Manual of European Environmental Policy

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This section is the text of the Manual as published in 2012. It is therefore important to note the following:

- The contents have not been updated since 2012 and no guarantee is given of the accuracy of the contents given potential subsequent developments.
- The sections include links to external websites (e.g. to legal texts). These links continue to work as long as those links are not broken by those websites.
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Land degradation and protection

Land makes up one of the trilogy of environmental spheres, the others being air and water. It represents a vital resource enabling the production of food, the preservation of biodiversity, facilitating the natural management of water systems and acting as a carbon store. Land use and quality, that is the level of degradation and contamination, are important in determining the broader state of the environment. Appropriate management can protect and maximize the services land provides to society. The degradation of land is, however, common in Europe (and across the globe), a consequence of physical, chemical and biological shifts driven by environmental, social and economic pressures.

This section of the manual examines European law making in two fields central to the retention of land utility and function, these are: soil or land degradation and protection; and spatial planning, that is determining the use and protection afforded to different land areas. To date there has been little EU legislation that explicitly addresses either of these fields, that is that has them as its primary goal. Despite this there are a number of EU measures (including law, strategic advice and funding) that exert significant pressures and opportunities upon both land use and soil protection Decision making.

Pressure on land use is anticipated to increase into the future, both in Europe and beyond. This is a consequence of expanding populations, expanding numbers of households, changing patterns of demand including for land intensive commodities such as meat and the increased pressure to meet our energy demand through the use of biomass. Climate change and our need to adapt are also anticipated to change the land resource available and the uses to which it can be put. The consideration of land and soil management as a route to wider environmental protection is, therefore, rising up the political agenda in Europe.

Protecting Europe's soils

Introducing soil degradation

Soil is generally defined as the top layer of the Earth's crust, formed by mineral particles, organic matter, water, air and living organisms. It is the interface between land, air and water and hosts most of the biosphere. As soil formation is an extremely slow process, soil can be considered essentially as a non-renewable resource. Soil degradation is defined by the Food and Agricultural Organisation of the United Nations (FAO) as a ‘process which lowers the current and/or potential capability of soil to produce goods and services’.

The extent and the type of degradation problem depends upon the scale and nature of external pressures combined with the sensitivity and resilience of the land itself; the latter is in turn determined by a soil's character and the management practices applied. The impacts of degradation processes will depend upon how the land interacts with the surrounding air and water resources, as well as human settlement and land-use needs. Land degradation can be limited, reversed and avoided through the appropriate management of land.

There is an array of degradation processes that can reduce the utility of a soil. The 1991 world map on the status of human-induced soil degradation, GLASOD (Global Assessment of Soil Deterioration)[1], classifies degradation processes into four groups, set out below. This

referencing approach was developed by ISRIC (International Soil Reference and Information Centre), in cooperation with FAO and UNEP. The four categories of soil degradation are as follows:

- Water erosion (loss of topsoil, terrain definition/mass movement).
- Wind erosion (loss of topsoil, terrain deformation, over blowing).
- Chemical degradation (loss of nutrients and/or organic matter, salinization, acidification, pollution).
- Physical degradation (compaction, sealing and crusting, water logging, subsidence of organic soils).

Estimates produced by the European Environment Agency suggest that erosion by water and wind affects 16 per cent of European land; while contamination by pesticides affects 19 per cent and excess application of nitrates and phosphates affects 15 per cent[2]. According to European Commission figures, there are estimated to be 3 million contaminated land sites in the EU-25[3]. The impacts of the different degradation processes varies across Europe with, for example, southern European countries generally considered to experience the most severe water erosion linked to extreme and intermittent rainfall, while in northern Europe losses are moderate. By contrast diffuse contamination, linked to more intensive forms of agricultural production, is greatest in the lowlands of Western Europe.

Soil degradation is part of a continuum, the different soil-degradation processes are not distinct from one another and nor is the quality of a soil distinct from the broader protection of the environment. Changing a soil in one way will potentially increase its vulnerability to other degradation processes. For example, compaction and loss of organic matter can change soil characteristics leading to a greater risk of both water and wind erosion. Moreover, the loss of soil function can increase the vulnerability or risk to the wider environment; while poor quality of air or water or changes to climate may increase the threat of soil degradation. There are increasing concerns regarding the impact of soil degradation on biodiversity protection (including concern regarding a lack of knowledge surrounding the biodiversity contained within a soil and its functions) and the ability to mitigate and adapt climate change. In relation to climate change degradation of soils or land-use change has been linked to significant emissions of stored carbon, depending on soil type and the nature of the previous land management. Moreover, poor quality soils are considered to increase uncertainty regarding water availability, see below, and may increase the vulnerability of agricultural crops and natural systems to changes in the climate.

