THE LAST ENVIRONMENTAL MEDIUM

A MAPPING OF THE EUROPEAN UNION COMMUNITY LEGISLATION WITH REGARD TO PROVISIONS ON SOIL

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ANNEX A collection of definitions of the EU acquis communautaire relevant to soil management and environmental affairs in general
"The Council ... recalls the importance of coherence of the whole system of Community environmental legislation; invites therefore the Commission to study the overall coherence of Community environmental legislation .... In this respect, it is important to take into account the interlinkage between the environmental media." /Council Resolution of 7 October 1997/

1. Introduction

The following report examines the acquis communautaire concerning direct references and indirect provisions relevant to soil protection and management in general, including land use. It is intended to serve the objectives of the development of a thematic soil strategy declared by Commission Communication “Towards a Thematic Strategy for Soil Protection” (COM(2002) 179). This background document is compiled to support the activities of the Technical Working Group on Soil Contamination organised by the Directorate-General for Environment and the European Commission’s other soil-related legislative efforts. For more information please consult: http://europa.eu.int/comm/environment/soil/index.htm.

This study focuses on the primary and secondary legislation, with an emphasis on the thematic legislation, i.e. that are environmental medium-, product-, or activity-specific. The so-called horizontal legislation is out of scope. It is of generic importance which covers Member States’ public participation, information access, reporting obligations. Tertiary resolutions, recommendations, opinions, and communications or drafts are also out of the scope of this report. Nevertheless, a few important pieces of legislation are cited. This report does not address international conventions. The complete interpretation of the relevant regulations is not the task of this screening nor is a detailed proposal for amendments of the current legislation provided. The author leaves this duty to the Technical Working Group. However, the factual references, criticism and conclusions address most of the legal gaps and inconsistencies and should result in better practices to prepare and implement the new soil related legislation.

For easy reading, the title of the legislation and the direct references on soil and related matters are in bold. The report follows the structure of the directory of the acquis and uses the EUR-Lex electronic edition of the legal texts (http://europa.eu.int/eur-lex/en/index.html), therefore the use of the original Official Journal version is strongly recommended for legislative and other official purposes. The author would like to express his gratitude to Claudia Olazábal, Directorate-General for Environment, and Giovanni Bidoglio, head of the Soil and Waste Unit at Institute for the Environment and Sustainability, Joint Research Centre, whose support was essential for the completion of the present report. The conclusions expressed in this volume are those of the author and do not represent the official view of the European Commission. Acknowledgement is made to Erzsébet Szilágyi who improved the English of the text. This report was accomplished in the frame of an official detachment of the author as a national expert of the Hungarian Geological Survey seconded to the Joint Research Centre.
2. Summary

- Although soil is generally considered important in the sustainability of the environment and natural resources, it is the last environmental medium to receive protection under specific legislation at the European Union’s Community level. Therefore, a careful review of the legislation is needed in order to avoid legal collisions and to minimize the conflicts between the many parties interested in soil use. Soil is different from the other environmental media, inter alia, because it has by far the largest number of functions in human society and biota: It is in direct physical-chemical contact with all other environmental media and is rarely in the public domain but rather is a privately owned commodity. Considering pollution prevention and environmental acquis within the classical environmental impact scheme (pollution source? pollution pathway? environmental compartment and receptor), most of the operational, both local and diffuse, and the accidental pollution sources are regulated in the acquis: (a) the EIA Directive and the IPPC Directive provide lists of potentially polluting activities typically of local source character and actual pollution figures according to the European Pollution Emission Register; (b) the agriculture, the atmospheric pollution and transportation acquis contain hints and more specific provisions on diffuse pollution sources; and (c) the Seveso II Directive lists activities with a potential of high environmental risk should there be an accidental release of toxins. More pollution sources can be found in the entries of the European Waste Catalogue, the chemicals acquis and other product-specific legislation.

- There are some industries, which although they may be strategic, have the potential to produce pollutants (e.g. military activities, nuclear industry, mining industry). They are excluded from the scope of major environmental directives (e.g. Waste Framework Directive, IPPC Directive, Seveso II Directive). When evaluating the risks that these activities may have on the soil, it is recommended to include them under the scope of the environmental acquis. It seems reasonable that the IPPC Directive would extend to the soil decontamination and remediation technologies. Yet other installations remain (such as oil and gas pipelines, airports, harbours, chemical laundries, etc.), which shall be covered by the Community legislation. The preventive legal instruments incorporated in the above-mentioned and other thematic and horizontal environmental legislation comprise absolute emission limits, risk management tools, authority assessment, voluntary auditing, economic-financial tools, and public participation.

- Pollution pathways are not typically covered in the Community legislation. Those that are covered, however, are the sealing requirements by the Landfill Directive, the establishment of protected watersheds by the Water Framework Directive and the numerous prescriptions on monitoring in these directives. The forest protection and the chemical substances legislation provide regulations on monitoring, sampling and analytical methods as well as common risk assessment methodologies and reporting categories of soil.

- The regulation of the back-end of the environmental impact scheme is less developed. There are quality standards on water, on food, to a very limited extent on soil as well as directives on the conservation of habitats, on the human and ecology toxicological risks, but almost nothing covers the built environment or the geological medium ("subsoil") including mineral resources. When preparing quantitative thresholds, for both emission, immission, natural background, intervention levels, the shifting of pollution between the various environmental media has to be avoided, therefore a careful review of the existing limit values, and health and ecological risk-based assessments are required. Although many emission limit values are set in the environmental acquis, in the water and waste chapters and by the IPPC Directive, the only list for the concentration of heavy metals in soil is found in the Sewage Sludge Directive and limited quality standards are provided for soil improvers.
• Comprehensive references address soil management in general, as associated with the common agricultural policy (CAP). The recent legal pieces of CAP and the associated new initiatives (e.g. on biowaste) contain detailed and sufficient provisions on the agri-environmental measures.

• The ownership of land is closely associated with territorial authority, and in a broader context with the integrity and sovereignty of a country; therefore this topic is a sensitive field to tackle on a supranational level. In the acquis it is regulated in a specific context, i.e. the free movement of persons and capital. Principles governing the preferences among the many competitive land uses are missing on the Community level. Planned and controlled land use management might provide a frame for sustainable soil conservation. Tackling the issue of land property related rights and obligations would result in a higher level of legal integration. This legal tool together with establishing a spatial planning policy are essential to address the liability for soil contamination. In this respect, the recent Directive on Environmental Liability and the Council Framework Decision 2003/80/JHA on the protection of the environment through criminal law are important steps forward preventing soil contamination and sanctioning polluters by entering the realm of the so-called “Third Pillar” of the EU “Police and Judicial Cooperation in Criminal Matters” (formerly known as “Justice and Home Affairs”).

• Soil is a conditionally renewable natural resource. Another new policy area which might contribute to the sustainable use of soil is the long-term management of Europe’s natural resources. The basis of a common natural resources policy is formulated in the Commission Communication “Towards a Thematic Strategy on the Sustainable Use of Natural Resources” and a few measures outlined in it can contribute to the sustainable soil use, e.g. the promotion of eco-efficiency and resource-efficiency (consult http://europa.eu.int/comm/environment/natres/index.htm for details).

• Soil policy is an issue with far-reaching effects and, therefore, any legislation specific to soil will have an impact on other environmental media. Moreover, soil has a very strong spatial character (i.e. its natural quality is highly dependent on the location), and the quality homogenisation is very slow. For this reason, an accurate study of and harmonization with the legislative solutions provided by the Water Framework Directive is strongly recommended. The river basin management scheme introduced follows the natural outlines of an impacted area and establishes a potential unit suitable for regulation and management as well as applying well-researched scientific and technical regulatory tools. The detailed daughter legislation of the Water Framework Directive is in preparation; therefore, policymakers in these two fields should collaborate closely.

• The terms used even within a single legislation are rather diverse: soil, land, land surface, landscape, ground, terrestrial system, non-aquatic environment, geographical area, site, pedology, subsoil, underground, geological medium, geological formations, geological units, rocks, overlying strata, saturation zone, etc.. Future legislation shall provide clear definitions on soil, land and geological formations. The definitions of other important terms such as “pollution” and “emission” are already available, and many more are introduced and defined in the Environmental Liability Directive.

• For historical reasons, many aspects of soil conservation and soil management are already regulated by the agricultural, chemical, and environmental Community legislation, and there are many more indirect provisions, with which any specific directives on soil must coincide. The IPPC Directive, the Dangerous Substances Directive, the Landfill Directive and the Water Framework Directive should constitute the main legislation stream that is followed for the scientific background, legal quality and implementation needs. For implementing a new soil protection policy by the competent authorities, the watershed management approach invented by the Water Framework Directive is the applicable scale and methodology.
• Soil policy overlaps with and affected by many European Union policies. Given the history and barriers of the Community legislation it is unlikely that the cited many pieces of legislation can be amended within a short time period. Therefore, a detailed legislation strategy and authorization are needed at a high legislation level, which would ensure that all other related EU policies and new legal sources will effectively represent the interests of the sustainable soil management.

3. The legal framework of the European Union

Community law is an independent legal system which takes precedence over national legal provisions. Primary legislation includes the Treaties and other agreements having similar status. The Treaties define the responsibilities of decision-making bodies and the legislative, executive and juridical procedures which characterise Community law and its implementation. Secondary legislation may take the following forms: regulations which are directly applicable and binding in all Member States without the need for any national implementing legislation; directives which bind as to the objectives to be achieved within a certain time-limit while leaving the national authorities the choice of form and means to be used; decisions which are binding in all their aspects for those to whom they are addressed but do not require national implementing legislation. Recommendations, communications, opinions are not binding. Case-law includes judgements of the European Court of Justice and of the European Court of First Instance, which are directly applicable in the courts of all Member States. In this context, the role of the Court of Justice and the Court of First Instance is to provide the judicial safeguards.

4. The detailed screening of the acquis communautaire

4.1. The Treaties

The Treaty establishing the European Community declares twenty-one Community policies of which the Title XIX Environment and Title II Agriculture are the most relevant ones when considering soil management in general. Titles “Transport”, “Public health”, “Consumer protection”, “Industry” contain relevant but less direct, conceptual declarations. Among the principles Article 6 stipulates that environmental protection requirements must be integrated into the definition and implementation of these policies, in particular with a view to promoting sustainable development. It implies that if the new Community soil protection regulations are set within the frame of the environment policy other policies and legislation have to be modified accordingly, if necessary.

The term “soil” appears in Title II Agriculture, Article 32 (1) in the definition of agricultural products (“the products of the soil”). According to Article 33, among others, the objective of the common agricultural policy is: “(a) to increase agricultural productivity by promoting technical progress and by ensuring the rational development of agricultural production and the optimum utilisation of the factors of production”. In working out this policy account shall be taken of: “(a) the particular nature of agricultural activity, which results from ... natural disparities between the various agricultural regions”. The Council may authorise the granting of aid “(a) for the protection of enterprises handicapped by ... natural conditions” (Article 36). In Title “Free movement of persons, services and capital” Article 44 says that in order to attain freedom of establishment as regards a particular activity, the Council and the Commission shall carry out duties by enabling a national of one Member State to acquire and use land situated in the territory of another Member State, in so far this does not conflict with the common agricultural policy. This is one of the very few provisions in the acquis with regard to the right of ownership of land.
According to Chapter 4 “Capital and payments” Articles 56 and 57, all restrictions on the movement of capital and payments between Member States and between Member States and third countries shall be prohibited. This provision shall be without prejudice to the application to third countries of any restrictions which exist under national or Community law in respect of the movement of capital to or from third countries involving direct investment — including in real estate — establishment, etc. The Council may adopt measures on the movement of capital to or from third countries involving direct investment — including investment in real estate — establishment, the provision of financial services or the admission of securities to capital markets.

According to Title XIII Public health, Article 152 (1) a high level of human health protection shall be ensured in the definition and implementation of all Community policies and activities. Community action, complementing national policies, shall be directed towards improving public health, preventing human illness and diseases, and obviating sources of danger to human health. According to Title XIX Environment, Article 174, the Community policy on the environment shall contribute to the pursuit of preserving, protecting and improving the quality of the environment, to protecting human health, and a prudent and rational utilisation of natural resources. This policy aims at a high level of protection taking into account the diversity of situations in the various regions of the Community. It is 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 preparing its policy on the environment, the Community shall take account of the available scientific and technical data; the environmental conditions in the various regions; and the balanced development of its regions. Accordingly, the Council shall adopt measures affecting town and country planning, and land use, with the exception of waste management (Article 175 (2)).

Articles 35 and 36 of the Euratom Treaty provided that Member States were to establish the
facilities necessary to carry out continuous monitoring of the level of radioactivity in the air, water and soil and to communicate such information to the Commission so that it is kept informed of the levels of radioactivity to which the public is exposed.

4.2. “03. Agriculture”

Although the common agricultural policy (CAP) is dedicated to regulate economic issues mainly, there are certain provisions in the agriculture chapter that refer to the sustainable use of land and soil. The preamble of Council Regulation 1257/1999/EC on support for rural development from the European Agricultural Guidance and Guarantee Fund (EAGGF) and amending and repealing certain regulations contains several valuable policy statements reflecting the reform of the common agricultural policy with regard to environmental issues. The 1992 policy reform stressed the environmental dimension of agriculture as the largest land user (Rec. 4). Support for less-favoured areas should contribute to the continued use of agricultural land, maintaining the countryside, maintenance and promotion of sustainable farming systems (Rec. 24). The agri-environmental aid should continue to encourage farmers to use farming practices compatible with the increasing need to protect and improve the environment, natural resources, soil and genetic diversity and to maintain the landscape and the countryside (Rec. 31). Forestry measures should be based on schemes to develop and optimally utilise woodlands in rural areas (Rec. 37). The afforestation of agricultural land is especially important from the point of view of soil use and the environment and as a contribution to increasing supplies for certain forestry products (Rec. 38). Payments should be granted for activities to maintain and improve ecological stability of forests in certain areas (Rec. 39).

Article 9 provides details on the support of vocational training of farmers. Training topics include, inter alia, the application of production practices compatible with the maintenance and enhancement of the landscape, the protection of the environment, forest management practices to improve the economic, ecological or social functions of forests.

Among the objectives of the support for early retirement from farming there is the reassignment of agricultural land to non-agricultural uses where it cannot be farmed under satisfactory conditions of economic viability (Art. 10). Such uses are forestry or the creation of ecological reserves, in a manner compatible with protection or improvement of the quality of the environment of the countryside.

Support for less-favoured areas (e.g. mountain areas) and areas with environmental restrictions contribute to the following objectives (Art. 13):
(a) Compensation for naturally less-favoured areas
- to ensure continued agricultural land use and thereby contribute to the maintenance of a viable rural community,
- to maintain countryside,
- to maintain and promote sustainable farming systems which in particular take account of environmental protection requirements;
(b) Compensation for areas with environmental restrictions to ensure environmental requirements and safeguard farming in areas with environmental restrictions.

Mountain areas are characterised by a considerable limitation of the possibilities for using the land and an appreciable increase in the cost of working it due to the existence, because of altitude, of very difficult climatic conditions; at a lower altitude, to the presence over the greater part of the area in question of slopes too steep for the use of machinery (Art. 18). Less-favoured areas which are in danger of abandonment of land-use and where the conservation of the countryside is necessary, comprise farming areas which are homogeneous from the point of view of natural production conditions and exhibit all of the following characteristics:
- the presence of land of poor productivity, difficult cultivation and with a limited potential,
- production which results from low productivity of the natural environment (Art. 19).

Support for agricultural production methods designed to protect the environment and to maintain the countryside (agri-environment) shall promote:
- ways of using agricultural land which are compatible with the protection and improvement of the environment, the landscape and its features, natural resources, the soil and genetic diversity,
- an environmentally-favourable extensification of farming and management of low-intensity pasture systems,
- the conservation of high nature-value farmed environments which are under threat,
- the upkeep of the landscape and historical features on agricultural land,
- the use of environmental planning in farming practice (Art. 22).

Support for forestry shall contribute to the maintenance and development of the economic, ecological and social functions of forests in rural areas, in particular:
- sustainable forest management and development of forestry,
- maintenance and improvement of forest resources,
- extension of woodland areas (Art. 29).

In the preamble of Commission Regulation 445/2002/EC laying down detailed rules for the application of Council Regulation 1257/1999/EC on support for rural development from the European Agricultural Guidance and Guarantee Fund according to Recitals (8) and (14), compensatory allowances payable in less-favoured areas for land used jointly by several farmers should be paid to each farmer concerned. Detailed conditions should be laid down for support for afforestation of agricultural land and payments for activities to maintain and improve the ecological stability of forests. A tenant farmer may transfer the released land to the owner provided that the lease is terminated and the requirements relating to the transferee are complied with (Article 9). Released land may be included in a re-parcelling operation or in a simple exchange of parcels. In such cases, the conditions applicable to released land shall be applied to areas agronomically equivalent to the released land (Art. 10).

