



Joint Research Centre (JRC)

# **Soil degradation risks and prevention in the EU: Soil Protection Policy in Europe**

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Joint  
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# Do we have a problem with soils?





# Evidence of soil degradation in Europe



# EU wide public consultation 2005



## General questions on soil

Do you consider yourself well informed about the importance of soil and soil functions for human activities and the survival of ecosystems?

		% of total
I am confident I know sufficient	561	(46.5%)
I know the basics	416	(34.5%)
I know very little	229	(19%)

Almost all human activities are based on soil. In which of the following areas are you aware that soil plays a crucial role in? (Tick as many as applicable)

		% of total
maintaining good quality of surface water, groundwater and drinking water	1142	(94.7%)
hosting many organisms which are important for the ecosystems	1100	(91.2%)
providing agricultural products, timber and biomass	1095	(90.8%)
providing the basis of different landscapes (e.g. protected areas)	813	(67.4%)
preserving traces about past civilisations and geological eras	652	(54.1%)
providing minerals, clay, sand, aggregates, peat or other raw materials	638	(52.9%)

In your opinion, which of the following activities contributes most to soil degradation? (Tick a maximum of 5 options)

		% of total
polluting industrial installations	847	(70.2%)
overuse of pesticides	757	(62.8%)
intensive arable farming	680	(56.4%)
urban sprawl	609	(50.5%)
illegal landfills	586	(48.6%)
clear felling	462	(38.3%)
poorly managed extractive industry	444	(36.8%)
intensive livestock production	415	(34.4%)
poor irrigation practices	357	(29.6%)
heavy machinery use	255	(21.1%)
excessive machinery use	160	(13.3%)
land abandonment	118	(9.8%)
I don't know	5	(0.4%)

## Soil Threats

Which of these threats affecting soil do you consider to be the most important in your country? (Tick a maximum of three threats)

		% of total
contamination	766	(63.5%)
soil biodiversity loss	601	(49.8%)
sealing	561	(46.5%)
erosion	558	(46.3%)
organic matter decline	416	(34.5%)
compaction	158	(13.1%)
salinisation	135	(11.2%)
landslides	78	(6.5%)
I don't know	39	(3.2%)

Do you think it is important to know exactly where these threats are or might be occurring in the national territory?

		% of total
very important	716	(59.4%)
important	404	(33.5%)
medium	68	(5.6%)
low	10	(0.8%)
I don't know/No opinion	7	(0.6%)

How would you rank the importance of preventing and mitigating soil degradation in the EU?

		% of total
very important	818	(67.8%)
important	280	(23.2%)
important but less than other environmental problems	98	(8.1%)
not at all important	7	(0.6%)
I don't know	3	(0.2%)

Although soil type and characteristics are very variable across Europe, it is subject in many countries to the same problems. Soil is a static media, nevertheless, soil degradation has transboundary impacts. Against this background which of the following courses of action is the most appropriate?

		% of total
a framework is developed at EU level and measures are established at national/local level	900	(74.6%)
all measures are established at EU level	198	(16.4%)
no action is taken at EU level	58	(4.8%)
I don't know	50	(4.1%)





## EU Thematic Strategy for Soil Protection adopted by the European Commission on the 22<sup>nd</sup> of September 2006

*COMMUNICATION COM(2006) 231 on the Thematic Strategy for Soil Protection*

*DIRECTIVE COM(2006) 232 establishing a framework for the protection of soil and amending Directive 2004/35/EC*