The following example sets out the potential impact of soil degradation on water quality and quantity. Soil erosion by water can lead to a decline in water quality due to increased levels of sediment in the water. It can also lead to contamination of water when compounds bound to the soil particles are released (in the case of phosphate pollution) or are leached from the surrounding soils (in the case of nitrates). The sedimentation of rivers and streams may impact on flow patterns and flooding events. In addition, other parallel processes may compound this flood risk, for example, the degradation of a soil, though compaction and loss of soil organic matter, may inhibit its permeability. This will increase the flow of water overland during or following a rainfall event. As a consequence, soil erosion may increase and the quantity of water reaching subsurface flows and recharging aquifers will decrease. These factors have a twofold impact on water availability: the water reaching a river or stream after a rain event will be concentrated into one major input from overland flows that reach the surface water quickly increasing the risk of flash flooding; the reduced quantity of

water remaining for other flows and for the recharge of aquifers reduces the amount of water available for the slower recharge rivers and streams, potentially reducing river base flows and increasing the risk of shortage.

Avoiding, limiting and reversing soil degradation

There are many possible mechanisms that can be adopted to protect land and maintain healthy soils. The many and interlinked nature of the processes involved in soil degradation means that solutions needed to be tailored to address the causes and consequences for a given soil system[4]. The most appropriate action will vary depending upon the nature of the problem experienced, the inputs and pressure they result from, the extent of the degradation and the underlying resilience of the land and soils.

The possible solutions for addressing soil degradation are as diverse and varied as the situations and circumstances under which they might be applied. They include measures intended to: avoid and minimize soil degradation; reduce the impacts of ongoing soil-degradation processes; and rehabilitate and manage degraded soil. Given the variability and the need for targeted solutions, the most effective mechanisms for delivering improved land management involve: the careful analysis of land conditions; an understanding of what are the best management techniques for a given area; and the integrated planning of land management decisions at the local level[4].

While an individual incidence of soil degradation might need a tailored solution, based on the land condition there are, however, some high level actions the completion of which has been noted as offering improvements to European soil quality more generally. Among the priorities identified for Europe[5] are:

- The control of inappropriate urban development.
- Reduced emissions of atmospheric pollutants reducing the deposition of chemical limiting processes such as acidification and inappropriate nutrient enrichment.
- Improved management of irrigation drainage.
- The promotion of sustainable agriculture including ceasing the cultivation of unsuitable soils, shifting management practices and reducing impacts of contaminates on farmland.
- Improving waste management.

EU Policy action on soil protection

Policy for soil protection in Europe

There is no Directive or other EU law that focuses exclusively on the protection and remediation of soils, in contrast to a broad acquis focused on water or air. There is, however, a proposal for a framework Directive on the protection of soil (COM(2006)232). This was proposed by the European Commission in September 2006, following an extended period of discussions and stakeholder engagement under the development of the Thematic Strategy for Soil Protection (COM(2006)231). The Thematic Strategy and proposed Directive are described below.

The desire to develop a coordinated policy for Europe's soils stems from commitments made within the Sixth Environmental Action Plan (6EAP). The 6EAP highlighted that 'soil is a finite resource that is under environmental pressure'. It stated that one of its objectives is the 'promotion of a sustainable use of the soil, with particular attention to preventing erosion, deterioration, contamination and desertification'. It also required 'a thematic strategy on soil protection [to be developed], addressing the prevention of, *inter alia*, pollution, erosion, desertification, land degradation, land-take and hydrogeological risks taking into account regional diversity, including specificities of mountain and arid areas'.

The progress towards a dedicated EU soil protection Directive has been slow. This is partly as a consequence of Member State sensitivities related to issues that could be perceived to overlap with discussions regarding land use and spatial planning, considered to be national competency (see section on land-use planning below). The Soil Thematic Strategy was the last of all the seven strategies mandated by the 6EAP to be adopted. The framework Directive in essence implemented many of the requirements deemed necessary under the Strategy. Despite the adoption of the Strategy and proposal for a Directive in 2006, a Directive still remains elusive. This is a consequence of a minority of Member States blocking its adoption. The United Kingdom, Germany, France, Austria and the Netherlands have established a blocking minority resisting the adoption of the proposal in its current form. The foundation for these objections is believed to be: that some consider that soil management is an issue that should be dealt within in a way that better reflects the principles of subsidiarity; and that requirements particularly on land remediation would prove a very high cost for Member State governments.