Article 13 concerns the agri-environment. Extensive livestock farming is to comply with, inter alia, that at least grassland management shall continue. The reference level for calculating income foregone and additional costs shall be the usual good farming practice in the area where the measure is applied. The economic consequences of abandoning land or ceasing certain farming practices may be taken into account where this is justified by the agronomic or environmental circumstances (Art. 18). Member States may authorise one agri-environment commitment to be converted into another during the period of its operation, on condition that any such conversion is of unquestionable benefit to the environment (Art. 21). It can be converted into a commitment for afforestation of agricultural land as well. The agri-environment commitment shall cease without reimbursement being required.

When improving the processing and marketing of agricultural products eligible expenditure may include, among others, the construction and acquisition of immovable property, with the exception of land purchase (Art. 22). The forests excluded from forestry support are:
(a) forest or other wooded land owned by central or regional governments, or by government-owned corporations;
(b) crown forest and other wooded land;
(c) forests owned by legal persons at least 50 % of whose capital is held by one of the institutions referred to in points (a) and (b) (Art. 25).

Agricultural land eligible for support for afforestation shall include in particular arable land, grassland, permanent pastures and land used for perennial crops (Art. 26). Where a beneficiary is unable to continue to comply with commitments given because the holding is reparcelled or is the subject of other similar public land-consolidation measures, the commitments can be adapted to the new situation (Art. 32). According to Article 33 a severe natural disaster seriously affecting the
**agricultural land** on the holding is a category of force major.

In the recent fundamental reform of the CAP adopted by EU farm ministers on 26 June 2003, it was decided to give farmers subsidies independently from the volume of production. The payment will be linked to the respect of environmental, food safety, animal and plant health and animal welfare standards, as well as the requirement to keep all farmland in good agricultural and environmental condition ("cross-compliance"). Member States shall define, at national or regional level, minimum requirements for good agricultural and environmental condition on the basis of the framework set up in Annex IV of the new **Council Regulation 1782/2003/EC establishing common rules for direct support schemes under the common agricultural policy and establishing certain support schemes for farmers** and amending Regulations 2019/93/EEC, 1452/2001/EC, 1453/2001/EC, 1454/2001/EC, 1868/94/EC, 1251/1999/EC, 1254/1999/EC, 1673/2000/EC, 2358/71/EEC and 2529/2001/EC, taking into account the specific characteristics of the areas concerned, including soil and climatic condition, existing farming systems, land use, crop rotation, farming practices, and farm structures.

Three of the four issues listed in Annex IV defining "Good agricultural and environmental conditions" are specifically related to soils:

<table>
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<tr>
<th>ISSUE</th>
<th>STANDARDS</th>
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<tbody>
<tr>
<td>Soil erosion:</td>
<td>Minimum soil cover</td>
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<tr>
<td>Protect soil through appropriate site-specific conditions</td>
<td>Minimum land management reflect measures Retain terraces</td>
</tr>
<tr>
<td>Soil organic matter:</td>
<td>Standards for crop rotations where applicable</td>
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<tr>
<td>Maintain soil organic matter levels through appropriate practices</td>
<td>Arable stubble management</td>
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<tr>
<td>Soil structure:</td>
<td>Appropriate machinery use</td>
</tr>
<tr>
<td>Maintain soil structure through appropriate measures</td>
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</table>

More references on agriculture-related land use and soil management are found in:
Commission Regulation 1444/2002/EC amending Commission Decision 2000/115/EC relating to the definitions of the characteristics, the exceptions to the definitions and the regions and districts regarding the surveys on the structure of agricultural holdings
Commission Regulation 1837/2001/EC amending Regulation 2237/77/EEC on the form of farm return
Council Regulation 2081/92/EEC on the protection of geographical indications and designations of origin for agricultural products and foodstuffs
Council Regulation 2092/91/EEC on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs
4.3. "13. Industrial policy and internal market"
4.3.1. "13.30.18 Dangerous substances (15.10.20.50 Chemicals, industrial risk and biotechnology)"

**DANGEROUS SUBSTANCE**

**DANGEROUS SUBSTANCE FRAMEWORK DIRECTIVE 67/548 (2001/59)**

<table>
<thead>
<tr>
<th>Testing &amp; shipment legislation:</th>
<th>Product-oriented legislation:</th>
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<tbody>
<tr>
<td>Risk assesment 1488/94, 93/67</td>
<td>Pesticides 78/631</td>
</tr>
<tr>
<td>Good Lab. practice 87/18</td>
<td>Existing substances 793/93</td>
</tr>
<tr>
<td>Animal testing 86/609</td>
<td>Plant prot. products 91/414</td>
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<tr>
<td>Road transport 94/55</td>
<td>GMOs 2001/18</td>
</tr>
<tr>
<td>Export &amp; Import 304/2003</td>
<td>Detergents 73/404</td>
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<td></td>
<td>Asbestos 87/217</td>
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<td></td>
<td>Biocides 98/8</td>
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</table>

Council Directive 67/548/EEC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (last amended by 2001/59/EC) is one of the earliest pieces of the environment acquis, which has been amended twenty-eight times. For the purposes of this Directive “substances” means chemical elements and their compounds as they occur in the natural state or as produced by industry; “preparations” means mixtures or solutions composed of two or more substances. The originally eight dangerous characteristics were later extended and adopted by the waste legislation too as properties which render the waste hazardous. The amendments of the directive established the system of 68 risk phrases and 57 more combination risk phrases on the basis of physicochemical and toxicological properties, specific effects on human health, and environmental effects. The recent amendments introduced the category:

"5.2.2. Non-aquatic environment"

5.2.2.1. Substances and preparations shall be classified as dangerous for the environment and assigned the symbol “N” and the appropriate indication of danger, and assigned risk phrases in accordance with the following criteria:

- R54 Toxic to flora
- R55 Toxic to fauna
- R56 Toxic to soil organisms
- R57 Toxic to bees
- R58 May cause long-term adverse effects in the environment

Substances and preparations which on the basis of the available evidence concerning their toxicity, persistence, potential to accumulate and predicted or observed environmental fate and behaviour may present a danger, immediate or long-term and/or delayed, to the structure and/or functioning of natural ecosystems other than those covered under 5.2.1. **Detailed criteria will be elaborated later.**
Although the last amendment by Directive 2001/59/EC presents a detailed description of adsorption/desorption batch method for soil, including sampling protocol, preparation and analytical techniques, in general it can be stated that the chemical legislation has much more provisions on the aquatic environment (e.g. ecotoxicology of aquatic ecosystems) than on terrestrial systems. Commission Regulation 1488/94/EC laying down the principles for the assessment of risks to man and the environment of existing substances in accordance with Council Regulation 793/93/EEC defines “exposure assessment” as the determination of the emissions, pathways and rates of movement of a substance and its transformation or degradation, in order to estimate the concentrations/doses to which human populations or environmental spheres (water, soil and air) are or may be exposed.

According to the Commission Directive 93/67/EEC laying down the principles for assessment of risks to man and the environment of substances notified in accordance with Council Directive 67/548/EEC, the first stage of the risk assessment shall be hazard identification. Having conducted the hazard identification, the competent authority shall proceed to the following sequence of actions:
(a) (i) dose (concentration)-response (effect) assessment, where appropriate;
(ii) exposure assessment for the environmental compartments (i.e. aquatic environment, terrestrial environment and air) likely to be exposed to the substance;
(b) risk characterization.

In Annex III of Council Regulation 793/93/EEC on the evaluation and control of the risks of existing substances among the information required for the export-import of existing substances above a certain volume, there are:
3.1. Stability
3.1.3. Stability in soil
4. Ecotoxicity
4.4. Toxicity to bacteria
4.5. Toxicity to terrestrial organisms
4.6. Toxicity to soil dwelling organisms.

Council Directive 91/414/EEC concerning the placing of plant protection products on the market defines numerous information requirements for the dossier to be submitted for the inclusion of an active substance and for the authorization of a plant protection product, among which, there are many items relevant to soil:
Annex II, Active substances, Part A, Chemical substances
4.2. Analytical methods including recovery rates and the limits of determination for residues:
4.2.2. Soil
7. Fate and behaviour in the environment
7.1. Fate and behaviour in soil
7.1.1. Rate and route of degradation (to 90 % degradation) including identification of the processes involved and identification of metabolites and breakdown products in at least three soil types under appropriate conditions.
7.1.2. Adsorption and desorption in at least three soil types and where relevant adsorption and desorption of metabolites and breakdown products
7.1.3. Mobility in at least three soil types and where relevant mobility of metabolites and breakdown products
8.3. Effects on other non-target organisms
8.3.2. Toxicity to earthworms and to other soil non-target macro-organisms
8.3.3. Effects on soil non-target micro-organisms
Part B, Micro-organisms and viruses
4. Analytical methods
4.4. Methods to determine viable and non-viable (e.g. toxins) residues in or on treated products, foodstuffs, feedingstuffs, animal and human body fluids and tissues, soil, water and air
7. Fate and behaviour in the environment
7.1. Spread, mobility, multiplication and persistence in air, water, soil
8. Ecotoxicological studies
8.9. Extent of indirect contamination on adjacent non-target crops, wild plants, soil and water
Annex III, Plant protection products, Part A, Chemical preparations
5. Analytical methods
5.2.2. Soil
9. Fate and behaviour in the environment
9.1. Testing for distribution and dissipation in soil
10. Ecotoxicological studies
10.3. Effects on other non-target organisms
10.3.5. Effects on earthworms and other soil non-target macro-organisms, believed to be at risk
10.3.6. Effects on soil non-target micro-organisms
Part B, Preparations of micro-organisms or viruses
10. Ecotoxicological studies
10.2. Effects on beneficial and other non-target organisms
10.2.3. Effects on earthworms
10.2.4. Effects on other soil fauna
10.2.6. Effects on soil microflora.

Numerous and similar provisions concerning the testing of biocides in soil environment are provided by Directive 98/8/EC of the European Parliament and of the Council concerning the placing of biocidal products on the market.

There are other substance- or activity-related directives which contain emission limit values and/or limited references to soil:
Commission Directive 2002/69/EC laying down the sampling methods and the methods of analysis for the official control of dioxins and the determination of dioxin-like PCBs in foodstuffs
Commission Directive 2002/70/EC establishing requirements for the determination of levels of dioxins and dioxin-like PCBs in feedingstuffs
Commission Regulation 466/2001/EC setting maximum levels for certain contaminants in foodstuffs
Council Directive 2000/29/EC on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community (as last amended by 2003/47/EC)
Commission Directive 87/217/EEC on the prevention and reduction of environmental pollution by asbestos
chlor-alkali electrolysis industry
products containing certain active substances (last amended by 807/2003/EC)

4.3.2. **“13.30.99 Other sectors for approximation of laws”**
For the purposes of Council Directive 89/106/EEC on the approximation of laws, regulations and
administrative provisions of the Member States relating to construction products (amended by
93/68/EEC) “construction product” means any product which is produced for incorporation in a
permanent manner in construction works, including both buildings and civil engineering works.
Among others, the possible **differences in geographical or climatic conditions** as well as different
levels of protection that prevail at national, regional or local level are to be taken into account
when establishing the document of requirements and the technical specifications (Art. 3). The
essential requirements (Annex I) involve that the construction work must be designed and built
in such a way that it will not be a threat to the hygiene or health of the occupants or neighbours,
in particular as a result of any of the following:
- the giving-off of toxic gas,
- the presence of dangerous particles or gases in the air,
- the emission of dangerous radiation,
- **pollution or poisoning of the water or soil**, 
- faulty elimination of waste water, smoke, solid or liquid wastes.
The Directive is the most relevant in the sense that it acknowledges the **fit for use** concept for con-
struction products, which concept is in the focus of debate for decontamination standards.

4.4. **“14. Regional policy and coordination of structural instruments”**

4.4.1. **“14.10 General principles, programmes and statistics, 14.20 European
Regional Development Fund (ERDF)”**
The aim of the Regulation 1783/1999/EC of the European Parliament and of the Council on the
European Regional Development Fund is to contribute towards the financing of assistance to pro-
mote economic and social cohesion by correcting the main regional imbalances and participating in
the development and conversion of regions suffering from a structural handicap because of their
insular, **landlocked** or peripheral status. Among others, it is to finance the renewal of depressed
**urban areas** and the revitalisation of and improved access to **rural areas**; the protection of cultural
and **natural heritage**; the protection and improvement of the environment, in particular taking
account of the principles of precaution and preventative action in support of economic develop-
ment, the clean and efficient utilisation of energy and the development of renewable energy sources.

According to Commission Regulation 16/2003/EC laying down special detailed rules for imple-
menting Council Regulation 1164/94/EEC as regards eligibility of expenditure in the context of
measures part-financed by the Cohesion Fund Article 16, the cost of the **purchase of land not built
on** is eligible only if the purchase of the land is indispensable to the implementation of the proj-
et; the purchase of land does not exceed 10 % of the eligible expenditure for a project; a certifi-
cate confirms that the purchase price does not exceed the market value; the purchase is approved
by the Commission. Expenditure on the purchase of land which, after completion of the project,
remains in **forestry or agricultural use** is not eligible unless otherwise specified in the Commission
decision. Expenditure on **site preparation** and construction, which are essential for implemen-
tation of the project, are eligible.

In the indicative list of measures eligible for ERDF funding (Annex I) of **Communication from**
the Commission to the Member States of 28 April 2000 laying down guidelines for a Community initiative concerning economic and social regeneration of cities and of neighbourhoods in crisis in order to promote sustainable urban development appear the mixed use and environmentally friendly brownfield redevelopment, which, among others, are the reclamation of derelict sites and contaminated land, and the rehabilitation of public spaces including green areas.

The Draft Communication from the Commission to the Member States laying down guidelines for a Community initiative concerning economic and social regeneration of cities and of neighbourhoods in crisis in order to promote sustainable urban development (URBAN) /COM/99/0477 final/ might provide some economic tools for remediation activities of contaminated sites in the urban environment but its acceptance procedure is on delay.

4.5. “15. Environment, consumers and health protection

4.5.1. “15.10 Environment”

4.5.1.2. “15.10.10 General provisions and programmes”

The chapter “Environment, consumers and health protection”, and especially subchapters “Water protection and management”, “Chemicals, industrial risk and biotechnology”, “Waste management and clean technology” contain the most numerous direct provisions on soil management. Besides the sectoral-, and product-specific or emission-oriented legislation there are a few “horizontal” directives which regulate general environmental management issues.

Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment (last amended by 2003/35/EC) requires an environmental impact assessment of economic activities, which are likely to have significant effects on the environment. By definition projects are the execution of construction works, other installations, other interventions in the natural surroundings and landscape. Environmental impact assessments identify, describe and assess direct and indirect effects on human beings, fauna, flora, soil, water, air, climate, landscape, the inter-action between these factors, material assets and the cultural heritage.

According to Annex III the characteristics of projects must be considered having regard, in particular, among others, to the use of natural resources. When locating projects the environmental sensitivity of geographical areas likely to be affected must be considered, having regard, in particular, to:
- the existing land use,
- the relative abundance, quality and regenerative capacity of natural resources in the area,
- the absorption capacity of the natural environment, paying particular attention to:
  (a) wetlands;
  (b) coastal zones;
  (c) mountain and forest areas;
  (d) nature reserves and parks;
  …(h) landscapes of historical, cultural or archaeological significance.

All projects of obligatory assessment (Annex I) likely have impacts on soil. Item 19 is perhaps the most directly soil-related activity:
“Quarries and open-cast mining where the surface of the site exceeds 25 hectares, or peat extraction, where the surface of the site exceeds 150 hectares.”

Among the projects for which Member States have the freedom to judge whether to prescribe the assessment (Annex II) there are numerous which involve direct interaction with soil:
1. Agriculture, silviculture and aquaculture
   (a) Projects for the restructuring of rural land holdings;
(b) Projects for the use of uncultivated land or semi-natural areas for intensive agricultural purposes;
(c) Water management projects for agriculture, including irrigation and land drainage projects;
(d) Initial afforestation and deforestation for the purposes of conversion to another type of land use;
(g) Reclamation of land from the sea.

2. Extractive industry
(c) Extraction of minerals by marine or fluvial dredging;
(d) Deep drillings with the exception of drillings for investigating the stability of the soil;

10. Infrastructure projects
(a) Industrial estate development projects;
(f) Inland-waterway construction not included in Annex I, canalization and flood-relief works;
(k) Coastal work to combat erosion and maritime works capable of altering the coast through the construction, for example, of dykes, moles, jetties and other sea defence works;

As required by Directive 2001/42/EC of the European Parliament and of the Council on the assessment of the effects of certain plans and programmes on the environment an environmental assessment shall be carried out for all plans and programmes, which are, among others, prepared for agriculture, forestry, and country planning or land use and which set the framework for future development consent of projects listed in Annexes I and II to Directive 85/337/EEC. Among others, the environmental report shall cover the likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors (see Annex). The monitoring of the significant environmental effects is prescribed by Article 10 but existing monitoring arrangements may be used to avoid duplication.

