'. In addition, a list of priority substances will be established and will lead to Community wide water quality objectives and emission controls. The Candidate Countries should take these developments into account when defining the main tasks and initiatives for the implementation of the Directive 76/464/EEC. The Commission is about to carry out a study to assess programmes of the Member States under Article 7 of the Directive and to give guidelines for the transition of the Dangerous Substances Directive to the future Water Framework Directive.

3.2 Phasing Considerations

With regard to measures to control pollution by List I substances, the general experience of Member States suggests that the most time consuming elements are:

- the establishment of a prior authorisation procedure and the subsequent issue of permits to the dischargers of dangerous substances; and
- the collection of sufficient data on water quality in the receiving watercourses to enable water quality objectives to be set.

An important phase will be the establishment of an administrative structure to allow authorisations of emission limit values to be issued. This will involve the staffing and training of an inspectorate capable of determining applications.

Additionally, there will be the need to establish an organisation to identify waters which are affected by dangerous substances, and collect quality information on the levels of the substances, in order to set quality objectives, and to assess the impact of discharges and other sources on these waters.

- Identifying the plants which discharge prescribed substances and relevant waters that receive the

discharged effluent from such plants.

- Collecting data about the plants and the watercourses.

- Setting standards and issuing authorisations.

- Establishing a monitoring regime to measure the compliance of the discharges and/or the receiving watercourses with the water quality objectives.

- There will be a need to establish an inspection and enforcement programme, with suitably trained staff and resources to ensure the continued adherence of dischargers to their permit conditions, and to assess compliance of waters with the quality objectives set.

- Taking action to improve the situation if the results are unfavourable. The preparation of pollution reduction programmes will be necessary as a result of compliance assessment work.

- A reporting system and the establishment of an inventory are required for an overview on the current pollution situation, and to fulfil the reporting requirements to the Commission.

Taking remedial action depends upon the investment timescale available to construct improvement works at the plants and might require a longer period of time. The timescale for this will have to be agreed with the plant operators and the Commission.

4 Implementation Guidance

Administrative Arrangements

- The objective is to eliminate pollution of the aquatic environment and both water quality objectives and limit values should be set with this in mind. The water quality objectives will apply where the effluent is discharged to waters from an industrial site and where discharges enter waters from a treatment plant after treatment. If the treatment plant removes List I substances the limit values should also be applied at the outlet of the works. Discharges into the plant can be allowed to contain higher concentrations than the limit value, however the effects of releases from storm water overflows must be considered. The substances should not be allowed to contaminate sewage sludge to such an extent that the use of the sludge is compromised.

- The competent authority may be established as a national or local body, but it is essential that it has jurisdiction over the authorisation of discharges to the aquatic environment, and the capacity to inspect, sample and analyse discharges and waters. It also needs enforcement powers to take action against dischargers who fail to meet their permit conditions. In view of the potential for using the IPPC Directive (96/61/EEC) as a means of authorising industrial producers and users of dangerous substances, and the future links with the proposed Water Framework Directive the competent authority should be in a position to establish links with the competent authorities responsible for those two directives (if they are separate authorities). Co-ordination with other agencies such as Agriculture Ministries that deal with industries which may use List I and List II substances (for example, pesticides) will be necessary to assist in the formulation of pollution reduction programmes.

Examples of Institutional Arrangements in Member States

In one Member State (UK) the national Environment Agency has been appointed the competent authority for this directive. The Agency also has responsibility for IPPC and river basin management, so that there is close co-operation between the individual inspectors who deal with industrial pollution and water management. This ensures that water quality objectives and limit values are co-ordinated. The government has chosen the quality objective approach in accordance with its earlier policies for the control of polluting discharges. Quality objectives have been set for surface waters for general pollution control, and specific regulations have been issued for the group of Dangerous Substances Directives.

In another Member State (P) the competent body for defining the national strategy is the Water Institute, which reports to the Commission and funds the Regional Directorates of the Environment. The Regional Directorates are also funded from licence fees and dredging rivers, and are not obliged by law to report to the national Water Institute or inform or co-ordinate with other Regional Directorates. In this country the Dangerous Substances Directive (76/464/EEC) and the daughter directives have been transposed in three different national laws. The national law 74/90 establishes the legal framework, sectoral laws contain specific regulations which are less restrictive for some sectors. Transposition of the Dangerous Substances Directive was not adequate because it allowed an adoptive period for the industries to comply with the directive without specifying a time limit. Also, the procedure for granting of licences is onerous because it requires compliance with three different laws.

In another Member State (S) the national Environmental Protection Agency is responsible for implementing the provisions of the directive. The directive has been partially implemented into national legislation, and by the end of March 1999, the EPA should give proposals to the government on how to implement the rest of the directive.

- At present most Member States utilise the limit value approach in setting emission standards but there are variations, including a partial use of the quality objective approach.

- In practice most of the daughter directives specify single values for freshwater or seawater. Because the framework directive aims to eliminate pollution from dangerous substances consideration should be given to setting more stringent standards where these are achievable. The setting of a particular standard should not allow dischargers to increase their input if the quality is already much better than required.

Examples of Approaches in Member States

In one Member State (D) the basis of water protection is the “emission principle” under which emission standards based on "state-of-the-art" technology are mandated as minimum requirements for wastewater discharges for point sources. Standards for receiving water quality are “mandated goals" which act as guidelines. According to Article 2 of the federal water ac, the discharge of substances into surface waters is regarded as a “use”. Framework law is subject to more detailed interpretation by the regions, but its provisions are very prescriptive so little variation is available. Only a revocable permit may be issued to discharge to effluent containing dangerous substances and, for substances subject to the Dangerous Substances Directive (76/464/EEC), an additional requirement is added. The aim is taking the quantity of harmful substances discharged as low as possible in accordance with “best available technology”. Even levels of environmental pollution which fall below the danger threshold must be reduced if this is technologically feasible.

In another Member State (P) the national law contains limit values to control emissions of List I substances to water. This law does not transpose the quality objectives that can only be established after the conclusion of the National Hydrologic Plan or the compilation of the inventories of discharge that are being prepared by industry. The main discharges are to the sea from textile, metals and tannery industries. The National Hydrologic Plan will allow the auditing and monitoring of the implementation of the directive among 18 different industrial sectors in order to avoid or reduce pollution from substances listed in the directive. After the results of the inventories and the conclusions of the plan have been made available, a single national law will replace the emission standards with quality objectives under the co-ordination of the national Water Institute. Public consultation is now being undertaken. The National Hydrologic Plan will define programmes for the reduction of the discharges liable to contain dangerous substances in order to achieve the objectives contained in Art.7 of the directive. For dangerous substances not present in the country, a national monitoring plan is being developed to highlight that fact and consultation procedures are being undertaken with a neighbouring Member State to confirm that no discharges of those substances will be made to shared international watercourses. In this country, prior authorisation of the discharges is always required. The General Directorate of Environment is the competent authority to issue licences for discharge according to the objectives and values set by the Institute of Water.

In another Member State (F) the regulation of discharges of List I and List II substances is dealt with by the application of the law on classified installations. All installations on a prescribed list must apply for permits to discharge to watercourses. The assessment of the content of discharges including dangerous substances is assessed through an inquiry procedure before permits are issued. The operator will be required to back up the application with an impact assessment that would include the likely impact of dangerous substances. The operator must comply with the provisions of any order issued and must notify important changes and expansions of its activities. The Regional Offices mainly carry out inspection for Industry, Research and Environment. The inspectors are responsible for investigating authorisation requests, new installations and changes to old installations.

- Programmes for the reduction of pollution by List II substances may be drawn up on a national, or local basis. They could be integrated with river basin plans to be established under the draft Water Framework Directive. Plans must cover the entire territory of the country and provide for the practical reduction of pollution from listed substances.

Examples of Practice in Member State

In one Member State (UK) the quality objectives approach has been used for many years and the objectives specified in the daughter directives have been adopted generally. Individual emission limits to achieve these are fixed for most discharges. Some very small discharges containing insignificant quantities of List I substances are excluded. Because List I substances fall within the definition for central control, authorisations are granted under the Integrated Pollution Control (IPC) regime which takes account of pollution of all environmental media. Central guidance is given on best technical means by way of formal descriptions of best available techniques not entailing excessive cost (BATNEEC). Discharge limits must take account of the guidance, which may lead to more stringent limit values than are specified by the directives. Discharges to sewer containing List I substances are also authorised by the national Environment Agency. If sewage treatment works receive significant quantities of List I substances as trade wastes discharges from the works are also subject to emission standards. All emission limits are based on the achievement of quality objectives. There are a few cases where quality objectives cannot be achieved in the short term. In such cases the emission limit values are set in accordance with the daughter directives. There is a national monitoring programme carried out by the Environment Agency, but under IPC, dischargers also sample their effluents and supply data to the Environment Agency. Mixing zones are recognised in deciding the sampling points.

For List II substances, national Regulations were issued in 1997 and 1998, specifying quality objectives for 31 substances discharged to surface fresh waters and 31 substances to marine waters (the two lists are not identical). The reduction programmes relate to the use of legislation that is available to control both point source and diffuse sources of pollution.

UK has also adopted government regulation quality objectives for lead, chromium, zinc, copper, nickel, arsenic, boron, iron, vanadium and pH value; the organisation compounds tributyltin and triphenyltin; and the mothproofing agents PCSD, cyfluthrin, sulcofuron, flucofuron and permethrin. Some other EC directives specify these substances and where the values specified are more stringent, these values are adopted. The objectives are divided into two classes - those applicable to salmonid waters and those applicable to cyprinid waters. They are further divided according to the hardness of the water. More stringent values are adopted where there are special reasons such as the protection of flora or fauna, for example where trout are breeding the value for lead is set at 50% of the normal value. Special values are also adopted for irrigation water. The values must be met in 95% of samples in most cases. Quality objectives are achieved by the prior authorisation of discharges under existing legislation including discharges from industrial plants and sewage works. Industrial effluents, which are discharged into sewers, are also authorised, but as an internal matter by the sewerage network undertaker. Individual emission limits are determined so that the receiving water quality is maintained as far below the quality objective as is possible. Reports comprising lists or maps of waters affected by List II substances and the quality standards, annual results of monitoring showing where the standards are not achieved, and an explanation of the reasons for failure together with improvement programmes are communicated to the government annually.

Regulation

- When issuing authorisations for discharges, the emission limit values must be the most stringent of the concentration values or the maximum quantities permitted per kg of the relevant List I substance handled or produced. The use of a dilution factor to reduce artificially the concentration of the substance before discharge is not permitted, and the values of grams of substance discharged per kg of the substance processed are absolute values. Authorisations for new plant can only be issued if they intend to operate in accordance with best technical means. If it is not possible for technical reasons to use best technical means, it is necessary to inform the Commission. If best technical means allow a more stringent limit to be attained, this should be adopted as the emission limit value. Limit values may be applied at the outlet to a special treatment plant if this is in place, rather than at the outlet from the industrial process. Agree with the dischargers an improvement plan for existing plants to ensure that limit values are met.

- In the quality objective approach, water and fish flesh may be affected by discharges other than those controlled by this directive. An investigation may be required to identify those discharges and to take additional steps to reduce their input of the prescribed List I substance. This may involve controls on the use of the substance or changes to the ways in which it is used, substitution of alternative substances where this is possible, controls on discharges into sewers, and controls on small discharges. A programme of pollution prevention may be required to deal with small discharges or diffuse sources where emission limits are not practicable.

- Waste treatment and disposal practices should be dealt with through the Hazardous Waste Directive (91/689/EEC). Also, as the Dangerous Substances Directive (76/464/EEC) requires the elimination of pollution by List I substances, all discharges of such substances must be subject to authorisation using a regime based on the use of best technical means.