Into the future the priority placed on soil protection actions is anticipated to continue to rise. Action is anticipated in relation to emissions of carbon dioxide associated with land-use change whether linked to discussions on carbon credits for the protection of forests (and other terrestrial carbon sinks); the evolution of criteria for the sustainable production of biofuels (see section on promotion of the use biofuels or other renewable fuels for transport); or through discussions aimed at linking payments to farmers more directly to the public goods they provide to society. In addition, Europe is beginning to develop a policy approach to adaptation to climate change.

The Thematic Strategy on soil protection

The text of the Thematic Strategy on soil protection (COM(2006)231) is primarily dedicated to explaining the content of the proposed Directive (COM(2006)232) containing limited detail in terms of defining the problem, issues associated with soil, the existing policy framework and future action. The Strategy states that it is built around 'four key pillars':

- Framework legislation.
- Integration of soil protection into the formulation and implantation of national and community policies.
- Closing the current knowledge gar in certain areas of soil protection.
- Increasing public awareness.

The 'guiding principles' of the Strategy, around which action is focused, are:

- Preventing further soil degradation and preserving its functions.

- Restoring degraded soils to a level of functionality consistent at least with current and intended use.

The Strategy focuses on functionality appropriate to use (i.e. there is no one standard for a high-quality soil), but it must be fit for the use to which it is being put; this is the approach used in many EU Member States to decide the level of soil quality required on a given site. In terms of concrete actions to be undertaken, the proposal for a Directive establishing a framework for the protection of soil is by far the most substantive and important. Other efforts focused on reviewing or better implementing existing EU measures and developing a more coherent research base. These included:

- Reviewing the Sewage Sludge Directive.
- Reviewing the Integrated Pollution Prevention and Control Directive – which has since been recast as the Industrial Emissions Directive (to be operational from 7 January 2014).
- Ensuring measures within river basin management plans, under the Water Framework Directive are appropriate for soil protection.
- Developing an improved knowledge base related to soil biodiversity.
- Developing a best practice guide to soil sealing prevention techniques and policies.
- Conduct research into the interrelationship between climate change and soil protection.
- Conduct research to assess synergies between soil protection and protection of coastal waters.

The Thematic Strategy was developed building on intensive stakeholder engagement within five working groups of experts from across Europe. The most significant development as a consequence of their recommendations was the adoption of a proposal for a framework Directive on soil protection, rather an the originally envisaged approach of bringing forward independent measures on soil research and monitoring, sewage sludge and the use of biowaste. However, as a consequence, a revision of the sewage sludge Directive and adoption of a proposal on biowaste have yet to be put forward.

A proposed framework for soil protection

On the 22 September 2006 the European Commission adopted its first proposal for a Directive (COM(2006)232) intended explicitly to preserve soil functions, prevent and mitigate the impacts of soil degradation and restore degraded soils. The proposal is seen as the key implementing measure under the Thematic Strategy for Soil Protection. As a proposal for a framework Directive, it sets out a structure and series of objectives to be met by Member States, but leaves flexibility in terms of target setting.

The proposal sets out its objective to be the protection of soil and the preservation of the capacity of soil to perform any of the following environmental, economic, social and cultural functions:

- Biomass production, including in agriculture and forestry.
- The storing, filtering and transforming nutrients, substances and water.
- Preserving the biodiversity pool, such as habitats, species and genes.

- Offering a physical and cultural environment for humans and human activities.
- A source of raw materials.
- Acting as carbon pool.
- As an archive of geological and archaeological heritage.
- Under the proposal actions are split into three distinct elements:
- Developing programmes to combat erosion, organic matter decline, compaction, salinization and landslides.
- Preventing, identifying and remediating soil contamination.
- Awareness raising related to soil issues.

The majority of the proposal focuses on the identification and remediation of contaminated sites. It is this element that has caused controversy with a minority of Member States due to the costs they anticipate to be associated with firstly developing an inventory of contaminated sites and then securing their remediation. Meanwhile some Member States have actively welcomed the proposal, as they hope this will enable them to reprioritize soil issues.

