ACHIEVING LAND AND SOIL RELATED SUSTAINABLE DEVELOPMENT GOALS IN EUROPE

What each of us can do to reach Land Degradation Neutrality by 2030

For more information, visit https://ec.europa.eu/environment/index_en

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Image 1. Soil layers in a nature area

Introduction

This brochure is aimed at scientists, policy makers, practitioners and end users and citizens, all of you, using land and soil for many reasons. The brochure is showing some good practices and gives recommendations to inspire all people to become involved and act to keep our land and soils healthy for future generations.



In this brochure :

- The EU and its Member States have committed to the Sustainable Development Goals (SDGs).
- Most SDGs depend strongly on soil and land. Therefore, degradation should be avoided and degraded land and soil need to be restored.
- EU and Member States are moving, but not yet there.

- What can each of us do?
 - Awareness-raising, exchange examples
 - Develop a shared methodology
 - Promote region-specific sustainable soil and land management
 - Integrate policies
- Be inspired and act to achieve the land and soil related SDGs.

Image 2. Construction site with waterlogged soil.

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The importance of achieving Land Degradation Neutrality

The EU and its Member States (MS) have in 2015 committed to the United Nation's Sustainable Development Goals (SDGs). This commitment includes a pledge to stop land and soil degradation by 2030. All SDGs to have at least some dependency on soils and land, as clearly shown in figure 1 by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)¹. Most SDGs will be compromised when land and soil are degraded and at the same time, good land and soil management are part of the solution². This directly contributes to food and water security, biodiversity, climate adaptation and mitigation, increased employment, improved gender equality, and avoidance of conflict and migration¹.

> Stop land and soil degradation by 2030

"Combatting land degradation, which is a pervasive, systemic phenomenon occurring in all parts of the world, is an urgent priority in order to protect the biodiversity and ecosystem services that are vital to all life on Earth and to ensure human well-being. Land degradation negatively impacts 3.2 billion people and represents an economic loss in the order of 10% of annual global gross product (IPBES, 2018)""



This brochure focuses on the Land Degradation Neutrality (LDN) target, originating from SDG 15. It sets an objective to achieve a land degradation-

neutral world by 2030, through actions such as combating desertification and restoration of degraded soil and land, including land affected by droughts and floods.

Land Degradation Neutrality (LDN) is defined by the UNCCD as a state in which the amount and quality of land resources necessary to support ecosystems and enhance food security remain stable or increase within specific spatial and temporal scales.



Figure 1. Relevance of land degradation to targets of each SDG¹. Vertical axis: % of experts indicating that halting land degradation and restoration is relevant to achieving that goal. Green colours: indicate the degree to which the targets are synergistic with progress to address land degradation: dark green = all targets are aligned, lighter green boxes = potential trade-offs between targets and efforts to address land degradation and restoration. Nowhere was the relationship between efforts to address land degradation and meeting the SDGs judged to be more conflicting than synergistic.

How far are we?

What are EU and Member States currently doing to achieve the SDGs and in particular LDN?

Implementing the SDGs

The Commission³ is mainstreaming the SDGs into EU policies and making sustainable development an essential guiding principle of EU policy. The 2019 paper 'Towards a sustainable Europe 2030⁴' presents the enabling factors and challenges to implementation of the SDGs in the EU, along with three possible scenarios to integrate the SDGs into EU policy. Since 2016, Eurostat has published reports on progress towards achieving the SDGs in the EU, using a set of EU SDG indicators⁵. The **European Green Deal**⁶ is seen as a cornerstone while it is an integral part of this Commission's strategy to implement the United Nation's 2030 Agenda and the SDGs and the other priorities announced in EC President von der Leyen's political guidelines⁷. Its main elements are found in figure 2. As core part of the European Green Deal, the new EU Biodiversity⁸ Strategy for 2030 sets targets and actions for nature protection and restoration, integrating as well Land Degradation Neutrality.

"Climate change, biodiversity, food security, deforestation and land degradation go together. We need to change the way we produce, consume and trade. Preserving and restoring our ecosystem needs to guide all of our work" (von der Leyen⁷)

Example 1: Sustainable soil management

Many (European) projects are dedicated to the development and implementation in practice of sustainable land and soil management. The Global Soil Partnership (GSP) developed the **Voluntary Guidelines for Sustainable Soil Management (VGSSM)**⁹, these guidelines contain many good practices with the focus on agricultural land. There are also examples for urban land such as the **Guidelines on best practice to limit, mitigate or compensate soil sealing**¹⁰.

