



Protecting the Nation's Soils

# Valuing our soil resource for sustainable ecosystem services

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## What does soil do for human well-being?

- Soil is essentially a non-renewable resource and is one of Scotland's most important assets. We are dependent upon our soils to support the range of ecosystem services that provide us with food, clean water, building materials, healthy environments, etc
- Conflicts in managing the land for multiple benefits need a more holistic approach to valuation reflecting the range of social, environmental as well as economic interests of different stakeholders

## What are soil-related ecosystem services?\*

### Supporting services

Nutrient cycling, water release/retention, soil formation, habitat for biodiversity, exchange of gases with the atmosphere, degradation of complex materials



**Provisioning services:**  
food & fibre production, water availability, platform for construction



**Regulating services:**  
carbon sequestration, greenhouse gas emissions, water purification, natural attenuation of pollutants



**Cultural services:**  
protection of archaeological remains, outdoor recreational pursuits, our landscapes, supporting our habitats

\* Source : Millennium Ecosystem Services

## Approach to valuation

- By applying innovative and integrative approaches, we will assess direct, indirect and non-use values of soils under current and potential land uses and management practices
- We are particularly interested in how the management of soil carbon, as a key property of soil, would influence the relative importance of ecosystem services such as crop production, carbon sequestration, regulating water quality and biodiversity; management could improve one while impairing another

## Supporting decision-making

Our objective is to produce tools to support decision-making, for example;

- A simple framework for communicating to relevant stakeholders the concepts and value of soil in delivering ecosystem services
- A mechanism to evaluate how policy instruments might be used to achieve sustainable management of Scottish soils for multiple benefits



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