The proposal has been criticized by environmental groups, in particular there are concerns regarding the lack of proactive efforts to protect soils and address interactions between soil degradation and emissions of carbon dioxide. There are also concerns that the proposed Directive does not effectively address Europe's most expansive user of land, the agriculture sector.

The lack of political will to adopt the proposed soil framework Directive within the Council has not deterred the Commission from attempting to push forward action. Since the introduction of the Thematic Strategy on soil, the Commission has supported various actions. The need to improve the availability of data on the state of soils and their risk of degradation that are comparable across the EU has been a key area of activity, including introducing a soil component of LUCAS, a survey on land cover, land use and agro-environmental indicators run by Eurostat. In June 2011 the Commission renewed a call for 'action at all levels' to stop soil loss due to urban sealing.

In October 2011, the European Environmental Bureau (EEB) published a report entitled 'Soil: worth standing your ground for'.[6] It presented arguments in favour of the adoption of the proposed soil framework Directive, highlighting the ecological functions carried out by soils, and the fact that at global scale 'soil can store twice as much carbon as the atmosphere and three times as much as the vegetation'. The report also identified the threats faced and the trends in soil deterioration. It also argued with the views of those Member States concerned at the potential costs of the proposed Directive.

In February 2012, two reports were released highlighting concerns regarding soil degradation in Europe and actions needed to remediate this. The first of these was issued by the Commission in the form of a Communication (COM(2012)46), 'The implementation of the Soil Thematic Strategy and on-going activities report'. It provided an overview of the implementation of the Thematic Strategy for soil protection since its adoption in 2006 and an update of the state of the key threats to soils, based on evidence provided by the JRC (see below), It noted that even though more than five years have passed since the launch of the Thematic Strategy, there is still a lack of consistent information and systematic data gathering.

The Commission Communication provided an update on the progress made under each of the four pillars of the Thematic Strategy. It found that progress has been made concerning awareness rising and research, with a range of public events having taken place and 25 projects addressing soils issues were granted funding under the Seventh Framework Programme for Research. The Commission expressed its regret that the proposal for a Directive continued to be blocked. With regard to integration, the report noted that soil continues to be integrated in relevant EU policies, particularly in relation to:

- The Common Agricultural Policy (CAP): In the CAP soil protection has formed a central element of the standards of good agricultural and environmental condition (GAEC) since the introduction of cross-compliance in 2003. In the CAP legislative proposals for 2014-2020 further soil- related standards have been put forward, namely a new GAEC requiring the maintenance of soil organic matter, including a ban on arable stubble burning and a ban on the 'first ploughing' of wetlands and carbon-rich soils. Rural development policy also requires agri-environment schemes to be implemented that may support soil protective operations.
  The report noted that a potential greening of Pillar One direct payments would support further protection measures for soil organic matter and erosion.
- The Industrial Emissions Directive (IED): the Directive was adopted in 2010 and contains provisions to ensure that industrial operations do not lead to a deterioration in the quality of both soil and ground water. However the IED only covers active installations and its scope does not encompass all soil damaging activities. The report mentions that the European Pollutant Release and Transfer Register (E-PRTR) could be a potential tool to track the release of pollutants to the soil. However very few data related to soil have been reported to date.

The second report, accompanying the Communication, was published by the Joint Research Centre (JRC). Entitled the 'State of soils in Europe in 2010', the report was part of the EEA State and Outlook report process (SOER) and provided an updated assessment of the situation of soils in Europe using new modelling techniques.[7] It highlighted that, although 'nearly all the food, fuel and fibres used by humans are produced on soil', soils in much of Europe are being over-exploited, degraded and lost due to 'inappropriate land management practices, industrial activities and land-use change'. The JRC identified key threats to be addressed by policy makers, which are sources of biodiversity decline and loss of soil ecosystems services. They are: compaction, contamination, erosion, landslides, organic matter decline, salinization and soil sealing. All of these threats are further worsened by the fact that soil formation is a very slow process. It stresses that the consequences of climate change (extreme weather events, increased flooding and drought etc.) will increase the pressures already faced by soils.