More examples, further reading see reference 11.



Figure 2. Elements of the European Green Deal⁶

Alongside the EU-level strategic documents, Member States develop their own approaches to implementation of the SDGs (figure 3).

While European countries lead globally on the SDGs, none seem to be on track to achieve the Goals by 2030¹². Most Member States have adopted national sustainable development plans or strategies. Not all, however, address the SDGs as adopted in 2015. This may trigger the need to update these documents, a process already underway in the several Member States, such as Croatia, Spain, Latvia, Malta and Lithuania (Figure 3).

Achieve the Land Degradation Neutrality objectives

Zooming in at the land and soil related SDGs: there is very little progress towards the Land Degradation Neutrality (LDN) 2030 objective as concluded by the European Court of Auditors (ECA) in their special report of 2018¹³.

Some of the MS are working on different aspects of Land Degradation. Of the Member States, only Italy has set up a national plan to reach LDN. Although many good examples for sustainable land and soil management exist in science, policy and practice (example 1), these are in many cases non-binding and have a sectoral character, neglecting potential **synergies** **and trade-offs** with other topics as covered by the SDGs.

UNCCD's three indicators for Land Degradation: land cover and land cover change, organic carbon in soil and land productivity¹⁴.

Consensus on indicators to measure land degradation has not yet been reached within Europe. However, following the ECA 2018 special report¹³, the Commission has committed itself to work on its recommendations. Part of these recommendations is to "establish a methodology and relevant indicators, starting with the UNCCD's three indicators, to assess the extent of desertification and land degradation in the EU".

When LDN can be operationalised by setting a concrete measurable target, it may be a useful tool for tracking progress in achieving LDN in the particular countries and regions in the EU.



Figure 3. Timeline of adoption of key national SDG strategy in relation to SDG adoption by UN.



Image 3. Land erosion in an agricultural field.

Example 2: UNCCD initiative on Land Degradation Neutrality (LDN)

The new UNCCD 2018–2030 Strategic Framework is the most comprehensive global commitment to achieve Land Degradation Neutrality (LDN) in order to restore the productivity of vast expanses of degraded land, improve the livelihoods of more than 1.3 billion people, and reduce the impacts of drought on vulnerable populations to build a future that avoids, minimizes, and reverses desertification/land degradation and mitigates the effects of drought in affected areas at all levels. Different action programmes have been set to provide policy-relevant information and further guidance, awareness –raising and advocacy on LDN, for UNCCD country parties, key decision– and policy–makers, national and international development partners.

One of the actions is the Land Degradation Neutrality Target Setting, aimed at operationalisation of LDN and transform it into an implementable approach that enables countries to make progress towards achieving SDG target 15.3 and the objectives of the UNCCD. As of today, 124 countries have committed to set LDN targets.

More about this initiative can be found under further reading¹⁵.

Example 3: UNCCD initiative on Land Degradation Neutrality (LDN) in Italy

Italy is currently the only EU member state involved in the Land Degradation Neutrality Target Setting. The project 'Towards achieving Land Degradation Neutrality: turning the concept into practice' was carried out by a working group of experts from the main national research institutions under the supervision of the Ministry of Environment and the UNCCD Focal Point in the Ministry of Foreign Affairs. The project addressed land cover, land productivity and soil organic carbon, in order to be consistent with the LDN indicators as proposed by UNCCD and adopted by UN Statistical Commission. An extensive analysis of available data was carried out, including the CORINE Land Cover Project of the European Environmental Agency and the national contribution to the Global Soil Organic Carbon Map (GSOC map). The Environmental Quality Index was also used, encompassing soil quality, climate, vegetation and land use, showing that 10% of Italian soils turned out to be very vulnerable, while 49.2% have average vulnerability and 26% have low vulnerability.

More about these initiatives under further reading¹⁶.



What can each of us do?

At this moment, there is widespread support on the implementation of soil and land-related SDGs. We need a transitional change, a transformation to sustainable soil and land management at different levels, from global to local. The main objective of this brochure is to start a discussion on how to do this and to exchange good practices to achieve land and soil-related Sustainable Development Goals in Europe. Underneath, four main lines of actions are given for what policy makers, end-users, researchers and society can do to reach Land Degradation Neutrality by 2030.

