The European Environment: State & Outlook 2015 (SOER 2015)

Thematic briefings on Soil and Land systems Follow-up

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SOER 2015

A comprehensive assessment of past trends and future outlooks and of opportunities to recalibrate policies, knowledge, investments and innovations in line with the long-term vision of the 7th EAP.

<table>
<thead>
<tr>
<th>SOER 2015 Synthesis report</th>
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</thead>
<tbody>
<tr>
<td>SOER 2015 Assessment of global megatrends</td>
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<table>
<thead>
<tr>
<th>Global megatrends</th>
<th>European briefings</th>
<th>Cross-country comparisons</th>
<th>Countries and regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 briefings</td>
<td>25 briefings</td>
<td>9 briefings</td>
<td>39+3 briefings</td>
</tr>
</tbody>
</table>
The policy context

- 2015: Thematic policies, timelines and deadlines
- 2020/2030: Comprehensive policies (Europe 2020, 7th Environment Action Programme), or specific target
- 2050: Long-term visions and targets with a societal transition perspective

Environmental sustainability

- Europe 2020 targets
- Halt biodiversity loss
- EU climate targets
- Air quality targets
- EU waste targets
- EU waste targets 2020/2030
- 2050 Vision in 7EAP
- Reduce greenhouse gases by 80–95%
- Water blueprint
- Zero impacts (air)
- No net land-take
- Sustainable Development Goals (SDG)

Source: EEA Multiannual Work Programme 2014–2018
‘In 2050, we live well, within the planet's ecological limits.

Our prosperity and healthy environment stem from an innovative, circular economy where nothing is wasted and where natural resources are managed sustainably, and biodiversity is protected, valued and restored in ways that enhance our society's resilience.

Our low-carbon growth has long been decoupled from resource use, setting the pace for a global safe and sustainable society.’

Source: 7th EU Environment Action Programme
## Thematic priority objective 1: Protecting, conserving and enhancing natural capital

<table>
<thead>
<tr>
<th>Thematic area</th>
<th>Past (5–10 year) trends</th>
<th>20+ years outlook</th>
<th>Progress to policy targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terrestrial and freshwater biodiversity</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Land use and soil functions</td>
<td></td>
<td></td>
<td>No target</td>
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<tr>
<td>Ecological status of freshwater bodies</td>
<td>☑</td>
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<tr>
<td>Water quality and nutrient loading</td>
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<tr>
<td>Air pollution and its ecosystem impacts</td>
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<tr>
<td>Marine and coastal biodiversity</td>
<td>☑</td>
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<tr>
<td>Climate change impacts on ecosystems</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

- Improving trends dominate
- Trends show mixed picture
- Deteriorating trends dominate

Source: EEA, SOER 2015 Synthesis report.
Thematic priority objective 2: Resource efficiency and the low-carbon economy

<table>
<thead>
<tr>
<th>Area</th>
<th>Past (5–10 year) trends</th>
<th>20+ years outlook</th>
<th>Progress to policy targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material resource efficiency and material use</td>
<td></td>
<td></td>
<td>No target</td>
</tr>
<tr>
<td>Waste management</td>
<td></td>
<td></td>
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<tr>
<td>Greenhouse gas emissions and climate change mitigation</td>
<td></td>
<td></td>
<td>✓ / ✗</td>
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<tr>
<td>Energy consumption and fossil fuel use</td>
<td></td>
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<td>✓</td>
</tr>
<tr>
<td>Transport demand and related environmental impacts</td>
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<tr>
<td>Industrial pollution to air, soil and water</td>
<td></td>
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<tr>
<td>Water use and water quantity stress</td>
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<td></td>
<td>✗</td>
</tr>
</tbody>
</table>

Source: EEA. SOER 2015 Synthesis report.
## Thematic priority objective 3: Safeguarding from environmental risks to health