The Directive on the Discharge of List I Substances (86/280/EEC):

- For discharges containing carbon tetrachloride, details of production capacity should be obtained on a monthly and daily basis from production records in order to calculate the limit values as grams per tonne. Industrial laundries and plants using carbon tetrachloride as a solvent require special attention due to their large usage and pollution potential. The competent authority on the basis of limit values or quality objectives must decide individual limits for discharges. Pollution of air must be avoided where a process involving agitation in the open is in use. Simplified monitoring arrangements can be used if the annual discharges do not exceed 3 kg per year. For carbon tetrachloride, the directive does not contain a standstill provision (that is, there is no provision to ensure that the concentration in the environment does not increase with time).

- In the case of chloroform, in view of its volatility, there is a special provision that if the waste water treatment plant uses a process in the open air involving agitation, the limit values must apply upstream of this plant. Additional sampling points will therefore need to be agreed with the operator.

- In the case of DDT, the directive contains a 'standstill' provision, which applies to molluscs, shellfish, fish and sediment. Concentrations of DDT in water, sediments, and certain biota, must not be allowed to rise significantly with time. Although DDT has been banned for many years, general monitoring should continue to confirm that concentrations in the environment remain at current levels or lower.

- For Pentachlorophenol (PCP), Hexachlorobenzene and Hexachlorobutadiene a 'standstill' provision exists and concentrations in sediment and fish flesh must be maintained. A long term sampling programme should be established to confirm that this is the case. Candidate Countries should be aware of a link between this directive and the Directive on Discharge of Mercury from the Chlor-alkali Electrolysis Industry (82/176/EEC) which may influence the means of setting limit values.

- Although the use of Aldrin, Dieldrin, Endrin, Isodrin is much reduced, point source discharges are likely to derive from historic use or from washing contaminated imported animal skins. Precautions are necessary to prevent pollution. A standstill provision exists, for these substances as a long-term monitoring programme needs to be established.

- There is no standstill provision for Chloroform. Article 3 of the Dangerous Substances Directive (76/464/EEC) only applies to discharges from industrial processes that contribute to the level of chloroform in the effluent. Authorisations under this directive are not necessary for discharges where the level of chloroform is due to the result of background concentrations in, for example, the water supply.

- Standstill provisions need to be observed for PCP and trichlorobenzene but not for hexachlorobenzene, hexachlorobutadiene, 1,2-dichloroethane and perchlorethylene and trichlorethylene. Trichloroethylene and perchloroethylene industries which use an open air agitation process for effluent treatment must have the limits applied upstream of the waste water treatment plant.

Directive on Discharges of HCH (84/491/EEC):

- Hexachlorocyclohexane (HCH) occurs in discharges from plants producing HCH and extracting lindane. The Framework Directive sets specific emission standards and quality objectives for HCH for discharges from industrial plants producing the substance and/or extracting lindane. Some pollution may occur from sites which process raw materials contaminated with lindane, also due to the persistence of HCH it is possible that contamination may occur from sites that discontinued its use some time ago.

Directive on Other Discharges of Mercury (84/156/EEC):

- In addition to those industries listed in Annex I, there are many others that use mercury and the competent authority should also identify these. These industries should exclude the chlor-alkali electrolysis industry, and non-industrial sites. The competent authority should note that some non-industrial sites such as hospitals, dental surgeries and laboratories may use mercury and it may occur in the effluent. Ensure that industries using mercury are legally obliged to inform the competent authority of their existence and that this obligation is used. Annex I identifies industries for which limit values have been agreed.

Directive on Discharges of Cadmium (83/513/EEC):

- Cadmium occurs in discharges from a large number of industries and causes water pollution. This daughter directive sets specific emission standards and quality objectives for cadmium discharges from industrial plants in a number of sectors; specifically the mining and refining of metals, manufacture of cadmium compounds, pigments and cadmium based stabilisers, battery manufacture and electroplating. Problems from phosphoric acid and fertiliser manufacture are recognised by no limits are given.

Monitoring

- In order to assess compliance with water quality objectives and the emission limit values, a sampling programme should be set up. The precise requirements vary between directives, and are a matter largely for decision by the competent authority. Sufficient samples must be taken to undertake the statistical assessments such as annual means required by individual daughter directives. The location of the sampling sites should be chosen carefully and will depend on the objectives of the monitoring programme.

- Sampling and flow measurements should normally be effected at the point where waste waters containing dangerous substances leave the industrial plant, although in circumstances specified in the directive other points can be used.

- In the case of the national network monitoring scheme required under Article 13, the frequency of sampling should be decided by the competent authority and should be sufficient to assess whether water is affected by discharges. Methods of analysis are specified in daughter directives and these methods must be used unless alternative methods give equivalent results and evidence is provided to show that this is the case.

Directive on Discharges of Cadmium (83/513/EEC)

- A simplified sampling regime may be put in place if the amount of cadmium does not exceed 10 kg per annum, or the volume of electroplating tanks is less than 1.5 cubic metres.

Technical Guidance

- Council Directive 82/176/EEC on limit values and quality objectives for mercury discharges by the chlor-alkali electrolysis industry: In issuing guidance on best technical means for preventing mercury discharges, the competent authority should take note of the Commission's view that it is possible to design plants to limit discharges to less than 0.5 g/tonne of installed chlorine capacity.

5 Costs

As this is a framework directive, costs arise mainly from the implementation of the daughter directives. These are considered in further sections of this document.

Checklist of the Types of Costs Incurred To Implement the Directive

Initial set-up costs:
- Establishment of the competent authority;
- Identification of plants discharging dangerous substances;
- Establishment of prior authorisation system;
- Data collection on affected waters;
- Establishment of data collection system and inventory;
- Authorisation of discharges.

Capital expenditure:
- Laboratory equipment (if not already available);
- Construction of improved industrial waste water treatment facilities if necessary (cost borne by industry);
- Construction of new plants to meet emission limits and quality objectives.

On-going costs:
- Enforcement costs, including inspection and sampling programmes;
- Maintenance of authorisation process, inventory and data processing provisions;
- Reporting to the Commission.

The main costs will be that of bringing the existing plants up to a level of operation that will allow them to meet the emission limit values or quality objectives if these are used. This may involve the closure of some plants if it is not economic to install additional treatment or improve the processes and, as a result, the construction of new plant may be required.

There are specific costs for monitoring List II substances but in general if national monitoring programmes are established for water pollution control and general environmental assessment reasons, the additional cost should be relatively small and relate only to adding additional parameters to the suite of analysis undertaken. Costs of monitoring should be covered by the industries using List I and List II substances under the "polluter pays principle". There may be additional costs to industry for improving their effluent discharges.

The Bathing Water Directive

Official Title: Council Directive 76/160/EEC concerning the quality of bathing water (OJ L 131, 5.2.76)

TAIEX Ref. No.: 55

1 Summary of Main Aims and Provisions

The Directive seeks to ensure the quality of bathing water throughout the EU, both for fresh water and for coastal water bathing areas, in order to protect the environment and public health. It lays down bacteriological, chemical and physical water quality standards ('imperative' values as well as 'guide' values), and requires Member States to monitor their bathing waters and to take measures to ensure that they comply with the standards within a set deadline.

This Directive dates back to the 1970s and is currently subject to a major review, both as regards the quality objectives and the managerial approach. A new Bathing Water Directive will be in force within a few years.

2 Principal Obligations of Member States

2.1 Planning

- Identify bathing waters, in accordance with the definition set out in the Directive (Art. 1).

2.2 Regulation

- Establish water quality standards applicable to bathing waters for the parameters specified in the Directive (Art. 3 and Annex).

- Take measures to ensure that the quality of bathing water conforms to the standards within specified time limits (Arts. 4 and 8).

2.3 Monitoring

- Carry out sampling and analysis of bathing waters at frequencies not less than those specified in the Directive. The sampling and analysis must be carried out using the methods specified in the Directive, or other methods that will achieve equivalent or comparable results (Art. 6 and Annex).

- Assess the extent to which bathing waters comply with the water quality standards, in accordance with specified assessment criteria (Art. 5).

2.4 Reporting

- Report to the Commission on:
    - transposition, with texts of the main provisions of national law adopted in the field covered by the Directive (Art. 12);
    - cases where the provisions of the Directive are waived (Art. 8);
    - the quality of bathing water based on the annual sampling and monitoring programme (Art. 13 and Council Directive 91/692/EEC);
    - measures taken to comply with the Directive (Art. 12).

2.5 Additional Legal Instruments

A number of other legal instruments have particular relevance to the implementation of the Bathing Waters Directive. These include:

- Urban Waste Water Treatment Directive (91/271/EEC).
- Draft Water Framework Directive.
- Reporting Directive (91/692/EEC) as amended by Decision 94/741/EEC.
- Directive on Access to Environmental Information (90/313/EEC).

The issues of particular relevance are:

- Although the Bathing Water Directive will not be repealed by the proposed Water Framework Directive, the requirements of the Bathing Water Directive must be included in the programme of measures in the Water Framework Directive.

- Implementation of the Urban Waste Water Treatment Directive will make a significant contribution to the bacteriological quality of bathing waters. However, depending on the particular situation, pollution from agricultural and industrial sources might provide a major negative impact on bathing water quality as well.

3 Implementation

3.1 Key Tasks

The key tasks associated with implementation are set out in the checklist below. The tasks are grouped under key headings and arranged in chronological order wherever possible.

THE BATHING WATER DIRECTIVE - KEY IMPLEMENTATION TASKS	
1	**Planning**
1.1	Appoint a competent authority to take responsibility for implementing the directive.
1.2	Appoint a laboratory / laboratories to carry out analysis of samples of bathing water. The laboratory must be competent in the methods of analysis listed in the Directive.
1.3	Decide upon the criteria for the selection of bathing waters, and commence a survey of possible sites. Local councils often have knowledge of popular bathing places, and may give guidance.
1.4	On basis of criteria in the Directive set legally binding water quality standards for the protection of bathing waters. Where necessary, set common quality objectives with neighbouring countries.
1.5	Designate the chosen bathing areas.
1.6	Assess whether there is a need for waivers in accordance with the provisions of the Directive (certain exceptional conditions).
1.7	Decide on the length of the bathing season, which will vary from country to country due to climatic conditions.
1.8	Establish sampling and monitoring programme which would include: • Fix sampling points in all designated bathing waters at the point where the highest density of bathing occurs. Prior knowledge of where most people bathe is needed to decide upon the precise sampling point. Once fixed this should be the position at which all future samples are taken; • frequencies for carrying out sampling, complying at least with the minimum requirements of the Directive. • standard sampling methodology and analytical methods
2	**Regulation, Monitoring and Enforcement**
2.1	Commence sampling two weeks before the beginning of the bathing season and continue at fortnightly intervals (or more frequently if you have so decided) until the end of the season.
2.2	Analyse the samples for the parameters specified in the Annex, using methods which are the same as, or equivalent to, those in the Annex.
2.4	Use the results to assess compliance with the directive at the end of each bathing season.
3	**Preparation and Implementation of Improvement Plans**
3.1	Where bathing waters fail the standards, determine the cause of the problem and what action is required to bring the waters into compliance. This may require investigation of inputs of pollutants from sewage treatment works, agricultural sources and run-off, industrial discharges or other sources.
3.2	As a result of the investigations draw up plans for water quality improvements.
4	**Technical Standards**
4.1	The competent authority should decide which of the optional parameters should be assigned values, if any. Member States are free to set more stringent values and/or to use additional parameters. Once set, the values will be legally binding.
4.2	Laboratories and laboratory methods should be subjected to regular quality control schemes, and the laboratories accredited to ensure inter-comparability of results as well as a sound basis for improvement schemes where necessary.
5	**Preparation of Technical Advice and Guidance Notes**
5.1	Prepare guidance on the identification of bathing waters. The directive provides a definition of bathing waters, but the precise interpretation will depend upon local circumstances, as traditional practice as well as number might differ from country to country.
5.2	Prepare advice on the interpretation of the definition of exceptional weather or geographical conditions and how to assess natural enrichment, in order to ensure a coherent approach when assessing waivers.
5.3	Prepare and issue guidance on the analytical methods to be used in the laboratories, to supplement the information on the outline methods listed in the directive.
6	**Cross Border Communication**
6.1	Where sea or inland freshwater bathing areas cross national boundaries, or may be affected by activities in other countries, establish means of communication between the countries on measures to be taken. The Commission may be involved in such discussions.
7	**Reporting**
7.1	Establish reporting systems and databases to ensure that the data are collected and collated on a national scale; the reporting to the Commission is done electronically, using a specific format.
7.2	Establish a means of reporting to the public.
7.3	Report to the Commission on: • transposition measures; • improvement plans for the management of bathing water; • waivers under Article 8; and • comprehensive reports on designations and characteristics of bathing waters in accordance with the Reporting Directive (91/692/EEC), using the format provided by the Commission.