1. Raise awareness, exchange good hands-on examples



of soil and land. In that way, we can transform our world in a sustainable one for the wellbeing of us and next generations. The most effective strategy is to highlight the strong link of soil and land to the challenges that are high on the political and societal agenda, such as biodiversity, food and water supply, climate change, migration and peace.

There is a need to raise awareness, as all levels of society need to understand that soil and land degradation are important issues. Everything we enjoy comes from land, we all depend on land.

To achieve the SDGs a transitional change is needed in our society. As EC President Ursula von der Leyen said, commenting on the European Green Deal⁶: "(...) We need to transform our way of living and working,



Image 5. Soil sample comparison between healthy soil (right) and unhealthy soil (left)

Example 4: One way to simply show how healthy a soil is, is its organic matter content, which can be indicated by the soil's color and structure. It could serve as a key identifier for land degradation; like CO₂ is the key indicator for climate change.

A healthy dark organically managed soil: high organic matter content, good water holding capacity and infiltration, abundant soil life versus a soil that suffered 20 years of herbicide treatment: no organic matter, vulnerable for droughts, no soil life.

of producing and consuming so that we live healthier and make our businesses innovative. We can all be involved in the transition and we can all benefit from the opportunities. (...) By showing the rest of the world how to be sustainable and competitive, we can convince other countries to move with us". It is important that the SDGs are not seen as a burden, but as an opportunity. Environmentally friendly business does not need to be less profitable. People need to be aware of the multiple benefits that can be the result of implementing the SDGs successfully for their own lives, their families and the community as a whole. Actual implemented examples will help to get this message across. Region-specific solutions enhance the understanding of people, who know their area and are emotionally attached to it. Seeing recognizable sustainable solutions will raise the awareness on the potential and feasibility of sustainable land and soil management.

In addition, we need to recognize the fact that land and soils are an essential part to achieve the SDGs. Sustainable soil management should not only be aimed at agricultural soils but at all soils. A healthy soil system lies at the basis of a sustainable world. For the transformational change we need:

- Action: Link soil and land to running actions on climate change, fair and sustainable food chains (example 5), regeneration of degraded land and nature restoration and biodiversity.
- Solutions: New solutions such as nature-based solutions or sustainable forms of agriculture and urban farming can provide new opportunities.
- **Region-specific solutions** will enhance the awareness of local people on the importance of land and soil.
- Engage the private sector: Sustainability should become a business case. The European examples may become a standard in the world.
- Indicators: a soil-footprint for customer products is a way to create awareness. Above all, we need a set of easily available and understandable indicators, as this is the link to people and what they do in their daily lives. Organic matter content can be such an indicator for soil health (example 4).
- Young people: connect to and involve young people through their channels, step into their world; connect to the movement of young people's call for climate action and a sustainable world.



Example 5: The consumers can choose for sustainable farming¹⁷

The Farm to Fork Strategy is part of the European Green Deal⁶ aiming to accelerate the transition to healthy, fair and environmentally-friendly food systems that:

- Have a neutral or positive environmental impact;
- Help to mitigate climate change and adapt to its impacts;
- Reverse the loss of biodiversity;

• Ensure food security, nutrition and public health, making sure that everyone has access to sufficient, safe, nutritious, sustainable food;

• Preserve affordability of food while generating fairer economic returns, fostering competitiveness of the EU supply sector and promoting fair trade.

Main recommendations to



- We should use the momentum on climate and biodiversity for soil and land – it is not necessary to create a new movement. Rather, we should start from food or climate and show the link to land and soil.
- Give all stakeholders an action perspective by showing good, real-life examples that are connected to them and they could implement themselves.



- Scientists communicating on soil science are not sufficient to raise soil awareness: you need to better connect to the public. (Use the AIDA acronym: Attract, Interest, Desire, Action)
- Scientists should be aware that scientific evidence will not move policy unless all interests are considered.





- Show and tell:
 - Land restoration is the best contribution to achieve the SDGs
 - Nature-based solutions and agroecology principles contribute significantly to climate mitigation, at the same time addressing biodiversity loss and land degradation
- Political leadership is needed to promote soil and land-related SDGs if we are to make real progress.

2. Develop a shared methodology



Although many organisations and countries have started to work on measuring and monitoring the SDGs, there is little coordination in this process and no standard approach has been achieved so far. Also, for LDN there is no agreed definition across the EU, nor is determined how to monitor land degradation, what trade-offs are and how to compensate these to reach LDN by or before 2030. Example 6 and 7 give for urban and agricultural land management some typical trade-offs and synergies.

