



# **HuMUS**

Healthy Municipal Soils

Policy brief on S4 provisions  
and ESIF funding  
opportunities

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Francesco Molinari

*Anci Toscana, Florence, Italy*

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## Executive summary

This policy brief gathers the results of Subtask 1.3.2 from the HuMUS project, which had the scope to provide a snapshot of the ongoing evolution of regional and national Smart Specialisation Strategies (S3) within the countries and regions represented in the consortium (ES, IT, NL, DE, FR, BG, MK, SI – for North Macedonia the scope is broadened to all IPA members). Smart Specialisation Strategy is a policy approach that aims to boost the research and innovation potential of regions and countries in the European Union. It involves identifying the specific strengths and opportunities of each territory and focusing the resources on a limited number of priority areas. S3 also requires the engagement of various stakeholders from the so-called Quadruple Helix, such as businesses, research institutions, public authorities and civil society, to create a shared vision and strategy. S3 is a condition for the EU Member States and Regions to receive funding from the European Regional Development Fund (ERDF) for research and innovation programmes.

The aim of Subtask 1.3.2 was to provide data on the newly adopted European Union (EU) policy concept called S4, which stands for Smart Specialisation Strategies for Sustainable and inclusive growth. S4 is an evolution of the previous policy concept of S3, becoming widespread in the current programming period 2021-2027, as a result of climate change and by the impulse of the European Commission through such initiatives as the Green Deal making explicit reference to the United Nations' Sustainable Development Goals (SDGs). Within this context, a state of the art is provided of the inclusion among the respective S3 and/or S4 priorities of topics and actions related to soil health promotion and land use management, which is the focus of the HuMUS project.

The rationale of this policy brief is the possibility for local policy makers and practitioners to receive inspiration on their future actions – related to policy design and implementation, or simply taking advantage of available funding opportunities.

The methodology used was to analyse public databases such as the JRC's online platform, Eye@RIS3 (available at <https://s3platform.jrc.ec.europa.eu/map/-/eye3/y/2021-2027>), the official government websites of involved regions and countries and, other thematic publications of the European Commission, notably the Commission Staff Working Document of 5 July 2023 titled "Guidance on EU funding opportunities for healthy soils", accompanying the proposal for a Directive of the European Parliament and of the Council on Soil Monitoring and Resilience (Soil Monitoring Law).

An outcome of special interest is the identification of potential funding opportunities for soil health promotion projects from the ESIF Operational Programmes, implementing the provisions of the European Regional Development Fund (ERDF) and the European Agricultural Fund for Rural Development (EAFRD) at local level. To that end, an attempt was made to cluster existing interventions based on how frequently they were repeated or other evident patterns.

The report concludes with a few recommendations for future policy actions.

The contents presented within this document are the most currently available at the date of publication of this Deliverable. However, in the near future they may be updated without notice. Interested readers are kindly advised to contact the HuMUS project manager at this email address: [info@humus-project.eu](mailto:info@humus-project.eu) to get specific and updated information on those subject matters.

# 1 Introduction

## 1.1 About HuMUS

Local communities are at the forefront of soil use, quality management, regulation, innovation, and improvement, and are thus pivotal to deploying the European Soil Mission on the ground. As part of the Mission, the Healthy Municipal Soils (HuMUS) project engages and activates municipalities and regions to protect and restore soil health in their communities. In addition to raising awareness about the importance of healthy soils – as the basis of all human activities – the project consortium will empower 33 European communities to adopt a multi-stakeholder engagement methodology for planning and coordinating soil health governance activities. Globally, these activities are expected to provide substantial evidence that participatory governance methods and tools can promote, procure, and stimulate an increased and more diffused awareness of existing soil health issues and threats at local and regional levels, as well as generate more effective and shared pathways to their resolution.

HuMUS will thus stimulate social participation and innovation. Its participatory approach involves local stakeholders from the so-called Quadruple Helix: citizens, farmers, land owners and managers, consumers, civil society organisations, research institutions, businesses, and public authorities at the regional and local levels. The focus of the project is on a holistic definition of soil health, looking beyond agricultural soils, towards all types of soils and land uses.

## 1.2 Contents of this deliverable

This policy brief gathers the results of Subtask 1.3.2 from the HuMUS project, which aimed to provide an updated picture of the ongoing evolution of regional and national Smart Specialisation Strategies in the countries represented in the project consortium, towards the addition of a “fourth S” standing for Sustainable.

S3 is a policy approach that aims to boost the research and innovation potential of regions and countries in the European Union. It involves identifying the specific strengths and opportunities of each territory and focusing the resources on a limited number of priority areas. S3 also requires the engagement of various stakeholders from the so-called Quadruple Helix, such as businesses, research institutions, public authorities and civil society, to create a shared vision and strategy. S3 is a condition for the EU Member States and Regions to receive funding from the European Regional Development Fund (ERDF) for research and innovation programmes.

The rationale of this policy brief is the possibility for local policy makers and practitioners to receive inspiration on their future actions – related to policy design and implementation, or simply taking advantage of available funding opportunities.

The analyses carried out in this document cover both EU and non-EU Member States, to the extent they are represented in the HuMUS project consortium. Featured countries are: Bulgaria, France, Germany, Italy, Netherlands, Slovenia and Spain as EU members, North Macedonia and all IPA countries for the non-members. Within these countries, the participating regions and provinces in HuMUS are: Andalusia (ES), Baden-Württemberg (DE), Extremadura (ES), Gabrovo (BG), North Rhine-Westphalia (DE), Pays de la Loire (FR), Piedmont (IT), South Tyrol (IT), Tuscany (IT), and Friesland (NL).

It is expected that the readers will select those parts of the report they are most interested in.

The contents of the document are as follows:

Chapter 2 will report on the inclusion within the national or regional S3 and/or S4 priorities of topics and actions related to soil health promotion and land use management. Special thanks for their contribution to this Chapter go to the following HuMUS consortium members: Konrad Egenolf and Daniel Gaertling (University of Hohenheim), Mayte Gallego Garrido (FUNDECYT-PCTEX), Merel Hondebrink (Louis Bolk Instituut), Desislava Koleva (Municipality of Gabrovo), Darko Konjevic (SWG RRD), Blanca Lucena Cobos (AGAPA - Region of Andalusia), Brina Novak (Regionalna razvojna agencija za Podravje), and Uli Ostarhild (Ernährungsrat StadtRegion Stuttgart). However, the author of this report will bear the responsibility for all mistakes and omissions, for which he apologises in advance.

Chapter 3 identifies potential funding opportunities at the national and regional levels for project proposals which aim to restore soil health. It was determined as especially important to identify funding opportunities from ESIF Operational Programmes (implementing the European Regional Development Fund and the European Agricultural Fund for Rural Development). To that end, an attempt was made to cluster existing interventions based on which was the most frequently repeated or other similar patterns.

The discussion concludes with Chapter 4, which contains a few recommendations for future policy actions.