*IMPACT ASSESSMENT SEC(2006) 620 of the Thematic Strategy for Soil Protection*

<http://ec.europa.eu/environment/soil/index.htm>

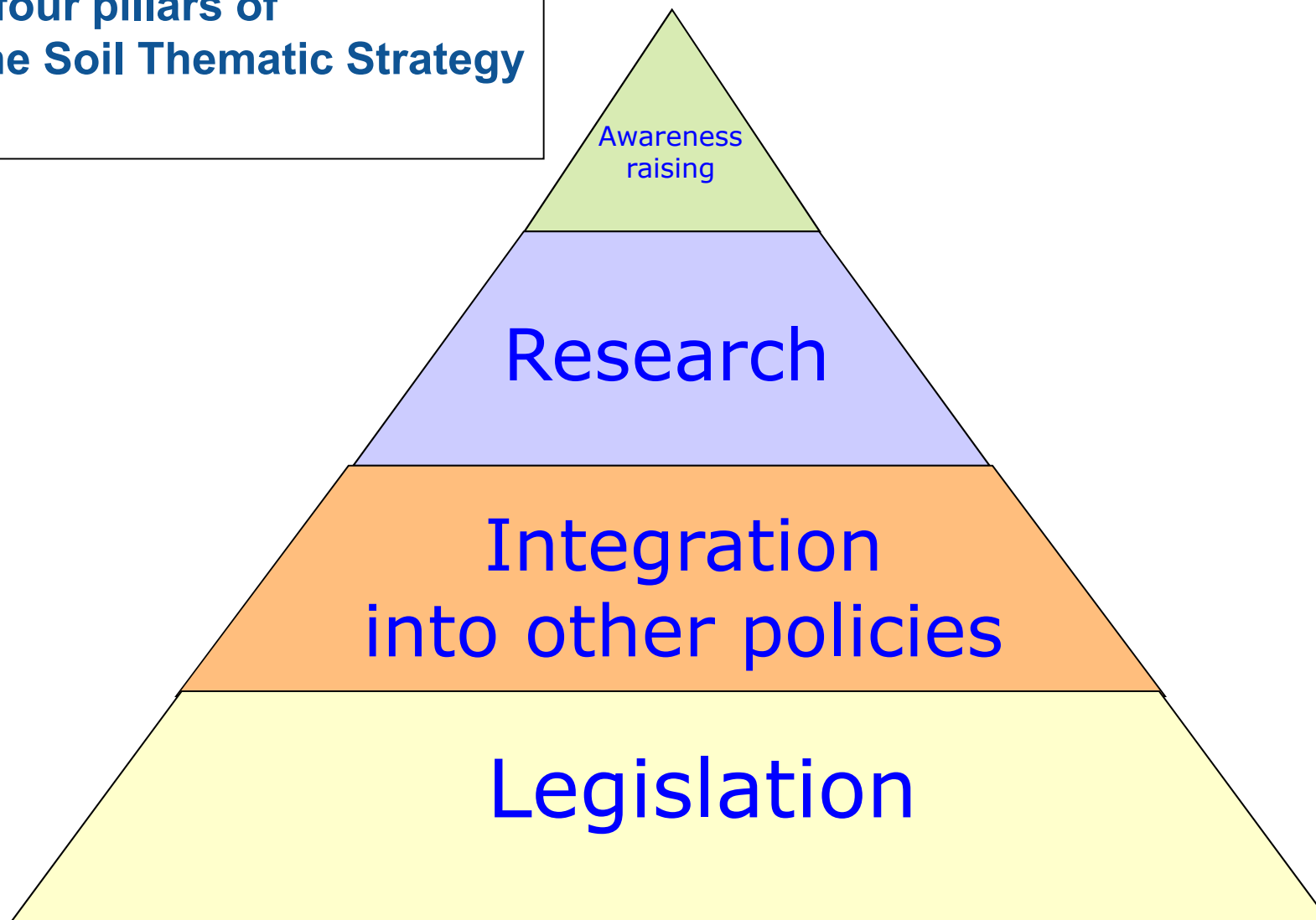
<http://ies.jrc.ec.europa.eu>

<http://eusoils.jrc.it>



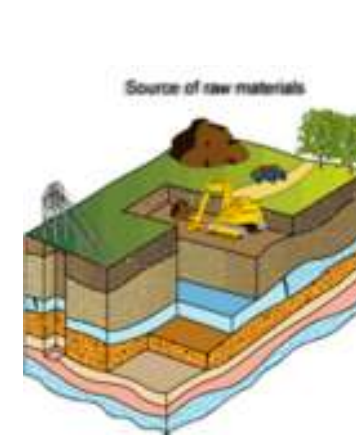
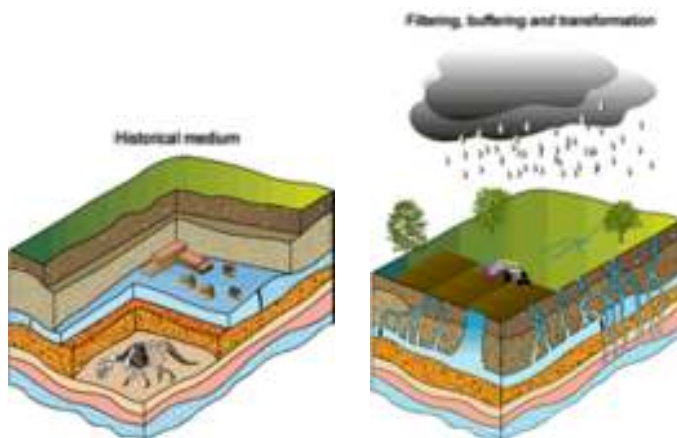
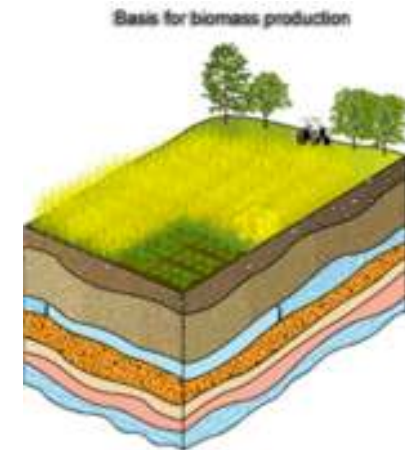