3.2 Phasing Considerations

The main time-consuming tasks to implement this directive are the following.

- The establishment of the administrative arrangements to implement the directive;
- The identification of bathing waters by the competent authority;
- Establishing and carrying out the sampling and monitoring programme;
- Identifying the causes of non-compliance; and
- Preparation and implementation of a programme of improvement measures.

The time taken to establish the competent authority together with sampling, monitoring and data interpretation facilities will depend upon the existing institutional structure. The transposition of the legislation may be required before the planning can be undertaken.

Identifying bathing waters which fall within the remit of the directive is often a lengthy process, requiring the collection of data on bathers using the waters, investigation of local facilities, and discussions with local authorities. This phase should be introduced as early as possible.

Sampling and monitoring programmes for each bathing water will follow on from designation and should be instituted as soon as each bathing water is designated. Quite frequently one year's data alone might not be sufficient for a decision to establish an improvement plan.

The time taken to prepare an improvement plan may be considerable as it is not always easy to identify the causes of the problem and to determine strategies to resolve it. Taking account of the requirements for bathing waters to meet the quality standards within 10 years of designation, the work required to prepare a plan for each water should be started as soon as possible after the first year's assessment.

4 Implementation Guidance

Planning

- The competent authority has to identify bathing waters and carry out the sampling and monitoring programme. This could be a national or locally based organisation. It should have sufficient resources to undertake a sampling and monitoring programme at all relevant waters, inland and coastal locations, analytical facilities to carry out bacteriological, chemical and physical testing of waters, and interpretation of the results.

- In view of the likely interaction between the results of testing and pollution control activities, in particular the need to assess what is required to bring waters up to standard, it is necessary that the necessary enforcement action against polluters can be taken without inadequate delay.

Monitoring

- It is necessary to obtain sufficient samples at a minimum frequency of fortnightly intervals to enable percentiles to be assessed. It should be born in mind that specific compliance rates are required for the parameters. In cases where only the minimum number of samples is taken, there possibility for 'failing samples' without the beach being assessed 'failing' is rather limited.

- Establish a standardised sampling protocol to facilitate samples being taken 30 cm below the surface except for mineral oils. This will be difficult where there is significant wave action, and it may be necessary to wade into the sea to obtain sufficient depth of water. Safety precautions are needed in such circumstances. In very rough weather the water quality may be adversely affected by wave action and repeat samples on calmer days may be required, and the waiver provisions of the directive brought into effect. For the granting of waivers a suitable "meteorological return period" could be adopted reflecting weather conditions in the particular area.

Examples of Sampling Programmes in Member States

In one Member State (P), over 360 bathing waters have been designated, 26 of which are inland waters. The

Municipalities advised the National Water Institute (via the Regional Directorates of the Environment) which waters should be designated, based on the criteria of 100 or more bathers in any one day during the bathing season. Samples are collected every fifteen days starting from 15 May, in advance of the bathing season which begins on 1 June and ends on 30 September. This provides 9 samples per bathing beach per bathing season. This means that every sample must achieve the required microbiological, chemical and physical standards, in order to comply with the directive's requirement that 95% of samples must be within standards. The samples are taken in advance of the bathing season because the results are used by the Regional Directorates of Health to forecast the health of their local bathing waters, as well as for monitoring compliance with national law and reporting to the EC by the Water Institute.

Preparation and Implementation of Plans

- This directive aims to ensure a common quality of freshwater and sea bathing waters throughout the EU to provide protection to public health and the environment; tourism is in this context of course a major factor. The bacteriological parameters that have to be achieved will be influenced by a range of environmental impacts, not only discharges of urban and industrial waste water, but also agricultural and other diffuse sources of pollution. Therefore the success in meeting the terms of the directive in designated bathing waters is intimately connected with other environment improvement measures, particularly the measures adopted through the Urban Waste Water Treatment Directive (91/271/EEC).

- If waters fail the directive values, it is necessary to identify the causes of the problem and prepare plans for the waters to be brought up to the required standards.

5 Costs

The main type of costs arising during the implementation of this directive are given in the checklist below.

Checklist of the Types of Cost Incurred To Implement the Directive

Initial set-up costs
- Establishment of competent authority.
- Establishment of laboratory facilities (if not already available).
- Identification of bathing waters.
- Sampling and analysis to establish compliance.

Capital expenditure
- Laboratory equipment (if not already available).
- Construction of infrastructure as part of improvement programme.

On-going running costs
- Annual sampling and monitoring programme.
- Annual operating costs of infrastructure.
- Administrative costs including reporting; information of the public.

Direct costs of implementation are related to the sampling and analysis programme and minor costs of administration. After the first year's sampling programme has identified waters that fail the directive, further direct costs are connected with work need to identify the causes of failure, and to propose solutions. This may involve the collection of much more detailed information, in order to select the appropriate measures.

Indirect costs may be very substantial, but to a considerable extent overlapping with those under other directives such as the Urban Waste Water Treatment Directive (91/271/EEC).

The Directive on Surface Water for Drinking Water Abstraction

Official Title: Council Directive 75/440/EEC concerning the quality required of surface water intended for the abstraction of drinking water in the Member States (OJ L 194, 25.7.75)

TAIEX Ref. No.: 57

1 Summary of Main Aims and Provisions

This Directive belongs to the 'first wave' of EU water legislation adopted in the 1970s and 1980s. The Directive aims to protect public health by ensuring that surface water abstracted for use as drinking water reaches certain quality standards before it is supplied to the public. The Directive lays down non-binding 'guide' values and binding 'imperative' values and requires Member States to monitor the quality of surface waters from which drinking water is abstracted and to take measures to ensure that it complies with the minimum quality standards. This directive will be integrated into the proposed Water Framework Directive once it is adopted, and will thus be repealed in due course.

2 Principal Obligations of Member States

2.1 Planning

- Divide surface waters used for the abstraction of drinking water into three categories, according to the quality of the water (Art. 2).
- Establish water quality standards applicable to surface water used for the abstraction of drinking water, for the parameters specified in the Directive (Art. 3).
- Prepare an action plan to ensure that the quality of surface waters continues to improve (Art. 4).

2.2 Monitoring

- Carry out sampling and analysis of surface waters used for the abstraction of drinking water, in accordance with the methods laid down in the Directive on the Measurement of Surface (Drinking) Water (Council Directive 79/869/EEC) (Art. 5).
- Assess the extent to which surface waters used for the abstraction of drinking water comply with the quality standards, in accordance with specified assessment criteria (Art. 5).

2.3 Regulation

- Take measures to ensure that surface waters used for the abstraction of drinking water comply with the minimum quality standards; and do not allow waters that do not meet these standards to be used for the abstraction of drinking water, other than in exceptional circumstances (Art. 4).
- Ensure that measures taken to implement the Directive do not lead to deterioration of surface water quality (Art. 7).

2.4 Reporting

- Report to the Commission on:
    - grounds for allowing surface waters to be used for the abstraction of drinking water in - exceptional circumstances, despite failing to meet the minimum quality standards (Art. 4);
    - cases where the provisions of the Directive are waived (Art. 8);
    - implementation of the Directive (Art. 9a and Council Directive 91/692/EEC); and
    - measures taken to comply with the Directive (Art. 10).

2.5 Additional Legal Instruments

This directive is linked to several other legislative instruments including:

- Directive on the Measurement of Surface (Drinking) Water (79/869/EEC).
- Drinking Water Directive (98/83/EC).
- Forthcoming Water Framework Directive.
- Reporting Directive (91/692/EEC) as amended by Decision 94/79/EEC.
- Directive on Access to Environmental Information (90/313/EEC).

The methods of sampling and analysis used in implementing this directive are set out in the Directive on the Measurement of Surface (Drinking) Water (79/869/EEC) which is a subsidiary directive.

The issues of particular relevance are:

- The incorporation of the Surface Water Directive (75/440//EEC) into the provisions of the Water Framework Directive in due course, and the subsequent repeal of the Surface Water Directive; and

- The expansion of water protection to all waters, surface waters and groundwaters, the obligation to achieve/maintain "good status" for all these waters, plus the obligation to specially protect those waters used for drinking water abstraction.

3 Implementation

As this legislation will be integrated into the Water Framework Directive (in its operative obligations), emphasis should be put on the content, but not too much on the formal transposition. The main obligation will – within the Water Framework Directive – be the establishment of an adequate sampling and monitoring system. This overall approach should also contribute to avoiding duplication of effort in the field of measuring and monitoring.

Key tasks relating to sampling and monitoring are presented in the checklist below.

SAMPLING AND MONITORING - KEY TASKS
• The competent authority, in collaboration with the organisations responsible for treating and supplying drinking water under the Drinking Water Directive (80/778/EEC), should identify existing and future surface water abstraction points and agree a sampling point in each case. • In conjunction with the laboratory appointed under the Directive on the Measurement of Surface (Drinking) Water (79/869/EEC), carry out a sampling programme to ascertain the quality of the water. Existing data may be used provided the samples have been analysed using methods that are the same as, or equivalent to, those set out in the said directive. • Using this data the competent authority must assign the waters to a quality class - A1, A2 or A3. • The competent authority must establish an ongoing sampling programme in accordance with the Directive on the Measurement of Surface (Drinking) Water (79/869/EEC). • In conjunction with the laboratory appointed under the Directive on the Measurement of Surface (Drinking) Water (79/869/EEC), the competent authority should issue guidance on sampling and analytical methods to ensure that these conform to the requirements of the said directive.

4 Costs

The main costs associated with this directive are indicated in the checklist below.

Checklist of the Types of Cost Incurred To Implement the Directive

Initial set-up costs:
- Establishing the competent authority.
- Establishing a laboratory.
- Initial sampling programme and data interpretation.

Capital expenditure:
- Laboratory building and equipment (if not already available).
- New or upgraded drinking water treatment plants.
- New or upgraded waste water treatment plants (as a result of improvement plans).

On-going running costs:
- Annual sampling and analysis costs.
- Reporting to Commission.

The initial costs are likely to fairly small and related to the institutional arrangements for sampling, measurement and interpretation of results. However, once the initial programme has provided sufficient information, costs will be incurred in drawing up a programme of improvements, and instigating the improvement measures themselves.