The wider acquis: measures impacting on EU soil management

There is an array of EU legislation that deals, predominantly indirectly, with soil protection and addressing degradation processes. EU requirements and policies can impact upon the use of land or management practices applied. In so doing, EU measures currently set out legal requirements for management or provide funding to undertake certain activities. Table 1 sets out a list of EU laws currently in place that, in some way, aids the protection or management of soils. These policies operate either by:

- Specifying or offering funding support should certain management practices be applied.
- Requiring the consideration of environmental impact within Decision making, including soil protection.
- Placing a legal obligation on the land holder to protect the land and its soils and, should damage be done, remediating that damage.
- Restricting practices that might impact negatively on land and soils.

Table 1. Key elements of the broader EU acquis that can help to protect Europe's soils.

EU policy or law	Description
Rural and agriculture policy	
Council Regulation (EEC) No 73/2009 – Cross Compliance conditions for agriculture	Farmers claiming direct payments are obliged: Under Article 6, to maintain all agricultural land in good agricultural and environmental condition (GAEC). This entails compliance with standards relating to soil protection, maintenance of soil organic matter and soil structure, as defined by Member States. Under Article 5, to meet statutory management requirements to enforcement of specific Articles of 19 EU Directives relating to the areas of the environment, public health and animal health and welfare.
Council Regulation (EEC) No 2092/91 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs	Annex I to the Regulation specifies the principles of organic production for plants, livestock (cattle, pigs, sheep, goats, horses and poultry) and bees, and all products thereof. Annex II explains which substances may be used as pesticides, soil fertilizers, feed and detergents for animals, along with any exceptions. Organic farming does not automatically protect soils, but compliance can often increases consideration of soil impacts and the importance of quality soils for delivering yield quality.
Council Regulation (EC) No 1698/2005 on support for rural development by the European Agricultural Fund for Rural Development.	Under this Regulation the following payments are permitted to farmers who meet certain conditions: Axis 2 – Agri Environment – Incentive payments for protecting the environment and conserving the rural landscape beyond the baseline level stipulated by Cross-compliance. Measures are chosen from a menu and may specifically address land-degradation risks through support for practices, such as extensification and organic farming, although the extent of which varies across Member States. Axis 2 – Less Favoured Area Measure – Financial support for maintaining the countryside in areas where agricultural production or activity is more difficult because of natural handicaps. LFA payments are granted annually per hectare of utilized agricultural area. Beneficiaries are required to farm for at least five years from the first payment and to

	farm a minimum area under eligibility criteria, both fixed at the Member State level. Axis 2 – Afforestation – Payments are made to support, sustain, and avoid land abandonment in forested areas and holdings, and for afforestation and the establishment of agroforestry systems through compensation payments for establishment maintenance, and loss of income. Axis 1 – Farm modernization – can provide farmers with training courses and demonstrations on the sustainable management of natural resources, or the results of new research and technology; funds for investment in machinery and infrastructure; cooperation with the development of new technologies and techniques; and support for food quality schemes, all of which may be used to improve production techniques and the management of farm waste.
Environmental protection – strategic measures	
EIA Directive 85/337/EEC	The EIA procedure ensures that the environmental consequences of public and private projects are identified and assessed before authorization is given. Direct and indirect effects of a project on the following factors are considered: human beings, fauna and flora; soil, water, air, climate and the landscape; material assets and the cultural heritage.
Liability Directive 2004/35/EC	The Directive sets out rules related to liability for environmental damage affecting habitats and species, damages to water or land. It requires that the polluter be held liable for damage and that damage be remediated. It is fundamentally important in terms of providing an infrastructure for the remediation of soil and resources to combat soil degradation.
SEA Directive 2001/42/EC	The Directive requires authorities to undertake an environmental assessment of certain plans and programmes that are likely to give rise to significant effects on the environment. The Directive does require an assessment to consider the potential impacts upon soils; however, SEA as an instrument is highly flexible.
Nature conservation and protection of designated areas	
Habitats Directive 92/43/EEC. Birds Directive 2009/147/EC. Natura 2000.	Avoiding pollution and the deterioration of soils are implicit preconditions for the protection or recovery of habitats and species under both of these Directives.
Water management	
Water Framework Directive 2000/60/EC	The implementation of the Water Framework Directive is a priority in order to address mismanagement of water resources with the objectives of preventing and reducing pollution, promoting sustainable water use, protecting the aquatic environment, improving the status of aquatic ecosystems and mitigating the effects of floods and droughts. Given the close inter-linkage between water pollution and soil degradation this is a key tool for soil