**The four pillars of  
the Soil Thematic Strategy**

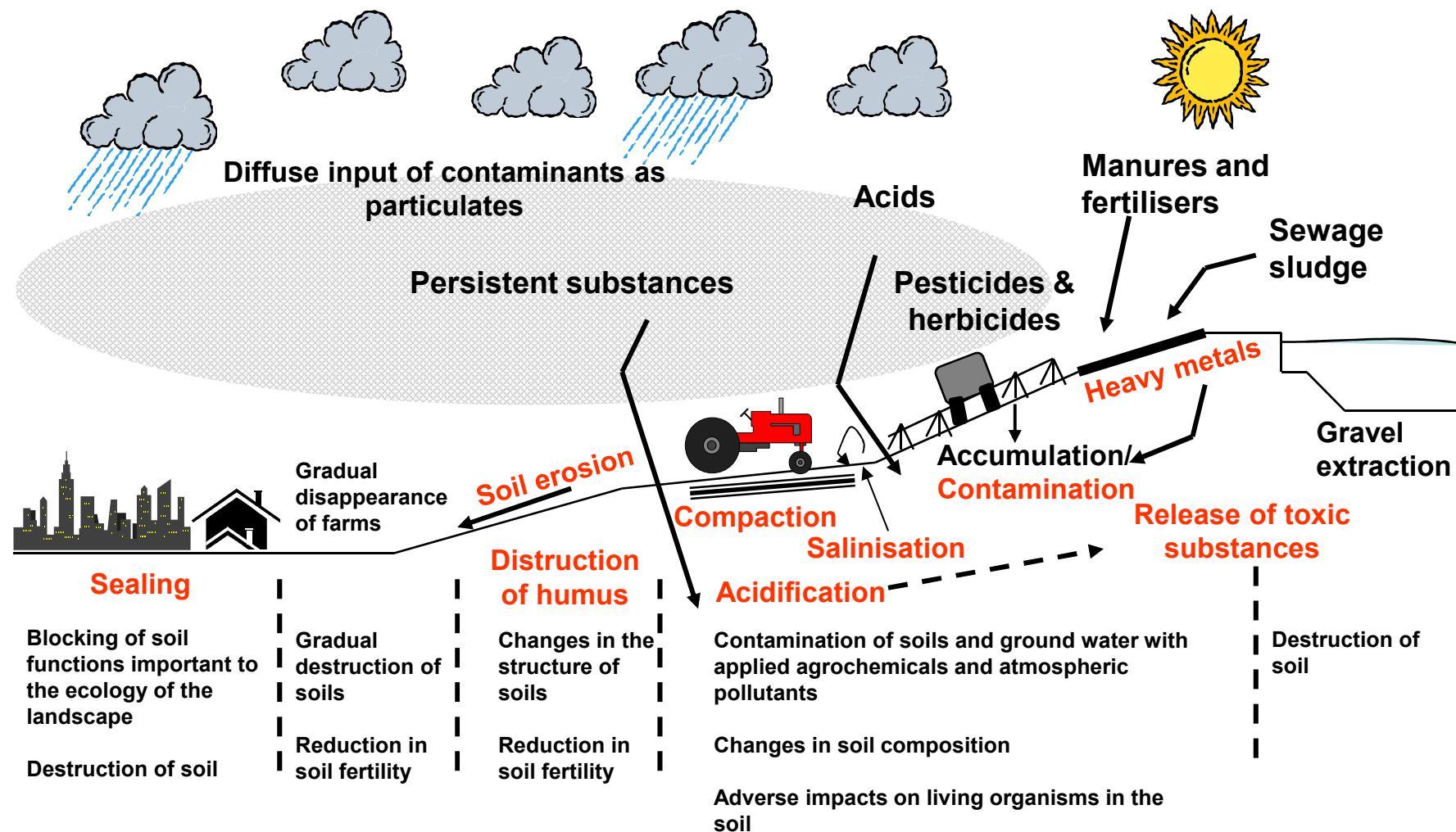


## ***Soils deliver multiple services relevant to all of us:***

1. *Biomass production, including in agriculture and forestry;*
2. *Storing, filtering and transforming nutrients, substances and water;*
3. *Biodiversity pool, such as habitats, species and genes;*
4. *Physical and cultural environment for humans and human activities;*
5. *Source of raw materials;*
6. *Acting as carbon pool;*
7. *Archive of geological and archeological heritage.*