Apart from the direct contribution of partners, making reference to the official S3/S4 documents in their possession, other sources used to gather the information outlined in this document include Eye@RIS3 (<https://s3platform.jrc.ec.europa.eu/map/-/eye3/y/2021-2027>) from the Joint Research Centre (JRC) of the European Commission, the official government websites of the involved regions and countries, and other thematic publications of the European Commission (EC), notably the Commission Staff Working Document of July 5th, 2023 entitled "Guidance on EU funding opportunities for healthy soils", accompanying the proposal for a Directive of the European Parliament and of the Council on Soil Monitoring and Resilience (Soil Monitoring Law).

The contents presented herein are the most currently available at the date of publication of this Deliverable. However, they may be updated without notice. Interested readers are kindly advised to contact the HuMUS project manager at this email address: [info@humus-project.eu](mailto:info@humus-project.eu) to get specific and updated information on those subject matters.



## 2 S3/S4 overview by participating country and region in HuMUS

### 2.1 Introduction

The EU has recently adopted a new policy concept called S4, which stands for Smart Specialisation Strategies for Sustainable and inclusive growth. S4 is an evolution of the previous policy concept of S3, which stands for Smart Specialisation Strategy. S3 was introduced in 2010 as a way to optimise research and innovation investments in EU Member States and Regions, focusing on their strengths and comparative advantages, and fostering collaboration and learning among stakeholders. S3 has been widely implemented across the EU and beyond, with more than 120 strategies developed and over 30 interregional partnerships formed during the 2014-2020 programming period.

However, S3 implementation faced some acknowledged limitations and challenges, such as the lack of alignment with the EU's strategic objectives and priorities, the insufficient integration of the sustainability and inclusiveness dimensions, the weak involvement of civil society and end-users, and the low impact on structural change and competitiveness. Therefore, the EU decided to update and upgrade the S3 policy concept to S4, which aims to address these issues and to respond to the new challenges and opportunities posed by the twin ecological and digital transition, the COVID-19 crisis, and the global agenda of the Sustainable Development Goals (SDGs).

S4 is based on the same principles and elements of S3, such as the entrepreneurial discovery process, the governance structure, the monitoring and evaluation system, and the interregional cooperation. However, S4 also introduces some new features and innovations, such as:

- The adoption of a mission-oriented approach, which means defining clear and ambitious goals that address societal challenges and mobilise resources and actors across sectors and regions. S4 aligns with the EU's missions for the Green Deal, the Industrial Strategy, and Horizon Europe, and encourages regions to participate in these initiatives and to define their own regional missions.
- The incorporation of the sustainability and inclusiveness criteria, which means ensuring that the S4 priorities and actions contribute to the environmental, social, and economic well-being of the regions and their citizens, and that they are aligned with the SDGs.
- The promotion of the participation and empowerment of all relevant stakeholders, especially civil society and end-users, in the design and implementation of the S4 strategies.
- The application of a system approach, which means analysing and addressing the interdependencies and interactions among the different components and actors of the regional innovation ecosystems, and fostering cross-sectoral and cross-regional linkages and synergies.
- The support to the development of new capabilities and skills, the diffusion of knowledge and technologies, and the creation of new markets and value chains.

The transition from S3 to S4 requires the cooperation and alignment of all actors involved in smart specialisation strategies, such as academia, the business sector, government, and civil society (the so-called Quadruple helix). It also requires the revision and adaptation of the existing S3 strategies and the development of new S4 strategies, following the guidelines and recommendations provided by the EU. The EU also offers various tools and support mechanisms to facilitate and accompany the transition process, such as the S3 Platform, the Policy Learning Platform, the Interreg Europe programme supporting interregional cooperation, and the resources of the European Regional Development Fund dedicated to governance and innovation.

The transition from S3 to S4 is a strategic and timely opportunity for the EU regions and Member States to enhance their innovation potential and performance, to contribute to the EU's objectives and priorities, and to promote sustainable growth that is inclusive, innovative, and resilient to external shocks.

The key elements of S4 as distinct from S3 include the following:

- More attention to Environmental Sustainability: this involves identifying strategic areas for investment that promote green growth, reduce environmental impact, and contribute to the EU's climate goals. It includes sectors such as renewable energy, circular economy, sustainable agriculture, and eco-tourism.
- More emphasis on Social Inclusivity: this means ensuring that regional development benefits all members of society, particularly those who are most vulnerable or marginalised. This also includes initiatives to promote social cohesion, equal opportunities, and inclusive growth.
- A new look to Economic Sustainability: highlighting the importance of economic resilience and long-term prosperity in regional development strategies. This basically means investing in sectors that have a strong potential for long-term economic growth while ensuring they are environmentally sustainable and socially inclusive today.
- Innovation and Digital Transformation: this aspect recognizes the crucial role of innovation and digital technologies in driving economic growth, environmental sustainability, and social inclusion. It involves supporting research and development activities that should lead to new products, services, or processes that contribute to regional development goals.
- Partnerships and Collaborations: this element stresses the importance of cross-sectoral and transnational cooperation in achieving sustainable development objectives. Namely it aims at fostering partnerships between public, private, and civil society actors at local, national, and international levels to leverage resources, expertise, and innovation capacity for regional development.

EU national and regional policy makers are invited to re-evaluate their current policies to align with the new elements of S4.

In terms of EU funding, S4 focuses on investing in research and innovation, digitalization, and infrastructure projects. National and regional policy makers prioritise these areas when creating their own Operational Programmes for the ESIF (European Structural and Investment Funds).

## 2.2 EU Member States and Regions

The transition from S3 to S4 in the new programming period 2021-2027 has been supported by some specific guidelines and operational recommendations issued by such entities as the JRC of the European Commission and the Committee of the Regions.

Here follows a brief overview of the situation at country level in the geographical area of interest for the HuMUS consortium.

### 2.2.1 Bulgaria and the region of Gabrovo

**Bulgaria** has adopted its national innovation strategy for smart specialisation (S3) for the period 2021-2027, which is guided by the principles of smart specialisation and aims to increase the innovation activity, competitiveness, and resilience of the country. The strategy defines 4 thematic priorities: healthy and active ageing, clean technologies and circular economy, digital transformation and cybersecurity, and creative industries and tourism. The strategy also frames and supports the regional strategies for integrated territorial development in the 6 regions of Bulgaria, which have their own innovation challenges, opportunities, and actions.

In December 2022, the Council of Ministers approved the national S3 for 2021-2027, which unlocks significant funding for SME competitiveness and digital transition. The Bulgarian S3 identifies six priority areas, which are:



1. Information and communication technologies (ICT),
2. Mechatronics and clean technologies,
3. Industry for healthy life and biotechnologies,
4. New technologies in creative and recreational industries,
5. Healthy foods and bioeconomy,
6. Education and human capital development.

The Bulgarian S3 also defines four horizontal enablers, which are:

- Entrepreneurship and innovation ecosystems
- Digital transformation
- Green and circular economy
- Social innovation and inclusion.

The S3 is based on a participatory and bottom-up approach, involving various stakeholders from the quadruple helix (academia, business, government, and civil society). The S3 also follows a mission-oriented approach, which means defining clear and ambitious goals that address societal challenges and mobilise resources and actors across sectors and regions.