Regulation 761/2001/EC of the European Parliament and of the Council allowing voluntary participation by organisations in a Community eco-management and audit scheme (EMAS) is designed for the evaluation and continual improvement of the environmental performance of organisations. Annex VI lists the necessary information for the identification and evaluation of the environmental aspects in the certified environmental management system. Among others, direct environmental aspects (6.2.) may include, but not limited to:
(a) emissions to air;
(b) releases to water;
(c) avoidance, recycling, reuse, transportation and disposal of solid and other wastes, particularly hazardous wastes;
(d) use and contamination of land;
(e) use of natural resources and raw materials (including energy);
(f) local issues (noise, vibration, odour, dust, visual appearance, etc.);
(g) transport issues (both for goods and services and employees);
(h) risks of environmental accidents and impacts arising, or likely to arise, as consequences of incidents, accidents and potential emergency situations;
(i) effects on biodiversity.

Commission Decision 2001/688/EC establishing ecological criteria for the award of the Community eco-label to soil improvers and growing media is aiming at promoting the use and/or re-use of organic matter derived from the collection and/or processing of waste material and therefore contributing to a minimisation of solid waste at the final disposal, and at the reduction of environmental damage or risks from heavy metals and other hazardous compounds in soil improvers and growing media. Soil improvers are materials to be added to the soil in situ primarily to maintain or improve its physical properties, and which may improve its chemical and/or bio-
logical properties or activity. Growing media are materials, other than soils in situ, in which plants are grown. The environmental performance of the product group shall be assessed by reference to the specific ecological criteria set out in the Annex. In the Annex limit values for hazardous substances and nutrients (N, P, K) are provided as well.

According to Commission Decision 2002/18/EC establishing the Community eco-label working plan, soil improvers are among the priority product groups which are under the scope of the eco-label scheme.

Commission Decision 2002/272/EC establishing the ecological criteria for the award of the Community eco-label to hard floor-coverings uses an assessment system through the weighting of different factors in order to arrive at the least impact on the environment. One element of the system is the soil protection. According to the Technical Appendix:

W2. Soil protection/land capability classification

According to the European Soil Bureau’s indication, land is graded on the basis of its potentialities and the severity of its limitations for crop growth into eight capability classes. An indicative description of the classes is as follows:
- Class I soils have slight limitations that restrict their use,
- Class II soils have moderate limitations that reduce the choice of plants or require moderate conservation practices,
- Class III soils have severe limitations that reduce the choice of plants or require special conservation practices, or both,
- Class IV soils have very severe limitations that restrict the choice of plants or require very careful management, or both,
- Class V soils have little or no hazard of erosion but have other limitations, impractical to remove, that limit their use mainly to pasture, range, forestland, or wildlife food and cover,
- Class VI soils have severe limitations that make them generally unsuited to cultivation and that limit their use mainly to pasture, range, forestland, or wildlife food and cover,
- Class VII soils have very severe limitations that make them unsuited to cultivation and that restrict their use mainly to grazing, forestland, or wildlife,
- Class VIII soils and miscellaneous areas have limitations that preclude their use for commercial plant production and limit their use to recreation, wildlife, or water supply or for aesthetic purposes.

For rehabilitation of the quarry and the water quality management these classes are considered as a function of land use potentialities and their weights are calculated in the overall score of the product. The documents to be submitted by the applicant include a map of the land capability classification of the quarry site.

According to Article 2 of Directive 2003/4/EC of the European Parliament and of the Council 2003 on public access to environmental information and repealing Council Directive 90/313/EEC “environmental information” means any information ... on, inter alia, the state of the elements of the environment, such as air and atmosphere, water, soil, land, landscape and natural sites including wetlands, coastal and marine areas, biological diversity and its components, including genetically modified organisms, and the interaction among these elements.

Directive 2004/35/EC of the European Parliament and of the Council on environmental liability with regard to the prevention and remedying of environmental damage is an important step forward to regulating and establishing a framework of environmental liability based on the “polluter-pays” principle, to prevent and remedy environmental damage. The directive operates with terms like “baseline condition” (the condition at the time of the damage of the natural resources and services that would have existed had the environmental damage not occurred, estimated on the basis of
the best information available), “land damage” (any land contamination that creates a significant risk of human health being adversely affected as a result of the direct or indirect introduction, in, on or under land, of substances, preparations, organisms or micro-organisms), “natural resource” (protected species and natural habitats, water and land) and defines “preventive measures” (any measures taken in response to an event, act or omission that has created an imminent threat of environmental damage, with a view to preventing or minimising that damage), “remedial measures” (any action, or combination of actions, including mitigating or interim measures to restore, rehabilitate or replace damaged natural resources and/or impaired services, or to provide an equivalent alternative to those resources or services as foreseen in Annex II), “recovery, including natural recovery” (in the case of water, protected species and natural habitats the return of damaged natural resources and/or impaired services to baseline condition and in the case of land damage, the elimination of any significant risk of adversely affecting human health). Among others, environmental damages caused by military activities, natural phenomenon, nuclear events, diffuse pollution if a casual link is not proved, and other damages which fall within the scope international conventions are out of the scope of the directive. Annex III provides a list of the activities which are within the scope of the proposal. It is not an item-wise catalogue but an almost complete list of potentially polluting activities on the basis of references with regard to the relevant pieces of the waste, water, chemicals acquis and the IPPC Directive. However, no references are made to the Seveso II Directive, the EIA Directives, and the European Waste Catalogue.

The core provisions of the proposal are rather standard regulatory tools (i.e. preventive measures, notification of the competent authority, remedial actions, reporting obligations, etc.). The novelty is embedded in Articles 8, 9, 10, 14, where prevention and remediation costs, cost allocation in cases of multiple party causation, five years limitation for recovery of costs, financial security are prescribed, for the first time in the Community legislation.

Annex II provides more details on remediation measures, where a separate chapter deals with the remediation of land damage. Accordingly, as a minimum, the relevant contaminants have to be removed, controlled, contained or diminished so that the contaminated land, taking account of its current or future use, no longer poses any significant risk of adversely affecting human health. Risk-assessment procedures shall take into account the characteristic and function of the soil, the type and concentration of the harmful substances, preparations, organisms or micro-organisms, their risk and the possibility of their dispersion. Use shall be ascertained on the basis of the land use regulations, or other relevant regulations in force. If such regulations are lacking, the nature of the relevant area, taking into account its expected development, shall determine the use of the specific area. A natural recovery option (i.e. natural attenuation) shall be considered.

The Communication from the Commission “Towards a Thematic Strategy on the Sustainable Use of Natural Resources” (COM(2003)572 final) is a first step in formulating a strategy for future legislation concerning the sustainable management of natural resources, including inter alia soil, land, mineral resources. Its related working documents classify “fertile soil” as a renewable but extinguishable resources, and “land” as a non-renewable but recoverable resource. In addition it acknowledges “space”, including land, as a natural resource.

The discussion of the following horizontal environmental legislation is out of our scope: Decision 466/2002/EC of the European Parliament and of the Council laying down a Community action programme promoting non-governmental organisations primarily active in the field of environmental protection


Council Decision 2002/836/EC adopting a specific programme of research, technological development and demonstration to be carried out by means of direct actions by the Joint Research Centre (2002-2006)

Council Decision 2002/834/EC adopting a specific programme for research, technological develop-

4.5.2. “15.10.20 Pollution and nuisances

4.5.2.1. “15.10.20.10 Nuclear safety and radioactive waste”
Council Directive 96/29/Euratom laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation applies to all practices which involve a risk from ionizing radiation emanating from an artificial source or from a natural radiation source in cases where natural radionuclides are or have been processed in view of their radioactive, fissile or fertile properties. The only land use related provisions is found under Article 53: “Where the Member States have identified a situation leading to lasting exposure resulting from the after-effects of a radiological emergency or a past practice, they shall ensure, among others, that the area concerned is demarcated; arrangements for the monitoring of exposure are made; access to or use of land situated in the demarcated area is regulated”.

4.5.2.2. “15.10.20.20 Water protection and management”
The purpose of Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy (amended by 2455/2001/EC) is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which, among others, (a) prevents further deterioration and protects and enhances the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems; ... (e) contributes to mitigating the effects of floods and droughts. “Inland water” means all standing or flowing water on the surface of the land, and all groundwater on the landward side of the baseline from which the breadth of territorial waters is measured. “Direct discharge to groundwater” means discharge of pollutants into groundwater without percolation throughout the soil or subsoil. “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 novel and essential tool invented by the Directive is the river basin management plan. In this plan, among other environmental objectives, Member States may designate a body of surface water as artificial or heavily modified, when, inter alia, the changes to the hydromorphological characteristics of that body which would be necessary for achieving good ecological status would have significant adverse effects on water regulation, flood protection, land drainage, etc. Member States are required to set a register of protected areas, to monitor the chemical and quantitative status of groundwater, to apply a combined approach for point and diffuse sources (Articles 6, 8, 10).

Member States may authorise (Art. 11):
- reinjection into the same aquifer of water used for geothermal purposes;
- injection of water containing substances resulting from mining activities, and injection of water for technical reasons, into geological formations from which hydrocarbons or other substances have been extracted or into geological formations which are unsuitable for other purposes;
- reinjection of pumped groundwater from mines or associated with the construction or maintenance of civil engineering works;
- injection of natural gas or liquefied petroleum gas for storage purposes into geological formations which are unsuitable for other purposes;
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- **construction**, civil engineering and building works and similar activities on, or in the ground which come into contact with groundwater;
- discharges of small quantities of substances for scientific purposes for characterisation.

The characterization of surface waters (Annex II, Chapter 1), among others, requires the presentation of ecoregions, including **altitude** and **size typology**, and **geology** of the catchment area. Among the identification of pressures the estimation of **land use patterns**, including identification of the main urban, industrial and agricultural areas and, where relevant, fisheries and forests is prescribed. The characterization of groundwaters may employ existing hydrological, geological, pedological, land use, discharge, abstraction and other data but shall identify:
- the location and boundaries of the groundwater bodies,
- the pressures to which the groundwater bodies are subjects including diffuse and point sources of pollution, abstraction, artificial recharge, the character of the overlying strata from which the groundwater body receives its recharge, groundwater bodies for which there are directly dependent surface water or terrestrial ecosystems.

Further characterisation include relevant information on the impact of human activity and on:
- **geological characteristics** of the groundwater body including the extent and type of geological units,
- **hydrogeological characteristics** of the groundwater body including hydraulic conductivity, porosity and confinement,
- **characteristics of the superficial deposits and soils** in the catchment from which the groundwater body receives its recharge, including the thickness, porosity, hydraulic conductivity, and absorptive properties of the deposits and soils,
- stratification characteristics of the groundwater within the groundwater body,
- an **inventory of associated surface systems**, including terrestrial ecosystems and bodies of surface water, with which the groundwater body is dynamically linked.

The review of the impact of human activity on groundwaters involve, among others, the land use...
in the catchment, including pollutant inputs and anthropogenic alterations to the recharge characteristics such as rainwater and run-off diversion through land sealing, artificial recharge, damming or drainage. When reviewing the impact of changes in groundwater levels it is to identify bodies of groundwater for which lower objectives are to be specified under Article 4 including surface water and associated terrestrial ecosystems, water regulation, flood protection and land drainage, human development.

Annex VI lists the measure to be included within the programme of measures. The non-exclusive list of supplementary measures which Member States within each river basin district may choose to adopt are legislative, administrative, economic or fiscal instruments, environmental agreements, emission controls, codes of good practice, recreation of wetlands areas, abstraction controls, demand management measures (e.g. promotion of adapted agricultural production such as low water requiring crops in areas affected by drought), efficiency measures (e.g. promotion of water-efficient technologies in industry and water-saving irrigation techniques), construction projects, desalination plants, etc..

Among many others, river basin management plans shall cover (Annex VII):
- pressures and impact of human activity on the status of surface water and groundwater, including estimation of point and diffuse source pollution, including land use,
- identification and mapping of protected areas;
- a map of the monitoring networks and a presentation in map form of the results of the monitoring programmes carried out for the status of surface water (ecological and chemical); groundwater (chemical and quantitative); protected areas; a list of the environmental objectives for surface waters, groundwaters and protected areas, etc.

In spite of giving no reference on soil, Decision 2455/2001/EC of the European Parliament and of the Council establishing the list of priority substances in the field of water policy and amending Directive 2000/60/EC is an important document in the implementation of the Water Framework Directive. In fact, the list of priority substances is an addendum to Annex X of the Directive. To achieve this the Commission has developed a combined monitoring-based and modelling-based priority setting (COMMPS) scheme, in collaboration with experts of interested parties, involving the Scientific Committee for Toxicity, Ecotoxicity and the Environment, Member States, EFTA countries, the European Environment Agency, European business associations including those representing small and medium-sized enterprises and European environmental organisations (Recital 7).

Council Directive 80/68/EEC on the protection of groundwater against pollution caused by certain dangerous substances requires a prior investigation concerning the disposal or tipping of dangerous substances leading to indirect or direct discharges to groundwater. For the purpose of this Directive “groundwater” means all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil. “Direct discharge” means the introduction into groundwater of substances in lists I or II without percolation through the ground or subsoil. “Indirect discharge” means the introduction into groundwater of substances in lists I or II after percolation through the ground or subsoil. The prior investigations include examination of the hydrogeological conditions of the area concerned, the possible purifying powers of the soil and subsoil and the risk of pollution and alteration of the quality of the groundwater from the discharge and shall establish whether the discharge of substances into groundwater is a satisfactory solution from the point of view of the environment (Art. 7).

The objective of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources is reducing water pollution caused or induced by nitrates from agricultural sources and preventing further such pollution. For the purpose of this Directive “land application” means the addition of materials to land whether by spreading on the surface of the land, injection into the land, placing below the surface of the land or mixing with
the surface layers of the land. "Vulnerable zone" means an area of land designated by Member States which contribute to pollution and which drain into the waters affected or waters could be affected by pollution if action pursuant Article 5 is not taken and identified in accordance with the criteria set out in Annex I. Member States are to establish a code of good agricultural practice to be implemented by farmers on a voluntary basis (Art. 4).

Action programmes in respect of designated vulnerable zones shall take into account available scientific and technical data, mainly with reference to respective nitrogen contributions from agricultural and other sources, and environmental conditions in the relevant regions. A suitable monitoring programme is required to assess the effectiveness of action programmes (Art. 5) by monitoring the nitrate content of waters (surface waters and groundwater) at selected measuring points. According to Annex II the following items shall be included of code of good agriculture practice:

1. periods when the land application of fertilizer is inappropriate;
2. the land application of fertilizer to steeply sloping ground;
3. the land application of fertilizer to water-saturated, flooded, frozen or snow-covered ground;
4. the conditions for land application of fertilizer near water courses;
5. the capacity and construction of storage vessels for livestock manures, including measures to prevent water pollution by run-off and seepage into the groundwater and surface water of liquids containing livestock manures and effluents from stored plant materials such as silage;
6. procedures for the land application, including rate and uniformity of spreading, of both chemical fertilizer and livestock manure, that maintain nutrient losses to water at an acceptable level.
7. land use management, including crop rotation systems and the proportion of the land area of permanent crops relative to annual tillage crops;
8. the maintenance of a minimum quantity of vegetation cover during (rainy) periods that will take up the nitrogen from the soil that could otherwise cause nitrate pollution of water;
9. the establishment of fertilizer plans and the keeping of records;
10. the prevention of water pollution from run-off and the downward water movement beyond the reach of crop roots in irrigation systems.

Annex III on the measures of the action programmes has many relevant items:

1. periods when the land application of certain types of fertilizer is prohibited;
2. capacity of storage vessels for livestock manure which must exceed that required for the longest period during which land application in the vulnerable zone is prohibited;
3. limitation of the land application of fertilizers taking into account the characteristics of the vulnerable zone:
   (a) soil conditions, soil type and slope;
   (b) climatic conditions, rainfall and irrigation;
   (c) land use and agricultural practices, including crop rotation systems; and to be based on a balance between:
   (i) the foreseeable nitrogen requirements of the crops,
   (ii) the nitrogen supply to the crops from the soil and from fertilization corresponding to:
      - the amount of nitrogen present in the soil at the moment when the crop starts to use it,
      - the supply of nitrogen through the net mineralization of the reserves of organic nitrogen in the soil, etc...

The most relevant and recent piece of Community legislation on seabed pollution is the Decision 2850/2000/EC of the European Parliament and of the Council setting up a Community framework for cooperation in the field of accidental or deliberate marine pollution. The main objectives of the decision are, inter alia, to support the protection of the marine environment, coastlines and human health against the risks of accidental or deliberate pollution at sea, excluding continuous streams of pollution originating from land-based sources; accidental pollution risks including releases of harmful substances, whatever their origin, both
from ships and from the shoreline or estuaries, including those linked to the presence of dumped materials (e.g. munitions) but excluding authorised discharges and continuous streams of pollution originating from land-based sources.

The major tool is a cooperation framework of the Member States set in three years rolling plan, and involving a common information system and financing scheme. The required information of the national home page(s) are, among others:
(i) a description of national structures and of links between national authorities, including focal points to be addressed in case of emergency;
(ii) information on teams and equipment for emergency response and clean-up, in particular:
- seawarn strike teams consisting of spill response vessels,
- land-based strike teams to combat shoreline pollution, to organise temporary storage, and to conduct actions for the rehabilitation of sensitive coastal areas,
- expert teams to carry out environmental monitoring of pollution and/or the impact of the combating techniques used, including chemical dispersion,
- other mechanical, chemical and biological means for combating pollution at sea and cleaning up coasts, including systems for lightening of oil tankers (Annex I).