# Soil degradation processes limit the soil functions

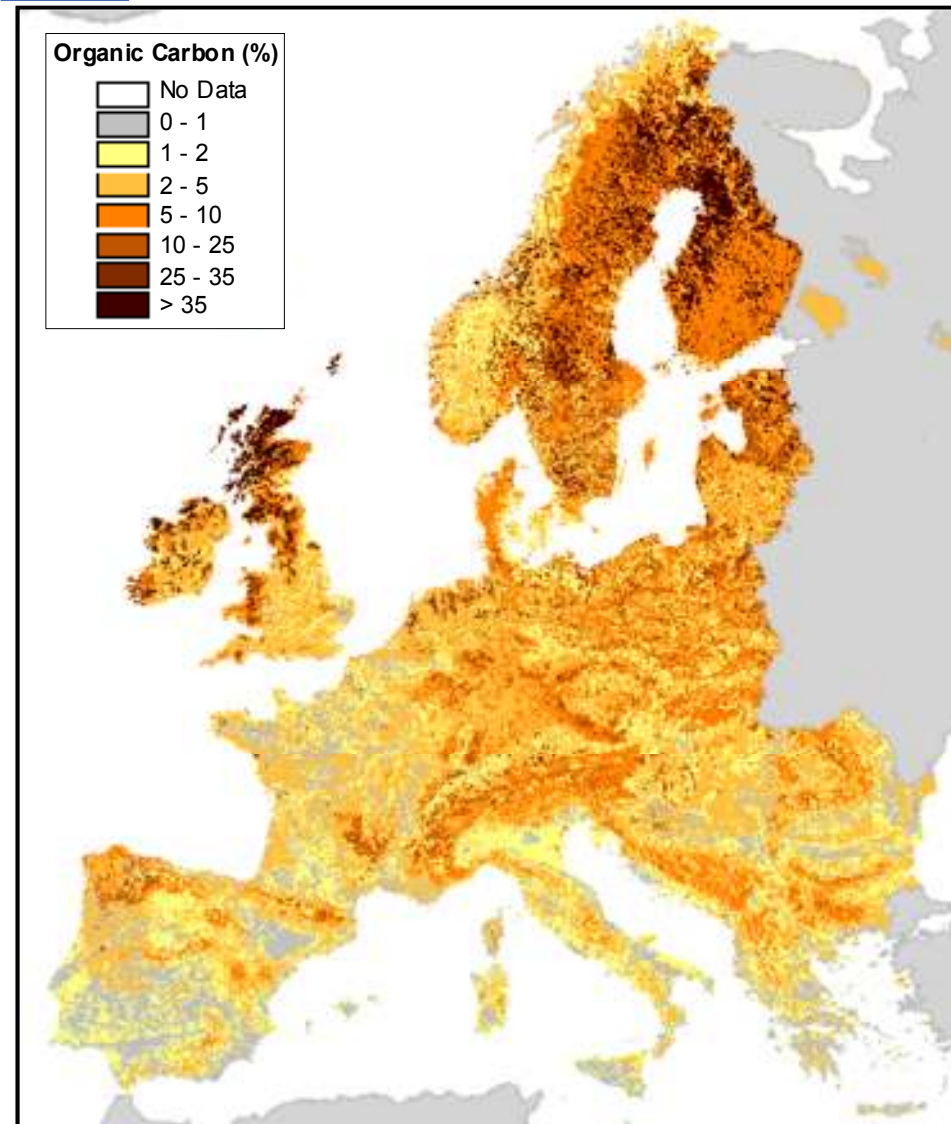




# Soil organic matter



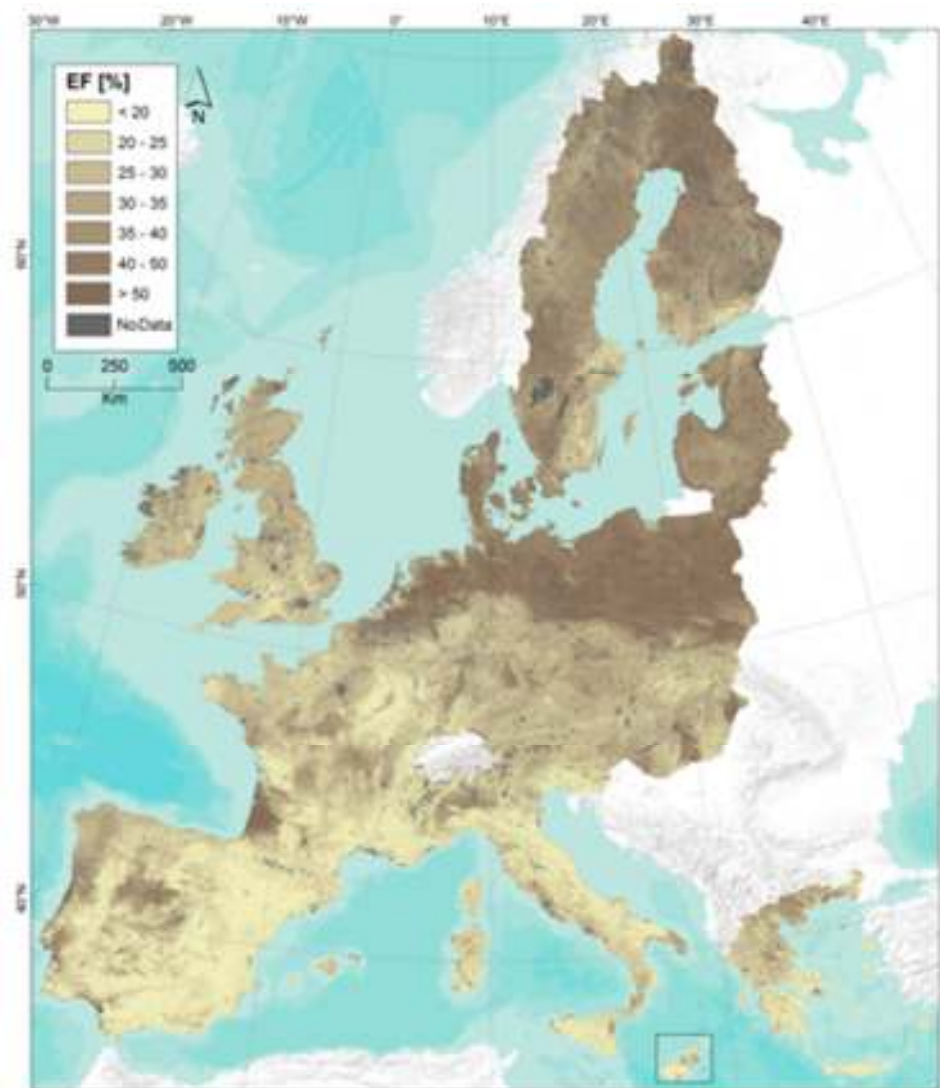
Organic carbon content (%) in the surface horizon (0-30 cm) of European soils.



## Soil erosion by water in the EU 27 (t/ha/y) based on the RUSLE



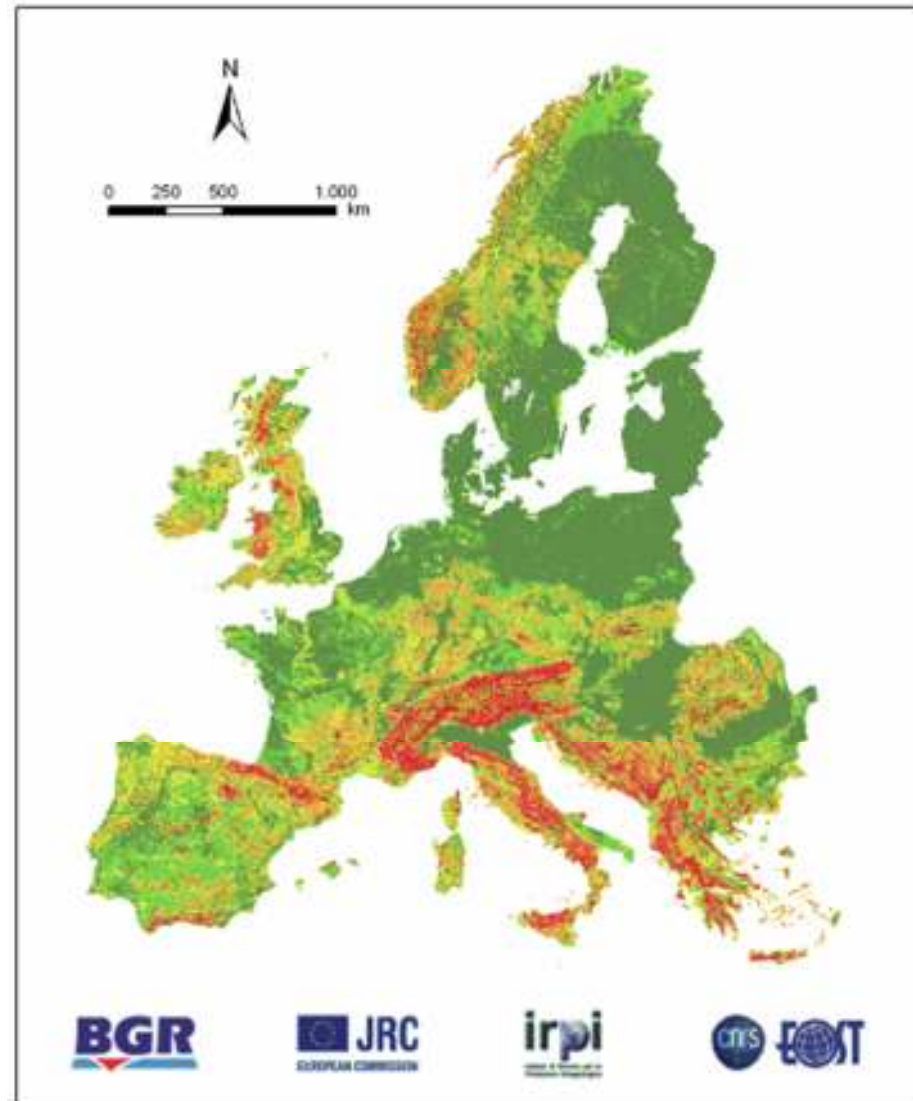
## Wind erosion susceptibility of the European soil based on the estimation of the wind-erodible fraction of soil (EF)