**Gabrovo** is one of the 28 administrative districts in Bulgaria, and is part of the North Central region. Gabrovo has a strong industrial tradition and a high concentration of SMEs, especially in the sectors of mechanical engineering, ICT, PVC products, textile, and furniture. Gabrovo also has a rich cultural and natural heritage, and it is known as the capital of humour and satire in Bulgaria.

Gabrovo has been actively involved in the transition from S3 to S4+, as well as in the interregional cooperation and learning activities supported by the EU. For example, Gabrovo is a partner in the Erasmus+ project ARIES4, which aims to improve the governance and implementation of the S3 and upgrade it to S4+ in the partner regions.

The Municipality is also organising the Gabrovo Innovation Camp, which is an initiative supported by the JRC and EC. The Gabrovo Innovation Camp is a three-day event that brings together local stakeholders to co-create solutions for the regional challenges and opportunities related to the S3 implementation.

One of the challenges addressed by the Gabrovo Innovation Camp is the innovation and inclusivity for Gabrovo S3 implementation. The challenge question is: What is the pathway from S3 to S4 – mechanisms, expectations and obstacles in achieving a more sustainable and inclusive model for growth in Gabrovo? How to better evaluate the S3/S4 progress – focusing on the goals and indicators as written in the strategy, but also considering the feedback?

The challenge team, composed of representatives from academia, business, government, and civil society, has proposed a solution that consists of four main components:

1. A participatory platform for S3/S4 monitoring and evaluation, which would collect and analyse data and feedback from the stakeholders and the beneficiaries of the S3/S4 interventions, and provide recommendations for improvement and adjustment.
2. A communication and awareness-raising campaign for S3/S4, which would inform and engage the public and the media about the objectives, activities, and results of the S3/S4, and showcase the best practices and success stories.
3. A capacity-building and mentoring programme for S3/S4, which would provide training and coaching for the stakeholders and the beneficiaries of the S3/S4 interventions, and facilitate the exchange of knowledge and experience among them.

4. A network of S3/S4 ambassadors, which would consist of influential and respected individuals from different sectors and backgrounds, who would promote and advocate for the S3/S4, and inspire and motivate others to participate and contribute.

The solution proposed by the challenge team is expected to enhance the approach to governance and implementation of the S3/S4 in Gabrovo, and to foster a more sustainable and inclusive model for growth in the region.

The transition from S3 to S4+ in the new programming period 2021–2027 in Bulgaria and especially in the region of Gabrovo is a strategic and timely opportunity for the region to enhance its innovation potential and performance, to contribute to the EU's objectives and priorities, and to achieve sustainable and inclusive growth.

## 2.2.2 France and the Pays de la Loire Region

**France** has adopted its national research and innovation strategy (SNRI) for the period 2021–2027, which is influenced by the approach of smart specialisation and aims to boost the innovation performance, attractiveness, and sovereignty of the country. The strategy defines 4 strategic axes: ecological transition, health and well-being, digital and industrial sovereignty, and social and territorial cohesion. The strategy also coordinates and harmonises the regional innovation strategies (SRI) in the 18 administrative regions of France, which have their own innovation priorities, governance structures, and evaluation systems.

**Pays de la Loire** is one of the 18 administrative regions in France, part of the Atlantic macro-region. It has a diversified and competitive economy, with sectors such as aeronautics, naval, automotive, agri-food, health, and tourism. Pays de la Loire also has a rich cultural and natural heritage, and is committed to preserving its environment and biodiversity.

Pays de la Loire has adopted its regional S3 for 2021–2027, which defines 7 priority areas, namely:

1. Advanced manufacturing technologies,
2. Food and bioresources,
3. Health and therapies of tomorrow,
4. Maritime economy,
5. Design and cultural and creative industries,
6. Information technologies and professional electronics,
7. The energy of tomorrow.

Pays de la Loire has been actively involved in the development and implementation of the S3 and S4 concepts, as well as in the interregional and transnational cooperation and learning activities supported by the EU. For example, Pays de la Loire is a partner in the Interreg Europe project S34Growth, which aims to improve the governance and implementation of the S3 in the partner regions.

Pays de la Loire is also among the regions that have participated in the S3 Thematic Platforms, which are initiatives organised by the JRC and DG REGIO, with the support of the European Commission, to facilitate the interregional collaboration and joint investment in the S3 priority areas. Some of the Thematic Platforms that Pays de la Loire has joined are:

- Industrial modernisation, which covers topics such as advanced manufacturing, digital transformation, industry 4.0, and circular economy.
- Energy, which covers topics such as renewable energy, energy efficiency, smart grids, and energy storage.
- Agri-food, which covers topics such as bioeconomy, food quality and safety, and sustainable agriculture.

One of the main objectives of the S3 Thematic Platforms is to support the development of interregional partnerships and projects that can apply for the European Regional Development Fund (ERDF) or other EU funding instruments, such as Horizon Europe or the Recovery and Resilience Facility.

The transition from S3 to S4 in the new programming period 2021-2027 in France and especially in the region of Pays de la Loire is a strategic and timely opportunity for the region to align its innovation policy with the EU's objectives and priorities, and to achieve sustainable and inclusive growth.

### 2.2.3 Germany and the regions of Baden-Württemberg and North Rhine-Westphalia

**Germany** has adopted its national research and innovation strategy for the period 2021-2027, based on the idea of smart specialisation and aiming to strengthen the scientific excellence, social relevance, and economic potential of the country. The strategy identifies 6 priority themes: Digital economy and society, Smart mobility, Healthy living, Innovative working environments, Sustainable economy and energy, Civil security. The strategy also supports and complements the regional innovation strategies in the 16 federal states of Germany, which have their own innovation profiles, governance models, and monitoring frameworks.

**Baden-Württemberg** is one of the 16 federal states in Germany, part of the Alpine macro-region. It has a strong industrial and scientific base, and a high potential for innovation, with sectors such as automotive, mechanical engineering, biotechnology, and information and communication technology. It also has a rich natural and cultural heritage, and is committed to preserving its environment and biodiversity.

Baden-Württemberg has adopted its regional smart specialisation strategy for 2021-2027, which defined 5 priority areas, namely:

1. Digitalisation,
2. Production technologies,
3. Mobility technologies,
4. Resource efficiency,
5. Energy technologies,

Baden-Württemberg has been actively involved in the definition of the pathway from S3 to S4, as well as in the interregional and transnational cooperation and learning activities supported by the EU. For example, Baden-Württemberg is a partner in the Interreg Europe project S34Growth, which aims to improve the governance and implementation of the S3 in the partner regions.

Baden-Württemberg is also among the regions that have participated in the S3 Thematic Platforms, which are initiatives organised by the JRC and DG REGIO, with the support of the European Commission, to facilitate the interregional collaboration and joint investment in the S3 priority areas. Some of the Thematic Platforms that Baden-Württemberg has joined are:

- Industrial modernisation, which covers topics such as advanced manufacturing, digital transformation, industry 4.0, and circular economy.
- Energy, which covers topics such as renewable energy, energy efficiency, smart grids, and energy storage.
- Agri-food, which covers topics such as bioeconomy, food quality and safety, and sustainable agriculture.