To combat land degradation effectively and reach LDN by or before 2030, we need to have a clear framework and standard approaches (indicators, baseline, targets, data) to monitor land degradation and LDN objectively at Member State level. This enables us to see what approaches and policies are effective. The UNCCD target setting activities (example 2) and the experiences in different countries can be a starting point here.

When discussing SDGs and especially LDN, the entire chain must be considered, from land management to consumer behaviour. Although we need good data and insight into costs and benefits, it is important to start working now on achieving the SDGs and not wait for full information first.

Main recommendations and actions to





- The SDGs and their associated targets for land and soil should be elaborated at EU level in order to develop a clear framework for data collection, monitoring, analysis and target setting.
- The EU, using its expertise in defining and reporting SDG-related indicators and its prominent role in the UN General Assembly, could take up a leading role in working out a standard approach to (some of) the indicators to monitor the progress in achieving the SDGs.

- Land Degradation Neutrality indicators (based on the UNCCD's sub-indicators) can be taken as starting point for measuring progress in relation to land and soil related SDGs. To make these indicators fully operational, further guidelines should be developed and coordination across the countries is needed.
- To make land and soil-related SDGs more operational, quantitative targets (such as Land Degradation Neutrality and/or zero net land take) at Member State level should be determined and adopted.
- The experience of 'frontrunners' (such as Italy in Europe) in setting up the LDN should be shared with and built upon by other Member States.

3. Promote region-specific sustainable land and soil management

Main message to





POLICY MAKERS

PRACTITIONERS & END USERS

Use a holistic approach to assess positive and negative effects of land and soil management measures on the SDGs, taking into account regionspecific differences.

Solutions and measures to improve a certain SDG, should be assessed in a **holistic way** to avoid unwanted and unexpected negative impacts in other SDGs.

The Stockholm Resilience Centre 'wedding cake' diagram (figure 4) depicts this holistic vision best: a sustainably managed biosphere is not feasible without a sustainable society and economy and vice versa.

Because there is no agreed methodology yet on how to do this, a **practical approach**^{18,19}, for land and soil users and decision makers is proposed underneath. The approach allows for assessment of the contribution of land and soil management practices to



Image 7. Urban floods are a common effect of soil sealing

Example 6. Trade-offs and synergies in SDGs: urban land

There is a huge demand for new housing (SDG 11 sustainable cities), roads and other "hard" developments such as offices, shopping malls or industry (SDG 8 decent work and economic growth). Building in unbuilt areas is easiest and cheapest because there are little barriers by former use such as contamination or existing structures above and under the soil. This allows for an optimal design. However, this land take has serious negative impacts, such as the effects of soil sealing, negatively affecting SDG 15 (Life on land) and SDG 13 by obstructing water infiltration and increasing heat stress (climate action). Limiting land take can be done within spatial planning and policy: to advance brownfield redevelopment instead of new housing on already developed land (contributing to SDG 11, 15) and in some cases also SDG 1 (no poverty) and 3 (good health and well-being) because the brownfield areas are socially, environmentally and economically regenerated, while green areas are not affected.

different SDGs at the same time in each environmental zone^{20,21}. The practices that give a "good" overall result, serve as the lighthouses in this approach. Figure 5 introduces the line of thought of the lighthouse approach and gives guidance for the assessment of land and soil management practices. In this case, SDG 15 (Life on Land), avoiding or combating land degradation, is taken as the primary focus for the lighthouse examples and is therefore put in the centre of figure 5. To start with, the lighthouse approach considers both the biophysical and socio-economic processes and boundary conditions. The user checks which soil degradation processes are tackled by the practice in a specific environmental zone. The practice should also be evaluated for its impact on the socioeconomic structure of the area in which it is implemented to make a land and soil management practice acceptable and sustainable. The approach advises to look for land and soil management solutions that are based on concepts such as: systems thinking, connectivity, regenerative



Figure 4. Relation of different domains within the SDGs, Biosphere, Society and Economy (Azote for Stockholm Resilience Centre).

economy and nature-based solutions. And in the end, for the chosen practice, the SDGs are discussed to assess the co-benefits and/or trade-offs between multiple SDGs. The diagram in Figure 5 contains 11 SDGs and roughly groups them in goals related to: health, food, water, climate, energy and economy. By clearly showing to which SDGs the selected practice contributes (see example 8) and indicating which trade-offs occur, the users can select practices that can be seen as lighthouse for a specific environmental zone. The lighthouses should be implemented and shared with others. In case a selected practice is not scoring so well on synergies and trade-offs, the user can decide not to use it, to adapt it to minimize trade-offs, or accept and try to mitigate the trade-offs.