# Landslides

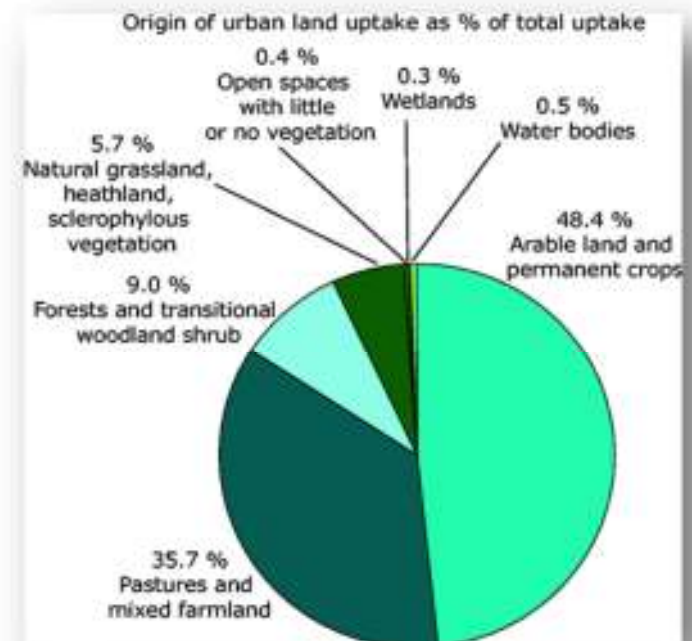
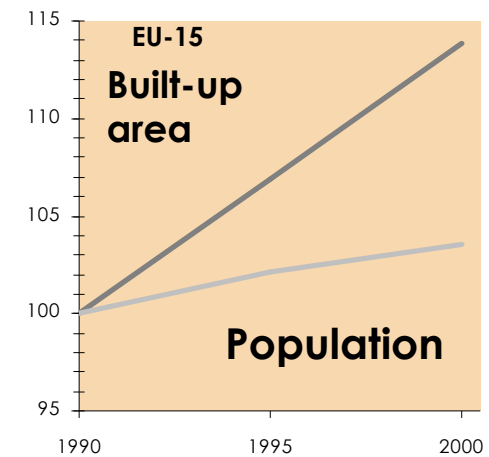


Landslides are a major threat in mountainous and hilly areas across Europe (land abandonment being an aggravating factor), often producing serious impacts on population, property and infrastructure. Over 630,000 landslides are currently registered in national databases.





