Some 70% of the Earth’s surface is covered by seas and oceans, and these produce almost three quarters of the oxygen we breathe. We can use directly only 1% of this water, however, and many forms of human activity put water resources under considerable pressure. Polluted water, whatever the source of the pollution, flows one way or another back into our natural surroundings – into the sea or water tables – and en route or at destination it can have a harmful effect on human health and the environment.
The European Union was established after the Second World War with the aim of promoting trade between Member countries, thereby increasing interdependence and lessening the prospect of conflict. Increasingly the interdependence of Member States and functioning of the Common Market has led to the realisation that the environment and natural resources are critical to success and need protection and management at European level as well as within each Member State.

**3.1 WHAT IS EU LAW?**

The main goal of the EU is the progressive integration of Member States’ economic and political systems and the establishment of a single market based on the free movement of goods, people, money and services.

To this end, its Member States cede part of their sovereignty under the Treaty on the Functioning of the European Union (TFEU) which empowers the EU institutions to adopt laws.

These laws (Regulations, Directives and Decisions) take precedence over national law and are binding on national authorities. The EU also issues non-binding instruments, such as Recommendations and Opinions together with rules governing how EU institutions and programmes work, etc.

**3.2 EU KEY ENVIRONMENTAL PRINCIPLES**

The key environmental principles applicable to all Member States, the European Council and the European Commission are set out in the Treaty on European Union, an extract of which is presented below.

The [Treaty on European Union](http://ec.europa.eu/eu_law/treaty/treaty/en.htm) is available on the web. A downloaded copy of the full text is included here.
3.3 WHAT ARE EU REGULATIONS?
Regulations are the most direct form of EU law - as soon as they are passed, they have binding legal force throughout every Member State, on a par with national laws. National governments do not have to take action themselves to implement EU regulations.

They are different from Directives, which are addressed to national authorities, who must then take action to make them part of national law, and they differ from Decisions, which apply in specific cases only, involving particular authorities or individuals.

Regulations are passed either jointly by the EU Council and European Parliament, or by the Commission alone.

The Europa Web Site provides useful summaries of EU legislation and links to much more detail on EU legislation and programmes.

3.4 WHAT ARE EU DIRECTIVES?
EU Directives lay down certain end results that must be achieved in every Member State. National authorities (governments) have to adapt their laws to meet these goals, but are free to decide how to do so. Directives may concern one or more Member State, or all of them.

Each Directive specifies the date by which the national laws must be adapted - giving national authorities the room for manoeuvre within the deadlines necessary to take account of differing national situations.

Directives are used to bring different national laws into line with each other, and are particularly common in matters affecting the operation of the single market (e.g. product safety standards).

EXTRACT FROM TREATY ON EUROPEAN UNION - ENVIRONMENT

Article 191

1. Union policy on the environment shall contribute to pursuit of the following objectives:

- preserving, protecting and improving the quality of the environment,
- protecting human health,
- prudent and rational utilisation of natural resources,
- promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change.

2. Union policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Union. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay. In this context, harmonisation measures answering environmental protection requirements shall include, where appropriate, a safeguard clause allowing Member States to take provisional measures, for non-economic environmental reasons, subject to a procedure of inspection by the Union.

3. In preparing its policy on the environment, the Union shall take account of:

- available scientific and technical data,
- environmental conditions in the various regions of the Union,
- the potential benefits and costs of action or lack of action,
- the economic and social development of the Union as a whole and the balanced development of its regions.

4. Within their respective spheres of competence, the Union and the Member States shall cooperate with third countries and with the competent international organisations. The arrangements for Union cooperation may be the subject of agreements between the Union and the third parties concerned. The previous subparagraph shall be without prejudice to Member States’ competence to negotiate in international bodies and to conclude international agreements.
In the past 30 years the EU has adopted a substantial and diverse range of environmental measures aimed at improving the quality of the environment for European citizens and providing them with a high quality of life. Our environment can only be well protected if Member States properly implement the legislation they have signed up to. Implementation of Community environmental legislation is to be ensured in the first place by Member States. In addition to any implementation and enforcement action taken at national level, the European Commission fulfils the role of ‘Guardian of the Treaty’: according to Article 211 first indent of the EC Treaty, the Commission is to ensure that the provisions of the Treaty and the measures taken by the institutions pursuant thereto are applied. In performing that function, the Commission checks that Member States have implemented the EU legislation and if there are deficiencies in implementation the Commission may open infringement procedures.