One of the main objectives of the S3 Thematic Platforms is to support the development of interregional partnerships and projects that can apply for the European Regional Development Fund (ERDF) or other EU funding instruments, such as Horizon Europe or the Recovery and Resilience Facility.



**North Rhine-Westphalia** is another one of the 16 federal states in Germany, part of the Alpine macro-region. It has a strong industrial and scientific base, and a high potential for innovation, with sectors such as energy, chemicals, steel, and mechanical engineering. It also has a rich cultural and natural heritage, and it is committed to preserving its environment and biodiversity.

North Rhine-Westphalia has adopted its regional smart specialisation strategy for 2021-2027, which defined 7 priority areas, namely:

1. Key Technologies of the Future & ICT,
2. Energy & Innovative Construction,
3. Environmental & Circular Economy,
4. Culture, Media & Creative Industries, Innovative Services,
5. Innovative Materials & Intelligent Production,
6. Connected Mobility & Logistics,
7. Innovative medicine, health & life science.

North Rhine-Westphalia has been actively involved in the development and implementation of the S3 and S4 concepts, as well as in the interregional and transnational cooperation and learning activities supported by the EU. For example, North Rhine-Westphalia is a partner in the Interreg Europe project S34Growth, which aims to improve the governance and implementation of the S3 in the partner regions.

North Rhine-Westphalia is also among the regions that have participated in the S3 Thematic Platforms, which are initiatives organised by the JRC and DG REGIO, with the support of the European Commission, to facilitate the interregional collaboration and joint investment in the S3 priority areas. Some of the Thematic Platforms that North Rhine-Westphalia has joined are:

- Industrial modernisation, which covers topics such as advanced manufacturing, digital transformation, industry 4.0, and circular economy
- Energy, which covers topics such as renewable energy, energy efficiency, smart grids, and energy storage
- Agri-food, which covers topics such as bioeconomy, food quality and safety, and sustainable agriculture

One of the main objectives of the S3 Thematic Platforms is to support the development of interregional partnerships and projects that can apply for the European Regional Development Fund (ERDF) or other EU funding instruments, such as Horizon Europe or the Recovery and Resilience Facility.

#### 2.2.4 Italy and the regions or autonomous provinces of Piedmont, South Tyrol and Tuscany

**Italy** has adopted its national research and innovation strategy for the period 2021-2027, based on the principles of smart specialisation and aiming to foster the competitiveness, sustainability, and resilience of the country. The strategy identifies 6 strategic objectives: green transition, digital transformation, social and territorial cohesion, health and quality of life, culture and creativity, and security and defence.

The Italian smart specialisation strategy is focused on the following thematic areas:

1. Smart and sustainable industry, Energy and Environment
2. Health, Nutrition and Quality of Life
3. Digital Agenda, Smart Communities, Intelligent Mobility Systems
4. Tourism, Cultural Assets and Creativity Industry
5. Aerospace and Defense.

The national S3 acts as a framework of reference for the corresponding documents of the Italian regions and autonomous provinces.

**Piedmont** is one of the 21 regions or autonomous provinces in Italy, part of the Alpine macro-region. It has a strong industrial and scientific base, and a high potential for innovation, with sectors such as automotive, aerospace, biotechnology, and nanotechnology. It also has a rich natural and cultural heritage, and is committed to preserving its environment and biodiversity.

Piedmont has adopted its regional S3 for 2021-2027, defining 6 priority innovation areas, namely:

1. Aerospace,
2. Mobility,
3. Green Resources, Technologies and Materials,
4. Advanced Manufacturing,
5. Food,
6. Health.

The regional S3 also identifies three transversal components of innovation, which are:

- Digital Transition,
- Ecological Transition,
- Social and Territorial Impact.

Piedmont has been actively engaged in the transition from S3 to S4, as well as in the interregional and transnational cooperation and learning activities supported by the EU. For example, Piedmont is a partner in the Interreg Europe project S34Growth, which aims to improve the governance and implementation of the S3 in the partner regions.

Piedmont is also among the regions that have participated in the S3 Thematic Platforms, which are initiatives organised by the JRC and DG REGIO, with the support of the European Commission, to facilitate the interregional collaboration and joint investment in the S3 priority areas. Some of the Thematic Platforms that Piedmont has joined are:

- Industrial modernisation, which covers topics such as advanced manufacturing, digital transformation, industry 4.0, and circular economy.
- Energy, which covers topics such as renewable energy, energy efficiency, smart grids, and energy storage.
- Agri-food, which covers topics such as bioeconomy, food quality and safety, and sustainable agriculture.

One of the main objectives of the S3 Thematic Platforms is to support the development of interregional partnerships and projects that can apply for the European Regional Development Fund (ERDF) or other EU funding instruments, such as Horizon Europe or the Recovery and Resilience Facility.

**South Tyrol** is one of the 5 autonomous regions or provinces in Italy, part of the Alpine macro-region. South Tyrol has a unique cultural and linguistic identity, as it is a bilingual region where German and Italian are both official languages. It also has a diversified and competitive economy, with sectors such as tourism, agriculture, renewable energy, and manufacturing. South Tyrol also has a rich natural and cultural heritage, and it is committed to preserving its environment and biodiversity.

South Tyrol has adopted its regional S3 for 2021-2027, which defined 4 priority areas, namely:

1. Automation and Digital,
2. Food and Life Science,
3. Alpine Technologies,

#### 4. Green Technologies.

The regional S3 also identified four cross-cutting domains, which are:

- Sustainability,
- Digitalisation,
- Creative Industries,
- Permanent Education and Training.

South Tyrol is actively involved in the interregional and transnational cooperation and learning activities supported by the EU. For example, South Tyrol is a partner in the Interreg Europe project S34Growth, which aims to improve the governance and implementation of the S3 in the partner regions.

South Tyrol is also among the regions that have participated in the S3 Thematic Platforms, which are initiatives organised by the JRC and DG REGIO, with the support of the European Commission, to facilitate the interregional collaboration and joint investment in the S3 priority areas. Some of the Thematic Platforms that South Tyrol has joined are:

- Industrial modernisation, which covers topics such as advanced manufacturing, digital transformation, industry 4.0, and circular economy.
- Agri-food, which covers topics such as bioeconomy, food quality and safety, and sustainable agriculture.
- Energy, which covers topics such as renewable energy, energy efficiency, smart grids, and energy storage.

One of the main objectives of the S3 Thematic Platforms is to support the development of interregional partnerships and projects that can apply for the European Regional Development Fund (ERDF) or other EU funding instruments, such as Horizon Europe or the Recovery and Resilience Facility.

**Tuscany** is another one of the 21 regions or autonomous provinces in Italy, part of the Mediterranean macro-region. It has a rich historical and cultural heritage, and is known for its art, cuisine, and wine. Tuscany also has a diversified and competitive economy, with sectors such as tourism, manufacturing, agri-food, and biotechnology. Tuscany also has a strong commitment to preserving its environment and biodiversity.

Tuscany has adopted its regional S3 for 2021-2027, which defined 4 technology priorities, namely:

1. Digital Technologies,
2. Technologies for Advanced Manufacturing,
3. Advanced Materials and Nanotechnologies,
4. Technologies for Life and Environment.