The provisions of Council Directive 76/160/EEC concerning the quality of bathing water may be waived in the case of certain parameters marked (0) in the Annex, because of exceptional weather or geographical conditions; or when bathing water undergoes natural enrichment in certain substances causing a deviation from the values prescribed in the Annex. Natural enrichment means the process whereby, without human intervention, a given body of water receives from the soil certain substances contained therein, in case these exceptions disregard the requirements essential for public health protection (Art. 8).

Other important water legislation with no direct reference on soil are:
Regulation 2099/2002 of the European Parliament and of the Council establishing a Committee on Safe Seas and the Prevention of Pollution from Ships (COSS) and amending the Regulations on maritime safety and the prevention of pollution from ships
Commission Decision 2002/915/EC concerning a request for derogation under paragraph 2(b) of Annex III to and Article 9 of Directive 91/676/EEC concerning protection of waters against pollution caused by nitrates from agricultural sources
Council Directive 93/75/EEC concerning minimum requirements for vessels bound for or leaving Community ports and carrying dangerous or polluting goods
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
Council Directive 78/659/EEC on the quality of fresh waters needing protection or improvement in order to support fish life
Council Decision 77/795/EEC establishing a common procedure for the exchange of information on the quality of surface fresh water in the Community
4.5.2.3. “15.10.20.30 Monitoring of atmospheric pollution”

Atmospheric pollution is a typical source of diffuse contamination in soil. This chapter of the acquis is well developed by regulating certain emitters (e.g., vehicles), setting overall limit values of most hazardous pollutants, polluting activities (e.g., waste incineration) and regulating general horizontal issues like information transfer. Most recent pieces take into account an integrated approach to the protection of air, water and soil. For example, Commission Regulation 1091/94/EEC laying down certain detailed rules for the implementation of Council Regulation 3528/86/EEC on the protection of the Community’s forests against atmospheric pollution provides direct provisions on soil. As required by Article 1, a network of permanent observation plots shall be installed according to the common methods for the establishment of a network of permanent observation plots for intensive, continuous monitoring. For all plots the Member States shall forward to the Commission a review of the selection criteria and a complete list of the selected plots, including basic information such as location and species. The intensive and continuous surveillance of the forest ecosystems contains the inventory of the crown condition, the inventory of soil and foliar condition and measurements on increment changes, deposition rates and meteorology in accordance with established sampling and analytical methods. The annexes of the directive give exhaustive instructions for the soil sampling, analytics, and reporting categories.

The aim of Directive 2001/81/EC of the European Parliament and of the Council on national emission ceilings for certain atmospheric pollutants is to limit emissions of acidifying and eutrophying pollutants and ozone precursors (SO₂, NOₓ, VOC, NH₃) in order to improve the protection of the environment and human health against risks of adverse effects from acidification, soil eutrophication and ground-level ozone (Art. 1). According to recitals (9) and (10) of the preamble transboundary pollution contributes to acidification, soil eutrophication and ground-level ozone formation. Reducing emissions of the pollutants causing acidification and exposure to ground-level ozone will also reduce soil eutrophication.

The national emission ceilings are designed with the aim of meeting the environmental objectives, which is expected to result in a reduction of soil eutrophication to such an extent that areas with depositions of nutrient nitrogen in excess of the critical loads will be reduced by ca. 30% compared to 1990.

The objective of Directive 2000/76/EC of the European Parliament and of the Council on the incineration of waste is to prevent or to limit as far as practicable negative effects on the environment, in particular pollution by emissions into air, soil, surface water and groundwater, and the resulting risks to human health, from the incineration and co-incineration of waste. The operator of the incineration or co-incineration plant shall take all necessary precautions concerning the delivery and reception of waste in order to prevent or to limit as far as practicable negative effects on the environment, in particular the pollution of air, soil, surface water and groundwater (Art 5). According to Article 8 “Water discharges from the cleaning of exhaust gases” incineration plant sites shall be designed in such a way as to prevent the unauthorised and accidental release of any polluting substances into soil, surface water and groundwater.

Commission Regulation 926/93/EEC amending Regulation 1696/87/EEC laying down certain detailed rules for the implementation of Council Regulation 3528/86/EEC on the protection of the Community’s forests against atmospheric pollution makes a statement in its preamble that the indirect effects of atmospheric pollutants through the soil are one of the main reasons for the deterioration of the condition of forest ecosystems. An examination of the soil of the forests provides basic information on the chemical condition of the soil and the nutrient supply to trees as well as the influence of pollutant inputs on the condition of the soil. In this way account would be taken of the increasing significance of soil for an improvement in the condition of forests.
There are numerous other legislation which have an indirect relevance to soil protection:

Directives 2001/80/EC of the European Parliament and of the Council on the limitation of emissions of certain pollutants into the air from large combustion plants
Directives 2000/69/EC of the European Parliament and of the Council relating to limit values for benzene and carbon monoxide in ambient air
Commission Regulation 2278/1999/EC laying down certain detailed rules for the application of Council Regulation 3528/86/EEC on the protection of the Community’s forests against atmospheric pollution


Council Directive 1999/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air


Council Directive 80/779/EEC on air quality limit values and guide values for sulphur dioxide and suspended particulates

### INDUSTRIAL POLLUTION CONTROL AND RISK MANAGEMENT

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<td>Control on Products</td>
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### 4.5.2.4. “15.10.20.50 Chemicals, industrial risk and biotechnology”

Council Directive 96/82/EC on the control of major-accident hazards involving dangerous substances (Seveso II Directive) aims at the prevention of major accidents which involve dangerous substances and the limitation of their consequences for man and the environment. It introduced an obligation for industrial operators to implement a major-accident prevention policy and a safety management system including safety reports and emergency plans involving a detailed risk assessment using accident scenarios. It applies to establishments where dangerous substances are present in quantities listed in Annex I. The Directive excludes from its scope:

- military establishments;
- hazards by ionizing radiation;
- the transport of dangerous substances and temporary storage by road, rail, internal waterways, pipelines, sea, air;
- the mineral extractive industries;
- waste land-fills.

One of the major tools is prescribed in Article 12 **“Land-use planning”**. The accidents in scope shall be taken into account in the land-use policies and/or other relevant policies through controls on the siting of new establishments; and new developments such as transport links, residential areas, etc. These policies and their implementation shall take into account the need to maintain appropriate distances between establishments and residential areas, areas of public use and areas of particular natural sensitivity or interest.

Annex VI lists criteria for the notification to the Commission of major accidents, among which: damage to real estate (dwellings outside the establishment damaged and unusable) and to property; immediate damage to the environment:

- permanent or long-term damage to terrestrial habitats,
- \( \geq 0.5 \) ha of a habitat of environmental or conservation importance protected by legislation,
• ≥10 hectares of more widespread habitat, including agricultural land,
• significant or long-term damage to freshwater and marine habitats,
• ≥10 km of river or canal, ≥1 ha of a lake or pond, ≥2 ha of delta,
• ≥2 ha of coastline or open sea,
• significant damage to an aquifer or underground water.

According to the proposal (COM(2002) 340) for the amendment the following activities will be included in the scope:
• chemical and thermal mineral processing and storage which involve dangerous substances;
• tailings disposal facilities, including tailing ponds or dams, containing dangerous substances.

In addition, lower qualifying quantities for the category “Dangerous for the environment” are proposed.

**Council Directive 96/61/EC concerning integrated pollution prevention and control** (IPPC Directive, last amended by 2003/35/EC) provides the framework for the licensing and emissions of industrial installations to prevent or to reduce emissions in the air, water and land. Installations covered by Annex I are required to obtain an operating permit containing emission limit values or equivalent parameters based on the use of Best Available Techniques (BAT). In addition, permits must give provisions for other than normal operating conditions. The focus is on prevention rather than “end-of-pipe” abatement, therefore a distinction is made between new or substantially changed and existing installations. The preamble contains valuable statements like:

>“6. ... although Community legislation exists on the combating of air pollution and ... of the discharge of dangerous substances into water, there is no comparable Community legislation aimed at preventing or minimizing emissions into soil;

7. ... different approaches to controlling emissions into the air, water or soil separately may encourage the shifting of pollution between the various environmental media rather than protecting the environment as a whole;”

Among others, competent authorities shall ensure that:
- all the appropriate preventive measures are taken against pollution, in particular through application of the best available techniques;
- necessary measures are taken upon cessation of activities to avoid any pollution risk and return the site of operation to a satisfactory state. (Art. 3)

The Communication from the Commission “On the Road to Sustainable Production - Progress in implementing Council Directive 96/61/EC concerning integrated pollution prevention and control” (COM(2003) 354 final) pointed out some concerns in the directive’s provisions, one of which was the meaning of “return the site to a satisfactory state” and the way this principle shall be applied in the context of the permit.

According to Article 6 permit applications shall include, among others, the conditions of the site of the installation, the nature and quantities of foreseeable emissions into each medium. All permits granted and modified permits must include details of the arrangements made for air, water and land protection (Art. 8). The permit shall include emission limit values for pollutants, in particular, those listed in Annex III, having regard to their nature and their potential to transfer pollution from one medium to another (water, air and land). The permit shall include requirements ensuring protection of the soil and ground water and measures concerning the management of waste. Limit values may be supplemented or replaced by equivalent parameters or technical measures.

The industrial activities in scope, listed in Annex I are not specific to soil management and soil conservation. The most relevant “soil-based” activities are perhaps the
• installations for the disposal or recovery of hazardous waste with a capacity >10 t/day;
• installations for the disposal of non-hazardous waste with a capacity >50 t/day;
• landfills receiving >10 t/day or with a total capacity >25 000 t, excluding landfills of inert waste.

In spite of the complex approach declared in the preamble of the directive, the indicative lists of main polluting substances to be taken into account if they are relevant for fixing emission limit values by Annex III are provided for air and water but not available for soil. Similarly, considera-
tions when determining best available techniques (Annex IV) do not include explicitly the evaluation of the soil conditions at the site ("the overall impact of the emissions on the environment and the risks to it").

According to Commission Decision 2000/479/EC on the implementation of a European pollutant emission register (EPER) according to Article 15 of Council Directive 96/61/EC concerning integrated pollution prevention and control (IPPC) Member States shall report to the Commission on emissions from all individual facilities with one or more activities as mentioned in Annex I to the IPPC Directive. The report must include the emissions to air and water for all pollutants for which the threshold values are exceeded; both pollutants and threshold values are specified in Annex A1.

4.5.3. "15.10.30 Space, environment and natural resources"

4.5.3.1. "15.10.30.20 Conservation of wild fauna and flora"
The aim of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) is to ensure bio-diversity through the conservation of natural habitats and of wild fauna and flora. Measures shall be designed to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest, and shall take account of economic, social and cultural requirements and regional and local characteristics (Art. 2). Each Member States shall contribute to the creation of Natura 2000 network (Art. 3). By definition, natural habitats include terrestrial or aquatic areas distinguished by geographic, abiotic and biotic features, whether entirely natural or semi-natural (Art. 1).

Recital 13 of the preamble and Article 10 prescribe that Member States shall endeavour in their land-use planning and development policies, with a view to improving the ecological coherence of the Natura 2000 network, to encourage the management of features of the landscape which are of major importance for wild fauna and flora. Article 11 prohibits the deterioration or destruction of breeding sites or resting places of certain species. Annex I on natural habitat types of Community interest whose conservation requires the designation of special areas of conservation includes sand dunes, coasts, grasslands, heath and scrub, forests, bogs and fens, mudflats etc., which are commonly regarded as lands with soil cover.

According to Recital 8 of the preamble of Council Directive 79/409/EEC on the conservation of wild birds (last amended by Council Regulation No 807/2003) (Wild Birds Directive) conservation is aimed at long-term protection and management of natural resources as an integral part of Europe's heritage. It makes it possible to control natural resources and governs their use on the basis of the maintenance and adjustment of the natural balances between species. The directive relates to the conservation of naturally occurring birds including their habitats. The required measures include creation of protected areas, upkeep and management of habitats in accordance with ecological need, re-establishment of destroyed biotopes, and creation of biotopes (Art. 3). When creating protected areas the most suitable land areas are to be taken into account. A particular attention is to be given to the protection of wetlands (Art. 4). However, Member States may derogate from certain provisions (e.g. hunting, destruction of habitat) to prevent serious damage to crops, forests, etc. (Art 9).

According to Article 4 of Regulation 2494/2000/EC of the European Parliament and of the Council on measures to promote the conservation and sustainable management of tropical forests and other forests in developing countries, countries shall address the conservation and restoration of forests which are considered to be of importance due to their high ecological value, in particular their value for the preservation of biodiversity, or due to their local and global impacts, such as the protection of hydrographic basins, the prevention of soil erosion, or of climate change. The development of appropriate national and international forest policy frameworks based on realistic valuation of forests, which, among others, include land use planning is required.
4.5.3.2. "15.10.30.30 Waste management and clean technology"

**WASTE MANAGEMENT**

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**Council Directive 75/442/EEC on waste** (as amended by 91/156/EEC, 96/350/EC) is the so-called Waste Framework Directive and as such it is one of the very first pieces of the environmental acquis. It defines waste as "any substance or object in the categories set out in Annex I which the holder discards or intends or is required to discard". Following the general requirements of Article 3, Article 4 prescribes measures to ensure that waste is recovered or disposed of without making risk to water, air, soil and plants and animals, and without adversely affecting the countryside. The abandonment, dumping or uncontrolled disposal of waste is prohibited. Member States shall establish a network of disposal installations, taking account of the best available technology not involving excessive costs and geographical circumstances as well (Art. 5). Among other waste categories Annex I lists: "Q5 Materials contaminated or soiled as a result of planned actions (e.g. residues from cleaning operations, packing materials, containers, etc.) Q15 Contaminated materials, substances or products resulting from remedial action with respect to land".

Disposal operations (Annex IIA) include:
- **D1 Deposit into or onto land** (e.g. landfill, etc.)
- **D2 Land treatment** (e.g. biodegradation of liquid or sludgy discards in soils, etc.)
- **D3 Deep injection** (e.g. injection of pumpable discards into wells, salt domes or naturally occurring repositories, etc.)
- **D4 Surface impoundment** (e.g. placement of liquid or sludgy discards into pits, ponds or lagoons, etc.)
- **D5 Specially engineered landfill** (e.g. placement into lined discrete cells which are capped and isolated from one another and the environment, etc.)
- **D7 Release into seas/oceans including sea-bed insertion**
- **D10 Incineration on land**
- **D12 Permanent storage** (e.g. emplacement of containers in a mine, etc.)

Among the recovery operations Annex IIB acknowledges "R10 Land treatment resulting in benefit to agriculture or ecological improvement".
According to **Council Directive 91/689/EEC on hazardous waste** (last amended by 2001/118/EC) Article 2 on every site where tipping (discharge) of hazardous waste takes place the waste must be recorded and identified. The mixing of different categories of hazardous waste or hazardous waste with non-hazardous waste is prohibited. According to Annex IB. “23. soil, sand, clay including dredging spoils” are hazardous wastes if contain any of the constituents listed in Annex II and having any of the properties listed in Annex III.

**Commission Decision 2001/118/EC amending Decision 2000/532/EC as regards the list of wastes** (amended by 23001/119/EC) codifies all waste types according to generation source, waste composition and other criteria. The so-called European Waste Catalogue (EWC) lists seven soil related wastes, hazardous wastes and so-called mirror entries which require further investigation for qualification. In general, wastes can be classified hazardous if they display one or more of the properties listed in Annex III to Directive 91/689/EEC and have one or more characteristics as listed in Article 2 of the EWC. These are the following:

170503* soil and stones containing dangerous substances
170504 soil and stones other than those mentioned in 170503
191301* solid wastes from soil remediation containing dangerous substances
191302 solid wastes from soil remediation other than those mentioned in 191301
191303* sludges from soil remediation containing dangerous substances
191304 sludges from soil remediation other than those mentioned in 191303
200202 soil and stones (as garden and park wastes, including cemetery waste).

There are numerous, otherwise not specified waste categories to which soil can fit, e.g. under the chapters mining wastes, or agriculture wastes, etc.

**Regulation 2150/2002/EC of the European Parliament and of the Council of on waste statistics** has several entries on soil:

04.4 Soils contaminated by radioactivity
12.31 Waste of naturally occurring minerals
0 Non-hazardous: soil and stones, soil from cleaning and washing beet
12.6 Contaminated soils and polluted dredging spoils
12.61 Polluted soils and rubble

The most relevant daughter regulation of the Waste Framework Directive is the **Council Directive 1999/31/EC on the landfill of waste.** It is the sophisticated piece of legislation that uses the terms soil, land, site and geology rather consequently, and which has an up-to-date scientific approach by discussing surface water, groundwater, soil, and geological formations in a complex manner and acknowledging the concept of multi-barrier protection through the combination of engineered and natural barriers. Recital 3 of the preamble says that waste recycling, recovery etc. should be encouraged so as to safeguard natural resources and obviate wasteful use of land. The requirements on landfill sites, must be complied with, to be taken against the pollution of groundwater by leachate infiltration into the soil (Recital 12). Accordingly, the major objective of the directive is, by way of stringent operational and technical requirements on the waste and landfills, to provide for measures, procedures and guidance to prevent or reduce as far as possible negative effects on the environment, in particular the pollution of surface water, groundwater, soil, etc. (Art. 1). By definition “landfill” means a waste disposal site for the deposit of the waste onto or into land (i.e. underground) (Art. 2(g)). Furthermore, the directive defines “underground storage” as a permanent waste storage facility in a deep geological cavity (Art. 2(f)). Among others, the following are excluded from the scope of the directive (Art. 3):

- the spreading of sludges, sewage sludges, dredging sludges and similar matters on soil for the purposes of fertilisation or improvement;
- the deposit of non-hazardous dredging sludges alongside small waterways from where they have been dredged out and of non-hazardous sludges in surface water including the bed and its sub soil;
the deposit of unpolluted soil resulting from prospecting and extraction, treatment, and storage of mineral resources as well as from the operation of quarries.