WHAT ARE EU DECISIONS? Decisions are EU laws relating to specific cases. They can originate from the EU Council (sometimes jointly with the European Parliament) or the Commission.

They can require that authorities and individuals in Member States either do something or stop doing something, and can also confer rights on them.

EU decisions are:
- addressed to specific parties (unlike regulations)
- fully binding.

WHAT ARE ‘NATIONAL IMPLEMENTING MEASURES’? ‘National implementing measures’ are texts officially adopted by the authorities in a Member State to incorporate the provisions in a Directive into national law. All such texts are sent to the European Commission by national authorities for scrutiny to ensure that they will actually implement in that Member State all the measures required in the Directive.

IMPLEMENTATION OF COMMUNITY ENVIRONMENTAL LEGISLATION
This section is based on information from the EU web page ‘Implementation of Community environmental legislation’. This page contains links to Legislation, Implementation (including EC Enforcement and EC Case Law), Liability, Environmental Crime (including legislation and studies), and the Aarhus Convention (public access to information and participation in decision making). The sections that follow include selective extracts from some of these pages and contain further embedded web links.

EUROPEAN LAW - JUDICIARY
Next to administrative authorities, judges in the Member States have to play a very important role since rights and obligations deriving from Community law are enforced on a daily basis by national courts and tribunals. The European Union Forum of Judges for the Environment promotes the enforcement of national, European and international environmental law by contributing to a better knowledge for judges of environmental law.

To support the implementation and enforcement of Community environmental legislation focused on the ‘polluter pays’ principle, the Community has adopted
The Commission has adopted a Communication on implementing European Community Environmental Law which sets out plans to improve the implementation of the European Union’s environmental protection laws. This fits within a wider Commission strategy for improving implementation of EU law announced in a previous Communication of 2007: A Europe of Results - Applying Community Law.

3.10 KEY EU WATER-RELATED LEGISLATION

The following links provide access to the various laws and general information about their implementation on most aspects of European Union water management.

Links to the main water-relevant pages on the EU web site are listed below:

- **GENERAL FRAMEWORK**
  - Water protection and management (Water Framework Directive)
  - Protection of Nature and Biodiversity
  - Pricing and long-term management of water
  - Flood management and evaluation
  - Water scarcity and droughts in the European Union
  - Urban waste water treatment

- **SPECIFIC USES OF WATER**
  - Quality of drinking water
  - Bathing water quality (until 2014)
  - Bathing water quality
  - Water suitable for fish-breeding
  - Quality of shellfish waters

- **MARINE POLLUTION**
  - Strategy for the marine environment
  - Maritime safety: compensation fund for oil pollution damage
  - Maritime safety: prevention of pollution from ships

3.9 EUROPEAN LAW - LEGAL ENFORCEMENT

It is the Commission’s responsibility under Article 17(1) of the Treaty on European Union to ensure that both the Treaty on European Union and the Treaty on the Functioning of the European Union, in addition to measures adopted pursuant to them, are correctly applied. The Commission is therefore often referred to as the ‘Guardian of the Treaties’. With over 200 legal acts to monitor in 28 Member States, this is a major task in the environmental field.

These legislative measures cover all environmental sectors, including water, air, nature, waste, noise, and chemicals, and others which deal with cross-cutting issues such as environmental impact assessment, access to environmental information, public participation in environmental decision-making and liability for environmental damage. Over the last 40 years, the body of EU environmental law which makes up the ‘European environmental acquis’ has steadily expanded, although in more recent years it has been reaching maturity. Nevertheless, this body of law is continually under assessment with significant developments having taken place in the chemicals sector, and also in the waste, air and water sectors.
Ship-source pollution and criminal penalties
Maritime safety: prohibition of organotin compounds on ships
Maritime safety: Bunkers Convention

**REGIONAL WATERS**
- European Union Strategy for Danube Region
- Baltic Sea Strategy
- Environment strategy for the Mediterranean
- Strategy to improve maritime governance in the Mediterranean
- Black Sea Synergy
- Danube - Black Sea region