The regional S3 also identified five implementation ambits, which are:

- Environment, Territory and Energy,
- Culture and Cultural Heritage,
- Health,
- Smart Agrifood,
- Smart and Sustainable Enterprise.

Tuscany has been actively involved in the development and implementation of the national S3, as well as in the interregional and transnational cooperation and learning activities supported by the EU. For example, Tuscany is a partner in the Interreg Europe project S34Growth, which aims to improve the governance and implementation of the S3 in the partner regions.



Tuscany is also among the regions that have participated in the S3 Thematic Platforms, which are initiatives organised by the JRC and DG REGIO, with the support of the European Commission, to facilitate the interregional collaboration and joint investment in the S3 priority areas. Some of the Thematic Platforms that Tuscany has joined are:

- Industrial modernisation, which covers topics such as advanced manufacturing, digital transformation, industry 4.0, and circular economy.
- Agri-food, which covers topics such as bioeconomy, food quality and safety, and sustainable agriculture.
- Energy, which covers topics such as renewable energy, energy efficiency, smart grids, and energy storage.

One of the main objectives of the S3 Thematic Platforms is to support the development of interregional partnerships and projects that can apply for the European Regional Development Fund (ERDF) or other EU funding instruments, such as Horizon Europe or the Recovery and Resilience Facility.

### 2.2.5 Netherlands and the province of Friesland

**The Netherlands** has adopted a national innovation strategy for the period 2021-2027, which is inspired by the concept of smart specialisation and aims to enhance the innovation capacity, impact, and internationalisation of the country. The strategy defines 4 mission-oriented domains: energy transition and sustainability, agriculture, water and food, healthcare, and security. The strategy also frames and aligns the innovation strategies of the 12 provinces of the Netherlands, which have their own focus areas, stakeholder networks, and funding instruments.

**Friesland** is one of the 12 provinces in the Netherlands, part of the North-West Europe macro-region. It has a strong knowledge and innovation base, and a high potential for innovation, with sectors such as life sciences, health, water, agrifood industries. Friesland also has a rich cultural and natural heritage, and it is committed to preserving its environment and biodiversity.

The province of Friesland has adopted its regional S3 for 2021-2027, which defined 3 priority areas, namely:

1. Sufficient sustainable and autonomous earning capacity
2. Attractive for appropriately qualified and agile human capital
3. A strong and open collaboration and action-oriented perspective.

The regional S3 also identifies seven cross-cutting challenges, which are:

- Agrifood, which aims to strengthen the knowledge about caring for soil and caring for life with connection to national programs and knowledge institutes.
- Water technology, which aims to collaborate on the themes of entrepreneurship, development of knowledge programs on soil, development of a Center of Soil Expertise and in the European Horizon Mission programming in the connection with the Northern quadruple helix.
- Circular synthetics, which aims to strengthen the Frisian position on the fabrication of circular synthetics and more recycling.
- Maritime Sector, which aims to embed the three strategic lines (Emission-Free Ships,
- Circular Chains, Semi-autonomous shipping) in a Northern cooperation between companies in the Maritime Board Northern Netherlands.
- High Tech Systems & Materials, which has the ambition to become the fifth largest tech region positioning via Smart Industry Hub, European Digital Innovation Hub and AI Coalition NN and Techsus.

- Horizon Mission programming. Blue Delta Coalition is working towards its position as European example region for the Horizon mission program based on an all-in approach (quadruple helix).

## 2.2.6 Slovenia and the Podravje region

**Slovenia** defined the priorities and niches of its Smart Specialization Strategy in 2015, supported in practice by targeted, tailored, and comprehensive sets of measures. In creating an acronym for the strategy, S4 was used, where the fourth S stands for "Slovenian".

Through the implementation of S4, Slovenia introduced a new model of development cooperation among key innovation stakeholders and significantly improved its integration into European and international research and innovation networks, platforms, and consortia. The implementation of S4 has been a key tool for strengthening and upgrading the Slovenian innovation ecosystem.

In the programming period 2014-2020, S4 served as a prerequisite for unlocking funds from the Operational Program for the Implementation of European Cohesion Policy 2014-2020, specifically under the priority axis "International Competitiveness of Research, Innovation, and Technological Development in line with Smart Specialization for Greater Competitiveness and Greening of the Economy."

The Strategy for the new period until 2030, with its upgrade in the years 2020-2022, foregrounds the sustainability aspect, identifies the green transition as its primary goal, and consequently has been rebranded from S4 to S5.

The Government Office for Development and European Cohesion Policy initiated the renovation of S4 in the first half of 2020. The activities were primarily focused on the renovation of essential analytical foundations and the revitalization of the Entrepreneurial Discovery Process (EDP).

In transitioning to S5, the strategy places the green transition as its central goal, an objective that cannot be achieved without the necessary knowledge and competencies, as well as without suitable and sufficiently developed tools, including key enabling technologies such as Information and Communication Technology (ICT).

Based on the key strategic objective, the priority orientations toward green or sustainable practices are integrated into both vertical and horizontal aspects (also through the incorporation of key enabling technologies - KETs for the transition to a circular and low-carbon economy) in most areas. This is why a significant portion of the product directions in S5 is directed towards the modernization of industries and sustainable production in specific priority areas. The priority area of the Circular Economy Transition Network is further defined as both a vertical and horizontal priority simultaneously, as it includes not only its own features but also product directions intended to be implemented throughout the entire economy.

The implementation of S4 is based on:

- Niche orientation through defined priority areas,
- Targeted, tailored, and comprehensive sets of measures,
- A new model of development cooperation among key innovation stakeholders, and
- A globally integrated approach.

These principles are retained in S5 as well.

The priority areas, both during the implementation of S4 and in the implementation of S5, will continue to focus and be concretized at the levels of focus areas and product directions based on collaboration between the state and the Strategic Research and Innovation Partnerships (SRIP).

The central package of measures in S5 for the upcoming period is divided into four thematic areas of investments to support:

1. Improvement of research and innovation capabilities and the adoption of advanced technologies.
2. Enhancement of growth and competitiveness of Small and Medium-sized Enterprises (SMEs) and the creation of jobs within SMEs.
3. Development of knowledge and skills for smart specialisation, industrial transition, and entrepreneurship.
4. Digital transformation.

**Podravje** is one of the two cohesion regions in Slovenia that aligns its focus with S4 and S5 also in the preservation of biodiversity and the environment.

## 2.2.7 Spain and the regions of Andalusia and Extremadura

**Spain** has adopted its national smart specialisation strategy for the period 2021-2027, which is aligned with the European Green Deal, the Digital Agenda, and the Recovery and Resilience Plan. The strategy defines four thematic priorities: green and digital transition, health and well-being, culture and creativity, and social and territorial cohesion. The strategy also supports the development and implementation of regional smart specialisation strategies in the 17 autonomous communities and the two autonomous cities of Spain, which have their own governance structures, budgets, and monitoring systems.

**Andalusia** is one of the 17 autonomous communities in Spain, and is part of the Mediterranean macro-region. It has a diverse and dynamic economy, with sectors such as tourism, agri-food, renewable energy, and aerospace. Andalusia also has a rich cultural and natural heritage, and is committed to preserving its environment and biodiversity.