Among the general requirements of all classes of landfills (Annex I, 1.1.) the location must take into consideration:
(a) the distances from residential and recreation areas, waterways, water bodies and other agricultural or urban sites;
(b) groundwater, coastal water or nature protection zones;
(c) the geological and hydrogeological conditions;
(d) the risk of flooding, subsidence, landslides or avalanches;
(e) the protection of the nature or cultural patrimony.

A landfill must be situated and designed so as to meet the necessary conditions for preventing pollution of the soil, groundwater or surface water and ensuring efficient collection of leachate. Protection of soil, groundwater and surface water is to be achieved by the combination of a geological barrier, a bottom and a top liner. The geological barrier is determined by geological and hydrogeological conditions below and in the vicinity of a landfill site providing sufficient attenuation capacity to prevent a potential risk to soil and groundwater. The landfill base and sides shall consist of a mineral layer which satisfies permeability and thickness requirements with a combined effect in terms of protection of soil, groundwater and surface water. If, on the basis of an assessment of environmental risks, it has been established that the landfill poses no potential hazard to soil, groundwater or surface water, the requirements above may be reduced. The landfill shall be equipped so that dirt originating from the site is not dispersed onto the surrounding land.

Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills has many references with regard to the geological environment, including soil. The list of wastes acceptable at landfills for inert waste without testing includes, among others, “170504 Soil and stones (excluding topsoil, peat; excluding soil and stones from contaminated sites)” and “200202 Soil and stones (only from garden and parks waste; excluding top soil, peat)”. Selected construction and demolition waste is also acceptable with low content of unpolluted soil. Appendix A on the safety assessment for acceptance of waste in underground storage places a high emphasis on the importance of the geological barrier. According to 1.2.1. the geological assessment requires thorough investigations and analyses of kind of rocks, soil, and the topography.

Council Directive 86/278/EEC on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture is the piece of waste legislation which has the most relevant and direct provisions on soil. Its purpose is to regulate the use of sewage sludge in agriculture in a way to prevent harmful effects on soil, vegetation, animals and man. Values for concentrations of heavy metals in soil to which sludge is applied, concentrations of heavy metals in sludge and the maximum annual quantities of such heavy metals which may be introduced into soil intended for agriculture are given in Annexes (Art. 4).

Member States are to prohibit the use of sludge where the concentration of one or more heavy metals in the soil exceeds these limit values. They are also to regulate its use so that accumulation of heavy metals in the soil does not lead to those limit values being exceeded (Art. 5). Sludge is to be treated before being used in agriculture except where Member States authorise its injection or working into the soil (Art. 6). Member States are to prohibit the use of sludge on grazing grassland, forage crops, soil for fruit and vegetable crops (except fruit trees) and grounds for cultivation of fruit and vegetable crops that are in direct contact with soil (Art. 7). Sludge is to be used in such a way that the quality of the soil and of surface and ground water is not impaired (Art. 8). Annex IIB and IIC provide guidelines on sampling and analytical details.

The Commission has given a commitment in the fourth recital of Regulation 1774/2002/EC of the European Parliament and of the Council laying down health rules concerning animal by-products not intended for human consumption, that by the end of the year 2004 a Directive on biowaste, including catering waste, will be prepared with the aim of establishing rules on safe use, recovery,
recycling and disposal of this waste and of controlling potential contamination. It is a recent initiative that there should be a joint directive on biowaste and sludge.

The use of sludge in natural forests, as defined in the context of the Forest Focus initiative (Proposal for a European Parliament and Council Regulation concerning monitoring of forests and environmental interactions in the Community (COM(2002) 404 final)) should be prohibited for preserving these important ecosystems on which an addition of nutrients would not be appropriate.

**Council Directive 75/439/EEC on the disposal of waste oils** is aiming at ensuring the safe collection and disposal of waste oils. According to Article 4 Member States shall take the necessary measures to ensure the prohibition of any discharge of waste oils into internal surface waters, ground water, coastal waters and drainage systems; and any deposit and/or discharge of waste oils harmful to the soil and any uncontrolled discharge of residues resulting from the processing of waste oils. Undertakings collecting and/or disposing of waste oils must carry out these operations in such a way that there will be no avoidable risk of water, air or soil pollution (Art. 9).

The proposal for a **Directive of the European Parliament and of the Council on the management of waste from the extractive industries** (COM(2003) 319 final) is an important effort in the waste legislation to regulate an industrial segment which enjoyed a distinguished status in the Community but generates ca. one-fifth of the overall waste stream in the EU. Besides the standard regulatory tools like permitting waste management and emergency plans, public participation, financial guarantee, reporting, penalties, etc. a separate article addresses the **prevention of water and soil pollution** through provisions on leachate and contaminated water treatment and by limiting the cyanide concentration in tailings ponds.

Commission communications have no legal outreach but **Communication from the Commission on “Promoting sustainable development in the EU non-energy extractive industry”** (COM(2000) 265) was the first document to tackle the problem of sustainable mining. In spite of its limited scope it gave a complex review of the mining industry and made valuable statements such as:

- mining is increasingly influenced by other **competing land uses**, such as urban development, agriculture, nature conservation;
- the balanced consideration of economic, environmental and social aspects to ensure the sustainable development of the industry is needed.

Other major product-specific waste legislation that have indirect relevance to soil contamination are the following:

- Council Directive 92/112/EEC on procedures for harmonizing the programmes for the reduction and eventual elimination of pollution caused by waste from the titanium oxide industry
4.6. "19.30. Area of freedom, security and justice - Police and judicial cooperation in criminal and customs matters"

Council Framework Decision 2003/80/JHA on the protection of the environment through criminal law is an important step forward preventing soil contamination and sanctioning polluters by entering the realm of the so-called “third pillar” of the EU “Police and Judicial Cooperation in Criminal Matters” (formerly “Justice and Home Affairs”). According to Article 2, the unlawful discharges, emissions, disposals of hazardous substances and waste or ionising radiation which causes substantial damage to the quality of soil are qualified as intentional offences and fall under the scope of the Directive.

4.7. Judgements of the European Court of Justice

Soil has not been a central element of the legal arguments at the European Court. It usually appears as one of the environmental media in citations referring back to the environmental acquis in cases related to waste management (e.g. landfills C-446/01, waste oil C-392/99), access to information on the environment (C-233/00, C-316/01), monitoring radioactivity (C-29/99), and use of Structural Fund (C-T-199/99). Appeals with the most direct involvement of soil are associated with the national implementation of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources (C-161/00, C-127/99, C-159/99, C-266-00), in which cases most Member States failed to comply with the provisions of the Directive.
5. Discussion and Conclusions

In most parts of Europe soil is the uppermost solid fertile layer of the geosphere. It is a conditionally renewable and major natural resource which is an essential part of our environment but is quite different from other environmental media because

- it has many functions for the human society and the biota,
- it is in direct physical-chemical contact with all other environmental media,
- usually it is not in the public domain but a privately owned commodity.

These characteristics explain soil's outstanding importance in Community legislation while also underlining why soil is the last major environmental component to be regulated in the environmental acquis.

DISCUSSION WHY SO DIFFERENT?

most multiple functions for human society & biota

In general, not a public domain but a private-owned natural resource

direct physical-chemical contact to all other environmental media

NUMEROUS CONFLICT FIELDS

The origin of the Community environmental legislation dates back to the late sixties with the establishment of the chemical substances acquis (Council Directive 67/548/EEC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances). This was followed by the development of the waste and water legislation in the seventies, legislation on air pollution and nature conservation in the eighties, and directives on industrial risk management, integrated pollution prevention control, and agri-environmental issues in the nineties. Recently, as a result of the continuous re-evaluation of the environmental acquis, a new generation of waste and water legislation was published (e.g. Landfill Directive, Water Framework Directive), which treats the different environmental media (including soil) in a complex manner. Moreover a set of so-called “Thematic Strategies” has been compiled which aims at directing future legislation on “left-over” or current issues. The thematic strategies on soil and on natural resources have direct relevance to our subject but others on marine and urban planning deem important too. During these decades soil was considered as an important environmental compartment but was never valued to the point where it was covered by Community regulations.

The history of the European Union is a reflection of the voluntary submission of pillars of national sovereignty by Member States under the Community interest by establishing a supranational legislation. The higher the thematic cover of the acquis, the higher the degree of political, economi-
ical, and social integration is. In many cases this procedure was not voluntary, and the rulings of the European Court of Justice as enforced by Community bodies propelled the regulations forward. However, strategic sectors like agriculture, the mineral extractive industries and the nuclear industry received an exceptional treatment in the Community legislation that controlled their environmental impacts to a lesser extent.

Issues which are traditional subjects of national civil laws (ownership rights of land, real estate, civil liability, family law, etc.) reach the level of Community legislation very seldom. Land is closely associated with territorial authority, and in a broader context with the territorial integrity and sovereignty of a country; therefore, it is a sensitive field to tackle on a supranational level. On the Community level the ownership of land is regulated only in the specific context of the free movement of persons and capital. Principles governing the preferences among the many competitive land uses are missing on the Community level, however, addressing this issue in the planned and controlled land use management might provide a frame for the sustainable soil conservation. Tackling the issue of property rights and obligations on the Community level would mean a high level of integration. A good example is from Flanders where a statement on soil quality is a prerequisite for land transfer contracts. The competent authorities there developed a self-financing register system to host this information and to serve all interested parties. This legal tool together with the establishment of a spatial planning policy look essential concerning the legislative options on regulating liability for soil contamination at the Community level.

The other policy area which might contribute to the sustainable use of soil is on the long-term management of Europe's natural resources. Already the Rome Treaty (1951) shows traces of environmental concerns by declaring among its objectives "to promote a policy of using natural resources rationally and avoiding their unconsidered exhaustion". Decades later the Amsterdam Treaty (1997) implemented the coherent Community policy on the environment by adopting the concept of sustainable development. Accordingly, this policy shall contribute to a pursuit of the objective of "prudent and rational utilisation of natural resources". The common EU natural resources policy is being formulated in the Commission Communication "Towards a Thematic Strategy on the Sustainable Use of Natural Resources" and some of the tasks outlined can contribute to sustainable soil use e.g. the promotion of eco-efficiency and resource-efficiency.

Considering pollution prevention and evaluating the environmental acquis within the context of the classical environmental impact scheme, (pollution source ? pathway ? environmental compartment) it is a general observation that local, diffuse and accidental pollution sources are regulated in the acquis:

(a) the EIA Directive and the IPPC Directive provide lists of potentially polluting activities typically of local source character and actual pollution figures according to the European Pollution Emission Register;
(b) the agriculture, the atmospheric pollution and transportation acquis contain hints and more specific provisions on diffuse pollution sources; and
(c) the Seveso II Directive outlines activities with the potential of high environmental risk in case of accidental release.
(d) In addition to the above legal sources, many more pollution sources can be deducted from the entries of the European Waste Catalogue, the chemicals acquis and some other product-specific legislation.

Traditionally, there are certain strategic but potentially polluting industries (e.g. military, nuclear industry, mining industry), which are excluded from the scope of major environmental directives (e.g. Waste Framework Directive, IPPC Directive, Seveso II Directive). When evaluating the risks that these activities impose on the soil, it is recommended to include them under the scope of the environmental acquis. Thus, it seems reasonable that an amendment of the IPPC Directive would also extend to the involvement of the soil decontamination and remediation technologies among the activities which require the elaboration of BAT documents. Yet there are some smaller or
recently invented installations (oil and gas pipelines, airports, harbours, chemical laundries, etc.), which shall be covered by the Community legislation in the future. The preventive legal instruments incorporated in the above-mentioned and other thematic and horizontal environmental acquis comprise, to name a few, absolute emission limits, risk management tools, authority assessment, voluntary auditing, economic-financial tools, and public participation. Pollution pathways are not common subjects of the Community legislation, but the sealing requirements of landfills by the Landfill Directive, the establishment of protected watersheds by the Water Framework Directive and the numerous prescriptions on monitoring in these directives and elsewhere can be cited as such. The legislation on forest protection (Regulation 1091/94/EEC) and the chemical legislation (e.g. Directive 2001/59/EC on classification, packaging and labelling of dangerous substances) regulate the monitoring, sampling and analytical methods, common risk assessment methodologies and reporting categories of soil in details. The available provisions are to be taken into account when drafting the legislation on soil monitoring.

The legislation of the back-end of the impact scheme is somewhat less detailed. There are quality standards on water, food, to a very limited extent on soil, directives on the conservation of habitats, on human and ecology toxicological risks, but almost nothing on the built environment, and on the geological medium (“subsoil”) including mineral resources. When preparing quantitative thresholds, for both emission, immission, natural background, intervention levels, the shifting of pollution between the various environmental media has to be avoided, therefore a careful review of the existing limit values, and health and ecological risk-based assessments are required. Whilst many emission limit values are set in the environmental acquis, in the water and waste chapters and by the IPPC Directive, the only list for some heavy metals concentration in soil is found in the Sewage Sludge Directive and some more quality standards are provided for soil improvers (2001/688/EC). There are voluminous references on soil management in a broad sense, associated with the common agricultural policy. The recent legal pieces of CAP contain detailed provisions on the agri-environmental measures.

**DISCUSSION - WHAT IS AVAILABLE**

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As described earlier, soil policy is a cross-cutting issue because this medium is in direct physical-chemical contact with all other environmental media. It is unavoidable that a specific legislation on soil will have an impact on these media, too. Moreover, soil has a very strong three-dimensional character, i.e. its natural quality is very much dependent on the location, and the quality homogenisation is very slow (e.g. pollution dispersion and spreading). To a certain extent, legislators face similar problems when regulating the protection of groundwater. The river basin management scheme introduced by the Water Framework Directive follows the natural outlines of an impacted area, it establishes the unit potentially suitable for regulation and management and
applies scientifically and technically well-based regulatory tools. For these reasons an accurate study of and harmonization with the legislative solutions provided by the Water Framework Directive is strongly recommended when drafting soil legislation. The detailed daughter legislation of the Water Framework Directive is in preparation; therefore, a sound interaction between the policymakers of these two fields is needed.

The terms in use are rather colourful and heterogenous (soil, land, land surface, landscape, ground, terrestrial system, non-aquatic environment, geographical area, site, pedology, subsoil, underground, geological medium, geological formations, geological units, rocks, overlying strata, saturation zone, etc.), even within a particular legislation (e.g. IPPC Directive, Water Framework Directive). Future legislation shall provide clear definition and distinction on soil, land and geological formations. Most recent directives (e.g. the Water Framework Directive, the Landfill Directive and their implementing pieces) use both terms and treat them as the major elements of the “earthborne” environmental media. The definitions of other important terms such as “pollution” and “emission” are already available and many more are proposed in the Environmental Liability Directive.

A general conclusion is that, for historical reasons, many aspects of soil conservation and soil management are already regulated by the agricultural, chemical, and environmental Community legislation and there are more indirect provisions, with which a specific directive on soil must be in harmony. This study is a first step in mapping all the existing cornerstones and niches in the acquis. However, when considering the scientific trivialities, the legal quality and the implementation needs, it is obvious that the IPPC Directive, the Dangerous Substances Directive, the Landfill Directive, the Water Framework Directive and their daughter pieces constitute the main legislation stream to be followed and some of which are to be amended, accordingly. When evaluating the options for the implementation of a new soil protection policy by the competent authorities it is evident that the watershed management approach invented by the Water Framework Directive is the applicable scale and methodology to adopt.

Soil policy is overlapping with and affected by many European Union policies. Knowing the history and limits of the Community legislation it is unlikely that the many cited pieces of legislation can be amended within a short time period. Therefore a detailed legislation strategy and authorization is needed at a high legislation level which ensures in all other related EU policies and new legal
sources that the interests of the sustainable soil management will be represented in an effective manner. In addition, considering the civil law aspect of this new policy, the acceptance of soil legislation will be a proof of the readiness of Member States for a higher level of political and legal integration.

6. Literature


ANNEX

A collection of definitions of the EU acquis communautaire relevant to soil management and environmental affairs in general

This collection was compiled to help establishing the common understanding of basic terms in use in the Working Group on Soil Contamination. The application and interpretation of legal definitions are the best (if not exclusively acceptable) within their legal environment, this is why a short reference of the source EU directive (or decision, regulation, proposal) is given in brackets. Some minor changes have been done on the definitions (e.g. “:” was used instead of “means”, “shall mean”, “is”) in order to have standard format. A careful procedure is required with citing the individual definitions because EUR-Lex, on which the glossary is based, might contain spelling mistakes. It is strongly recommended to check the original Official Journal for reference.