Regional convention
- Barcelona Convention for the protection of the Mediterranean
- Helsinki Convention on the protection of the Baltic Sea
- Helsinki Convention: trans-boundary watercourses and international lakes
- Convention for the Protection of the Rhine
- OSPAR Convention

**DISCHARGES OF SUBSTANCES**
- Industrial emissions

**WATER TRANSPORT**
- Waterborne transport

One of the most important pieces of legislation in this area is the Water Framework Directive which is described in Chapter 2 and forms a core component of many of the Chapters in this book.
4.1 Issue Identification
For an issue to become subject to European Law it needs to be of sufficient importance to be recognised by the European Parliament, Council and Commission as needing Community Action. The European Commission then produces a draft Communication or Directive and engages in consultation with interested parties across Member States.

4.2 Directive Formulation
The draft Proposal is debated and modified in European Parliamentary Committees (and finally in the European Parliament). The European Parliament agrees the final text of the Directive, which the Commission then publishes in the Official Journal. The Commission then monitors the transposition of the Directive into national law in each Member State, checking that it is complete and on time. (If transposition is incomplete or late the Commission may initiate legal proceedings in the European Court of Justice against the Member State, which may result in heavy fines on a daily tariff until the Directive is properly transposed.)

4.3 Member State Implementation
Each Member State has its own legal, institutional, and administrative system. For a given Directive the details of cascade of responsibility for delivery of Directive obligations from the lead national government department to ‘on the ground’ delivery will vary between Member States. In general, national government deals with macro-scale economic and policy issues, with detailed delivery of national transposed Directive obligations delegated to a subsidiary level of government – e.g. an agency or local government. The legal mechanism may be via ‘administrative’ law or ‘criminal’ law. Somewhat surprisingly, but presumably because it might be seen as interfering with national autonomy, the European Commission has not published comprehensive details of the institutional and delivery mechanisms adopted by Member States for delivering their environmental Directive obligations. In all cases it is the national government that has ultimate responsibility for delivery.

At transposition the Member State’s national government issues an appropriate legal instrument (e.g. Act, Decree, Regulations, etc.), identifying the competent authority (e.g. government department or appointed regulator) for implementation of the Directive obligations. The national government also provides high level guidance for the competent authority, regulators, and affected businesses, e.g. water quality requirements and timescales for delivery.

4.4 Regulator Action
The regulator provides detail guidance and advice to affected parties, e.g. businesses and stakeholders, including non-governmental organisations; and provides application forms for those targeted by the Directive, e.g. operator and discharger, to apply for permits. Detail permitting processes vary between Member States. In the UK virtually all the permitting and compliance process is in the public domain, the exceptions being matters of National Security and Commercial Confidentiality. The regulator may charge for processing applications and for the subsistence of the permit.
4.5 **OPERATOR ACTION**
The operator or discharger then applies to the regulator for a permit. The regulator considers the application, consults interested parties, and determines the application. The regulator normally sets conditions consistent with Directive obligations in the permit, but if satisfied that the proposed activity would nevertheless place an unacceptable risk of pollution on the receiving water, they may refuse the application. The applicant either accepts the permit or may appeal to a government appointed appeal body, whose decision is binding on both parties.

If a permit is granted, the regulator prepares an inspection plan (see Chapter below) and the operator or discharger monitors the activity or discharge(s) in accordance with permit requirements, and reports data to the regulator. The regulator assesses compliance and initiates appropriate enforcement action in the event of any non-compliance or deterioration in performance.

4.6 **REPORTING PROGRESS**
The regulator collates and summarises data and reports to National Government, which in turn reports the Member State dataset to the European Environment Agency (EEA). The regulator may also publish data and summaries for public awareness of operator performance.

The EEA then collates Member State submissions and reports this information to the European Commission. The Commission produces a report on the results of implementation of the legislation to the European Parliament and Council, and makes recommendations as to any further need for regulation, etc. The European Parliament and Council then consider the information and instruct the European Commission on the action to be taken, including commencing another regulatory cycle to update requirements.

The overall process is summarised in Figure 4.1.
EFFECTIVE REGULATION REQUIRES GOOD KNOWLEDGE OF THE LAW AND OF THE REGULATED PROCESS.
5 ENVIRONMENTAL REGULATORY IMPLEMENTATION AND ENFORCEMENT AT THE EUROPEAN UNION LEVEL

Close cooperation between national authorities and the European Commission contribute to better implementation.

