

## 1 RESOURCES AND PROCESS

### Soils

## 2 DEFINITION

**soil** - (i) The unconsolidated mineral or organic material on the immediate surface of the Earth that serves as a natural medium for the growth of land plants. (ii) The unconsolidated mineral or organic matter on the surface of the Earth that has been subjected to and shows effects of genetic and environmental factors of: climate (including water and temperature effects), and macro- and microorganisms, conditioned by relief, acting on parent material over a period of time. A product-soil differs from the material from which it is derived in many physical, chemical, biological, and morphological properties and characteristics.\*

**soil** - Soil is a natural body comprised of solids (minerals and organic matter), liquid, and gases that occurs on the land surface, occupies space, and is characterized by one or both of the following: horizons, or layers (Its interface with the air or shallow water above and at the lower horizon with the bedrock or parent material) are distinguishable from the initial material as a result of additions, losses, transfers, and transformations of energy and matter or the ability to support rooted plants in a natural environment.\*\*

\*General definition used by US Dept. Agriculture.

\*\*Definition from Soil Taxonomy 2<sup>nd</sup> Edition.

## 3 DISCUSSION

Soil is a fundamental and irreplaceable natural resource and provides an essential link between the components that make up our environment (i.e. air, water, biodiversity). Soil supports the delivery of ecosystem goods and services fundamental to our wellbeing and prosperity, which whilst not easy to evaluate in economic terms, requires consideration by Government in making policy and by all other land users. The diversity and versatility of England's soils help shape the landscape including above ground biodiversity.

The First Soil Action Plan for England (2004-2006) provided a good foundation but there is still much to be done, to improve the management of soils, to deliver a wide range of benefits to society and to improve the measures we use to achieve this. A draft Soil Strategy for England is currently out for public consultation, to succeed the First Soil Action Plan for England. The draft Soil Strategy for England takes stock of progress under the Action Plan, as well as taking forward emerging priorities for

soil protection on maintaining soil carbon and the recycling of organic wastes to land.

The draft Soil Strategy for England identifies the functions that soil performs and outlines their importance and the pressures being faced. Below are listed some of the major functions:

- Environmental interaction (e.g. regulating the flow of and filtering substances from water, emitting and removing atmospheric gases, storing carbon);
- Supporting food and fibre production;
- Support of habitats and biodiversity;
- Protection of cultural heritage and archaeology;
- Providing a platform (for construction); and
- Raw materials.

The draft strategy identifies key priorities for soil as the main policy area's and that require integration with other relevant policy.

- Sustainable soil management in the agricultural and forestry sector.
- Halting the decline of soil carbon.
- Sustainable soil management in the built environment.
- Protection of soil during the recycling of organic materials to land.

The Environment Agency Report, State of Soils in England and Wales (2004) reviewed evidence on the state of soils and summarised our current situation. The report identified five main challenges for soil, which align with the pressures described in the draft strategy.

- Integrating management of air, soil and water – air, soil and water are closely linked and must be managed as a whole so that we can tackle diffuse pollution to improve water quality, protect soils from air pollution and manage flood risk.
- Tackling the impacts of agriculture – Agricultural activities can be damaging to soils and water. Wiser use of soils and other resources needs to be promoted to reduce diffuse pollution from agriculture, to prevent persistent chemicals and excess nutrients from building up as well as to control erosion.
- Protecting soil in the built environment – Greater recognition is needed of the importance of green spaces in the urban environment, which provide leisure opportunities and help manage flood risk. We also need to address contaminated land, as this can pose a risk to water quality and deter re-development.

- Understanding soil biodiversity – the nature and role of soil biodiversity is vital to healthy soils and we need to understand it better.
- Improving the knowledge base – we need to extend our knowledge and improve access to practical information on soils and the pressures on them.

Evaluating these functions in terms of the economic services provided by soil and thus, helping to establish the risk of a certain course of action can be difficult. However, a system has been devised that attempts to provide a valuation, The Millennium Ecosystems Assessment (MA) provides an international process that describes these functions in terms of ecosystem services. The tool assesses ecosystem benefits in terms of human wellbeing and provides a methodology for quantifying the value of different soils in different areas in respect of the services provided.

#### **4 RELEVANCE TO PLANNING**

Given the information in the discussion above it can be demonstrated that most developments can impact soil. However, this can be both a positive and a negative intervention, therefore it is important to carry out an evaluation of any proposal. Opportunities for improvement and minimisation of adverse impacts to soil should be given a high priority at an early stage in the planning process.

Using land for building and infrastructure can damage soils irreversibly by effectively sealing the soil. This soil sealing places severe restrictions on the ability of soil to support other functions.

Much of this damage can be avoided if sufficient thought is given to what soil functions need to be preserved, utilised or even enhanced. Regional Spatial Strategies and Local Development Frameworks provide a basis for this consideration, and should aim to minimise the impact of development on soil.