Andalusia has adopted in July 2023 its regional S4 for 2021-2027, which defined 5 priority areas, namely:

1. Smart, Resilient and Healthy Society,
2. Agrotechnology,
3. Natural Resources: Mining and Water Cycle,
4. Driving Industries,
5. Ecological Transition.

Andalusia has been actively involved in the transition from S3 to S4, as well as in the interregional and transnational cooperation and learning activities supported by the EU. Andalusia is also among the regions that have participated in the S3 Thematic Platforms, which are initiatives organised by the JRC and DG REGIO, with the support of the European Commission, to facilitate the interregional collaboration and joint investment in the S3 priority areas. Andalusia has joined the three thematic platforms created, namely:

- Industrial modernisation, which covers topics such as advanced manufacturing, digital transformation, industry 4.0, and circular economy.
- Agri-food, which covers topics such as bioeconomy, food quality and safety, and sustainable agriculture.
- Energy, which covers topics such as renewable energy, energy efficiency, smart grids, and energy storage.

Under the Agri-food platform, Andalusia leads, jointly with Emilia Romagna, the Traceability and Big Data in the Agrifood value chain Partnership aiming at encouraging, motivating and facilitating the incorporation of needed digital technologies and data application into the Agri-food sector value chains.



**Extremadura** is another one of the 17 autonomous communities in Spain and part of the South-West Europe macro-region.

The regional economy is strongly linked to the tertiary sector, with a less developed industry sector mainly related to energy, agro-industry, cork industry, textile industry and ornamental stone industry. Extremadura also has a rich cultural and natural heritage and is committed to preserving its environment and biodiversity.

Extremadura has adopted its regional S3 for 2021-2027, which defined 5 priority areas, namely:

1. Agri-Food,
2. Cultural Industries & Tourism,
3. Health & Wellbeing,
4. Digital Transformation,
5. Green Transition.

Extremadura has been actively involved in the interregional and transnational cooperation and learning activities supported by the EU, as well as an active member in several European Networks. For example, Extremadura has led the Interreg Europe project IMPROVE, which aims to improve the governance and implementation of the S3 in the partner regions.

Extremadura is also among the regions that have participated in the S3 Thematic Platforms, which are initiatives organised by DG REGIO, with the support of the European Commission, to facilitate the interregional collaboration and joint investment in the S3 priority areas. Notably Extremadura has joined the Agrifood Thematic Platform, which covers topics such as bioeconomy, food quality and safety, and sustainable agriculture.

Within that platform, Extremadura has also joined the Partnerships named:

- Traceability and Big data in the Agri-Food value chain
- High Tech Farming

One of the key objectives of the Partnerships is to support the development of interregional partnerships and projects that can apply for the European Regional Development Fund (ERDF) or other EU funding instruments, such as Horizon Europe or the Recovery and Resilience Facility.

## 2.3 Non-EU countries (IPA)

The Instrument for Pre-accession Assistance (IPA) is a financial mechanism that supports the reforms and preparation of the countries that are candidates or potential candidates for joining the European Union. The IPA members are Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, Serbia, and Turkey. Of them, only North Macedonia has a representation in the HuMUS consortium.

The state of the art of S3/S4 design and/or implementation within the IPA members for the period 2021-2027 can be summarised as follows:

- **Albania** has identified six priority areas whereto specialise intelligently: Agriculture, Fisheries and Forestry, Manufacturing Industry, Energy, Tourism, Information and Communication Technologies (ICT) and Business Process Outsourcing (BPO). Additional four cross-sectoral areas were considered for further assessment: Blue Economy, Healthy Food, Renewable Sources of Energy and Extended BPO. Through a Prime Minister's decree, an Inter Ministerial Committee has been established, tasked with monitoring, drafting, and implementing the S3. Among the main duties of the Committee are ensuring the progress within the framework of drafting and implementing the S3, promoting high-level coordination of institutions to guide and lead the work in line with the S3. This is expected to

be an umbrella strategy that touches upon various sectors and involves a considerable number of central and local institutions. Source: <https://s3albania.org/>

- The S3 process in **Bosnia and Herzegovina** is currently in preparation, following a recent decision by the Council of Ministers. The S3 process will follow the Joint Research Centre (JRC)'s methodological Framework for Smart Specialisation in the EU Enlargement and Neighbourhood countries. The S3 working group of Bosnia and Herzegovina has been recently formed. Source: <https://s3platform.jrc.ec.europa.eu/bosnia-and-herzegovina>
- The S3 process in **Kosovo**<sup>1</sup> is currently in preparation and will start once preparations are finalised. Once begun, Kosovo's S3 process will follow the JRC's methodological framework for smart specialisation in the EU enlargement & neighbourhood countries. A task force to this purpose has already been launched. Source: <https://s3platform.jrc.ec.europa.eu/kosovo>. A mapping exercise has also been finalised, showing the following vertical priority areas: Wood processing, Food processing, and Green energy; and two more "horizontal" ones: ICT and creative industries.
- **Montenegro** adopted its S3 in 2019, following the JRC methodological framework for Smart Specialisation in the EU enlargement & neighbourhood countries and received conditionally positive assessment by the EC services. Five priority sectors were identified: Information and Communication Technologies (ICT); Renewable Energy; Sustainable Agriculture and Food Value Chains; New Materials and Sustainable Technologies; Sustainable and Health Tourism. Implementation of the S3 was assigned to the Council for Innovation, established in 2019. [https://www.gov.me/en/document-library?page=1&sort=published\\_at&q=smart%20specialization](https://www.gov.me/en/document-library?page=1&sort=published_at&q=smart%20specialization). In early December 2023 the Government of Montenegro passed the Decision on the formation of the Council for Innovation and Smart Specialization (replacing the one formed in 2019), which will be chaired by the Minister of Education, Science and Innovation. The Montenegrin Smart Specialization Strategy (2019–2024) represents a "Made in EU" approach to optimising investments in research and innovation and is often referred to as a horizontal or comprehensive development strategy for the whole country. By including the concept of Sustainability, after the adoption of the EU Green Deal, the possibility has been opened for an improved S3 strategy (S4.me), aiming at knowledge-based development, with rational use of resources and respect for international conventions and goals to reduce the negative impacts on climate change.
- The S3 drafting process in **North Macedonia** is led by a working group coordinated by the Ministry of Education and Science and the Ministry of Economy. The same institutions will have important roles in the implementation of the S3. The working group is composed of 13 representatives from governmental institutions and 3 representatives from the academic sector. For the highest effectiveness of implementation, an action plan to the strategy has been prepared. A draft edition of the Smart Specialisation Strategy was published in November 2023 (<https://mon.gov.mk/stored/document/Draft%20S3%20MK.pdf>). The draft includes various instruments and lines for the support of targeted priority areas. See: <https://s3platform.jrc.ec.europa.eu/web/guest/north-macedonia>.
- **Serbia** finalised the adoption process of its S4 and related action plan in April 2021. Like in the case of Slovenia, the fourth S stands for the initial of the Country name. Identified thematic priority areas include: Food for Future, Information and Communications Technology, Future Machines and Manufacturing Systems, and Creative Industries. Source: <https://pametnaspecijalizacija.mpn.gov.rs/>.
- The R&I activities in **Turkey** rest under the responsibility of the central government, which created 26 regional development agencies at NUTS II level in 2002 and assigned them the responsibility of designing and implementing regional research and innovation programmes. 12 of them developed their innovation strategies. <https://s3platform.jrc.ec.europa.eu/turkey>.