5.1 IMPEL

The European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL) is a network of the environmental authorities of EU Member States, acceding and candidate countries, and Norway. It provides a framework for policy makers, environmental inspectors and enforcement officers to exchange ideas, and encourages the development of enforcement structures and best practices.

IMPEL has produced two very useful books, key references for regulatory inspectors of discharges to water, on implementation of environmental regulation - The IMPEL Reference Book for Environmental Inspection (1999) and a step by step guidance book for planning environmental inspections ‘Doing The Right Things 2 (2007)’.

The books are focused on site-based regulation, primarily for sectors whose emissions are regulated under the IPPC and associated Directives, now consolidated under the Industrial Emissions Directive, which are covered in more detail later in the book. They provide a more locally focused approach that complements and supports delivery of intended river basin planning outcomes. They are structured so as to initially provide and discuss high level regulatory principles and policy, with subsequent, more detailed chapters on approaches and techniques. Although not specifically focused on water, the books provide an excellent synthesis of principles and practice for the inspection and enforcement of permits for discharges or emissions affecting water.

5.2 ENVIRONMENTAL INSPECTION

The Reference Book for Environmental Inspection (1999) can be summarised as follows:

- It is aimed at senior and middle managers as well as field inspectors.
- Top and middle management will find useful information on the administrative and inspection framework in addition to the organisation of inspectorates in EU Member States. Field inspectors will find a step-by-step and practical approach for inspection work. The step-by-step approach is supported by practical examples from all EU Member States.

Part III of the Reference Book is probably the most relevant for the work of the inspectors. Together with the other parts of the Reference Book, it contributes to:

- Improving human resources management and financial planning by senior and middle management, and strengthening the institutional framework of the inspectorates through the presentation of state-of-the-art management techniques related to running inspectorates, and descriptions of management aspects of inspectorates EU-wide.
- Reviewing, and if possible measuring, the quality of the inspectorates’ performance, and measuring the quality of compliance activities by competent authorities, including evaluation of their effectiveness.

To provide an insight into site and permit inspection actions some important extracts from the IMPEL reference book are presented overleaf.
| Did you check the completeness of the dossier on the installation? |
| Did you co-ordinate your activities with other (non-environmental) Inspectors? |
| Which of the listed inspection tools are needed for the site visit? |

- Licence of the facility and details of the application procedure, including operator self-monitoring programme, EMAS, etc and reports from the operator to the authority
- Up to date information about BATNEEC / IPPC / etc.
- New regulations that are of importance to the facility
- Technical drawings of the facility
- Map of the facility premises
- Descriptions of eventual new processes, expansions, modifications etc. in the facility that have been subjected to recent change (this should have resulted in issuing a revised licence)
- Diagrams of the processes in the facility
- Reports, letters, notifications etc. from previous inspections
- Notices sent to the facility (depending on the character of the on-site visit (announced versus unannounced))
- Seasonal influences that are of importance for the outcome of the visit
- Essential environmental facts
- Incidents which have taken place in the past
- Earlier infringements
- Aspects of the facility’s operations which have not been thoroughly investigated and approved during a previous inspection
- Notifications of environmental incidents
- Research reports or environmental reports

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| Did you co-ordinate your activities with other (non-environmental) Inspectors? |
| If so, by: |
| Deciding whether the inspection will have an integrated or a single media character |
| Contacting the regional and local officers (in Government service) to find out which facilities in their juridical area they will inspect in the near future. Ask them to send a list of those facilities |
| Sending those lists to the officers of other boards (e.g. the water quality board) to find out which facilities have an adequate licence |
| Trying to find out whether some facilities will be visited by more inspectors within short notice. Try to plan the on-site visit together with them |
| Contacting the police-officer(s) in charge of environmental affairs and the public prosecutor to know about complaints of the public, former prosecutions, sentences, reports etc. |
| Having meetings with the above-mentioned inspectors |
| You are accompanied by a colleague (in case of a serious incident). This in order to collect corroborated legal evidence (if necessary) and to question a person simultaneously |