“accidental exposure”: an exposure of individuals as a result of an accident. It does not include emergency exposure. (96/29)

“accreditation system”: a system for the accreditation and supervision of environmental verifiers operated by an impartial institution or organisation designated or created by the Member State (accreditation body), with sufficient resources and competency and having appropriate procedures for performing the functions defined by this Regulation for such a system (761/2001)

“activation”: process through which a stable nuclide is transformed into a radionuclide by irradiating with particles or high-energy gamma rays the material in which it is contained (96/29)

“active substance”: a substance or micro-organism including a virus or a fungus having general or specific action on or against harmful organisms (98/8)

“air pollution”: the introduction by man, directly or indirectly, of substances or energy into the air resulting in deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems and material property and impair or interfere with amenities and other legitimate uses of the environment (84/360)

“air quality limit values”: the concentration of polluting substances in the air during a specified period which is not to be exceeded (84/360)

“animals”: animals belonging to species normally fed and kept or consumed by man (91/414)

“approved dosimetric service”: a body responsible for the calibration, reading or interpretation of individual monitoring devices, or for the measurement of radioactivity in the human body or in biological samples, or for assessment of doses, whose capacity to act in this respect is recognized by the competent authorities (96/29)

“aquifer”: a subsurface layer or layers of rock or other geological strata of sufficient porosity and permeability to allow either a significant flow of groundwater or the abstraction of significant quantities of groundwater (2000/60)

“artificial sources”: radiation sources other than natural radiation sources (96/29)

“artificial water body”: a body of surface water created by human activity (2000/60)

“auditor”: an individual or a team, belonging to the organisation personnel or external to the organisation, acting on behalf of the organisation’s top management, possessing, individually or collectively, the competences referred to in Annex II, point 2.4 and being sufficiently independent of the activities they audit to make an objective judgment (761/2001)

“authorization”: a permission granted in a document by the competent authority, on application, or granted by national legislation, to carry out a practice or any other action within the scope of this Directive (96/29)

“authorization of a plant protection product”: administrative act by which the competent authority of a Member State authorizes, following an application submitted by an applicant, the placing on the market of a plant protection product in its territory or in a part thereof (91/414)

“available groundwater resource”: the long-term annual average rate of overall recharge of the body of groundwater less the long-term annual rate of flow required to achieve the ecological
quality objectives for associated surface waters specified under Article 4, to avoid any significant diminution in the ecological status of such waters and to avoid any significant damage to associated terrestrial ecosystems (2000/60)

“available techniques”: those developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the costs and advantages, whether or not the techniques are used or produced inside the Member State in question, as long as they are reasonably accessible to the operator (96/61)

“banned chemical”: a chemical which has, for health or environmental reasons, been prohibited for all uses by final governmental regulatory action (2455/92)

“basic substance”: a substance which is listed in Annex I B, whose major use is non-pesticidal but which has some minor use as a biocide either directly or in a product consisting of the substance and a simple diluent which itself is not a substance of concern and which is not directly marketed for this biocidal use. The substances, which could potentially enter Annex IB in accordance with the procedure laid down in Articles 10 and 11, are inter alia the following: carbon dioxide, nitrogen, ethanol, 2-propanol, acetic acid, kieselguhr (98/8)

“best available techniques”: the most effective and advanced stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques for providing in principle the basis for emission limit values designed to prevent and, where that is not practicable, generally to reduce emissions and the impact on the environment as a whole (96/61)

“best”: most effective in achieving a high general level of protection of the environment as a whole. In determining the best available techniques, special consideration should be given to the items listed in Annex IV (96/61)

“biocidal products”: active substances and preparations containing one or more active substances, put up in the form in which they are supplied to the user, intended to destroy, deter, render harmless, prevent the action of, or otherwise exert a controlling effect on any harmful organism by chemical or biological means. An exhaustive list of 23 product types with an indicative set of descriptions within each type is given in Annex V (98/8)

“biodegradable waste”: any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, and paper and paperboard (99/31)

“body of groundwater”: a distinct volume of groundwater within an aquifer or aquifers (2000/60)

“body of surface water”: a discrete and significant element of surface water such as a lake, a reservoir, a stream, river or canal, part of a stream, river or canal, a transitional water or a stretch of coastal water (2000/60)

“carcinogenic substances and preparations”: substances or preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence (1999/45)

“chemical subject to notification”: any of the chemical substances listed in Annex I and preparations containing any of these chemicals if the preparation has a labelling obligation under Community legislation as a result of the presence of the Annex I chemical (2455/92)

“chemical subject to the PIC procedure”: each chemical listed in Annex II, whether by itself or in preparations, whether manufactured or obtained from nature, unless its concentration in a preparation is insufficient for a labelling requirement under Community legislation (2455/92)

“clearance levels”: values, established by national competent authorities, and expressed in terms of activity concentrations and/or total activity, at or below which radioactive substances or materials containing radioactive substances arising from any practice subject to the requirement of reporting or authorization may be released from the requirements of this Directive (96/29)

“coastal water”: surface water on the landward side of a line, every point of which is at a distance of one nautical mile on the seaward side from the nearest point of the baseline from which the breadth of territorial waters is measured, extending where appropriate up to the outer limit of transitional waters (2000/60)

“collection”: the gathering, sorting and/or mixing of waste for the purpose of transport. (91/156)

“collective system”: (a) A system for the supply of drinking water to a number of households or undertakings; and/or (b) A system for the provision of sanitation which serves a number of house-
holds or undertakings and, where appropriate, also provides for the collection, transport, treatment and disposal or reuse of industrial waste water, whether provided by a body in the public sector, an undertaking in the private sector or by a partnership between the two sectors.

(combined approach): the control of discharges and emissions into surface waters according to the approach set out in Article 10 (2000/60)

(Community standard): mandatory Community standard setting the levels to be attained in environmental terms and the obligation under Community law to use the best available techniques (BAT) which do not entail excessive costs (2001/C 37/03)

(competent authority): that authority which the Member States designate as responsible for performing the duties arising from this Directive (99/31)

(competent bodies): the bodies designated by Member States, whether national, regional or local, in accordance with Article 5, to perform the tasks specified in this Regulation (761/2001)

(conservation status of a natural habitat): the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species within the territory referred to in Article 2. The conservation status of a natural habitat will be taken as ‘favourable’ when its natural range and areas it covers within that range are stable or increasing, and the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable as defined in (i). (92/43)

(conservation status of a species): the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2. The conservation status will be taken as ‘favourable’ when population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis. (92/43)

(construction product): any product which is produced for incorporation in a permanent manner in construction works, including both buildings and civil engineering works (89/106)

(continual improvement of environmental performance): the process of enhancing, year by year, the measurable results of the environmental management system related to an organisation’s management of its significant environmental aspects, based on its environmental policy, objectives and targets; the enhancing of the results need not take place in all spheres of activity simultaneously (761/2001)

(controlled area): an area subject to special rules for the purpose of protection against ionizing radiation or of preventing the spread of radioactive contamination and to which access is controlled (96/29)

(corrosive substances and preparations): substances and preparations which may, on contact with living tissues, destroy them (92/32, 1999/45)

(dangerous substance): a substance, mixture or preparation listed in Annex 1, Part 1, or fulfilling the criteria laid down in Annex 1, Part 2, and present as a raw material, product, by-product, residue or intermediate, including those substances which it is reasonable to suppose may be generated in the event of accident (96/82)

(dangerous): explosive substances and preparations: solid, liquid, pasty or gelatinous substances and preparations which may also react exothermically without atmospheric oxygen thereby quickly evolving gases, and which, under defined test conditions, detonate, quickly deflagrate or upon heating explode when partially confined; oxidising substances and preparations: substances and preparations which give rise to a highly exothermic reaction in contact with other substances, particularly flammable substances; extremely flammable substances and preparations: liquid substances and preparations having an extremely low flash-point and a low boiling-point and gaseous
substances and preparations which are flammable in contact with air at ambient temperature and pressure; highly flammable substances and preparations: substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or to be consumed after removal of the source of ignition, or liquid substances and preparations having a very low flash-point, or substances and preparations which, in contact with water or damp air, evolve extremely flammable gases in dangerous quantities; flammable substances and preparations: liquid substances and preparations having a low flash-point; very toxic substances and preparations: substances and preparations which in very low quantities cause death or acute or chronic damage to health when inhaled, swallowed or absorbed via the skin; toxic substances and preparations: substances and preparations which may cause death or acute or chronic damage to health when inhaled, swallowed or absorbed via the skin; harmful substances and preparations: substances and preparations which may, on contact with living tissues, destroy them; irritant substances and preparations: non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membrane, may cause inflammation; sensitising substances and preparations: substances and preparations which, if they are inhaled or if they penetrate the skin, are capable of eliciting a reaction of hypersensitisation such that on further exposure to the substance of preparation, characteristic adverse effects are produced; carcinogenic substances and preparations: substances or preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence; mutagenic substances and preparations: substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce heritable genetic defects or increase their incidence; substances and preparations which are toxic for reproduction: substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence; substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce heritable genetic defects or increase their incidence; substances and preparations which are dangerous for the environment: substances and preparations which, were they to enter the environment, would or could present an immediate or delayed danger for one or more components of the environment (99/45)

direct discharge to groundwater: discharge of pollutants into groundwater without percolation throughout the soil or subsoil (2000/60)

disposal: any of the operations provided for in Annex II, A (91/156)

disposal: the collection, sorting, transport and treatment of waste as well as its storage and tipping above or under ground, the transformation operations necessary for its re-use, recovery or recycling (75/442)

disposal: the emplacement of waste in a repository, or a given location, without the intention of retrieval. Disposal also covers the approved direct discharge of wastes into the environment, with subsequent dispersion. (96/29)

dose (concentration) - response (effect) assessment: the estimation of the relationship between dose, or level of exposure to a substance, and the incidence and severity of an effect (93/67, 1488/94)

dose constraint: a restriction on the prospective doses to individuals which may result from a defined source, for use at the planning stage in radiation protection whenever optimization is involved (96/29)

dose limits: maximum references laid down in Title IV for the doses resulting from the exposure of workers, apprentices and students and members of the public to ionizing radiation covered by this Directive that apply to the sum of the relevant doses from external exposures in the specified period and the 50-year committed doses (up to age 70 for children) from intakes in the same period (96/29)

drinking water: all surface water intended for human consumption and supplied by distribution networks for public use (75/440)
"ecological status": an expression of the quality of the structure and functioning of aquatic ecosystems associated with surface waters, classified in accordance with Annex V (2000/60)

"EINECS": the European Inventory of Existing Commercial Substances. This inventory contains the definitive list of all substances deemed to be on the Community market on 18 September 1981. (92/32, 1999/45)

"eluate": the solution obtained by a laboratory leaching test (99/31)

"emergency exposure": an exposure of individuals implementing the necessary rapid action to bring help to endangered individuals, prevent exposure of a large number of people or save a valuable installation or goods, whereby one of the individual dose limits equal to that laid down for exposed workers could be exceeded. Emergency exposure shall apply only to volunteers. (96/29)

"emission controls": controls requiring a specific emission limitation, for instance an emission limit value, or otherwise specifying limits or conditions on the effects, nature or other characteristics of an emission or operating conditions which affect emissions (2000/60)

"emission limit values": the mass, expressed in terms of certain specific parameters, concentration and/or level of an emission, which may not be exceeded during one or more periods of time. Emission limit values may also be laid down for certain groups, families or categories of substances, in particular for those listed in Annex III. The emission limit values for substances shall normally apply at the point where the emissions leave the installation, any dilution being disregarded when determining them. With regard to indirect releases into water, the effect of a water treatment plant may be taken into account when determining the emission limit values of the installation involved, provided that an equivalent level is guaranteed for the protection of the environment as a whole and provided this does not lead to higher levels of pollution in the environment, without prejudice to Directive 76/464/EEC or the Directives implementing it. (96/61)

"emission limit values": the mass, expressed in terms of certain specific parameters, concentration and/or level of an emission, which may not be exceeded during one or more periods of time. Emission limit values may also be laid down for certain groups, families or categories of substances, in particular for those identified under Article 16. The emission limit values for substances shall normally apply at the point where the emissions leave the installation, dilution being disregarded when determining them. With regard to indirect releases into water, the effect of a wastewater treatment plant may be taken into account when determining the emission limit values of the installations involved, provided that an equivalent level is guaranteed for protection of the environment as a whole and provided that this does not lead to higher levels of pollution in the environment. (2000/60)

"emission": the direct or indirect release of substances, vibrations, heat or noise from individual or diffuse sources in the installation into the air, water or land (96/61)

"enclosed waters": artificially created water bodies separated from surface freshwater or coastal water, whether within or outside a building (501PC0483)

"environment": water, air, land, wild species of fauna and flora, and any interrelationship between them, as well as any relationship with living organisms (91/414)

"environmental aspect": an element of an organisation’s activities, products or services that can interact with the environment, (Annex VI); a significant environmental aspect is an environmental aspect that has or can have a significant environmental impact (761/2001)

"environmental assessment": the preparation of an environmental report, the carrying out of consultations, the taking into account of the environmental report and the results of the consultations in decision-making and the provision of information on the decision in accordance with Articles 4 to 9 (2001/42)

"environmental audit": a management tool comprising a systematic, documented, periodic and objective evaluation of the performance of the organisation, management system and processes designed to protect the environment with the aim of: (i) facilitating management control of practices which may have an impact on the environment; (ii) assessing compliance with the environmental policy, including environmental objectives and targets of the organisation (Annex II) (761/2001)
“environmental impact”: any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation’s activities, products or services (761/2001)
“environmental liability”: aims at making the causer of environmental damage (the polluter) pay for remedying the damage that he has caused. (2000/66)
“environmental management system”: the part of the overall management system that includes the organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy (761/2001)
“environmental objective”: an overall environmental goal, arising from the environmental policy, that an organisation sets itself to achieve, and which is quantified where practicable (761/2001)
“environmental performance”: the results of an organisation’s management of its environmental aspects (761/2001)
“environmental policy”: an organisation’s overall aims and principles of action with respect to the environment including compliance with all relevant regulatory requirements regarding the environment and also a commitment to continual improvement of environmental performance; the environmental policy provides the framework for setting and reviewing environmental objectives and targets (761/2001)
“environmental programme”: a description of the measures (responsibilities and means) taken or envisaged to achieve environmental objectives and targets and the deadlines for achieving the environmental objectives and targets (761/2001)
“environmental protection”: any action designed to remedy or prevent damage to our physical surroundings or natural resources, or to encourage the efficient use of these resources. The Commission regards energy-saving measures and the use of renewable sources of energy as action to protect the environment. (2001/C 37/03)
“environmental quality standard”: the concentration of a particular pollutant or group of pollutants in water, sediment or biota which should not be exceeded in order to protect human health and the environment (2000/60)
“environmental report”: the part of the plan or programme documentation containing the information required in Article 5 and Annex I (2001/42)
“environmental review”: an initial comprehensive analysis of the environmental issues, impact and performance related to activities of an organisation, (Annex VII) (761/2001)
“environmental statement”: the information detailed in Annex III point 3.2 ((a) to (g)) (761/2001)
“environmental target”: a detailed performance requirement, quantified where practicable, applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives (761/2001)
“environmental tax”: one likely feature for a levy to be considered as environmental would be that the taxable base of the levy has a clear negative effect on the environment. However, a levy could also be regarded as environmental if it has a less clear, but nevertheless discernible positive environmental effect. In general, it is up to the Member State to show the estimated environmental effect of the levy. (2001/C 37/03)
“environmental verifier”: any person or organisation independent of the organisation being verified, who has obtained accreditation, in accordance with the conditions and procedures referred to in Article 4 (761/2001)
“establishment”: the whole area under the control of an operator where dangerous substances are present in one or more installations, including common or related infrastructures or activities (96/82)
“European specification”: a common technical specification, a European technical approval or a national standard implementing a European standard (93/38)
“European standard”: a standard approved by the European Committee for Standardization (CEN) or by the European Committee for Electrotechnical Standardization (Cenelec) as a ‘European Standard (EN)’ or ‘Harmonization Document (HD)’, according to the common rules of those organizations, or by the European Telecommunications Standards Institute (ETSI) according to its own rules as a ‘European Telecommunications Standard (ETS)’ (93/38)
“European technical approval”: a favourable technical assessment of the fitness for use of a product for a particular purpose, based on fulfillment of the essential requirements for building works, by means of the inherent characteristics of the product and the defined conditions of application and use, as provided for in Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products. European technical approval shall be issued by an approval body designated for this purpose by the Member State. (93/38)
“existing active substance”: an active substance on the market before 14 May 2000 as an active substance of a biocidal product for purposes other than those referred to in Article 2(2)(c) and (d) of the Directive (1896/2000)
“existing installation”: an installation in operation or, in accordance with legislation existing before the date on which this Directive is brought into effect, an installation authorized or in the view of the competent authority the subject of a full request for authorization, provided that that installation is put into operation no later than one year after the date on which this Directive is brought into effect (96/61)
“existing substances”: substances listed in Einecs (793/93)
“explosive substances and preparations”: solid, liquid, pasty or gelatinous substances and preparations which may also react exothermically without atmospheric oxygen thereby quickly evol- ing gases, and which, under defined test conditions, detonate, quickly deflagrate or upon heating explode when partially confined (92/32, 1999/45)
“exposed workers”: persons, either self-employed or working for an employer, subject to an exposure incurred at work from practices covered by this Directive and liable to result in doses exceeding one or other of the dose levels equal to the dose limits for members of the public (96/29)
“exposure assessment”: the determination of the emissions, pathways and rates of movement of a substance and its transformation or degradation, in order to estimate the concentrations/doses to which human populations or environmental spheres (water, soil and air) or may be exposed (1488/94)
“extremely flammable substances and preparations”: liquid substances and preparations having an extremely low flash-point and a low boiling-point and gaseous substances and preparations which are flammable in contact with air at ambient temperature and pressure (92/32, 1999/45)
“formulator”: in the case of a biocidal product manufactured within the Community, the manufacturer of that biocidal product, or a person established within the Community designated by the manufacturer as his sole representative for the purposes of this Regulation (1896/2000)
“frame-formulation”: specifications for a group of biocidal products having the same use and user type. This group of products must contain the same active substances of the same specifications, and their compositions must present only variations from a previously authorised biocidal product which do not affect the level of risk associated with them and their efficacy. In this context, a variation is the allowance of a reduction in the percentage of the active substance and/or an alteration in percentage composition of one or more non-active substances and/or the replacement of one or more pigments, dyes, perfumes by others presenting the same or a lower risk, and which do not decrease its efficacy (98/8)
“good ecological potential”: the status of a heavily modified or an artificial body of water, so classified in accordance with the relevant provisions of Annex V (2000/60)
“good ecological status”: the status of a body of surface water, so classified in accordance with Annex V (2000/60)
“good groundwater chemical status”: the chemical status of a body of groundwater, which meets all the conditions set out in table 2.3.2 of Annex V (2000/60)
“good groundwater status”: the status achieved by a groundwater body when both its quantitative status and its chemical status are at least “good” (2000/60)
“good quantitative status”: the status defined in table 2.1.2 of Annex V (2000/60)
“good surface water chemical status”: the chemical status required to meet the environmental objectives for surface waters established in Article 4(1)(a), that is the chemical status achieved by a body of surface water in which concentrations of pollutants do not exceed the environmental quality stan-
dards established in Annex IX and under Article 16(7), and under other relevant Community legislation setting environmental quality standards at Community level (2000/60)