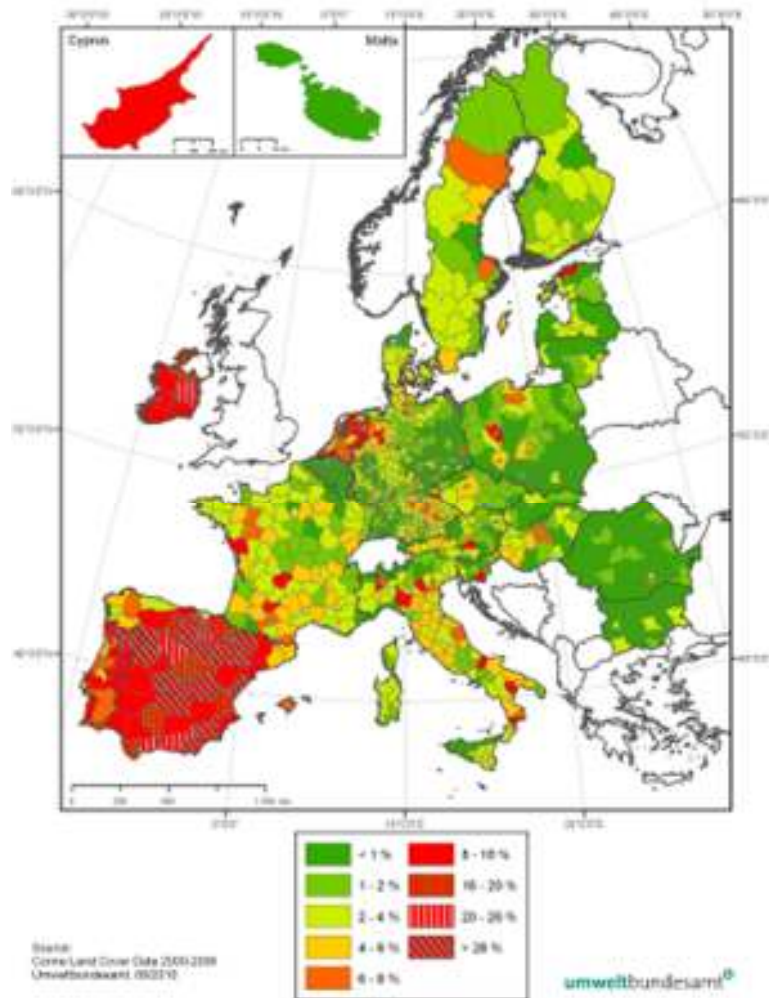
# Human Impact in Europe: Urbanization



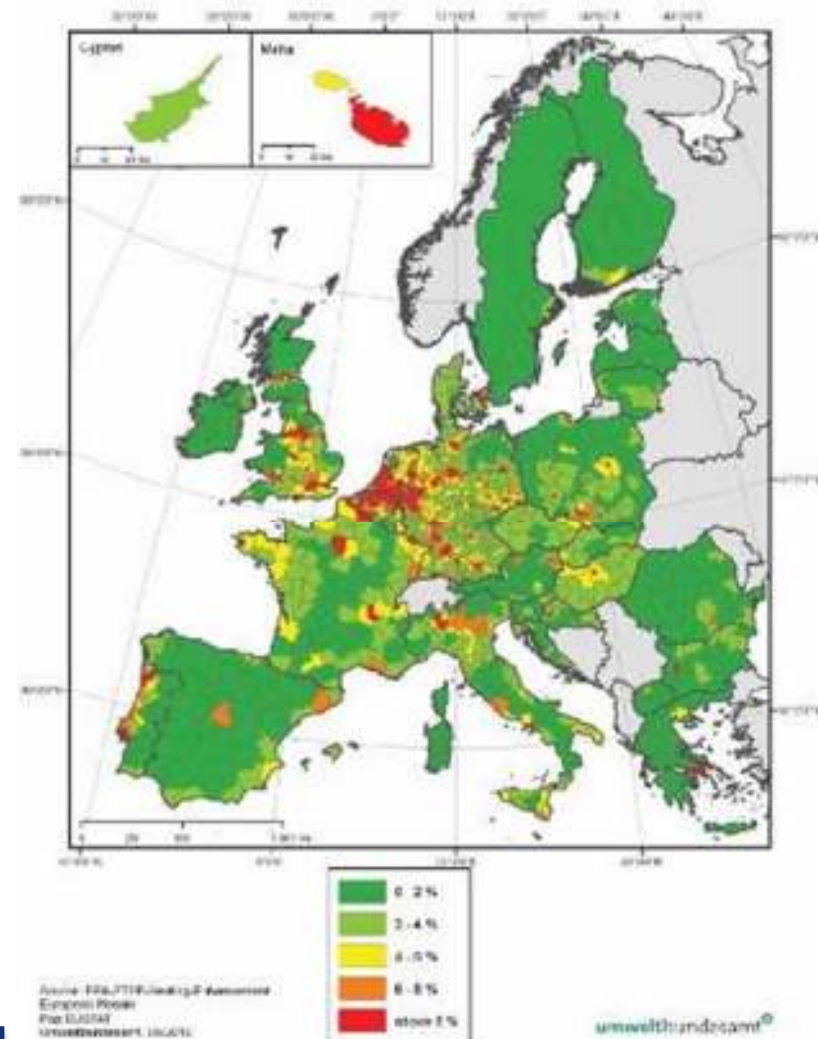
# Soil sealing



Land take per administrative unit in the period 2000-2006



Soil sealed surface in 2006



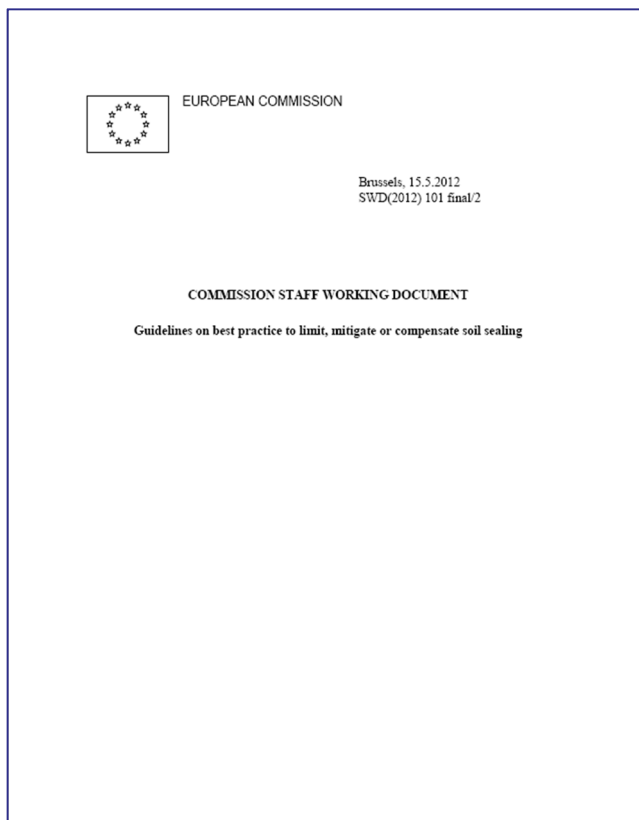


European  
Commission

# Guidelines on best practice to limit, mitigate or compensate soil sealing

SWD(2012) 101 final/2, 15 May 2012

[http://ec.europa.eu/environment/soil/sealing\\_guidelines.htm](http://ec.europa.eu/environment/soil/sealing_guidelines.htm)