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| Which of the listed inspection tools are needed for the site visit? |
| Checklists (either site-specific or branch specific) |
| Information to hand out, e.g. about the inspectorate and the Ministry of Environment etc. |
| Information on the regulations on the items of inspection |
| Background information (addresses of other inspectors or of companies to inspect oil tanks etc.) |
| Laptop computer |
| Inquiry forms |
| The licence of the facility and details of the application procedure |
| Technical drawings of the premises and the plant |
| Process diagrams |
| Reports and letters, etc. from previous inspections |
| Notices sent to the factory |
| Equipment to take samples of the soil, air-emissions noise-emissions etc. |
| Identity card |
| Warrant card |
| Mobile phone (permission might be needed to take the phone during certain parts of the visit) |
| Photo camera |
| Personal protection equipment: |
| safety glasses |
| safety shoes/boots |
| special clothing |
| safety gloves |
| safety helmet |
| overall |
| ear protection |
| face protection |
5.3


Pursuant to the Recommendation providing for minimum criteria for environmental inspections (RMCEI) all inspection activities should be planned in advance. Practitioners have expressed the need for guidance to help the implementation of the minimum criteria on planning in the RMCEI. This guidance book was produced for that purpose. The guidance book takes as starting point the Environmental Inspection Cycle, which for the purpose of this guidance book consists of the following seven steps:

1. Describing the context

2. Setting priorities

3. Defining objectives and strategies

4. Planning and review

5. Execution framework

6. Execution and reporting

7. Performance monitoring

The first 4 steps form the Planning Cycle. The output of the Planning Cycle is the inspection plan. In order to write the inspection plan the inspecting authority first has to identify the relevant activities that should be covered by the inspection plan and gather information on these activities. With this information the inspecting authority can perform an assessment of the risks of the identified activities and assign priorities to these activities. Typical criteria that are taken...
Figure 5.1 Extract from ‘Doing the Right Things 2’ - Step by Step Guidance Book for Environmental Inspection (structure of book, page 10)
into account when setting priorities are environmental impact, compliance record, legal obligations to inspect, (national) policies and objectives and available resources. The priorities indicate what activities should get (the highest) attention. A following step is to define (measurable) inspection objectives and targets for the activities to be inspected and to choose the best inspection strategy to accomplish these targets.

All these steps contribute to the inspection plan. The inspection plan clearly indicates the time period and area it covers. An inspection plan outlines the context in which the inspecting authority performs its inspections. It describes the mission and objectives of the inspecting authority, its statutory tasks and inspection obligations and (national) policies to be implemented. An inspection plan furthermore gives an overview of the priorities that have been assigned and explains why and how these priorities were set. The plan also gives general information on inspection targets, strategies, procedures and the planned inspection activities themselves. The inspection schedule describes what, where, when and by whom the different types of inspection activities will be executed. The inspection plan and the inspection schedule need to be reviewed and – when appropriate - revised periodically.
Apart from obligatory public information such as the Register of Environmental Permits, etc., it is in environmental regulators’ interests to raise awareness of environmental issues, problems and successes.

6.1 REGULATORY COMMUNICATION

Regulators need to engage as widely as possible with the general public, regulated and unregulated sectors, and with other regulatory bodies and tiers of government, in order to both identify their needs, and to communicate regulatory requirements.

Europe has moved quite rapidly from quasi-secrecy about environmental regulation to almost full disclosure of environmental and other information.

6.2 AARHUS CONVENTION


It provides for:-
- the right of everyone to receive environmental information that is held by public authorities (‘access to environmental information’).
- the right to participate in environmental decision-making (‘public participation in environmental decision-making’).
- the right to review procedures to challenge public decisions that have been made without respecting the two aforementioned rights or environmental law in general (‘access to justice’).

The Convention has been implemented at the European Commission level via the EU Regulation 1367/2006 on the application of the provisions of the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters to Community institutions and bodies. At Member State level the first pillar
Regulation for Water Quality

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It is proposed that Member States guarantee that qualified entities (associations, groups or organisations recognised by a Member State whose objective is protecting the environment) may initiate administrative or judicial proceedings against violations of environmental law, without showing a sufficient interest or impairment of a right if the subject of the procedure is within the scope of their statutory and geographically relevant activities.

Qualified entities recognised in a Member State may have recourse to such proceedings in another Member State.

Progress at EU level has stalled although most Member States have amended or interpreted national legislation to give effect to the 'access to justice' pillar of the Convention.