	protection, especially given that river basin management plans require local/regional level planning.
Nitrates Directive 91/676/EEC	Designed to protect the European Community's waters against nitrate pollution primarily arising from the application and storage of inorganic fertilizer and manure from agricultural sources as a soil improver. It requires Member States to designate 'Nitrate Vulnerable Zones' where there is significant nitrate concentration found in fresh water. The Directive also promotes beneficial cropping techniques such as rotations and winter cover. As a consequence it offers a basis for reducing artificial inputs to soils and improving management to retain nutrients and organic matter *in situ*.
Groundwater Directive 2006/118/EC	The purpose of this Directive is to prevent the discharge of certain toxic, persistent and bioaccumulable substances into groundwater. The interconnectivity between water and soil issues can lead to prevention of soil contamination.
Flood risk management Directive 2007/60/EC	This measure requires Member States to assess if all water courses and coast lines are at risk from flooding, to map the flood extent and assets and humans at risk in these areas and to take adequate and coordinated measures to reduce this flood risk. Member States are required to develop flood management plans taking account of land use, water and soil management.
Pollution control	
Integrated Pollution Prevention and Control Directive 2008/1/EC, to be replaced by the Industrial Emissions Directive 2010/75/EU	This measure requires industrial and agricultural activities with a high pollution potential to have a permit. This permit can only be issued if certain environmental conditions are met, so that the companies themselves bear responsibility for preventing and reducing any pollution they may cause. The permit includes provision to operate in line with Best Available Techniques, to return the site to its original state once the activity is over and specifically highlights the need to set requirements in relation to soil, water and air protection (among others).
National Emissions Ceilings Directive 2001/81/EC	This measure sets ceilings for the emissions of four key pollutants: sulphur dioxide (SO_2), oxides of nitrogen (NO_x), volatile organic compounds (VOCs) and ammonia (NH_3). The purpose of the Directive is to combat damage, *inter alia*, from acidification and eutrophication both of which can have a significant impact on soil quality.
Large Combustion Plants Directive 2001/80/EC	This Directive aims to reduce emissions of acidifying pollutants, particles, and ozone precursors. It specifically sets emission limit values for SO_x, NO_x and dust. This reduces levels of soil acidification and eutrophication.
Sewage Sludge Directive 86/278/EEC	The Directive regulates the use of sewage sludge on agricultural land, by limiting and restricting applications in such a way as to prevent harmful effects on soil, vegetation, animals and man. To this end, it prohibits the use of untreated sludge on agricultural land unless it is

	injected or incorporated into the soil.
Waste management	
Directive on Waste (2006/12/EC)	The Directive requires Member States to take the necessary measures to ensure that waste is recovered or disposed of without endangering human health and without using processes or methods which could harm the environment. In particular this should be carried out without risk to water, air or soil.
Landfill Directive 99/31/EC	The Directive aims to prevent or reduce as far as possible negative effects on the environment from the landfilling of waste, by introducing stringent technical requirements for waste and landfills and preventing/reducing the adverse effects of the landfill of waste on the environment, in particular on surface water, groundwater, soil, air and human health.
Mining Waste Directive 2006/21/EC	This Directive applies to waste resulting from the extraction, treatment and storage of mineral resources and the working of quarries. It sets specific requirements on the management of mining waste, which has proved particularly hazardous in the past for contamination of the land and water supplies.

Spatial planning and the impact of EU Policy on land use Decision making

An introduction to the relationship between EU Law and land use decisions

Decisions as to the use of a parcel of land and the appropriateness of land use are closely related to the potential environmental impact of an activity. This applies to the whole range from the siting of large-scale industrial plant to decisions as to what crop is grown on a given farm or in a specific field. The appropriateness of the land use and the relationship between that parcel of land and vulnerable or valued elements of the natural environment such as water courses, aquifers, sites of value for nature conservation, etc., are two factors that will determine the environmental risk posed by a given activity – the other key aspect being the effectiveness and appropriateness of management practices.

Within the EU spatial planning, of which land-use planning is one element, is deemed by many Member States as of national competence; with oversight over land-use Decision making closely guarded by some. However, EU law making does still have a significant impact on national and regional Decision making regarding land use. Moreover, while not spatially explicit, the implementation of an EU policy may require Member States to change the basis of land-use-related Decision making and develop spatially explicit approaches to environmental protection. In order to appease some Member States, the term Territorial Cohesion is now used in EU policy dossiers as an alternative to spatial planning. In essence, however, the concepts are very similar, that is determining what will happen where, and how activities will be coordinated spatially. The Lisbon Treaty now contains a reference to territorial cohesion, stating that Europe will seek to enhance this.