Figure 5. Linkages between SDGs and soil and ecosystem-based approaches^{18,19}

Example 7: Lighthouse example for wind erosion: The use of stubble as a natural mulch

Soil erosion by wind is especially evident in the Mediterranean areas, in the Pannonian and Atlantic North. In the lighthouse example, crop stubbles are left after harvesting and the annual ploughing is done just prior to seeding, limiting the time in which the soil is bare and vulnerable to wind erosion. This approach is suitable for all areas suffering from wind erosion and decreases land degradation (SDG 15 Life on Land). It also contributes to maintain soil fertility to produce food (SDG 2 Zero hunger) in a sustainable way (SDG 12 Responsible production and consumption) to allow for a better livelihood for farmers (SDG 8 Decent work and economic growth). Reduced tillage and leaving the roots of the harvested crops will increase the infiltration of rainfall (SDG 6 Clean water and sanitation), increase soil carbon stocks (SDG 13 Climate action) and reduce landslide risks (SDG 15)¹⁸. In this lighthouse example no trade-offs between SDGs were identified.

Figure 6. Linkages between SDGs and soil, and the approach to halt wind erosion



Example 8: EU policy related to SDGs

The CAP is one such example, with recent CAP reforms focusing on greening measures (among others) intended to support environmental and climate goals. In the current financing period, Member States must allocate 30% of direct payments to farmers for greening measures such as crop diversification and maintenance of permanent grassland. Cohesion Policy, as well as research and innovation programmes, offer significant amounts of funding that can be used for projects promoting sustainable use of land, restoration of degraded areas and protection of biodiversity.

Main recommendations and actions to





- Use a methodology or checklist (such as in figure 5 or other examples²²) at the start of projects, to systematically discuss and assess sustainability with respect to all relevant SDGs. Optimized outcomes are a step towards achieving the SDGs. LDN can act as an accelerator and integrator for achieving the SDGs.
- Develop tailored good land and soil management practices (lighthouses) for specific regions. This can be helpful to make the transition to a truly new system which can replace an 'old and unsustainable' system of land and soil management.

4. Integrate policies

Main message to



Good land and soil policies are not enough to reach the SDGs. Policies need to be more integrative to take advantage of synergies and avoid trade-offs.

Environmental policy has never been so high on the agenda as it is now. Many EU environmental and sector policies contain important arrangements and instruments which enhance sustainable approaches to land and soil management (Figure 6 and example 9) aimed at restoration of degraded areas and protection of biodiversity. Also, the already mentioned European Green Deal⁶ contributes hugely to action and the awareness that environmental degradation and climate change should be fought.

Not all Member States have dedicated land or soil policies on (sub-)national level. Sectoral policies that address land and soil typically encompass agricultural, forestry, soil contamination and spatial planning. Also, many of these policies set clear provisions for improving the

POLICY	2 ZERI HINNER	3 GOOD MEALTH AND WELL-BEING	6 CLEAN WATER AND SAMILATION	13 climate	14 BELOW WATER	15 HE MIAND
REGULATORY INSTRUMENTS						
Sewage Sludge Directive (SSD)						
Sustainable Use of Pesticides Directive (SUPD)						
Water Framework Directive (WFD)						
Floods Directive						
Nitrates Directive						
Birds and Habitat Directives Strategic Environmental Impact Assessment (SEA) Directive						
Environmental Impact (EIA) Directive						
Environmental Liability Directive (ELD)						
Renewable Energy Directive (RED II)						
Industrial Emissions Directive (IED)						
Landfill Directive						
Waste Framework Directive						
Fertilising Products Regulation						
Organic production and labelling of organic						
products regulation						
Effort Sharing Regulation (ESR)						
National Emission Ceilings Directive (NECD)						
Plant Protection Products Regulation (PPPR)						
Land Use, Land Use Change and Forestry Deci-						
sion (LULUCF) Regulation						