Available  
in all EU  
official  
languages



Available  
in selected  
EU official  
languages





## Resource Efficiency Roadmap, COM(2011) 571:

- *Milestone: By 2020, EU policies take into account their direct and indirect impact on land use in the EU and globally, and the rate of **land take** is on track with an aim to achieve no net land take by 2050; **soil erosion** is reduced and the **soil organic matter** increased, with remedial work on **contaminated sites** well underway.*
- *Communication on land use (2014)*



## Proposal for a general Union Environment Action Programme to 2020: *Living well, within the limits of our planet*, COM(2011) 571

Priority objective 1: To protect, conserve and enhance the EU's natural capital:

- (23) *To reduce the most significant man-made pressures on land, soil and other ecosystems in Europe, action will be taken to ensure that decisions relating to land use at all relevant levels give proper consideration to environmental as well as social and economic impacts. The Rio+20 Summit outcome called for a 'land degradation neutral world'. The EU and Member States should reflect on how best to make such a commitment operational within their respective competencies as well as to address soil quality issues within **a binding legal framework** (COM(2006) 232). Targets will also be set for sustainable land use and soil.*
- (26) *In order to protect, conserve and enhance the EU's natural capital, the programme shall ensure that by 2020: (e) Land is managed sustainably in the EU, soil is adequately protected and the remediation of contaminated sites is well underway.*
- *This **requires**, in particular: (e) **Increasing efforts to reduce soil erosion and increase soil organic matter, to remediate contaminated sites and to enhance the integration of land use aspects** into coordinated decision-making involving all relevant levels of government, supported by the **adoption of targets on soil and on land** as a resource, and land planning objectives.*

# SFD withdrawal & 7EAP



## ❖ **REFIT Communication, COM(2013) 685, 2.10.2013:**

*The Commission notes that the proposal [for a Soil Framework Directive] has been pending for 8 years during which time no effective action has resulted. It will therefore examine carefully whether the objective of the proposal, to which the Commission remains committed, is best served by maintaining the proposal or by withdrawing it, thus opening the way for an alternative initiative in the next mandate. This will be judged on the feasibility of reaching adoption before the European Parliament elections.*

## ❖ **Withdrawal Decision (corrigendum), OJ C 163, 28.5.2014:**

*The Commission remains committed to the objective of the protection of soil and will examine options on how to best achieve this. Any further initiative in this respect will however have to be considered by the next college.*

## ❖ **7EAP, Decision 1386/2013/EU, OJ L 354, 28.12.2013:**

*25. (...) The Union and its Member States should also reflect as soon as possible on how soil quality issues could be addressed using a targeted and proportionate risk-based approach within a binding legal framework. Targets should also be set for sustainable land use and soil.*





## ❖ **Resource Efficiency Road Map, COM(2011) 571, 20.9.2011:**

*Milestone: By 2020, EU policies take into account their direct and indirect impact on land use in the EU and globally, and the rate of land take is on track with an aim to achieve no net land take by 2050; soil erosion is reduced and the soil organic matter increased, with remedial work on contaminated sites well underway.*

*The Commission will further develop the scientific knowledge-base on biotic material, land-use effects and trends, and spatial planning (...) leading to a Communication on land use (in 2014).*

## ❖ **Communication on "Land as a resource":**

- ❖ IA ongoing (two external contracts + JRC-EEA support)
- ❖ ISG established (first meeting on 19 May 2014)
- ❖ Land Conference on 19 June 2014
- ❖ Public consultation in the autumn or with new Commission
- ❖ Adoption by the Commission in the course of 2015



## Outcome Rio+20:

### ***A Zero Net Land Degradation World***

- What does it mean?
- At what scale (local, National, Regional, Global)?
- Who should implement it?
- How can it be measured?
- When should it be achieved?