<table>
<thead>
<tr>
<th>Environmental Risk Area</th>
<th>Past (5–10 year) Trends</th>
<th>20+ years outlook</th>
<th>Progress to policy targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water pollution and related environmental health risks</td>
<td>Improving trends dominate</td>
<td></td>
<td>✓ / □</td>
</tr>
<tr>
<td>Air pollution and related environmental health risks</td>
<td>Trends show mixed picture</td>
<td></td>
<td>□</td>
</tr>
<tr>
<td>Noise pollution (especially in urban areas)</td>
<td>Deteriorating trends dominate</td>
<td>/</td>
<td>□</td>
</tr>
<tr>
<td>Urban systems and grey infrastructure</td>
<td></td>
<td></td>
<td>No target</td>
</tr>
<tr>
<td>Climate change and related environmental health risks</td>
<td></td>
<td></td>
<td>No target</td>
</tr>
<tr>
<td>Chemicals and related environmental health risks</td>
<td>Improving trends dominate</td>
<td></td>
<td>✓ / ✗</td>
</tr>
</tbody>
</table>

**Source:** EEA. SOER 2015 Synthesis report.
The overall picture:
Efficiency improvements have not secured long-term resilience

Protecting, conserving and enhancing natural capital
Resource efficiency and the low-carbon economy
Safeguarding from environmental risks to health

Past (5–10) year trends

20+ years outlook

Improving trends dominate
Trends show mixed picture
Deteriorating trends dominate

Source: EEA. SOER 2015 Synthesis report.
'Land take' dominates in Europe, with artificial areas and agricultural intensification, resulting in land degradation, worsened by high fragmentation on 30% of land area. Conflicting demands on land impact significantly on the land's potential to supply key services.

Limiting 'land take' is already an important policy target at national or sub-national level. Balancing land-recycling, compact urban development, place-based management and green infrastructure will provide positive effects.

Source: EEA, 2015, The European Environment: State & Outlook 2015 (SOER 2015), European briefing 'Land systems'.
Land system
Components and interactions

Land as a resource – Linking across scales

Geo-spatial and governance scales

Global
European
National
Regional
Local

Place-based land allocation and management

Environmental:
Ecosystem resilience

Economic:
Resource efficiency

Political:
Participation

Social:
Social equity

Cultural:
Sense of place

Sustainability dimensions

The ability of soil to deliver ecosystem services — in terms of food production, as biodiversity pools and as a regulator of gases, water and nutrients — is under increasing pressure. Observed rates of soil sealing, erosion, contamination and decline in organic matter all reduce soil capability. Organic carbon stocks in agricultural soil may have been overestimated by 25%.

A coherent soil policy at EU level would provide the framework to coordinate efforts to survey soil status adequately.

Land – Soil
Multi-functionality central in resource use

1. Biodiversity pool (habitat for soil organisms)
2. Storing, filtering and transforming nutrients, substances and water
3. Biomass production (medium for plant growth)
4. Carbon pool
5. Platform/medium for buildings and human activity
6. Archive for natural & cultural heritage
7. Source of raw materials


Source: Circular Flow Land Use Management
Follow-up
EEA reporting
Planned EEA reports


• ‘European soil nutrients balances and critical loads of N, P and Cd, in view of food, soil and water quality’, EEA thematic briefings (2016) – with ETC ULS.

• ‘Climate change, impact & Vulnerability’, EEA report (2016).

Source: Geography & Geology For Kids
Planned EEA reports and indicators

- ‘Land recycling’, EEA technical report (Q1 2016) – with ETC ULS.


- EEA indicators (LSI series)
  - Land take (CSI 014)
  - Imperviousness – new LSI: set of land and soil indicators

CSI: core set indicator

Follow-up

2015 – UN International Year of Soils
Video at launch UN IYS 2015
‘Not just dirt: the importance of soil’

The UN has declared 2015 the **Year of Soils**, to raise increase awareness and understanding of the importance of soil, for both food security and essential ecosystem functions. The EEA will also look at soil as one of several priority areas next year. Watch this space as we continue to explore the world beneath our feet throughout 2015...

Interviews

• ‘From the ground, up’, Pan European Networks: Science & Technology 14, 208-211 (March 2015).

• ‘Land and soil losing ground to human activities’, EEA Newsletter 2015/2 (June 2015).

• ‘Push for soil indicators to help monitor SDGs’, SciDevNet (March 2015) – with IASS.

Speed read

- The MDGs include just one indicator of land use and none of soil quality
- This should change for the SDGs, say specialists, as they relate to many goals
- Soil specialists can learn from climate scientists in changing policy
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