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<sup>1</sup> This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

## 2.4 Summary of evidence

Soil health and quality are essential for sustainable agriculture, food security, biodiversity, and climate change mitigation. However, soil degradation is a serious problem that affects many regions in the EU and globally, due to factors such as erosion, compaction, salinization, pollution, and loss of organic matter. Therefore, there is a need to promote soil conservation and restoration, as well as to enhance soil fertility and plant nutrition, through innovative and integrated approaches that involve multiple stakeholders and sectors.

Smart Specialisation Strategies (S3/S4) are policy instruments that aim to boost regional innovation and competitiveness, by focusing on the strengths and potential of each region, and by fostering collaboration and learning among different actors. S3/S4 can be a useful framework to address the challenges and opportunities related to soil health and quality, by identifying and supporting the development of niche areas of specialisation that are relevant for the regional context and aligned with the EU's strategic objectives and priorities.

However, it is fair to admit that **no single S3/S4 text considered for this overview contains a direct reference to soil health or quality as a self-standing thematic priority**. On the other hand, in almost all of the reported cases Agri-Food is indicated as one of the S3/S4 areas of opportunity. Obviously, Agri-Food encompasses the improvement of soil fertility and plant nutrition, through the use of bacteria and fungi, such as mycorrhizae and rhizobia, that can enhance the efficiency of nutrient uptake by crops.

Another related priority, not emerging from the chosen sample for this overview, but certainly part of other S3/S4 texts, is sustainable agriculture and forestry, which includes the development of new technologies and methods for soil management, such as precision farming, biochar, and biostimulants.

By a similar vein, we can argue that another interesting area of operation is sustainable fisheries, which includes the promotion of organic farming and the protection of soil biodiversity, through the implementation of good agricultural practices and the adoption of certification schemes.

A fourth possibility to be considered is sustainable chemistry, which covers the production and use of biobased materials and chemicals, such as bioplastics, biofertilisers, and biocides, which can improve soil quality and reduce environmental impacts. Again, this is not explicitly mentioned in any of the surveyed S3/S4 texts, but brings evident benefits to soil quality.

A fifth priority that is embedded in a high number of S3/S4 texts is bioeconomy, which includes the development of sustainable and innovative solutions for soil remediation, such as phytoremediation, bioremediation, and nanoremediation, which can remove or degrade soil contaminants, such as heavy metals, pesticides, and hydrocarbons.

A sixth thematic priority that is surely widespread at EU level is circular economy, which involves the valorisation of waste and by-products from various sectors, such as agriculture, forestry, and industry, into new products and services, such as soil amendments, biogas, and bioenergy.



## 3 Funding opportunities for soil health and quality related projects

### 3.1 Introduction

As a consequence of the lack of direct and explicit prioritisation in the S3/S4 texts, discussed in the previous section, available funding opportunities for healthy soils at local and regional level do not include targeted state aid regimes, but should be retrieved within other, related priorities such as sustainable agriculture, forestry and fisheries, Agri-Food, bioeconomy, sustainable chemistry and circular economy.

Following is a non-exhaustive list of opportunities:

At EU level:

- The Common Agricultural Policy
- The Horizon Europe programme for research and innovation
- The LIFE programme

At national/regional levels:

- The Recovery and Resilience Facility
- The European Regional Development Fund
- The European Agricultural Fund for Rural Development
- Other funding or financing opportunities such as from the Cohesion Fund (for a subset of EU Member States) and the Just Transition Mechanism (JTM)
- As an additional opportunity, the HuMUS project has launched an Open Call for Pilot Projects at the regional and local levels in Europe. The Call will expire on 29 February 2024 and is now being actively disseminated via partners' and consortium's communication channels.

We will now explore the above opportunities one by one.

### 3.2 Funding opportunities in the Common Agricultural Policy (CAP)

The EU Common Agricultural Policy (CAP) supports projects that contribute to the sustainable development of the agricultural sector and rural areas, by ensuring food security, environmental protection, and social well-being. The new CAP (2023-2027) has higher environmental ambitions in relation with the EU Green Deal, the Farm to Fork strategy and the Biodiversity Strategy. Basic standards of soil management, support for farming activities that are beneficial for soil health and investments in soil health are all important elements of the CAP. Climate targets related to carbon sequestration are also relevant to soil.

The new CAP has a budget of €307 billion for 2022-2027, and offers various types of funding instruments, such as direct payments, rural development programmes, and market measures. In June 2023, 28 CAP Strategic Plans set out by the EU Member States were approved, which cover all the CAP-related and CAP-funded instruments that a Member State designed to implement in its territory over the new programming period. The 28 CAP Strategic Plans are financed through two funds as part of the EU budget: the European Agricultural Guarantee Fund (EAGF) provides direct payments, entirely financed by the EU, to stabilise the internal agricultural markets; the European Agricultural Fund for Rural Development (EAFRD) foresees rural development measures and requires co-financing from Member States. The funds also have different programming characteristics: support from EAGF is annual, while support from EAFRD is based on multi-annual payments and commitments and is channelled through grants or financial instruments.

According to a recent overview done by the Commission staff, very diverse activities related to the improvement or restoration of soil health and quality can possibly be financed by the new CAP:

- Soil damage prevention, more specifically
  - Knowledge sharing and demonstration activities by individuals / practitioners as well as businesses
  - Implementation of improved Sustainable Land Management (SLM) practices
  - Infrastructure / equipment investments
  - Social & cultural activities aimed to that purpose
- Soil monitoring, more specifically
  - Knowledge sharing and demonstration activities by individuals / practitioners as well as businesses and public authorities
  - Implementation of improved SLM practices
  - Infrastructure / equipment investments by the private sector
- Soil improvement, enhancement and sustainable management, more specifically
  - Knowledge sharing and demonstration activities by individuals / practitioners as well as businesses and public authorities
  - Implementation of improved SLM practices
  - Infrastructure / equipment investments by the private sector
- Land management, more specifically
  - Knowledge sharing and demonstration activities by individuals / practitioners as well as businesses and public authorities
  - Implementation of improved SLM practices
  - Infrastructure / equipment investments by the private sector
- Agroforestry and woodland management, more specifically
  - Knowledge sharing and demonstration activities by individuals / practitioners as well as businesses and public authorities
  - Implementation of improved SLM practices
  - Infrastructure / equipment investments by the private sector
  - Social & cultural activities aimed to that purpose
- Water management in relation with soil health, more specifically
  - Knowledge sharing and demonstration activities by individuals / practitioners as well as businesses and public authorities
  - Implementation of improved SLM practices
  - Infrastructure / equipment investments by the private sector
- Peatland, wetland and high organic matter soils management, more specifically
  - Knowledge sharing and demonstration activities by individuals / practitioners as well as businesses and public authorities
  - Implementation of improved SLM practices
  - Infrastructure / equipment investments by the private sector.