Water supply organisations will have additional costs where there is an immediate need to upgrade the water treatment processes, so that the water treatment process is appropriate for the quality of the water abstracted. Water suppliers may need to install physical treatment such as coagulation, filtration and disinfection where none exists at present, but this is unlikely to be greater than any costs which would have to be borne to ensure treated water meets the requirements of the Drinking Water Directive (80/778/EEC). Plans for the improvement of waters below Class A3 quality are likely to be part of a general water quality and pollution control plan for the area and costs are likely to be absorbed within that plan. Such costs may be very high and include pollution control measures for industry and changes to agricultural practices. However, some of the costs should be borne by the polluters, where appropriate, under the polluter pays principle.

The Directive on the Measurement of Surface (Drinking) Water

Official Title: Council Directive 79/869/EEC concerning the methods of measurement and frequencies of sampling and analysis of surface water intended for the abstraction of drinking water in the Member States (OJ L 271, 29.10.79)

TAIEX Ref. No.: 59

1 Summary of Main Aims and Provisions

This Directive belongs to the 'first wave' of EU water legislation adopted in the 1970s and 1980s.The Directive lays down the methods of measurement and frequencies of sampling and analysis that must be used to monitor the quality of surface waters intended for the abstraction of drinking water under Council Directive 75/440/EEC. This directive will be integrated into the proposed Water Framework Directive once it is adopted, and will thus be repealed in due course.

2 Principal Obligations of Member States

2.1 Monitoring

- Carry out sampling and analysis of surface waters, as required by the Directive on Surface (Drinking) Water (Council Directive 75/440/EEC) in accordance with the methods of measurement and frequencies of sampling and analysis laid down in the Directive (Arts. 3, 4, 5, 6 and 7 and Annexes I and II).

2.2 Reporting

- Report to the Commission on:
    - methods and frequencies of sampling and analysis (Art. 8 and Council Directive 91/692/EEC);
    - measures taken to comply with the Directive (Art. 13); and
    - transposition, with texts of the main provisions of national law adopted in the field covered by the Directive (Art. 13).

2.3 Additional Legal Instruments

This directive is linked to several other legislative instruments including:

- Directive on Surface (Drinking) Water (75/440/EEC).
- Drinking Water Directive (98/83/EC).
- Forthcoming Water Framework Directive.
- Reporting Directive (91/692/EEC) as amended by Decision 94/79/EEC.
- Directive on the Access to Environmental Information (90/313/EEC).

The methods of sampling and analysis outlined in this directive must be used in the implementation of the Directive on Surface (Drinking) Water (75/440/EEC) which is the primary directive on water abstraction.

The issues of particular relevance are:

- The incorporation of the Measurement of Surface Waters (Drinking) Directive (79/869/EEC) into the provisions of the Water Framework Directive in due course, and the subsequent repeal of the 1979 Directive; and

- The expansion of water protection to all waters, surface waters and groundwaters, and the obligation to achieve/maintain "good status" for all these waters, plus specific protection for waters used for the abstraction of drinking water.

3 Implementation

As this legislation will be integrated into the Water Framework Directive in its operative obligations, emphasis should be put on the content, but not too much on the formal transposition. The main obligation will – within the Water Framework Directive – be the establishment of an adequate sampling and monitoring system. This overall approach should also contribute to avoiding duplication of effort in the field of measuring and monitoring.

Key actions relating to the contents of the Directive are set out in the checklist below. Those relate to the establishment of a sampling and monitoring system.

KEY IMPLEMENTATION TASKS	
1	**Planning**
1.1	The competent authority appointed should establish a laboratory to undertake the water analyses of the directive.
1.2	The competent authority should fix the frequencies of sampling and analysis for each parameter at each sampling point.
2.	**Monitoring**
2.1	The laboratory should compare the existing methods of sampling and analysis in use with those specified in the directive. Where these are found to be different to the methods specified, adopt the methods set out in the directive, or methods which give equivalent results.
2.2	If alternative methods are used, demonstrate that they are equivalent to the directive methods in analytical accuracy and precision.
2.3	Train staff in the new methods.
2.4	Check that the existing frequency of taking samples, and the methods used in sampling match those specified in the directive.
2.5	Where frequencies of sampling are too low, increase them. Frequencies must not be less than those specified by the directive except where there is no risk of pollution and results obtained are always better than the recommended limits.
2.6	If sampling techniques are not satisfactory, re-train staff using updated guidance.
3	**Technical Guidance and Advice**
3.1	The competent authority should prepare and issue guidance on the circumstances when a reduced frequency or no sampling is acceptable and guidance on what the frequencies should be.
3.2	The competent authority should prepare and issue to the laboratory detailed guidance on methods of analysis including acceptable alternatives.
3.3	The laboratory should prepare and issue detailed guidance on laboratory quality control and methods of checking accuracy and precision so as to conform to the directive requirements.
3.4	The laboratory should prepare and issue detailed guidance on sampling methodology, in particular to prevent deterioration of the sample between sampling and analysis.
4	**Reporting**
4.1	The competent authority should establish a database containing details of methods of analysis, frequency of sampling and information on the results obtained.
4.2	The competent authority must, in response to a request from the Commission, report on: • the methods of analysis adopted; and • the frequency of sampling adopted.

4 Costs

The cost of implementing this directive will depend upon the availability of existing laboratories which are capable of undertaking water analysis to the performance standards indicated in the directive. Where Candidate Countries have laboratory organisations the costs will be limited to upgrading to the new requirements. Costs are likely to arise only if analytical methods currently in use for testing raw water used for drinking purposes do not meet the new specifications laid down. The specifications for accuracy and precision are straightforward and should be readily achievable by competent analytical laboratories.

If no laboratories are in existence, then capital costs will be substantial. The use of accredited contract laboratories, not necessarily based in the territory of the Candidate Country, is one alternative method of reducing capital costs. Laboratories are necessary for implementing a number of other directives in the water sector, and costs for this particular directive may be absorbed within the overall organisational costs for the sector.

Sampling costs for this directive are minimal compared with the overall sampling burden for the water

sector directives.

Checklist of the Types of Cost Incurred To Implement the Directive

Initial set-up costs:
- Checking sampling methodology and frequency.
- Checking analytical methods.
- Changing methods where necessary.
- Training.
- Preparing technical guidance notes.

Capital expenditure:
- Laboratory premises.
- Laboratory equipment and instrumentation.
- Sampling equipment and transport.

On-going costs:
- Sampling and analysing surface waters.
- Re-checking and updating analytical methods.
- Data processing and reporting.

The Groundwater Directive

Official Title: Council Directive 80/68/EEC on the protection of groundwater against pollution caused by certain dangerous substances (OJ L 20, 17.12.79)

TAIEX Ref. No.: 60

1 Summary of Main Aims and Provisions

This Directive belongs to the 'first wave' of EU water legislation adopted in the 1970s and 1980s.The purpose of the Directive is to prevent the pollution of groundwater by certain dangerous substances. Member States are required to prohibit the discharge into groundwater of certain listed substances, and to subject the discharge of other listed substances to prior authorisation. They must also monitor the effects of discharges on groundwater.

References to ‘List I substances’ and ‘List II substances’ are references to the substances listed in List I and List II of the Annex to the Directive.

2 Principal Obligations of Member States

2.1 Regulation

- Prohibit the discharge into groundwater of List I substances, unless the groundwater is permanently unsuitable for other uses, in which case the discharge may be allowed subject to specified conditions (Art. 4).

- Ensure that the discharge into groundwater of List I or List II substances (where it is not prohibited by the Directive) is subject to prior authorisation; and ensure that authorisations are only granted subject to the procedures and conditions laid down in the Directive (Arts. 4, 5, 8, 9, 10, 11 and 12).

- Ensure that competent authorities keep an inventory of authorisations granted (Art. 15).

2.2 Monitoring

- Investigate certain activities that may lead to the discharge of List I or List II substances into groundwater, before deciding whether or not to authorise the activity (Arts. 4, 5 and 7).

- Monitor activities that are subject to an authorisation, to ensure compliance with the conditions of the authorisation (Art. 13).

- Monitor the effects of discharges on groundwater, and ensure that measures taken to implement the Directive do not lead to the pollution of groundwater (Arts. 13 and 18).

2.3 Consultation and Reporting

- Consult with other Member States before granting authorisations for the discharge of substances into groundwater that crosses national borders (Art. 17).

- Report to the Commission on:
    - measures to prevent the indirect discharge of List I substances from activities other than disposal or tipping (Art. 4);
    - the results of prior investigations, monitoring and inspection operations, and other relevant information as requested (Art. 16 and Council Directive 91/692/EEC);
    - measures taken to comply with the Directive (Art. 21); and
    - transposition, with texts of the main provisions of national law adopted in the field covered by the Directive (Art. 21).

2.4 Additional Legal Instruments

There are several other legal instruments that should be borne in mind during the implementation of this directive. These include:

- Forthcoming Water Framework Directive.
- Dangerous Substances Directive (76/464/EEC) and its seven daughter Directives.
- Waste Framework Directive (75/442/EEC).
- Hazardous Waste Directive (91/689/EEC).
- Sewage Sludge Directive (86/278/EEC).
- Integrated Pollution Prevention and Control (IPPC) Directive (96/61/EC).
- Reporting Directive (91/692/EEC) and Decision (94/741/EEC).
- Directive on Access to Environmental Information (90/313/EEC).
- Landfill Directive (99/31/EC).

The issues of particular relevance are:

- The incorporation of the Groundwater Directive (80/68/EEC) into the provisions of the Water Framework Directive in due course, and the subsequent repeal of the Groundwater Directive;

- The expansion of water protection to all waters, surface waters and groundwaters, and the obligation to achieve/maintain "good status" for all these waters. Good status is comprehensively defined in verbal terms; and

- The other directives are largely concerned with means of preventing dangerous substances affecting the groundwater.

3 Implementation

As this legislation, including a ban on direct discharges of dangerous substances to groundwater, will be integrated into the Water Framework Directive (in its operative obligations), emphasis should be put on the content, but not too much on the formal transposition of this Directive. The main obligation will – within the Water Framework Directive – be the establishment of an adequate sampling and monitoring system. This overall approach should also contribute to avoiding duplication of effort in the

field of measuring and monitoring.

4 Costs

The costs associated with implementation of this directive are given in the checklist below.

Checklist of the Types of Cost Incurred To Implement the Directive

Initial set-up costs:
- Establishment of a competent authority.
- Establishment of an administrative system for applications and permits.
- Survey work to identify groundwater areas and source of List I and List II substances.
- Investigative work on the likely impacts of proposed discharges on groundwater.
- Investigative work on classifying substances.
- Training.

Capital expenditure:
- Vehicles and other sampling equipment.
- Establishment of a laboratory (if none exists).
- Action to be taken by dischargers to eliminate or reduce discharges of dangerous substances (borne by the polluters).

On-going running costs:
- Implementing the measures to prohibit/limit the impact of dangerous substances on groundwater.
- Annual costs of monitoring, inspection and enforcement.
- Annual costs of maintaining inventory.

The Freshwater Fish Directive

Official Title: Council Directive 78/659/EEC on the quality of fresh waters needing protection or improvement in order to support fish life (OJ L 222, 14.8.78)

TAIEX Ref. No.: 61

1 Summary of Main Aims and Provisions

This Directive belongs to the 'first wave' of EU water legislation adopted in the 1970s and 1980s. The Directive aims to protect and/or improve the quality of fresh waters that support, or could support, certain species of fish. It lays down standards for the quality of designated waters ('guide' values as well as 'imperative' values) and requires member states to monitor the quality of designated waters and to take measures to ensure that they comply with the minimum standards. This directive will be integrated into the proposed Water Framework Directive once it is adopted, and will thus be repealed in due course.