The Third pillar of the Aarhus Convention ('Access to Justice') remains at a 2003 EU Proposal level. This proposal establishes a set of minimum requirements on access to administrative and judicial procedures in environmental matters. It is intended to transpose the third pillar of the Aarhus Convention into Community law and the law of the Member States.

6.3 Enforcement by the Public

For acts and omissions by private persons it is proposed that the Member States guarantee that members of the public (natural or legal persons and their associations, organisations or groups) may initiate administrative or judicial procedures against acts or omissions of private persons that do not respect environmental law.

For acts and omissions by public authorities it is proposed that Member States will ensure that members of the public have access to administrative or judicial proceedings against administrative acts or omissions which infringe environmental law if they have a sufficient interest or if they show that their rights have been affected.

It is proposed that Member States guarantee that qualified entities (associations, groups or organisations recognised by a Member State whose objective is protecting the environment) may initiate administrative or judicial proceedings against violations of environmental law, without showing a sufficient interest or impairment of a right if the subject of the procedure is within the scope of their statutory and geographically relevant activities.

Qualified entities recognised in a Member State may have recourse to such proceedings in another Member State.

Progress at EU level has stalled although most Member States have amended or interpreted national legislation to give effect to the 'access to justice' pillar of the Convention.

6.4 UK Implementation

In the UK the Freedom of Information Act 2000, the Environmental Information Regulations 2004 and the establishment of the Information Commissioner (web site: http://www.ico.gov.uk/foi/environmentalinformation.aspx) have all been moves towards ensuring that the public have access to environmental information, and are empowered to act upon it.

All the UK Environmental Regulators have invested considerable resources into developing their business activities and information management to make their public face as open as possible to their customers. Web sites are under constant development, with the aim of making as much environmental information as is practicable readily available to enquirers.

The Environment Agency has an interactive GIS system 'What's in Your Back Yard?' (WiyBY) http://apps.environment-agency.gov.uk/wiyby/default.aspx that allows users to locate and download a wide range of environmental information including permitted discharges, emissions records and water quality information, down to site level.
DEFINITIONS OF POLLUTION

Given man’s ability to interact with the environment in so many ways, formulating a comprehensive definition of ‘pollution’ is quite difficult.
7.1 THE EU IPPC DIRECTIVE
The EU IPPC Directive (and now the Industrial Emissions Directive) provide a wide definition:

*Pollution* is defined as the direct or indirect introduction as a result of human activity, of substances, vibration, heat or noise into the air, water or land which may be harmful to human health or the quality of the environment, or result in damage to material property, or impair or interfere with amenities and other legitimate uses of the environment.

7.2 THE EU WATER FRAMEWORK DIRECTIVE
The EU Water Framework Directive uses a slightly narrower definition focused on water:

*Pollution* means the direct or indirect introduction, as a result of human activity, of substances or heat into the air, water or land which may be harmful to human health or the quality of aquatic ecosystems or terrestrial ecosystems directly depending on aquatic ecosystems, which result in damage to material property, or which impair or interfere with amenities and other legitimate uses of the environment.

The Water Framework Directive also contains the following definitions for Hazardous Substances, Priority Substances and Pollutant:

- **Hazardous substances** means substances or groups of substances that are toxic, persistent and liable to bio-accumulate, and other substances or groups of which give rise to an equivalent level of concern.

- **Priority substances** means substances identified in accordance with Article 16(2) i.e. identified by the European Commission as being of concern because of toxicity, environmental contamination, widespread use, etc. and listed in Annex 10 (a List subsequently provided by the EQS Directive 2008/105/EC, see below).

- **Pollutant** means any substance liable to cause pollution, in particular those listed in Annex VIII (i.e. essentially chemicals, but does not specifically include organisms or micro-organisms).

7.3 EU ‘DAUGHTER’ DIRECTIVE ON PRIORITITY SUBSTANCES - ENVIRONMENTAL QUALITY STANDARDS IN THE FIELD OF WATER POLICY (THE EQS DIRECTIVE)

The EQS Directive sets out environmental quality standards concerning the presence in surface water of certain pollutants and substances or groups of substances identified as priority on account of the substantial risk they pose to, or via, the aquatic environment.

The priority substances are defined by Directive 2000/60/EC (the Water Framework Directive) which establishes a list of 33 priority substances including cadmium, lead, mercury, nickel and its compounds, benzene, polyaromatic hydrocarbons (PAH) and DDT total. Twenty priority substances are classed as hazardous.