Where EU laws and policies are not spatially explicit, they often encompass concepts that, by their very nature, impact on spatial Decision making. These include:

- The delimitation of areas eligible for financial support and determining of levels of assistance based on location – the distribution of EU funding is often regionally focused, determining which areas are permitted to access to support under, for example, the Structural Funds. Moreover, the location and relationship to spatially relevant factors, such as protected areas, is used to determine support under agri-environmental schemes and for other rural development funding.
- The improvement of infrastructures – certain Community policies intervene by financing infrastructures for example, with the trans-European networks for transport and energy sectors.
- Using spatial categories – a number of environmental policies make use of spatial categories, for example, areas selected for protecting given habitats and species of fauna and flora under the network Natura 2000.
- Integrated spatial development – there are a number of EU initiatives that are implemented in a spatially explicit way including funding under INTERREG and developments related to integrated coastal zone management.
- Requiring the adoption of spatially explicit plans or programmes – given the increasing emphasis on the adoption of framework Directives, permitting Member States greater flexibility in terms of implementation, this can result in the need to adopt spatially explicit plans or programmes of implementation, for example, the development of river basin management plans under the Water Framework Directive.

EU Environmental policy and land use

Despite the European Community being limited in its adoption of legislation which focuses on land use and spatial Decision making, several non-binding strategies have been adopted since the late 1990s. The European Spatial Development Perspective (ESDP) is an informal EU policy. It was the first EU measure to set out an EU approach to the spatial aspects of development decisions. The ESDP was adopted at an Informal meeting of the Council of Ministers under Germany's 1999 Presidency devoted to spatial planning. The ESDP sets out a strategic approach to spatial development policies aimed at moving towards a balanced and sustainable development of the territory of the European Union. This is in essence a measure aimed at setting a basis for coordination of action across Member States. A lack of coordination between Member States was felt to be inhibiting the EU's objective of delivering cohesion. The ESDP focuses on three key challenges faced by Europe in the context of regional development with the intention of promoting:

- Economic and social cohesion.
- Conservation and management of natural resources.
- Cultural heritage.

Since 1999 the debate in Europe over spatial policies has evolved with the replacement of the reference to spatial development, with the concept of territorial cohesion. In 2008 the European Commission adopted a Green Paper on Territorial Cohesion (COM(2008)616) Unlike the ESDP, which contained a significant focus on environmental management, the Green Paper focuses primarily on economic and social issues of cohesion.

In addition to these more strategic discussions on spatial development and territorial cohesion, the following environmental policies presented in the manual have a potentially significant impact on land-use decisions or land-use planning.

Environmental policy legislation with an explicit spatial dimension:

- Seveso II Directive (see section on major accident hazards) – the implementation of requirements under Seveso II for the prevention of major accidents contains an explicit requirement regarding land-use planning. Seveso II requires the land-use plans and policies to take account of the location of the establishment to which the Directive applies and the siting of transport links and other locations of frequented by the public or residential accommodation.
- Habitats and Birds Directive – these protect specific land areas through the designation of areas on nature conservation value.
- Water Framework Directive – the approach to implementation via the development of river basin management plans essentially requires local level Decision making and planning regarding land management and use.
- Nitrates Directive – requires the designation of nitrate vulnerable zones.
- Floods Directive – requires a spatial approach examining land use and vulnerability to flood events.

Environmental policy legislation supporting land-use-based Decision making:

- The Environment Impact Assessment Directive – specifies the approach to the assessment of development projects that require a change in land use or activity type.
- The Strategic Environmental Assessment Directive – specifies the approach to evaluating certain plans and programmes, importantly many of these would determine decisions related to land-use Decision making.

Funding mechanisms:

- Requirements arising from rural development funding and the wider Structural Funds apply spatially characteristics to determine funding level. In some cases this will be based on environmental or socio-economic characteristics.

Research funding:

- The EU has developed two key tools for the evaluation of land use in Europe these are INSIPRE (infrastructure for Spatial Information in Europe) and GMES (Global Monitoring for Environment and Security.

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