2 Principal Obligations of Member States

2.1 Planning

- Identify fresh waters that need protection or improvement in order to support fish life, and designate these waters as salmonid waters or cyprinid waters, according to the species of fish that live, or could live, in them (Art. 4).

- Establish water quality standards applicable to designated waters for the parameters specified in the Directive and for other parameters if required (Arts. 3, 9 and Annex I).

- Establish programmes to reduce pollution and to ensure that designated waters comply, as a minimum, with the binding/imperative quality standards (Art. 5).

2.2 Monitoring and Enforcement

- Carry out sampling and analysis of designated waters at frequencies not less than those specified in the Directive. The sampling and analysis must be carried out using the methods specified in the Directive, or other methods that will achieve equivalent or comparable results (Arts. 6 and 7 and Annex I).

- In cases of non-compliance with the water quality standards, establish the cause of non-compliance and take appropriate measures to rectify the situation (Art. 7).

- Ensure that measures taken to implement the Directive do not lead to an increase in pollution (Art. 8).

2.3 Consultation and Reporting

- Consult with other member states before designating fresh waters that cross or form national frontiers with the other member state (Art. 10).

- Report to the Commission on:
  - the designation of fish waters (Art. 15);
  - the quality of designated waters (Art. 16 and Council Directive 91/692/EEC);
  - provisions relating to new parameters (Art. 15);
  - cases of derogation from the Directive (Art. 15);
  - other information relating to the application of the Directive, as requested (Art. 15);
  - measures taken to comply with the Directive (Art. 17);
  - transposition, with texts of the main provisions of national law adopted in the field covered by the Directive (Art. 17).

2.4 Additional Legal Instruments

A number of other legal instruments are relevant to the management of fresh water fish waters. These include:

- Forthcoming Water Framework Directive.
- Dangerous Substances Directive (76/464/EEC) and its Daughter Directives.
- Urban Waste Water Treatment Directive (91/271/EEC).
- Nitrates Directive (91/676/EEC).
- Integrated Pollution Prevention and Control (IPPC) Directive (96/61/EEC).
- Reporting Directive (91/692/EEC) as amended by Decision 94/741/EEC.
- Directive on Access to Environmental Information (90/313/EEC).

The issues of particular relevance are:

- The incorporation of the Fresh Water Fish Directive (78/659/EEC) into the provisions of the Water Framework Directive in due course, and the subsequent repeal of the Fresh Water Fish Directive;

- The expansion of water protection to all waters, surface waters and groundwaters, and the obligation to achieve/maintain "good status" for all these waters. Good status is comprehensively defined in verbal terms, ensuring inter alia environmental conditions suitable for fish life; and

- The use of provisions in the Urban Waste Water Treatment Directive (91/271/EEC), the IPPC Directive (96/61/EEC) and the Dangerous Substances Directive (74/464/EEC), to control pollutants which affect freshwater fish and the Nitrate Directive (91/676/EEC) to reduce eutrophication.

3 Implementation

As this legislation will be integrated into the Water Framework Directive (in its operative obligations), emphasis should be put on the content, but not too much on formal transposition. The main obligation will – within the Water Framework Directive – be the establishment of an adequate sampling and monitoring system. This overall approach should also contribute to avoiding duplication of effort in the field of measuring and monitoring.

A checklist of key actions concerning sampling and monitoring is presented below.

KEY TASKS - SAMPLING AND MONITORING

Planning

- The competent authority should appoint a laboratory to undertake testing. the laboratory should be using, or able to bring into use, the methods specified in the directive, or methods which give equivalent results.
- The competent authority should carry out a survey of fish, and take advice of fishery experts, in order to identify waters which support or could support fish life in the specified categories ofsalmonid or cyprinid fish.. The waters may be may be static as in lakes, or flowing, as in rivers.
- Using the information obtained as a result of the fish survey, place each of the surveyed waters in one of the two categories - salmonid or cyprinid. It is possible to change category at a later stage, but a move from thesalmonid class to the cyprinid class must not result from, or lead to, a deterioration in water quality. Additional designations may be made as a result of new information. Whilst rivers may be identified by location and length, lakes and ponds will be identified by location and surface area.
- The competent authority should decide whether to classify cyprinid waters through which salmonids pass on their way to breeding grounds as cyprinid or salmonid. The need for the presence of a breeding population ofsalmonids to place waters in that category may be a deciding factor.
- Apply legally binding parametric values appropriate to the category to the identified waters.
- For each designated water, fix values for the parameters listed in the legislation, in so far as they are specified, and any additional parameters that will apply to waters that are designated. The values will depend upon the classification of the water as salmonid or cyprinid. National standards may be set for parameters for which no values are given in the directive.
- The competent authority should decide whether parameters in addition to those set out in the EU legislation are required.
- The competent authority should set values for the chosen parameters which are not less stringent than "I" values. If the "I" values are not used (i.e. more stringent values are set) factors that might influence water quality and lead to a breach of the chosen values should be taken into account, such as local geology, industrial sources and the nature of local activities, before adopting the values, as this may give rise to insuperable problems of achieving the set values.
- If as a result of sampling it is shown that theparametric values are not met, the competent authority should establish the cause of non-compliance and prepare programmes to reduce the pollution. This may involve liaison with other organisations at a local level.

Monitoring and Enforcement

- The competent authority must fix representative sampling points for a on-going monitoring programme.
- Establish a sampling and testing programme for the relevant parameters which have been set for each designated water.
- Compare the annual percentile, percentage and average values obtained as a result of the sampling programme with the parametric values quoted in the EU legislation. This comparison must take account of all reasons for possibleexceedences and verifying that the individual results are valid and not the result of chance, or floods or other natural disasters. Standard statistical techniques should be employed to verify results.
- Where a designated body of water does not comply with the values set, carry out local investigations to identify the reasons for non-compliance. This may involve identifying industrial or urban waste water treatment discharges, or the non-compliance could be due to natural causes.
- Prepare action plans for improving or maintaining water quality in the designated waters.

Technical Standards and Guidelines

KEY TASKS - SAMPLING AND MONITORING

- The laboratory organisation should prepare and issue guidance on the techniques of sampling and sample preservation and transport. The laboratory carrying out the analysis should ensure that sampling methods do not adversely influence the results of analysis. The methods for sample preservation where samples have to be stored for some time or during transport to the laboratory before analysis can commence should be described in detail.
- The competent authority should ensure that laboratories use methods that are the same as, or equivalent to, those specified by issuing guidance of suitable methods and instrumentation. If methods are in use which are different from those specified issue analytical quality control guidance on how to confirm equivalence with the methods in the directive. The laboratories should be accredited by the national accreditation organisation to a standard of good laboratory practice.

Consultation and Reporting

- Where rivers or lakes containing fish cross international borders, arrangements should be made to facilitate discussions between the states so that common standards may be adopted.
- Establish a database for recording the results of regular sampling, and other information concerning the implementation of the directive. This should be in such a form that reports to the Commission can be made, and information can be made available to the public under the terms of the Directive on Access to Environmental Information (90/313/EEC), and the Reporting Directive (91/692/EEC) and Decision 94/741/EEC.
- Report to Commission at three yearly intervals in accordance with the Reporting Directive (91/692/EEC) on:
  - A list of designated waters;
  - Any future changes to designations;
  - New parameters adopted by the member states; and
  - Derogations.

4 Costs

The main types of costs likely to be incurred in implementing this directive are indicated in the checklist below.

Checklist of the Types of Cost Incurred to Implement the Directive

Initial set-up costs:
- Establishment of the competent authority.
- Costs of setting up laboratory and sampling systems (if these are not already available).
- Training.
- Identification of fish waters.
- Collection of data on current quality.
- Identifying causes of poor water quality.
- Preparation of improvement plans.

Capital expenditure:
- Laboratory equipment (if this is not already available).
- Capital works in the improvement programme.

On-going running costs:
- Annual sampling programme.
- Re-assessing compliance.
- Revising improvement programmes.

The set-up costs for this directive will depend upon the amount of monitoring already undertaken, and the data which are available on water quality and freshwater fisheries. Where fishing, either as a sport or for a commercial purposes, is widespread, or where the conservation of fish species is currently an activity undertaken by government or environmental bodies, sufficient data may already be available to assist in the designation.

If the information indicates that large areas of water currently support fish or, bearing in mind the habitat, could support fish if pollution sources were to be removed, then the costs of improvement plans could be significant. Costs of dealing with major polluting activities such as the construction of waste water treatment plants, or changing the way that industry deals with its wastes are very high. Where significant failures are detected, action plans may involve high levels of capital expenditure. However, this may be absorbed into the requirements of other directives such as the Urban Waste Water Treatment Directive (91/271/EEC) or the Dangerous Substance Directive (76/464/EEC) which already have significant investment profiles irrespective of water quality issues raised by this directive. It could be argued that this directive focuses the improvement works to specific areas, or changes the priority of pollution control activities. Seen in this way, the capital expenditure specifically required as a result of the introduction of this directive may be modest. The capital costs will have to be borne by the polluters rather than the State when the "Polluter Pays Principle" is applied.

Provided the laboratory used is that employed by the competent authority for other similar directives, or national water quality assessment programmes, the additional cost of laboratory facilities is relatively small.

The Shellfish Water Directive

Official Title: Council Directive 79/923/EEC on the quality required of shellfish waters (OJ L 281, 10.11.79)

TAIEX Ref. No.: 62

1 Summary of Main Aims and Provisions

This Directive belongs to the 'first wave' of EU water legislation adopted in the 1970s and 1980s. The Directive aims to protect and/or improve the quality of coastal and brackish water bodies in which shellfish live, in order to contribute to the quality of edible shellfish products. It lays down standards for the quality of designated waters ('guide' values as well as 'imperative' values) and requires Member States to monitor the quality of the waters and to take measures to ensure that they comply with the minimum standards. This directive will be integrated into the proposed Water Framework Directive once it is adopted, and will thus be repealed in due course.

2 Principal Obligations of Member States

2.1 Planning

- Identify coastal and brackish waters needing protection or improvement in order to support shellfish life and growth and designate these waters as shellfish waters (Art. 4).

- Establish water quality standards applicable to designated waters for the parameters specified in the Directive and for other parameters if required (Arts. 3 and 9).

- Establish programmes to reduce pollution and to ensure that designated waters comply, as a minimum, with the binding/imperative quality standards (Art. 5).

2.2 Monitoring and Enforcement

- Carry out sampling and analysis of designated waters at frequencies not less than those specified in the Directive. The sampling and analysis must be carried out using the methods specified in the Directive, or other methods that will achieve equivalent or comparable results (Arts. 6 and 7 and the Annex).

- In cases of non-compliance with the water quality standards, establish the cause of non-compliance and take appropriate measures to rectify the situation (Art. 7).

- Ensure that measures taken to implement the Directive do not lead to an increase in pollution (Art. 8).

2.3 Consultation and Reporting

- Consult with other Member States before designating shellfish waters in the immediate vicinity of a frontier with the other Member State (Art. 10).

- Report to the Commission on:
  - the designation of shellfish waters (Art. 13);
  - the quality of designated waters (Art. 14 and Council Directive 91/692/EEC);
  - provisions relating to new parameters (Art. 13);
  - cases of derogation from the Directive (Art. 13);
  - other information relating to the application of the Directive, as requested (Art. 13);
  - measures taken to comply with the Directive (Art. 15); and
  - transposition, with texts of the main provisions of national law adopted in the field covered by the Directive (Art. 15).