"good surface water status": the status achieved by a surface water body when both its ecological status and its chemical status are at least "good" (2000/60)

"groundwater status": the general expression of the status of a body of groundwater, determined by the poorer of its quantitative status and its chemical status (2000/60)

"groundwater": all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil (80/68, 2000/60, 501PC0483)

"habitat of a species": an environment defined by specific abiotic and biotic factors, in which the species lives at any stage of its biological cycle (92/43)

"harmful organism": any organism which has an unwanted presence or a detrimental effect for humans, their activities or the products they use or produce, or for animals or for the environment (98/8)

"harmful substances and preparations": substances and preparations which may cause death or acute or chronic damage to health when inhaled, swallowed or absorbed via the skin (92/32, 1999/45)

"hazard": the intrinsic property of a dangerous substance or physical situation, with a potential for creating damage to human health and/or the environment (96/82)

"hazard identification": the identification of the adverse effects which a substance has an inherent capacity to cause (93/67, 1488/94)

"hazardous substances": substances or groups of substances that are toxic, persistent and liable to bio-accumulate, and other substances or groups of substances which give rise to an equivalent level of concern (2000/60)

"hazardous wastes": considered to display one or more of the properties listed in Annex III to Directive 91/689/EEC and, as regards H3 to H8, H10(6) and H11 of the said Annex, one or more of the following characteristics: flash point <= 55 °C; one or more substances classified(7) as very toxic at a total concentration >= 0,1 %; one or more substances classified as toxic at a total concentration >= 3 %; one or more substances classified as harmful at a total concentration >= 25 %; one or more corrosive substances classified as R35 at a total concentration >= 1 %; one or more corrosive substances classified as R34 at a total concentration >= 5 %; one or more irritant substances classified as R41 at a total concentration >= 10 %; one or more irritant substances classified as R36, R37, R38 at a total concentration >= 20 %; one substance known to be carcinogenic of category 1 or 2 at a concentration >= 0,1 %; one substance known to be carcinogenic of category 3 at a concentration >= 1 %; one substance toxic for reproduction of category 1 or 2 classified as R60, R61 at a concentration >= 0,5 %; one substance toxic for reproduction of category 3 classified as R62, R63 at a concentration >= 5 %; one mutagenic substance of category 1 or 2 classified as R46 at a concentration >= 0,1 %; one mutagenic substance of category 3 classified as R40 at a concentration >= 1 %." (2000/532)

"health detriment": an estimate of the risk of reduction in length and quality of life occurring in a population following exposure to ionizing radiations. This includes loss arising from somatic effects, cancer and severe genetic disorder. (96/29)

"heavily modified water body": a body of surface water which as a result of physical alterations by human activity is substantially changed in character, as designated by the Member State in accordance with the provisions of Annex II (2000/60)

"heavy metal": any compound of antimony, arsenic, cadmium, chromium(VI), copper, lead, mercury, nickel, selenium, tellurium, thallium and tin, as well as these materials in metallic form, as far as these are classified as dangerous substances (2000/532)

"highly flammable substances and preparations": substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or to be consumed after removal of the source of ignition, or liquid substances and preparations having a very low flash-point, or substances and preparations which, in contact with water or damp air, evolve extremely flammable gases in dangerous quantities (1999/45)
“holder”: the producer of the waste or the natural or legal person who is in possession of it (99/31, 91/156)

“identification of an active substance”: the submission to the Commission of the information referred to in Annex I. The person or the association of producers/formulators submitting the identification is an “identifier” (1896/2000)

“indirect discharge”: the introduction into groundwater of substances in lists I or II after percolation through the ground or subsoil (80/68)

“inert waste”: waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater. (99/31)

“information relating to the environment”: any available information in written, visual, aural or data-base form on the state of water, air, soil, fauna, flora, land and natural sites, and on activities (including those which give rise to nuisances such as noise) or measures adversely affecting, or likely so to affect these, and on activities or measures designed to protect these, including administrative measures and environmental management programmes (90/313)

“inland water”: all standing or flowing water on the surface of the land, and all groundwater on the landward side of the baseline from which the breadth of territorial waters is measured (2000/60)

“installation”: a technical unit within an establishment in which dangerous substances are produced, used, handled or stored. It shall include all the equipment, structures, pipework, machinery, tools, private railway sidings, docks, unloading quays serving the installation, jetty, warehouses or similar structures, floating or otherwise, necessary for the operation of the installation (96/82)

“intake”: the activities of radionuclides entering the body from the external environment (96/29)

“integrated control”: the rational application of a combination of biological, biotechnological, chemical, cultural or plant-breeding measures whereby the use of chemical plant protection products is limited to the strict minimum necessary to maintain the pest population at levels below those causing economically unacceptable damage or loss (91/414)

“interested party”: an individual or group, including authorities, concerned with or affected by the environmental performance of an organisation (761/2001)

“internalisation of costs”: the principle that all costs associated with the protection of the environment should be included in firms’ production costs (2001/C 37/03)

“intervention level”: a value of avertable equivalent dose, avertable effective dose or a derived value, at which intervention measures should be considered. The avertable dose or derived value is solely that associated with the exposure pathway to which the intervention measure is to be applied. (96/29)

“intervention”: a human activity that prevents or decreases the exposure of individuals to radiation from sources which are not part of a practice or which are out of control, by acting on sources, transmission pathways and individuals themselves (96/29)

“ionizing radiation”: the transfer of energy in the form of particles or electromagnetic waves of a wavelength of 100 nanometer or less or a frequency of 3 ?1015 Hertz or more capable of producing ions directly or indirectly (96/29)

“irritant substances and preparations”: non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membrane, may cause inflammation (92/32, 1999/45)

“isolated settlement”: a settlement with no more than 500 inhabitants per municipality or settlement and no more than five inhabitants per square kilometre and where the distance to the nearest urban agglomeration with at least 250 inhabitants per square kilometre is not less than 50 km, or with difficult access by road to those nearest agglomerations, due to harsh meteorological conditions during a significant part of the year (99/31)
"labelling": the provision on a label of information related to the potential hazard to health, safety or the environment from use of the chemical. It does not refer to labelling requirements for the transport of dangerous goods (2455/92)

"lake": a body of standing inland surface water (2000/60)

"landfill gas": all the gases generated from the landfilled waste (99/31)

"landfill": a waste disposal site for the deposit of the waste onto or into land (i.e. underground), including internal waste disposal sites (i.e. landfill where a producer of waste is carrying out its own waste disposal at the place of production), and a permanent site (i.e. more than one year) which is used for temporary storage of waste, but excluding facilities where waste is unloaded in order to permit its preparation for further transport for recovery, treatment or disposal elsewhere, and storage of waste prior to recovery or treatment for a period less than three years as a general rule, or storage of waste prior to disposal for a period less than one year (99/31)

"leachate": any liquid percolating through the deposited waste and emitted from or contained within a landfill (99/31)

"letter of access": a document, signed by the owner or owners of relevant data protected under the provisions of this Directive, which states that these data may be used by the competent authority for the purpose of granting an authorisation or a registration of a biocidal product under this Directive (98/8)

"liquid waste": any waste in liquid form including waste waters but excluding sludge (99/31)

"local": all relevant levels of territorial unit below the level of the State (501PC0483)

"low-risk biocidal product": a biocidal product which contains as active substance(s) only one or more of those listed in Annex I A and which does not contain any substance(s) of concern. Under the conditions of use, the biocidal product shall pose only a low risk to humans, animals and the environment (98/8)

"major accident": an occurrence such as a major emission, fire, or explosion resulting from uncontrolled developments in the course of the operation of any establishment covered by this Directive, and leading to serious danger to human health and/or the environment, immediate or delayed, inside or outside the establishment, and involving one or more dangerous substances (96/82)

"management": the collection, transport, recovery and disposal of waste, including the supervision of such operations and after-care of disposal sites (91/156)

"members of the public": individuals in the population, excluding exposed workers, apprentices and students during their working hours and individuals during the exposures referred to in Article 6(4)(a), (b) and (c) (96/29)

"mineral-extracting industries": the activities of prospecting and of extraction in the strict sense of the word as well as of preparation of extracted materials for sale (crushing, screening, washing), but not the processing of such extracted materials (74/326)

"mineral-extracting industries through drilling": all the industries practising: - extraction, in the strict sense of the word, of minerals through drilling by boreholes, and/or - prospection with a view to such extraction, and/or - preparation of extracted materials for sale, excluding the activities of processing the materials extracted (92/91)

"municipal waste": waste from households, as well as other waste which, because of its nature or composition, is similar to waste from household (99/31)

"mutagenic substances and preparations": substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce heritable genetic defects or increase their incidence (92/32, 1999/45)

"natural habitat types of Community interest": those which, within the territory referred to in Article 2: (i) are in danger of disappearance in their natural range; or (ii) have a small natural range following their regression or by reason of their intrinsically restricted area; or (iii) present outstanding examples of typical characteristics of one or more of the five following biogeographical regions: Alpine, Atlantic, Continental, Macaronesian and Mediterranean. Such habitat types are listed or may be listed in Annex I (92/43)

"natural habitats": terrestrial or aquatic areas distinguished by geographic, abiotic and biotic features, whether entirely natural or semi-natural (92/43)
“natural radiation sources”: sources of ionizing radiation from natural terrestrial or cosmic origin (96/29)

“network termination point”: all physical connections and their technical access specification which form part of the public telecommunications network and are necessary for access to, and efficient communication through, that public network (93/38)

“notification”: the documents, with the requisite information, presented to the competent authority of a Member State; for substances manufactured within the Community, by the manufacturer who places a substance either on its own or in a preparation on the market; for substances manufactured outside the Community, by any person established in the Community who is responsible for placing the substance either on its own or in a preparation on the Community market, or alternatively by the person established within the Community who is, for the purposes of submitting a notification for a given substance placed on the Community market, either on its own or in a preparation, designated by the manufacturer as his sole representative. The person submitting the notification, as described above, shall be referred to as “the notifier”. (92/32)

“notifier”: any natural person or corporate body to whom or to which the duty to notify is assigned, that is to say the person referred to hereinafter who proposes to ship waste or have waste shipped: the person whose activities produced the waste (original producer); or where this is not possible, a collector licensed to this effect by a Member State or a registered or licensed dealer or broker who arranges for the disposal or the recovery of waste; or where these persons are unknown or are not licensed, the person having possession or legal control of the waste (holder); or in the case of import into or transit through the Community of waste, the person designated by the laws of the State of dispatch or, when this designation has not taken place, the person having possession or legal control of the waste (holder) (259/93)

“operator”: any individual or corporate body who operates or holds an establishment or installation or, if provided for by national legislation, has been given decisive economic power in the technical operation thereof (96/82)

“operator”: the natural or legal person responsible for a landfill in accordance with the internal legislation of the Member State where the landfill is located; this person may change from the preparation to the after-care phase (99/31)

“organisation”: a company, corporation, firm, enterprise, authority or institution, or part or combination thereof, whether incorporated or not, public or private, that has its own functions and administrations. The entity to be registered as an organisation under EMAS shall be agreed with the environmental verifier and, where appropriate, the competent bodies, taking account of Commission guidance, established in accordance with the procedure laid down in Article 14(2), but shall not exceed the boundaries of one Member State. The smallest entity to be considered shall be a site. Under exceptional circumstances identified by the Commission in accordance with the procedure laid down in Article 14(2), the entity to be considered for registration under EMAS may be smaller than a site, such as a sub-division with its own functions. (761/2001)

“oxidizing substances and preparations”: substances and preparations which give rise to a highly exothermic reaction in contact with other substances, particularly flammable substances (92/32, 1999/45)

“permit”: that part or the whole of a written decision (or several such decisions); granting authorization to operate all or part of an installation, subject to certain conditions which guarantee that the installation complies with the requirements of this Directive. A permit may cover one or more installations or parts of installations on the same site operated by the same operator. (96/61)

“placing on the market”: the making available to third parties. Importation into the Community customs territory shall be deemed to be placing on the market for the purposes of this Directive (92/32, 1999/45)

“placing on the market”: any supply, whether in return for payment or free of charge, or subsequent storage other than storage followed by consignment from the customs territory of the Community or disposal. Importation of a biocidal product into the customs territory of the Community shall be deemed to constitute placing on the market for the purposes of this Directive (98/8)
"plans and programmes": plans and programmes, including those co-financed by the European Community, as well as any modifications to them: which are subject to preparation and/or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government; and which are required by legislative, regulatory or administrative provisions (2001/42)

"plant": any establishment or other stationary plant used for industrial or public utility purposes which is likely to cause air pollution (84/360)

"plant products": products in the unprocessed state or having undergone only simple preparation such as milling, drying or pressing, derived from plants, but excluding plants themselves as defined in point 6 (91/414)

"plant protection products": active substances and preparations containing one or more active substances, put up in the form in which they are supplied to the user, intended to: 1.1. protect plants or plant products against all harmful organisms or prevent the action of such organisms, in so far as such substances or preparations are not otherwise defined below; 1.2. influence the life processes of plants, other than as a nutrient, (e.g. growth regulators); 1.3. preserve plant products, in so far as such substances or products are not subject to special Council of Commission provisions on preservatives; 1.4. destroy undesired plants; or 1.5. destroy parts of plants, check or prevent undesired growth of plants (91/414)

"plants": live plants and live parts of plants, including fresh fruit and seeds (91/414)

"pollutant": any substance liable to cause pollution, in particular those listed in Annex VIII (2000/60)

"polluter pays principle": this is the principle that the costs of measures to deal with pollution should be borne by the polluter who causes the pollution (2001/C 37/03)

"polluter": a polluter is someone who directly or indirectly damages the environment or who creates conditions leading to such damage (2001/C 37/03)

"pollution": the direct or indirect introduction into the environment as a result of human activity, of substances, vibrations, heat or noise into the air, water or land which may be harmful to human health or the quality of the environment, result in damage to material property, or impair or interfere with amenities and other legitimate uses of the environment (96/61)

"pollution": 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 (2000/60)

"polymer": a substance consisting of molecules characterized by the sequence of one or more types of monomer units and comprising a simple weight majority of molecules containing at least three monomer units which are covalently bound to at least one other monomer unit or other reactant and consists of less than a simple weight majority of molecules of the same molecular weight. Such molecules must be distributed over a range of molecular weights wherein differences in the molecular weight are primarily attributable to differences in the number of monomer units. In the context of this definition a "monomer unit" means the reacted form of a monomer in a polymer (92/32, 99/45, 1999/45)

"potential exposure": exposure, that is not expected to be delivered with certainty, with a probability of occurrence that can be estimated in advance (96/29)