In 2013 a revision was made to the EQS and Water Framework Directives, adding 12 new substances to the list of priority substances, with stricter standards for 7 substances already on the list. The background to the decision is on the Europa web site.

The planned environmental quality standards are limits to the degree of concentration, i.e. the quantity in water of the substances concerned must not exceed certain thresholds. Two types of standard are proposed:

- the average value or concentration
of the substance concerned calculated over a one-year period – the Annual Average Environmental Quality standard (AA-EQS). The purpose of this standard is to ensure the long-term quality of the aquatic environment.

- the maximum allowable concentration (MAC) of the substance measured specifically – the MAC-EQS. The purpose of this second standard is to limit short-term pollution peaks.

The quality standards are differentiated for inland surface waters (rivers and lakes) and other surface waters (transitional, coastal and territorial waters). Specific standards are also set for metals and certain other substances.

Member States must ensure compliance with these standards. They must also verify that the concentration of substances concerned does not increase significantly in sediments and/or the relevant biota.

The Directive also provides for Member States to establish transitional mixing areas, where the quality standards may be exceeded provided that the rest of the surface water body complies with those standards. These areas must be clearly identified in the river basin management plans established in accordance with the Water Framework Directive. (The Commission has subsequently published guidance on Mixing Zones. This is referenced in Chapter 25.)

For each river basin, Member States must establish an inventory of emissions, discharges and losses of all substances identified in this Directive. On the basis of this inventory, the Commission must verify whether, by 2018, the objectives of gradually reducing pollution from priority substances and of ceasing or phasing out emissions, discharges and losses of priority hazardous substances have been reached.
results in introductions of pathogenic microorganisms and alien species to the environment. Note that the Scottish Government includes ‘bacteria and other pathogens’ as ‘substances’ in its definition of ‘pollutant’ for the CAR Regulations. (Reg. 2, The Water Environment (Controlled Activities) (Scotland) Regulations 2011).

7.4.2 OVER-ABSTRACTION OF WATER

There are also some other anomalies. Many substances are only harmful in high concentration. Over-abstraction of water is the reverse of introduction of substances, yet has the same effect by reducing the amount of dilution, potentially causing legitimate discharges downstream of the abstraction to have an unacceptable impact because the expected dilution is not available. Arguably, over-abstraction causes pollution. Integrated water management requires a close liaison between those involved in licensing abstractions from river basins and those engaged in permitting discharges to them. Whilst the Water Framework Directive provides adequate cover to ensure this, it would be helpful for the explicit linkage to be made in the definition of ‘pollution’.

7.4.3 INTRODUCTION OF SUBSTANCES OR HEAT

Another issue relates to the ‘introduction of substances or heat’.

Industrial cooling systems, especially for power stations, may take large quantities of water from the river, pass through pumps and heat exchangers and then return it all but with the addition of heat. Excess heat may be regarded as a pollutant and the mechanical processing of the water and high temperature gradients in the heat exchangers will affect the biota in the water. Considerable effort is often required to ensure that intake systems have positive measures to prevent fish being drawn into the intake, and to protect and return those that do enter the intake. Also the water must be cooled sufficiently so that the thermal shock of the discharged water does not adversely affect the biota in the receiving water.

Hydro-electric schemes often release cold water from the bottom of reservoirs to the headwaters of a much warmer catchment. Conversely, they may add warm water from the surface of a lake to a cold upland river. Open loop surface water heat pumps may also discharge very cold water. The thermal shock of the cold water on receiving water organisms may be fatal or impair feeding or reproductive behaviours. In either case there is a removal rather than introduction of heat yet there is undoubtedly a harmful effect.

The definition might be better worded ‘...introduction of substances, or introduction or removal of heat...’

7.4.4 DIFFUSE POLLUTION

Another issue associated with the definition of pollution relates to ‘...direct or indirect introduction...’ and concerns land activities such as agriculture, forestry and urbanisation. Deforestation and poor land management practice, particularly in uplands, can result in rapid erosion of soil and nutrients into watercourses, radically altering the aquatic ecology. Similarly, urban rainfall runoff can be rapid, causing flooding and bank erosion and may be highly contaminated. It is important to consider the need for regulation of such activities that traditionally have shown little cognisance of their wider environmental impact.