2.4 Additional Legal Instruments

A number of other legal instruments have relevance to the management of shellfish waters. These include:

- Shellfish Health Directive (91/442/EEC).
- Forthcoming Water Framework Directive.
- Dangerous Substances Directive (76/464/EEC) and its Daughter Directives.
- Urban Waste Water Treatment Directive (91/271/EEC).
- Integrated Pollution Prevention and Control (IPPC) Directive (96/61/EC).
- Reporting Directive (91/692/EEC) and Decision 94/741/EEC.
- Directive on Access to Environmental Information (90/313/EEC).

The issues of particular relevance are:

- The incorporation of the Shellfish Water Directive (79/923/EEC) into the provisions of the proposed Water Framework Directive in due course, and the repeal of this directive;

- The expansion of water protection to all waters, surface waters and groundwaters, and the obligation to achieve/maintain "good status" for all these waters. Good status is comprehensively defined in verbal terms, ensuring inter alia environmental conditions suitable for fish and shellfish life;

- The inclusion of shellfish waters in river basin plans and programmes of measures to improve water status;

- The establishment of water quality objectives under the Dangerous Substances Directive (76/464/EEC); and

- The use of provisions in the Urban Waste Water Treatment Directive (91/271/EEC) and the IPPC Directive (96/61/EC) to control pollutants which affect shellfish waters.

3 Implementation

As this legislation will be integrated into the Water Framework Directive in its operative obligations, emphasis should be put on the content, but not too much on the formal transposition. The main obligation will – within the forthcoming Water Framework Directive – be the establishment of an adequate sampling and monitoring system. This overall approach should also contribute to avoiding duplication of effort in the field of measuring and monitoring.

The checklist below sets out the key actions related to sampling and monitoring of relevance to the protection of shellfish waters.

KEY SAMPLING AND MONITORING TASKS
• Decide upon sampling points for each designated body of water. Examine the local conditions in the designated areas to identify the discharges and other factors likely to affect the water in order to assist in deciding upon the most suitable positions for sampling to take place. Sampling must include molluscs so the ease of obtaining such organisms is also an important consideration.
• Determine the most representative point for sampling.
• The competent authority, must establish a sampling and testing programme for designated waters using the sampling frequencies required by the EU. The laboratory appointed for testing should specify any special conditions which must be observed during sampling to ensure accurate results.
• Assess compliance at the end of each period of twelve months using the percentile conformity requirements set out in the EU legislation.
• If exceedance of the standards is detected after applying the percentiles, the competent authority should identify the reasons for the exceedance. All possible causes of non-conformity should be identified.
• Arrange consultation with dischargers and local authorities to involve them in identifying problems.
• Where the cause of the problem is identified establish programmes for the reduction of pollution to ensure compliance with the standards.
• The competent authority should set up a system for notifying the competent authorities appointed for the Dangerous Substances Directive (76/464/EEC) and the IPPC Directives (96/61/EEC) of any problems in achieving the standards for the Shellfish Water Directive and request assistance in improving shellfish waters through improving control of discharges.

4 Costs

The main types of costs likely to be incurred in implementing this directive are indicated in the checklist below.

Checklist of the Types of Cost Incurred To Implement the Directive

Initial set-up costs

- Establishment of the competent authority(ies).
- Establishment of a laboratory (or contracts) with correct methods of analysis.
- Identification of shellfish waters (survey or consultation).
- Sampling programme, hire of sea-going sampling boats and crew.
- Training.

Capital expenditure

- Purchase of specialised sampling equipment for marine/sediment samples.

(Note: Construction of new waste water treatment plants/ installation of UVdisinfection is an obligation under the provisions of the Urban Waste Water Treatment Directive and therefore not listed here).

On-going running costs

- Annual monitoring programmes.

Where improvement programmes are needed there are potentially large capital costs for the construction of new or improved sewage works to reduce the impact of sewage effluent discharges. This may involve the installation of UV disinfection plants to reduce bacteria levels as well as the construction of secondary treatment plants. Sewerage networks may influence the water quality through the operation of storm overflows, and these may have to be modified to reduce the frequency of operation. Costs for enlarging sewer networks are considerable. However, it is likely that many of the improvements will be identified as a needed under other directives, in particular the Urban Waste Water Treatment Directive (91/271/EEC).

The Drinking Water Directive

(Non-White Paper)

Title: Council Directive 98/83/EC on the quality of water intended for human consumption (OJ L 330, 5.12.98)

1. Summary of Main Aims and Provisions

This Directive replaces the original drinking water Directive (80/778/EEC). It was necessary to adapt the original Directive in the light of scientific and technical progress, but also in accordance with the principle of subsidiarity by reducing the number of parameters for which Member States were obliged to set water quality objectives and by focusing on compliance with essential quality and health parameters. The aim of the Directive is to protect human health from the adverse effects of contamination of water intended for human consumption by ensuring that it is 'wholesome and clean'. It applies to all water intended for human consumption, as well as water used in the production and marketing of food, subject to certain exceptions including natural mineral waters which are regulated pursuant to Council Directive 80/777/EEC. Member States are required to monitor the quality of drinking water and to take measures to ensure that it complies with the minimum quality standards. It also lays down a number of requirements for reporting to the Commission, and for making information available to the public, regarding the quality of drinking water.

2. Principal Obligations of Member States

2.1. Planning

- Decide whether to exempt any categories of water from the provisions of the Directive, pursuant to Article 3(2) (Art. 3).

- Decide whether to provide for any derogations from the parametric values set out in the Directive, and if so ensure that these are only granted in accordance with the conditions laid down (Art. 9).

2.2. Regulation

- Take the necessary measures to ensure that water intended for human consumption (referred to in this fiche as 'drinking water') is wholesome and clean, i.e. that it complies, as a minimum, with the requirements laid down in the Directive (Art. 4 and Annex I).

- Ensure that measures taken pursuant to the Directive do not lead to a deterioration in the quality of drinking water, with regard to human health, or to an increase in pollution of waters used for the production of drinking water (Art. 4).

- Establish water quality standards applicable to drinking water, for the parameters specified in the Directive and for other parameters where necessary for the protection of human health (Art. 5 and Annex I).

- Ensure that the water quality standards set in accordance with Article 5 are complied with at the point at which the water is made ready for human consumption (as described in the Directive) (Art. 6).

- Where drinking water is supplied from a distribution network to premises or establishments, and the water does not comply with the water quality standards at the point where it emerges from the tap, Member States will not be in breach of the Directive provided that:

  a) non-compliance is due to a domestic distribution system which is not the responsibility of the water supplier;
  b) the water is not being supplied to the public (e.g. schools, hospitals and restaurants);
  c) appropriate measures are taken to reduce or eliminate the risk of non-compliance with the quality standards (e.g. advising property owners of possible remedial action); and
  d) consumers are informed and advised of any possible additional remedial action that they should take (Art. 6).

- Ensure that measures are taken to limit the quantity of substances or materials for new installations used in the preparation or distribution of drinking water (Art. 10).

2.3. Monitoring

- Establish monitoring programmes, in accordance with the minimum requirements laid down in the Directive (Art. 7 and Annex II).

- Ensure that regular monitoring of drinking water quality is carried out to ensure compliance with the requirements of the Directive. Monitoring must be carried out in accordance with the requirements specified in the Directive, although other methods of analysis may be used if they will achieve equally reliable results (Art. 7 and Annex III).

- Where there is a potential danger to human health from the presence, in drinking water, of substances and micro-organisms for which no parametric value has been set, ensure that additional monitoring of these substances and micro-organisms is carried out, on a case by case basis (Art. 7).

- Ensure that any failure to meet the water quality standards is immediately investigated in order to identify the cause, and that remedial action is taken to restore the water quality (Art. 8).

- Where the supply of drinking water constitutes a potential danger to human health, ensure that the supply is prohibited or restricted or that other necessary action is taken to protect human health (Art. 8).

2.4. Information and Reporting

- Inform the population concerned of any exemptions granted pursuant to Article 3(2)(b) and provide advice to them on measures to be taken to protect human health from the adverse effects of contamination of drinking water (Art. 3).

- Inform and advise consumers where the supply of drinking water constitutes a potential danger to human health, and (except in trivial cases of non-compliance) notify consumers of remedial action taken (Art. 8).

- Inform the population affected by a derogation of the derogation and the conditions on which it is granted (Art. 9).

- Publish a report every three years on the quality of drinking water (Art. 13).

- Ensure that adequate and up-to-date information on the quality of drinking water is available to consumers (Art. 13).

- Report to the Commission on:

    - cases of derogation from the requirements of the directive (Art. 9);
    - the quality of drinking water (Art.13);
    - requests for an extension of time for implementation (Art. 15);
    - measures taken to comply with the directive (Art. 13); and
    - transposition, with texts of the main provisions of national law adopted in the field covered by the directive (Art. 17).

3. Implementation

3.1. Key Tasks

The key tasks involved in implementing this directive are summarised in the checklist below. The key tasks are arranged under sub-headings and organised in chronological order of implementation whenever possible.

KEY IMPLEMENTATION TASKS	
1	**Planning**
1.1	Designate a competent authority or authorities to implement the requirements of the directive, to set quality standards, to establish compliance procedures and monitoring systems, and set up and implementinformation reporting procedures.
2.	**Regulation**
2.1	Set quality standards for water intended for human consumption.
2.2	Establish compliance monitoring procedures to ensure compliance with monitoring standards.
2.3	Establish procedures for dealing with incidents of non-compliance and the instigation of remedial action.
2.4	Establish procedures for informing the public of actions needed to address non-compliant sources of drinking water.
2.5	Establish a monitoring network able to fully meet the requirements of the Directive including the relevant sampling protocols
2.6	Establish procedures for assessing the efficiency of anydisinfection treatment which is applied to water for human consumption
2.7	Establish analytical procedures in line with the requirements of the Directive or where an equivalent alternative method is selected provide details to the Commission
2.8	Develop and disseminate guidelines to assist the competent authorities fulfil the obligations under the directive, including guidance on deciding what actions to take to restrict use of waters which may pose a threat to human health.
2.9	Establish procedures for providing forderogations from the Directive.
2.10	Establish procedures for informing the public as to the nature andtimescale of any derogations.
2.11	Establish procedures for the review ofderogations.
2.12	Establish guidelines/criteria for the implementation of Article 15.
2.13	Establish guidelines and procedures to meet the requirements of Article 10 of the Directive on quality assurance of equipment and materials used in the preparation or distribution of water intended for human consumption.
2.14	Ensure that a programme of actions is developed to ensure that the quality of water intended for human consumption complies with the Directive within 5 years of its entering into force.
3	**Report on the measures taken to implement the Directive within two years of its entry into force**
3.1	Reporting to the Commission on : • Requests to grant a secondderogations (Art. 9) • Requests to grant thirdderogations (Art. 9) In both cases the derogation request will contain the information specified in Article 9 paragraph 3 of the Directive. • On any derogations concerning individual sources of water supply exceeding 1,000 m^3 a day as an average or serving more than 5,000 people. • Every three years, report on the quality of water intended for human consumption with the objective of informing consumers. Reports are to be sent to the Commission within two months of their publication. • The first triennial report will be accompanied by a report on the measures taken to fulfil Article 6(3) and Annex I, Part B, note 10 of the Directive.
3.2	Commission reporting on: • Every three years, the Commission will publish a synthesis report on the quality of water intended for the consumption in the Community based on information supplied by the Member States.