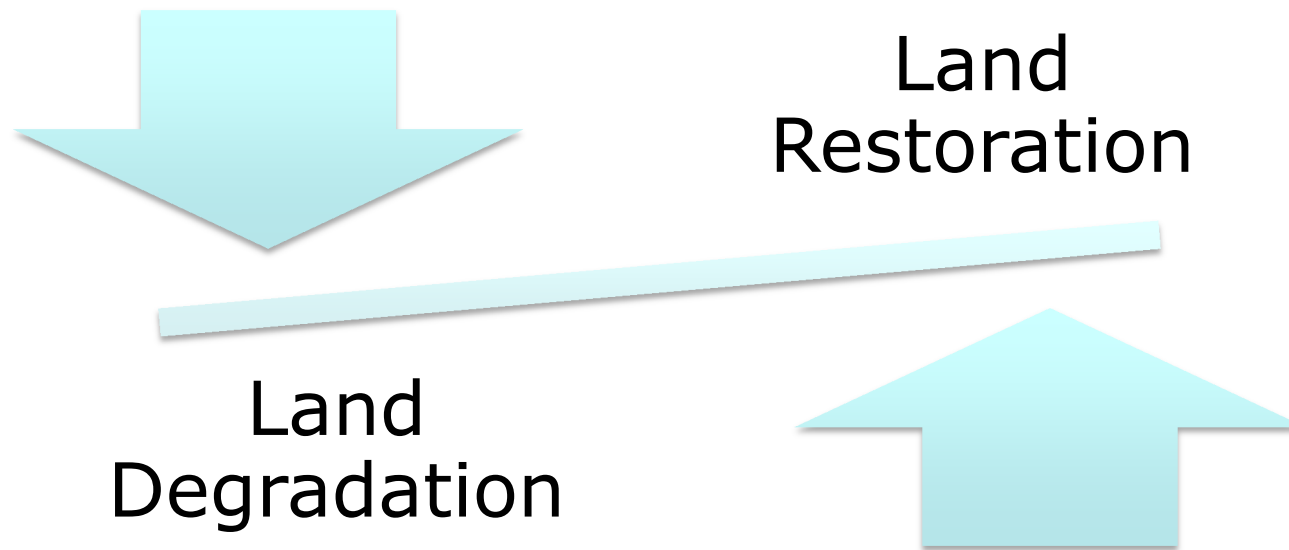
RIO 2012

United Nations  
Conference on  
Sustainable Development

# **The Future we want!**



## Towards Zero Net Land Degradation



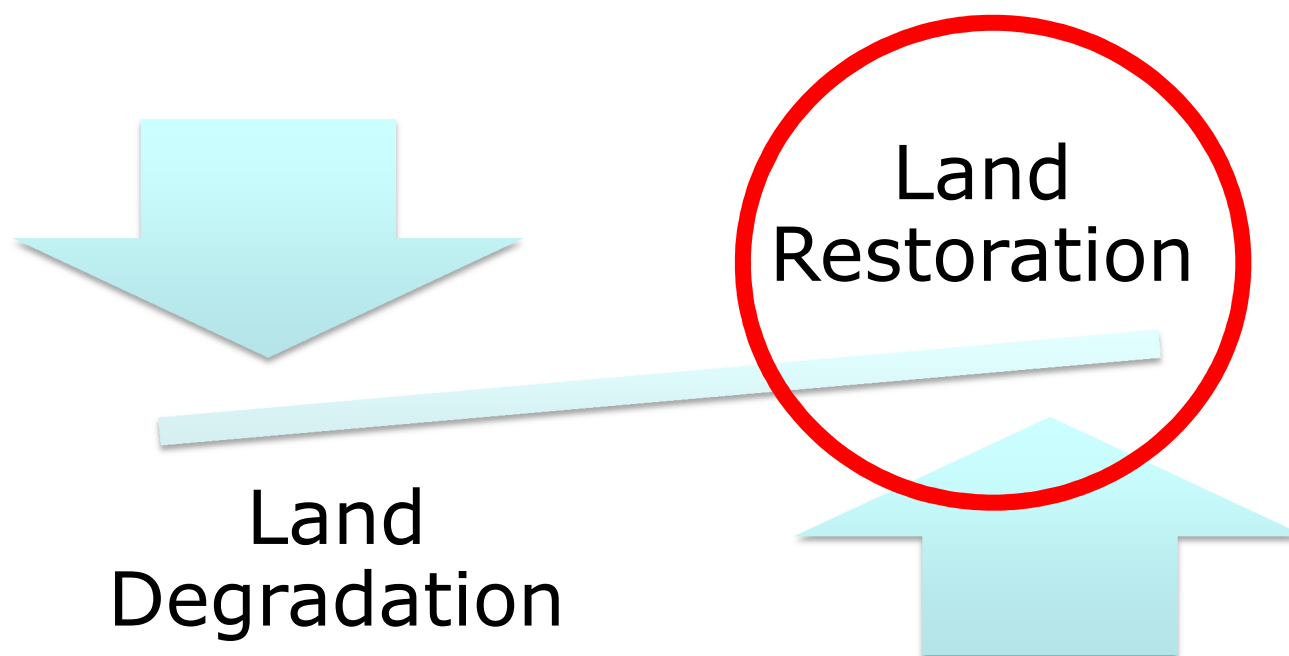
RIO 2012  
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# The Future we want!





## Towards Zero Net Land Degradation



RIO 2012  
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Conference on  
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# The Future we want!

## Way forward: Horizon 2020

Establish a network of successful demonstration sites for soil/land restoration



(Galicia, NW Spain; Macías-García et al. 2009)

# Post 2015 negotiations



- ❖ Process launched in Rio+20: from MDGs to SDGs
- ❖ Open Working Group (OWG) meetings in New York in 2013-14
- ❖ Last meeting OWG13 in July 2014
- ❖ Report by co-chairs to UNSG in September 2014
- ❖ Report by UNSG to UNGA by December 2014
- ❖ SDGs to be adopted by world leaders in September 2015

Current version of the OWG "Zero Draft Rev 1" (30 June 2014):

- Proposed **goal 15: Protect and promote sustainable use of terrestrial ecosystems, halt desertification, land degradation and biodiversity loss**
- Proposed target 15.3: **By 2030, achieve a land degradation neutral world, and restore degraded land including land affected by desertification and drought**
- Proposed target 2.4: **By 2030 implement sustainable and resilient agricultural practices including for adaptation to climate change, extreme weather, drought and disasters, and progressively enhance soil quality**
- Proposed target 3.7: **By 2030 substantially reduce the number of deaths and illnesses from air (indoor and outdoor), water and soil pollution**
- Proposed target 11.3: **Enhance capacities for integrated and sustainable human settlement planning and management for all, and reduce urban sprawl**







## The Road to 2015

March – Aug 2014:  
OWG shifts to  
recommending  
new goals, goals,  
indicators

Sept 2014:  
OWG submits  
report to UN  
GA

End of 2014:  
UNSG synthesis  
report of all  
inputs to Post-  
2015 process

September  
2014-2015:  
Negotiations  
of Post-2015  
Agenda.  
**Nov: ICN2**

**Sept 2015 Summit:**  
Adoption of Post-  
2015 Development  
Agenda



## **The 68th UN General Assembly declared 2015 the International Year of Soils (IYS)**

2015

International  
Year of Soils



<http://www.fao.org/soils-2015/en/>



**Thank you for your interest!**



**<http://eusoils.jrc.ec.europa.eu/>**