POLICY	2 ZERE MINNER	3 AND WELL SEING	6 CLEAN WATER AND SAMIATION	13 Action	14 BELOW WATER	15 UFF (AND
PLANNING INSTRUMENTS						
EU Forest Action Plan and Forest Strategy						
Roadmap to Resource Efficient Europe						
EU Strategy on Adaptation to Climate Change						
Soil Thematic Strategy						
Farm to Fork Strategy						
Biodiversity Strategy ¹						
ECONOMIC INSTRUMENTS						
CAP Direct payments and market measures (Pillar						
I) and Pillar II (Rural Development) ²						
LIFE Programme ³						
INFORMATION INSTRUMENTS						
Soil Sealing Guidelines						

Figure 7. How European policies (regulatory, planning and economic instruments) relate to the most land and soil related SDGs (2,3,6,11,13,14 and 15)

¹ The analysis presented in this document covers both the Biodiversity Strategy to 2020 and the new EU Biodiversity Strategy for 2030 which was published in May 2020.

² In June 2018, the proposal for the post-2020 CAP was tabled; the analysis presented in this document covers both the existing and proposed regulations.

³ The analysis presented in this document covers both the current legislation as well as the proposal for a new regulation which was tabled in June 2018.

An instrument is highly relevant to the respective sustainability goal, i.e. the goals and measures can directly contribute to achieving the goal.

An instrument is relevant to the respective sustainability objective, i.e. Objectives and measures can indirectly contribute to achieving the objective.

An instrument is relevant to the respective sustainability objective, i.e. Objectives and measures can contribute directly or indirectly to the achievement of the objective, but there is the possibility of target failure.

condition of land and soil and have the potential to contribute significantly to the implementation of the land and soilrelated SDGs.

It is important to note that most policies both at EU and at national level have been shaped before the adoption of the SDGs and therefore, they do not fully reflect the targets as formulated by the UN in 2015. Hence, there is a need to revise, update or reformulate the existing policies. New policy instruments need to be developed that can help to keep socioeconomic development in line with the limitations of our planet and achievement of the SDGs.

Main recommendations and actions to



 The Commission has planned to protect land and soil through actions like the European Green Deal, Zero Pollution Ambition, Farm to Fork Strategy, the Biodiversity Strategy 2030, the update of the Soil Thematic Strategy and the forthcoming 8th Environmental Action Programme. These provide an opportunity to address land and soil related SDGs.

- National sustainable development plans or strategies need to be updated to integrate the SDGs and should include explicit targets and actions for sustainable soil management.
- Evaluate and update existing policies to identify opportunities and gaps for better integrating soil and land issues with a view to benefiting a broad set of SDGs
- Evaluate and update each new policy
 / initiative / project / subsidy for their
 impact on all SDGs involved in possible
 trade-offs.
- Design coherent legislation addressing different contexts (SDGs), that makes transition towards sustainable land and soil management possible.

Be inspired and act

This brochure was aimed to give all readers a clearer idea on what you can do to contribute to achieve land and soil related SDGs, while minimizing trade-offs with other SDGs, by giving some good practices and recommendations.

We would like to finish by calling on you, to inspire other scientists, policy makers, practitioners, end users and citizens and exchange your good land and soil management examples. Only together we can keep our land and soils healthy for future generations.



Colophon

This brochure was drafted as part of the DG Environment (DG ENV) funded project Providing support about the implementation of land and soil- related Sustainable Development Goals at EU level (Service contract No. 07.0202/2018/792008/ SER/ENV.D.1). The project aimed to: Analyse the state of play of the implementation of land and soil-related SDGs in the EU: Organise a conference to allow different stakeholders to exchange views and practices; Compile and communicate good practices and provide recommendations for the implementation of land and soilrelated SDGs in the EU. The work was performed by: 1) Wageningen Environmental Research (WUR), 2) Deltares Institute and 3) Milieu Consulting.

We thank everybody who contributed to this brochure by exchanging ideas and sharing examples!

October 2020, Linda Maring (2), Begoña Arellano Jaimerena (2), Saskia Keesstra (1), Melanie Muro (3)

Disclaimer

The information and views set out in this report are those of the authors and do not necessarily reflect the official opinion of the European Commission. The European Commission does not guarantee the accuracy of the data included in this study. Neither the European Commission nor any person acting on the Commission's behalf may be held responsible for the use which may be made on the information contained therein.

Image 9. Coastal erosion

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