4	Public Information
4.1	Inform the public of any exemptions from the provisions of the Directive and on measures to be taken to protect human health.
4.2	Inform consumers where there is a risk of water not complying with the required quality standards and advise them of any remedial action they should take.
4.3	Inform consumers of any actions taken by the authorities to deal with sources of water for human consumption not in compliance with the requirements of the Directive.
4.4	Inform any population affected by a derogation of the details of the derogation and any conditions that govern it.
4.5	Provide advice to any groups within the population for whom the derogation could present a special risk.

3.2. Phasing Considerations

This is a key directive in the water sector because of its role in regulating water quality for consumers. Time will be needed to develop the monitoring, sampling and information systems required by the directive. Where existing water quality standards for drinking water will need to be replaced, this will also require careful planning and scheduling with the appropriate authorities, utilities, consumer groups, etc.

4. Implementation Guidance

The provision of drinking water of acceptable quality is clearly fundamental to the well being of the population and any deterioration in water quality at the local or national level is likely to cause widespread concern among the general public.

Implementation of the directive requires a system which:

- sets clear water quality standards for water destined for human consumption;
- has the capacity to effectively monitor and sample sources of drinking water and to report on the results of these activities;
- has the resources to ensure that the public is kept informed of key action at national, regional and local level on this issue.

Planning

- The choice of a competent authority or authorities will require care, because of the need to consider the structure for the provision of drinking water, the role of utilities/water supply companies and the need to have a strong inspection and monitoring network. In addition, because of the health-related aspects of the directives, health authorities may need to be involved in the implementation of the directive. Similarly, bodies responsible for consumer issues may wish to become involved in implementing or monitoring certain elements of the directive. Where more than one competent authorities is appointed, tasks must be clearly allocated between them so that all of the obligations of the Directive are met.

- This directive has implications for a number of stakeholders and, especially where implementation of

the directive will necessitate amendment or replacement of existing standards, it will be necessary to carry out consultation with a wide range of stakeholders. This activity, along with supporting information on the Directive, needs to be very carefully thought out by the competent authorities.

- Governments may benefit from consultation with the Commission, international agencies involved with drinking water and health standards such as WHO and other national governments by, for example, exchange of information, discussion of best practice or pooling of resources.

Planning

- Given that the implementation of this directive will almost certainly involve some changes to previous drinking water regulations and standards, it is important that all relevant stakeholders are involved in the development and implementation of national legislation and regulations to implement this directive.

- The development of a monitoring programme and sampling protocols will require the involvement of a number of organisations and agencies and also representatives of accredited laboratories. It may also be necessary to provide guidance and training support.

- Consideration needs to be given to how to regulate the management of the situations of non-compliance both in terms of responsibility for dealing with incidents of non-compliance and theirremediation and in terms of the management and dissemination of information to consumers and other affected parties.

- It may be necessary to establish a specific agency/inspectorate to deal with drinking water issues. This will need to have clearly defined responsibilities.

- Existing providers of analytical services for the testing of drinking watersaples will need to be advised of the requirements of the directive and may need to introduce new sampling and reporting procedures and quality standards.

Standards

- The Directive requires Member States to report to the Commission on several aspects of implementation. These are summarised in the checklist in section 3 of this fiche.

- The Directive requires that the first three yearly report on the quality of water intended for human consumption covers the years 2002, 2003 and 2004. The first report (and all subsequent reports) must be published within one calendar year of the end of the reporting period and forwarded to the Commission within two months of its publication.

  It is important that reports comply with the formats stipulated by the Commission.

Costs

The main cost associated with the implementation of this directive relate to the costs of implementing and maintaining a monitoring system which is compliant with the requirements of the directive. Costs may also be incurred when existing quality standards are superseded. This will relate mainly to new documentation, training of staff, etc. If it is decided to create a specific agency to deal with drinking water issues, this too will clearly have costs implications.

The Forthcoming Water Framework Directive

Official Title: European Parliament and Council Directive establishing a framework for Community action in the field of water policy

- Basic Proposal COM (97) 49 of 26.2.97, OJ C184 of 17.06.1997
- Amendment 1 Proposal of proposal of 26.11.1997, COM(97)614, OJ C16 of 20.1.1998
- Amendment 2 Proposal COM(98)76 of 17.02.1998, OJ C108 of 7.4.1998
- Amended Proposal COM(1999)271 of17.06.1999
- Council Common Position 9085/99 of 30 July 1999.

TAIEX Ref. No.: -

1 Summary of Main Aims and Provisions

The Water Framework Directive as proposed by the European Commission in 1997/98 establishes a management structure for future European water policy, with the following main objectives:

- expanding the scope of water protection to all waters, surface waters and groundwater;
- achieving "good status" for all waters by a certain deadline;
- water management based on river basins;
- "combined approach" of emission limit values and quality standards;
- getting the prices right: charges for water and waste water reflecting the true costs;
- getting the citizen involved more closely; and
- streamlining legislation.

Several pieces of legislation dating from 1975 to 1980 will, in terms of their provisions, be integrated into the Water Framework Directive, allowing them to repealed in a phased approach. This concerns the Directive 75/440/EEC on Surface Water for Drinking Water Abstraction, the Dangerous Substances Directive 76/464/EEC and its daughter directives, the Decision of Exchange of Information 77/795/EEC, the Fishwater Directive 78/659/EEC, the Shellfish Water Directive 79/869/EEC, the Directive of Measurement and Sampling of Surface Waters 79/869/EEC, and the Groundwater Directive 80/68/EEC.

All transposition and implementation considerations concerning these old directives should therefore take account of this fact.

The Framework Directive will complement and complete other key pieces of water-related legislation: in particular, the 1991 directives on urban waste water treatment and on nitrates pollution from agriculture, the body of rules governing the authorisation and use of pesticides andbiocides, as well as the 1996 directive on integrated pollution prevention and control (IPPC).

2 Principal Obligations of Member States

2.1 Planning

- Identify river basins and assign them to individual river basin districts. Two or more river basins may be combined into one river basin district.

- Establish competent authorities, using either existing structures or creating new ones, and establish administrative arrangements to ensure that the directive is implemented effectively within River Basin Districts.

- Where Member States share a river basin, coordination across the whole river basin has to be ensured (establishment of an International River Basin Districts). Where part of a river basin lies on the territory of a Third Country, this coordination is mandatory only for the part lying within Member States. For the part lying in the Third Countrycoordination is a recommendation. Whilst coordination across the whole river basin is a binding obligation, Member States are free to choose the political and administrative tools for achieving this coordination. They are also free to use existing international bodies for this purpose.

- Elaborate operational objectives for "good status" for the surface waters and groundwaters in the river basin based on Annex V. Good status has to be based on ecological,physico-chemical and hydromorphological criteria.

- Identify waters used for the abstraction of drinking water and establish environmental quality standards for these waters; identify other protected areas (e.g. those under EU nature protection legislation).

- Based on an analysis of impact of human activity on the waters within the river basin, based on the monitoring of waters as well as based on the operational objectives of "good status", establish a River Basin Management Plan for each River Basin District, including programmes of measures for achieving the specified objectives.

2.2 Monitoring

- For each River Basin District, undertake:
    - an analysis of its characteristics;
    - a review of the impact of human activity on the status of waters; and
    - an economic analysis of water use.

- Establish programmes for monitoring the status of:
    - surface waters and groundwater; and
    - protected areas.

2.3 Regulation

- Implement programme of measures included in River Basin Management Plans.

- Take action to prevent or reduce the impact of accidental pollution incidents.

- Establish controls over abstraction of fresh surface water and groundwater, as well as discharges

and other activities with significant adverse impacts on status of waters.

- Establish an effective system of penalties for non-compliance with national provisions adopted pursuant to the Directive.

- Ensure that the price charged for services related to water (e.g. drinking water supply, waste water disposal and treatment) reflects the true economic costs of providing the service.

- Prohibit the direct discharge of a list of dangerous substances into groundwater.

2.4 Consultation and Reporting

- Allow the public to have access to draft River Basin Management Plans, consult the public on the content of the draft Plans, and publish the final Plans.

- Consult interested parties on additional interim measures to combat pollution of waters.

- Send copies of plans and programmes (including River Basin Management Plans) to Commission and the European Environment Agency (Art. 20).

- Report to the Commission on:
    - competent authorities;
    - exemptions from the provisions on cost recovery;
    - plans and programmes;
    - penalties under national law;
    - measures taken to comply with the Directive; and
    - transposition, with texts of the main provisions of national law adopted in the field covered by the Directive.

2.5 Additional Legal Instruments

The Water Framework Directive establishes a framework for the management of water quality. A large number of other legal instruments are linked to it, and should be borne in mind during the implementation of this directive. These include all water sector directives, as well as the following legislation:

- Environmental Impact Assessment Directive (85/337/EEC).
- Seveso II Directive (96/82/EEC).
- Plant Protection Products Directive (91/414/EEC).
- Biocides Directive (98/8/EC).
- Habitats Directive (92/43/EEC).
- Landfill Directive (99/31/EC).
- Incineration Directives (89/429/EEC, 89/369/EEC and 94/67/EEC).
- Sewage Sludge Directive (86/278/EEC).
- Integrated Pollution Prevention and Control (IPPC) Directive (96/61/EC).
- Reporting Directive (91/692/EEC) and Decision (94/741/EEC).
- Directive on Access to Environmental Information (90/313/EEC).

Particularly relevant issues in these directives concern their impact upon the development of programmes of measures within the river basin plans of the Water Framework Directive.

3 Implementation

3.1 Key Tasks

This directive aims to protect all waters, i.e. groundwaters and surface waters, freshwaters and coastal waters. Whilst vastly expanding the scope of water protection, it will encompass and extend the effectiveness of a number of existing directives. The key obligations under the Water Framework Directive are of particular importance where river basins are shared between Member States or between Member States and Third Countries. The following points have been developed in the coordination along the river Rhine and aim to highlight the tasks involved in such shared river basins ('international river basins').

3.1.1 Legal Obligations within International River Basin Districts

Legal obligations within international river basin districts are:

- Coordination of water protection management based on river basin districts. Two or more river basins may be combined into one river basin district. Where Member States share a river basin, coordination across the whole river basin has to be ensured (establishment of an International River Basin District). Where part of a river basin lies in the territory of a Third Country this coordination is mandatory only for the part lying within Member States. For the part lying in the Third Country coordination is a recommendation. Whilst the coordination across the whole river basin is a binding obligation, Member States are free to choose the political and administrative tools for achieving this coordination. They are also free to use existing international bodies for this purpose.

- Assigning all groundwaters to river basin districts. This is particularly important where groundwaters are not completely situated in one river basin district; in such cases they should be assigned to the nearest or best suited district. In the case of transboundary groundwaters, appropriate coordination will be necessary.

- Establishment of a river basin management plan for the whole river basin district. For river basins within one country's territory there is an obligation for one plan; for river basins shared between countries this objective should be pursued. National and/or international river basin management plans may be complemented by more detailed programmes or management plans for sub-basins, sectors or individual management aspects.

- Information and consultation of the public and interested parties is an obligation of all involved Member States. Such information and consultation has to ensure involvement of the public on issues of major importance which are the subject of international coordination. The international river basin management plan has to address information and consultation as well.

- Reporting to the Commission following the provisions of the Water Framework Directive is the obligation of Member States. However, Member States are free to make use of international bodies in complying with their reporting obligations.