An appreciation of the relative functional capacity of soil resources and the threats to soils may assist in siting and designing built developments more sensitively, as well as the carrying out of other construction activity. It can also contribute to wider land use decisions in relation to water, meeting climate change challenges, and the use and management of the countryside.

Consideration should also be given to the part that soils can play in the provision of multi-functional green infrastructure (in urban environments) and how these can help to mitigate against

flooding, improve biodiversity (and habitat corridors) and combating the 'heat island' effect.

## **5 LEGISLATIVE CONTEXT**

Framework Directives for waste and water are major drivers for plans and strategies, particularly at the higher level. In the case of soil however, there is currently no framework directive in place, although one has been proposed.

The EU does however, recognise the importance of soil and the fact that, although other legislation considers soil, it is not a sufficient protection.

For these reasons, the Commission adopted a Soil Thematic Strategy (COM(2006) 231) and a proposal for a Soil Framework Directive (COM(2006) 232) on 22 September 2006 with the objective to protect soils across the EU. The Strategy and the proposal have been sent to the other European Institutions for the further steps in the decision-making process.

The Thematic Strategy for Soil Protection consists of a Communication from the Commission to the other European Institutions, a proposal for a framework Directive (a European law), and an Impact Assessment. It explains why further action is needed to ensure a high level of soil protection, sets the overall objective of the Strategy and explains what kind of measures must be taken.

The proposal for a framework Directive (COM(2006) 232) sets out common principles for protecting soils across the EU. Within this common framework, the EU Member States will be in a position to decide how best to protect soil and how use it in a sustainable way on their own territory.

The key threats identified in the Thematic Strategy (Erosion, decline in soil organic matter, contamination, sealing, decline in biodiversity, salinisation and landslides) are taken account of in the current draft Soil Strategy for England.

### **Soils in Planning Policy**

A number of Planning Policy Statements refer to the need to consider the implications for soils. These are the main ones:

- Over-arching approach to soils in the planning system is expressed in paragraph 20 of PPS1: Delivering Sustainable Development "Development plan policies should take account of environmental issues such as...the conservation of soil quality"
- PPS11: Regional Spatial Strategies (Para 1.2 – Purpose

and Scope of a RSS): “Other relevant strategies at national, regional or sub-regional level [which an RSS should take account of] include, but are not limited to...soil use and sustainable development.”

In addition both *Strategic Environmental Assessment* and *Sustainability Appraisal* require assessment of “the likely significant effects [of plans] on the environment, including on issues such as...soil.”

- PPS7: Sustainable Development in Rural Areas sets out the policy for the protection of best and most versatile agricultural land (BMV).

As well as contributing to *sustainable development*, the protection and sustainable use of soils will also contribute to and influence the delivery and implementation of the following policy areas:

- Sustainable Communities
- Climate change
- Water quality (Water Framework Directive)
- Water resources (aquifer recharge)
- Flood risk
- Natural resource protection
- Sustainable agriculture

PPS 25 deals with development and flood risk, obviously land use and hence soil, are integral considerations. The key planning objectives mention the use of Sustainable Drainage Systems (SUDS) to minimise flood risk and links to sustainable development.

Annex A outlines the Governments aims and states “**Living Within Environmental Limits** – Respecting the limits of the planet’s environment, resources and biodiversity – to improve our environment and ensure that the natural resources needed for life are unimpaired and remain so for future generations.

PPS 12 deals with local spatial planning and the adoption of a single core strategy. This strategy should consist of an overall vision, containing the main objectives for an area, a delivery strategy and clear arrangements for the monitoring and management of the delivery strategy.

The core strategy should relate back to the RSS, hence reference to any relevant strategy on soil, should be included. If the core strategy does not adequately cover a topic, then other DPD’s and supplementary planning guidance can provide greater detail and amplify the policies contained in the RSS.

This link will take you to the Defra Soils homepage; here you will find more information on the progress of the Draft Soil Strategy for England, the EU Thematic Strategy and proposals for a framework directive, research and soils in the built environment.

<http://www.defra.gov.uk/environment/land/soil/>

Link to CLG Planning, Building and the Environment site, where Planning Policy Statements are located:

<http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyguidance/planningpolicystatements/planningpolicystatements/>

The Environment Agency has recently published its strategy for soil; Soil a Precious Resource, with a 31 point action plan. It can be found at:

[http://publications.environment-agency.gov.uk/pdf/GEHO1007BNDB-e-e.pdf?lang=\\_e](http://publications.environment-agency.gov.uk/pdf/GEHO1007BNDB-e-e.pdf?lang=_e)

Hampshire County Council has been working with a number of partners to produce soils [guidance and information](#).

The National Soil Resources Institute (NSRI) has recently created an '[Interactive Soilscales Viewer](#)' which provides a useful introduction to the spatial distribution and broad character of soils and land use.

EUGRIS is a web portal offering information and services on topics related to soil and water. Originally funded by the EU, this is an easy to use tool for locating information and research, it requires registration.

<http://www.eugris.info/index.asp>

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