"practice": a human activity that can increase the exposure of individuals to radiation from an artificial source, or from a natural radiation source where natural radionuclides are processed for their radioactive, fissile or fertile properties, except in the case of an emergency exposure (96/29)

"preparations": mixtures or solutions composed of two or more substances (67/548, 92/32, 1999/45, 793/93)

"preparations": mixtures or solutions composed of two or more substances of which at least one is an active substance, intended for use as plant protection products (91/414)

"prevention of pollution": use of processes, practices, materials or products that avoid, reduce or
control pollution, which may include recycling, treatment, process changes, control mechanisms, efficient use of resources and material substitution (761/2001)

“prevention”: all the steps or measures taken or planned at all stages of work in the undertaking to prevent or reduce occupational risks (89/391)

“prices to reflect costs”: this principle states that the prices of goods or services should incorporate the external costs associated with the negative impact on the environment of their production and marketing (2001/C 37/03)

“prior informed consent (PIC)”: the principle that international shipment of a chemical which is banned or severely restricted in order to protect human health or the environment should not proceed without the agreement, where such agreement exists, or contrary to the decision of the designated national authority of the importing country (2455/92)

“priority natural habitat types”: natural habitat types in danger of disappearance, which are present on the territory referred to in Article 2 and for the conservation of which the Community has particular responsibility in view of the proportion of their natural range which falls within the territory referred to in Article 2; these priority natural habitat types are indicated by an asterisk (*) in Annex I (92/43)

“priority species”: species referred to in (g) (i) for the conservation of which the Community has particular responsibility in view of the proportion of their natural range which falls within the territory referred to in Article 2; these priority species are indicated by an asterisk (*) in Annex I (92/43)

“priority substances”: substances identified in accordance with Article 16(2) and listed in Annex X. Among these substances there are “priority hazardous substances” which means substances identified in accordance with Article 16(3) and (6) for which measures have to be taken in accordance with Article 16(1) and (8) (2000/60)

“process-orientated research and development”: the further development of a substance in the course of which pilot plant or production trials are used to test the fields of application of the substance (92/32, 1999/45)

“producer”: in the case of an active substance produced within the Community and placed on the market, the manufacturer of that active substance or a person established within the Community designated by the manufacturer as his sole representative for the purposes of this Regulation; - in the case of an active substance produced outside the Community, the person established within the Community and designated by the manufacturer of that active substance as his sole representative for the purposes of this Regulation or, where no such person has been so designated, the importer into the Community of that active substance; - in the case of a biocidal product produced outside the Community, the person established within the Community and designated by the manufacturer of that biocidal product as his sole representative for the purposes of this Regulation or, where no such person has been so designated, the importer into the Community of that biocidal product (1896/2000)

“project”: the execution of construction works or of other installations or schemes, other interventions in the natural surroundings and landscape including those involving the extraction of mineral resources (85/337)

“public authorities”: any public administration at national, regional or local level with responsibilities, and possessing information, relating to the environment with the exception of bodies acting in a judicial or legislative capacity (90/313)

“public authorities”: the State, regional or local authorities, bodies governed by public law, or associations formed by one or more of such authorities or bodies governed by public law. A body is considered to be governed by public law where it: is established for the specific purpose of meeting needs in the general interest; not being of an industrial or commercial nature; has legal personality; and is financed for the most part by the State, or regional or local authorities, or other bodies governed by public law, or is subject to management supervision by those bodies, or has an administrative, managerial or supervisory board more than half of whose members are appointed by the State, regional or local authorities, or other bodies governed by public law. (93/38)

“public undertaking”: any undertaking over which the public authorities may exercise directly or
indirectly a dominant influence by virtue of their ownership of it, their financial participation therein, or the rules which govern it. A dominant influence on the part of the public authorities shall be presumed when these authorities, directly or indirectly, in relation to an undertaking: hold the majority of the undertaking’s subscribed capital; or control the majority of the votes attaching to shares issued by the undertaking; or can appoint more than half of the members of the undertaking’s administrative, managerial or supervisory body. (93/38)

“qualified experts”: persons having the knowledge and training needed to carry out physical, technical or radiochemical tests enabling doses to be assessed, and to give advice in order to ensure effective protection of individuals and the correct operation of protective equipment, whose capacity to act as a qualified expert is recognized by the competent authorities. A qualified expert may be assigned the technical responsibility for the tasks of radiation protection of workers and members of the public. (96/29)

“quantitative status”: an expression of the degree to which a body of groundwater is affected by direct and indirect abstractions (2000/60)

“radioactive contamination”: the contamination of any material, surface or environment or of an individual by radioactive substances. In the specific case of the human body, this radioactive contamination includes both external skin contamination and internal contamination, irrespective of route of intake. (96/29)

“radioactive substance”: any substance that contains one or more radionuclides the activity or concentration of which cannot be disregarded as far as radiation protection is concerned (96/29)

“radiological emergency”: a situation that requires urgent action in order to protect workers, members of the public or the population either partially or as a whole (96/29)

“recommendations for risk reduction”: the recommendation of measures which would enable the risks for man and/or the environment in connection with the marketing of the substance to be lessened. They may include: (i) modifications to the classification, packaging or labelling of the substance proposed by the notifier in the notification submitted in accordance with Article 7 (1), 8 (1) or 8 (2) of Directive 67/548/EEC; (ii) modifications to the safety data sheet proposed by the notifier in the notification submitted in accordance with Article 7 (1), 8 (1) or 8 (2) of Directive 67/548/EEC; (iii) modifications to the recommended methods and precautions or emergency measures, as set out in sections 2.3, 2.4 and 2.5 of Annex VIIA, VII B or VII C, proposed by the notifier in the technical dossier of the notification submitted in accordance with Article 7 (1), 8 (1) or 8 (2) of Directive 67/548/EEC; (iv) advice to the relevant control authorities that they should consider appropriate measures for the protection of man and/or the environment from the risks identified (93/67)

“reference group of the population”: a group comprising individuals whose exposure to a source is reasonably uniform and representative of that of the individuals in the population who are the more highly exposed to that source (96/29)

“registration”: an administrative act by which the competent authority of a Member State, following an application submitted by an applicant, after verification that the dossier meets the relevant requirements of this Directive, allows the placing on the market of a low-risk biocidal product in its territory or in a part thereof (98/8)

“renewable energy sources”: renewable non-fossil energy sources, viz. wind energy, solar energy, geothermal energy, wave energy, tidal energy, hydroelectric installations with a capacity below 10 MW and biomass, where biomass is defined as products from agriculture and forestry, vegetable waste from agriculture, forestry and the food production industry, and untreated wood waste and cork waste (2001/C 37/03)

“reporting”: requirement of submitting a document to the competent authority to notify the intention to carry out a practice or any other action within the scope of this Directive (96/29)

“residues of plant protection products”: one or more substances present in or on plants or products of plant origin, edible animal products or elsewhere in the environment and resulting from the use of a plant protection product, including their metabolites and products resulting from their degradation or reaction (91/414)
“residues”: one or more of the substances present in a biocidal product which remains as a result of its use including the metabolites of such substances and products resulting from their degradation or reaction (98/8)

“risk”: the likelihood of a specific effect occurring within a specified period or in specified circumstances (96/82)

“risk characterization”: the estimation of the incidence and severity of the adverse effects likely to occur in a human population or environmental compartment due to actual or predicted exposure to a substance, and may include ‘risk estimation’, i.e., the quantification of that likelihood (93/67, 1488/94)

“river basin district”: the area of land and sea, made up of one or more neighbouring river basins together with their associated groundwaters and coastal waters, which is identified under Article 3(1) as the main unit for management of river basins (2000/60)

“river basin”: the area of land from which all surface run-off flows through a sequence of streams, rivers and, possibly, lakes into the sea at a single river mouth, estuary or delta (2000/60)

“river”: a body of inland water flowing for the most part on the surface of the land but which may flow underground for part of its course (2000/60)

“sanitation”: the collection, transport, treatment and disposal or reuse of human excreta or domestic waste water, whether through collective systems or by installations serving a single household or undertaking (501PC0483)

“scientific research and development”: scientific experimentation, analysis or chemical research carried out under controlled conditions; it includes the determination of intrinsic properties, performance and efficacy as well as scientific investigation related to product development (92/32, 99/45, 1999/45, 2455/92)

“sealed source”: a source whose structure is such as to prevent, under normal conditions of use, any dispersion of the radioactive substances into the environment (96/29)

“severely restricted chemical”: a chemical for which, for health or environmental reasons, virtually all uses have been prohibited by final governmental regulatory action but for which certain specific uses remain authorized (2455/92)

“site of Community importance”: a site which, in the biogeographical region or regions to which it belongs, contributes significantly to the maintenance or restoration at a favourable conservation status of a natural habitat type in Annex I or of a species in Annex II and may also contribute significantly to the coherence of Natura 2000 referred to in Article 3, and/or contributes significantly to the maintenance of biological diversity within the biogeographic region or regions concerned. For animal species ranging over wide areas, sites of Community importance shall correspond to the places within the natural range of such species which present the physical or biological factors essential to their life and reproduction. (92/43)

“sensitising substances and preparations”: substances and preparations which, if they are inhaled or if they penetrate the skin, are capable of eliciting a reaction of hypersensitisation such that on further exposure to the substance of preparation, characteristic adverse effects are produced (92/32, 1999/45)

“simple excavation”: work whose purpose is not the extraction of materials for use (74/326)

“site”: a geographically defined area whose extent is clearly delineated (92/43)

“site”: all land at a distinct geographic location under the management control of an organisation covering activities, products and services. This includes all infrastructure, equipment and materials. (761/2001)

“source”: an apparatus, a radioactive substance or an installation capable of emitting ionizing radiation or radioactive substances (96/29)

“special area of conservation”: a site of Community importance designated by the Member States through a statutory, administrative and/or contractual act where the necessary conservation measures are applied for the maintenance or restoration, at a favourable conservation status, of the natural habitats and/or the populations of the species for which the site is designated (92/43)

“species of Community interest”: species which, within the territory referred to in Article 2, are:
(i) endangered, except those species whose natural range is marginal in that territory and which are not endangered or vulnerable in the western Palearctic region; or (ii) vulnerable, i.e. believed likely to move into the endangered category in the near future if the causal factors continue operating; or (iii) rare, i.e. with small populations that are not at present endangered or vulnerable, but are at risk. The species are located within restricted geographical areas or are thinly scattered over a more extensive range; or (iv) endemic and requiring particular attention by reason of the specific nature of their habitat and/or the potential impact of their exploitation on their habitat and/or the potential impact of their exploitation on their conservation status. Such species are listed or may be listed in Annex II and/or Annex IV or V. (92/43)
“specimen”: any animal or plant, whether alive or dead, of the species listed in Annex IV and Annex V, any part or derivative thereof, as well as any other goods which appear, from an accompanying document, the packaging or a mark or label, or from any other circumstances, to be parts or derivatives of animals or plants of those species (92/43)
“standard”: a technical specification approved by a recognized standardizing body for repeated or continuous application, compliance with which is in principle not compulsory (93/38)
“storage”: the presence of a quantity of dangerous substances for the purposes of warehousing, depositing in safe custody or keeping in stock (96/82)
“sub-basin”: the area of land from which all surface run-off flows through a series of streams, rivers and, possibly, lakes to a particular point in a water course (normally a lake or a river confluence) (2000/60)
“substance of concern”: any substance, other than the active substance, which has an inherent capacity to cause an adverse effect on humans, animals or the environment and is present or is produced in a biocidal product in sufficient concentration to create such an effect. Such a substance, unless there are other grounds for concern, would be normally a substance classified as dangerous according to Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (39), and present in the biocidal product at a concentration leading the product to be regarded as dangerous within the meaning of Article 3 of Council Directive 88/379/EEC of 7 June 1988 on the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations (40) (98/8)
“substances”: chemical elements and their compounds, as they occur naturally or by manufacture, including any impurity inevitable resulting from the manufacturing process (91/414)
“substances”: chemical elements and their compounds in the natural state or obtained by any production process, including any additive necessary to preserve the stability of the products and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition (92/32, 1999/45, 793/93)
“substances and preparations which are dangerous for the environment”: substances and preparations which, were they to enter the environment, would present or may present an immediate or delayed danger for one or more components of the environment (92/32, 1999/45)
“substances and preparations which are toxic for reproduction”: substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may produce, or increase the incidence of, non-heritable adverse effects in the progeny and/or an impairment of male or female reproductive functions or capacity (92/32, 1999/45)
“substantial change”: a change in operation which, in the opinion of the competent authority, may have significant negative effects on human beings or the environment (96/61)
“supervised area”: an area subject to appropriate supervision for the purpose of protection against ionizing radiation (96/29)
“surface and underground mineral-extracting industries”: all industries practising: - surface or
underground extraction, in the strict sense of the word, of minerals, and/or - prospecting with a
view to such extraction, and/or - preparation of extracted materials for sale, excluding the activi-
ties of processing the materials extracted, excluding the mineral-extracting industries through
drilling defined in Article 2 (a) of Directive 92/91/EEC (92/104)

“surface water”: inland waters, except groundwater; transitional waters and coastal waters, except
in respect of chemical status for which it shall also include territorial waters (2000/60)

“surface water status”: the general expression of the status of a body of surface water, determined
by the poorer of its ecological status and its chemical status (2000/60)

“sustainable development” means the improvement of the standard of living and welfare of the
relevant populations within the limits of the capacity of the ecosystems by maintaining natural
assets and their biological diversity for the benefit of present and future generations. (2493/2000)

“techniques”: include both the technology used and the way in which the installation is designed,
built, maintained, operated and decommissioned (96/61)

“toxic substances and preparations”: substances and preparations which in low quantities cause
death or acute or chronic damage to health when inhaled, swallowed or absorbed via the skin
(92/32, 1999/45)

“transboundary effects of water-related disease”: any significant adverse effects on human health,
such as death, disability, illness or disorders, in an area under the jurisdiction of one Party, caused
directly or indirectly by the condition, or changes in the quantity or quality, of waters in an area
under the jurisdiction of another Party, whether or not such effects constitute a transboundary
impact (501PC0483)

“transboundary impact”: any significant adverse effect on the environment resulting from a
change in the conditions of transboundary waters caused by a human activity, the physical origin
of which is situated wholly or in part within an area under the jurisdiction of a Party to the
Convention, within an area under the jurisdiction of another Party to the Convention. Such effects
on the environment include effects on human health and safety, flora, fauna, soil, air, water, cli-
mate, landscape, and historical monuments or other physical structures or the interaction among
these factors; they also include effects on the cultural heritage or socio-economic conditions
resulting from alterations to those factors. (501PC0483)

“transboundary waters”: any surface or ground waters which mark, cross or are located on bound-
aries between two or more States; wherever transboundary waters flow directly into the sea, these
transboundary waters end at a straight line across their respective mouths between points on the
low-water line of their banks (501PC0483)

“transitional waters”: bodies of surface water in the vicinity of river mouths which are partly saline
in character as a result of their proximity to coastal waters but which are substantially influenced
by freshwater flows (2000/60)

“treatment”: the physical, thermal, chemical or biological processes, including sorting, that change
the characteristics of the waste in order to reduce its volume or hazardous nature, facilitate its
handling or enhance recovery (99/31)

“underground storage”: a permanent waste storage facility in a deep geological cavity such as a
salt or potassium mine (99/31)

“very toxic substances and preparations”: substances and preparations which in very low quanti-
ties cause death or acute or chronic damage to health when inhaled, swallowed or absorbed via
the skin (92/32, 1999/45)

“waste”: any substance or object in the categories set out in Annex I which the holder discards or
intends or is required to discard. The Commission, acting in accordance with the procedure laid
down in Article 18, will draw up, not later than 1 April 1993, a list of wastes belonging to the cat-
egories listed in Annex I. This list will be periodically reviewed and, if necessary, revised by the
same procedure. (91/156)

“waste”: any substance or object which is covered by Directive 75/442/EEC (99/31)

“waste”: any substance or object which the holder disposes of or is required to dispose of pursuant
to the provisions of national law in force (75/442)
"water intended for human consumption": has the same meaning as under Directive 80/778/EEC, as amended by Directive 98/83/EC (2000/60)

"water services": all services which provide, for households, public institutions or any economic activity: (a) abstraction, impoundment, storage, treatment and distribution of surface water or groundwater, (b) waste-water collection and treatment facilities which subsequently discharge into surface water (2000/60)

"water use": water services together with any other activity identified under Article 5 and Annex II having a significant impact on the status of water. This concept applies for the purposes of Article 1 and of the economic analysis carried out according to Article 5 and Annex III, point (b) (2000/60)

"water-management plan": a plan for the development, management, protection and/or use of the water within a territorial area or groundwater aquifer, including the protection of the associated ecosystems (501PC0483)

"water-related disease": any significant adverse effects on human health, such as death, disability, illness or disorders, caused directly or indirectly by the condition, or changes in the quantity or quality, of any waters (501PC0483)

"worker": any person employed by an employer, including trainees and apprentices but excluding domestic servants (89/391)
Mission of the JRC

The mission of the JRC is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of EU policies. As a service of the European Commission, the JRC functions as a reference centre of science and technology for the Union. Close to the policy-making process, it serves the common interest of the Member States, while being independent of special interests, whether private or national.