3.1.2 Tasks Entailing Coordination Requirements between Member States

Tasks under the Forthcoming Water Framework Directive entailing coordination requirements between

two or more Member States within an international river basin district are:

- Assignment of transboundary catchments to international river basin districts: groundwaters, coastal waters;
- Identification of protected areas of importance beyond the region (Annex IV);
- Identification of transboundary water quality objectives (Art.4);
- Identification of, and mapping the ecological quality of surface waters;
- Coordination of those parts of the programmes of measures of importance beyond the region;
- Establishment of international monitoring programmes;
- Coordination in designating reference monitoring sites;
- Coordination of analysis of characteristics, review of impact of human activities and economic analysis of water use (Art.5);
- Coordination of programmes of measures;
- Coordination in identification of pollutants beyond the 'priority substances', as well as developing water quality standards;
- Basis for the structure for an international river basin management plan, in particular addressing issues of degree of detail and structure as regards necessary sub-basin plans and sectoral plans;
- Establishment of an international river basin management plan;
- Taking account of the results of consultation of the public as regards the entire river basin;
- Development of a basic structure for reports to the Commission (Art.15), and developing where possible a joint report.

3.1.3 Tasks for Development of Principles at EU Level

Tasks for which principles defined at EU level have to be developed and complied with are:

- Definition of ecoregions and types of water bodies, including reference conditions;
- Definition of European chemical quality standards for surface waters (priority substances), classification and mapping of chemical quality;
- Development of criteria for significant anthropogenic impacts;
- Methodology for assessing and quantifying diffuse sources of pollution;
- Development of measures for emission control of priority substances;
- Methodology for economic analysis and long-term forecasts;
- Development of criteria for designating heavily modified bodies of water and for the definition of maximum ecological potential.

3.1.4 Key implementation tasks

Already in 1999, well before the final adoption of the Water Framework Directive, informal consultations have started between the Commission and Member States on specific issues of implementation including those where further technical or scientific studies are required. The following checklist presents an non-exhaustive list where key issues are grouped under key headings and arranged in chronological order where possible.

Candidate Countries will be kept informed on the progress of those informal consultations on implementation.

FORTHCOMING WATER FRAMEWORK DIRECTIVE – KEY IMPLEMENTATION TASKS	
1.	**Planning**
1.1	Identify river basins and assign them to individual river basin districts.
1.2	Assign groundwater bodies to river basin districts. Assign coastal waters to river basin districts.
1.3.	Establish competent authorities, using either existing structures or creating new ones, and establish administrative arrangements to ensure that the directive is implemented effectively within River Basin Districts.
1.4	The competent authority should make institutional arrangements to enable it to fulfil its implementation tasks, such as planning, monitoring and enforcing the requirements of the directive.
1.5	The competent authority should undertake a review of the characteristics of the river basin using methods set out in the Water Framework Directive. Organise data and in co-operation with national and EC statisticians carry out data analysis to ensure that the results are comparable throughout the EU. The setting of water quality objectives must be undertaken on the basis of ecotoxicity tests carried out on algae, *Daphnia* and fish according to the scheme outlined in COM(98)76, with the adoption of a range of safety factors.
1.6	The competent authority should assess the impact of human activity in the river basin.
1.7	Assess all relevant and available information on industrial discharges, dangerous substances and wastewater discharges and plants (i.e. those sources covered by the IPPC Directive (96/61/EEC), the Dangerous Substances Directive (76/464/EEC) and the Urban Waste Water Treatment Directive (91/271/EEC).
1.8	Collect information on the extent and location of diffuse sources of pollution, in particular from agriculture.
1.9	Using data already available, identify waters that are affected by pollution.
1.10	Assemble data on water abstracted for drinking water, agricultural, industrial and other uses.
1.11	In collaboration with water suppliers, the competent authority should identify all existing and potential surface waters and groundwaters which are used or intended to be used as drinking water abstractions in each river basin.
1.12	The competent authority should undertake an economic analysis of water use including abstraction for drinking water, waste water discharges, forecasts of supply and demand and trends, and assessment of infrastructure needs. Collaboration with economists, regional, municipal, and other planners, water suppliers, industrial organisations may be necessary for this task.
1.13	Set up a register of protected areas in each river basin district, protected areas all being specified in the Directive, including those under EU nature protection legislation. Co-operation and co-ordination must be arranged between competent authorities, particularly those responsible for managing the protected areas.
1.14	Put in place arrangements to update the review of the river basin characteristics at 6 yearly intervals and other reviews.
1.15	Having gathered the relevant data, establish environmental objectives to apply in the river basin. These must be designed to achieve good water quality (as defined in the directive), and lead to compliance with any standards needed in protected areas.
1.16	Within the defined river basins, establish the four basic types of surface water systems as rivers, lakes, estuaries and coastal, and assess the ecological status of each according to the range of physico-chemical, biological and hydromorphological characteristics as defined in the directive.
1.17	Place each body of water into one of three classes high quality, good quality and poor quality by comparing the data with historical information for the site concerned or for a similar site.
1.18	As there are few sites in Europe which are unaffected by anthropogenic activity, the Water Framework Directive sets out criteria for establishing similar eco-types based on a number of natural parameters. Candidate Countries may choose to use these comparators or carry out an exercise within their territory to establish high criteria for establishing similar ecotypes, based on a number of natural parameters. Candidate Countries may use ecological quality reference sites as comparators.
1.19	For groundwater, the quantitative status must be assessed by comparing variations in groundwater levels with associated rates of recharge and abstraction (both natural and artificial) in order to ascertain that the rate of abstraction does not exceed the long-term available resource. In addition, the chemical status of groundwater which is susceptible to possible impacts from indirect discharges of contaminants from anthropogenic activities should be monitored.
1.20	Identify waters that, due to their natural condition will not achieve good water quality although all measures to improve them as identified in the river basin plan have been taken.
1.21	Identify specific bodies of water for which less stringent environmental objectives must be set. Include these objectives in the river basin plan.
1.22	Establish a programme of measures, as part of river basin plans containing information as set out in Annex VII, to achieve the environmental objectives of the directive, including the application of all mandatory measures in EC law specified within the Water Framework Directive, particularly all of the compulsory requirements and the directives listed in Annex VI, and other measures decided as necessary by the competent authority. This should result from an examination of all the information gathered by the above process. Supplementary measures are outlined in Annex VI.B, and for waters below "good" status more intensive monitoring, establishment of environmental quality standards for the pollutants concerned, investigations of polluting sources and immediate review of all relevant authorisations is required followed by action on the basis of the level or risk involved. Competent authorities must determine this.

FORTHCOMING WATER FRAMEWORK DIRECTIVE – KEY IMPLEMENTATION TASKS	
1.23	River basin plans may be supplemented by more detailed local action plans for particular aspects or for parts of the river network.
1.24	Establish a system of public consultation on river basin management plans which allows public access to draft copies of the plan at least one year prior to the start date, allowing 6 months for public comments to be received in writing.
1.25	Once public comments have been taken into account, a final plan must be published.

2	**Monitoring and Enforcement**
2.1	The competent authority must establish a monitoring programme to determine water status. Monitoring will include chemical and biological sampling, and will be capable of placing surface water into one of five classes of ecological quality and chemical quality. Annex V specifies the detailed monitoring and assessment criteria. Groundwater must be assessed on quantitative status and qualitative status. The technical specification establishes the methods of monitoring, and results must be comparable, in a common format. Use accredited methods and introduce quality assurance schemes. The level of confidence and precision of the results must be stated.
2.2	Designate monitoring sites according to Annex V, and monitor identified sites for parameters listed in Annex V.
2.3	The results of monitoring must be presented as: • biological: a numerical value representing departure from the reference conditions of the site; • chemical: a quality classification as "good quality " or "ailing to achieve good quality"; • ecological: high quality, good quality, fair quality, poor quality or bad quality. These results must be presented on a map.
2.4	The competent authority / national agency will have to ensure that there is an exchange of biological data between the Member States to build up a set of data representing a selection of ecotype sites to be known as the intercalibration network. The Commission will coordinate an intercalibration exercise to test the methodologies used by Member States.
2.5	Monitoring frequencies vary between one sample per three months and one sample per three years. More intensive monitoring will be required for waters of less than "good" status.
2.6	Include in national legislation to implement the Directive, penalties for non-compliance. This may comprise the regulatory system established for current water legislation and the legislation controlling industrial and other establishments which discharge to, or influence the quality of water. Penalties must be clearly identified in relation to issue of compliance.
2.7	Prepare emergency plans to respond to incidents and take restorative actions after pollution has occurred. Preventative measures should be identified. Risk assessment should be an integral part of the plans.
3	**Selection and Implementation of Economic Instruments**
3.1	The competent authority should prepare a financial plan for the full cost recovery for services provided for water users. This should take into account the costs of providing infrastructure construction, environmental protection measures and use of the water for such matters as leisure.
3.2	The cost recovery system adopted must, however, allow for an affordable domestic water supply. Exemptions for payments may be granted within the river basin plan. Investigations should be undertaken to assess what is affordable for water consumers in the Candidate Country.
3.3	Funding by the Community falls outside of this provision and exemptions may be granted. They must be explained in the river basin plan and an explanation sent to the Commission within six months.
4	**Consultation and Reporting**
4.1	The Government should establish contact with other countries whose river basins cross international boundaries. A jointly-run international River Basin Authority should be set up where this is feasible.
4.2	The competent authority must organise suitable consultation mechanisms in order for the public to see and comment upon the river basin plans. It is important that other relevant government departments, local communities, water utilities, industry and commerce, consumers and environmental groups play a full part in the discussions on river basin plans as these are likely to affect all of these organisations, and rely upon actions by such organisations in the achievement of their objectives.
4.3	A reporting and recording system should be established on both a river basin and a national level with the associated data bases to enable reports to be made to the public and to the Commission.
4.4	The competent authority must send copies of plans and programmes to the European Environment Agency.
4.5	Report to the Commission on: • river basin districts, including assigned groundwaters and coastal waters • assignment details of the competent authorities; • issues which fall outside the competence of the competent authorities but which affect water management; • river basin plans for whole river basins; • programmes and plans dealing with sub-basins, particular water issues or particular water classes or ecosystems; • plans covering parts of international river basins.

3.2 Phasing Considerations

Given that the Water Framework Directive is only to be adopted in 2000, there is of course as yet no practical experience within Member States relating to the implementation of this directive. However, intensive preparations for implementation have been going on in several countries, e.g. in the countries in the basins of the Rhine (Austria, Belgium, France, Germany, Liechtenstein, Luxembourg, Netherlands, Switzerland) and the Elbe/Labe (Czech Republic, Germany).

The key phasing issues are likely to be:

- Organising and implementing a complete survey of the river basins, establishing the current status of the water in terms of quality and quantity and setting operational quality objectives defining 'good status';

- Transposing the directive into national legislation and integrating legislation covering existing directives into the new scheme;

- Establishing the coordination within the river basins, in case of shared basins together with neighbouring countries, by using existing competent authorities or creating new ones; and

- Preparing the programme of measures, consultation and publication of the river basin plan.

4 Costs

The main types of costs incurred in implementing this directive are illustrated in the table below.

As the directive is largely an over-arching framework for a number of other directives, the costs of the Water Framework Directive itself might in many cases be marginal, the main cost factors apart from administrative costs being those:

- for an appropriate monitoring system covering groundwater and surface waters (unless already in place); and
- for waste water treatment beyond the provisions of the Urban Waste Water Treatment Directive's objectives.

Checklist of the Types of Cost Incurred To Implement the Directive

Initial set-up costs
- Establish new river basin management structure if none exists at present.
- Undertake survey work associated with data gathering.
- Prepare the river basin management plans.
- Consultation.
- Setting up monitoring schemes if none exist at present, including establishment of laboratories.

Capital expenditure
- Laboratory capacity (if none exist).
- Construction of waste water treatment plants with more stringent objectives than required by the Urban Waste Water Treatment Directive 91/271/EEC.

On-going running costs
- Costs associated with operating the new facilities.
- Monitoring costs.
- Reviewing river basin plans.