For example in Germany, where Agroforestry systems are currently not very widely considered for their potential contribution to soil health, the CAP Plan introduced 2 complementary interventions involving agroforestry, making its role more significant in securing and enhancing carbon storage and sequestration. Support for the establishment of agroforestry systems is channelled through an intervention named 'Productive investments for modernisation of agricultural holdings', the scope of which is in line with the policies of German regions. This is complemented by the eco-scheme named 'Maintaining agroforestry management', which is available across the country. Germany plans for up to 200 000 hectares per year to benefit from said eco-scheme. In addition to carbon sequestration and reduction of nutrient losses, the two interventions will provide a contribution to several result indicators in the field of climate adaptation, soil quality, water quality and balance, nutrient management, biodiversity and landscape features.

In addition to CAP Plans, Member States can provide national financing for actions in rural development in compliance with the rules of the Strategic Plan Regulation (EU) No 2021/2115. At the moment, 16 national governments have committed to making additional funds available, for a

total of more than EUR 11 billion as shown in the figure below. The highest amounts contribute to actions for investment and for practices related to environment, climate and animal welfare (Art. 70), but there are also dedicated funds to areas with natural constraints or specific disadvantages. With this additional finance, Member States can increase the number of beneficiaries and projects to attain their targets, or simply the intensity rates for support per beneficiary.

Type of support under rural development	(EUR)	CSP
AECC - Environmental/climate/animal welfare related (Art.70)	1 755 243 378	AT, BE, DE, ES, FR, HU, IT, LT, LV, MT, SE
ANC - Areas with natural constraints (Art.71)	1 077 553 117	AT, DE, ES, FI, IT
ASD - Areas with specific disadvantages (Art.72)	115 918 848	DE, EE, HU, LT, LV
INV - Investments (Art.73 and 74)	6 611 447 543	AT, BE, DE, ES, FR, HR, HU, IT, LT, LV, NL, SE
INSTAL - Setting up of farmers and start-ups (Art.75)	217 417 746	AT, DE, ES, FI, FR, HU, IT
RISK - Risk management tools (Art.76)	78 541 733	HU, LT, LV
COOP-Cooperation (Art.77)	967 586 489	AT, DE, ES, FR, HU, IT, LT, LV, NL, SE
KNOW - Knowledge and information (Art.78)	297 018 794	AT, ES, FR, HU, IT, LT, SE

Source: DG Agriculture and Rural Development, Approved 28 CAP Strategic Plans (2023-2027). Summary overview for 27 Member States. Facts and figures, June 2023.

In addition to the above provisions there are other funding opportunities based on Member State specific priorities, for instance:

- In 25 Member States small and medium sized farms will receive a larger proportion of direct payments than in previous periods, known as the complementary redistributive income support for sustainability.
- 15% of farms in the EU are able to receive support to access risk management tools such as funding insurance premiums or using mutual funds.

The CAP includes many areas which both directly and indirectly support investments in the protection of soils. The funding opportunities are relevant to farmers (for both direct payment and rural development interventions), land managers, foresters, advisers, and public administrations under rural development measures to various extents. Despite each Member State developing their own Strategic Plan, there are some common soil relevant practices they can support. These include (but are not exhaustive):

- organic farming,
- agro-ecology practices such as crop rotation and use of cover crops,
- precision farming,
- carbon farming
- erosion prevention strips and wind breaks and
- high nature value farming.

As an example of good practice, in the Baden-Württemberg region there is an EU co-financed agri-environmental programme called FAKT, now coming to its second edition, which includes some measures for soil protection. The acronym stands for funding programme for agri-environment, climate protection and animal welfare (in German). FAKT II continues the successful predecessor programmes MEKA and FAKT I in the 2023-2027 CAP funding period and develops them further in key areas of direct interest for farmers as a major target group.



Around 40 percent of the funding for rural development earmarked for Baden-Württemberg in Germany's national CAP strategic plan for the period 2023 to 2027 is allocated to the FAKT II programme with its approximately 40 measures. From 2023, FAKT II offers a large number of new measures and further developed, proven measures which foresee - at least in some cases - higher compensation rates compared to the current funding mechanisms.

These include, for instance, incentives to:

- Extended drill row spacing with flowering undersow in cereals,
- Sowing a flowering undersow,
- Reduced tillage with strip-till method,
- Prevention of soil erosion through wind and water and
- Improvement of soil management practices.

Animal welfare and animal-friendly husbandry of farm animals are important tasks for society as a whole. For this reason, FAKT II includes new measures in the area of livestock farming that serve animal welfare. Important priorities of the state government include preservation of biodiversity, improvement of climate resilience and strengthening of organic farming. This will lead to new funding measures on top of the existing ones, offering improved support for grassland locations, organic farming, resource protection and the preservation of biodiversity. For more information: [https://foerderung.landwirtschaft-bw.de/pb/.Lde/Startseite/Foerderwegweiser/2023\\_F\\_Gewaesserschutz\\_Erosionsschutz](https://foerderung.landwirtschaft-bw.de/pb/.Lde/Startseite/Foerderwegweiser/2023_F_Gewaesserschutz_Erosionsschutz)

The **EU CAP Network** (<https://eu-cap-network.ec.europa.eu>) is a forum through which National CAP Networks, organisations, administrations, researchers, entrepreneurs and practitioners can share knowledge and information (e.g. via peer-to-peer learning and good practices) about agriculture and rural policy. The European Commission set up the EU CAP Network in line with the Regulation of the European Parliament and of the Council to support CAP strategic plans (CSPs). The Network supports the design and implementation of CAP strategic plans, innovation and knowledge exchange, including EIP-AGRI, and evaluation and monitoring of the CAP.

### 3.3 Funding opportunities in the Horizon Europe programme for research and innovation

Horizon Europe, the EU's framework programme for research and innovation, supports projects that contribute to the EU's missions, such as the mission 'A Soil Deal for Europe', which aims to restore and protect the health of soils in Europe and beyond. Horizon Europe has a budget of €95.5 billion for 2021-2027, and offers various types of funding instruments, such as grants, prizes, and public-private partnerships. For example, the call Horizon-MISS-2023-SOIL-01-08, which closed on 24 March 2023, had a budget of €62 million for research and innovation projects addressing the challenges and opportunities of soil health and quality.

The thematic scope of Horizon Europe extends to non-agricultural (such as urban) soils, which were obviously discarded from the consideration of the CAP. On the other side, Horizon Europe does not support - in normal conditions - the implementation of improved Sustainable Land Management (SLM) practices or the the realisation of private Infrastructure / equipment investments.

According to a recent overview done by the Commission staff, the following activities related to the improvement or restoration of soil health and quality can possibly be financed by Horizon Europe:

- Research and innovation
- Knowledge sharing and demonstration activities by individuals / practitioners as well as businesses
- Social & cultural activities

and the thematic scope of the programme for the SOIL Mission covers the following project topics:

- Soil damage prevention
- Urban soils
- Soil monitoring
- Soil improvement, enhancement and sustainable management
- Land management
- Agroforestry and woodland management
- Water management in relation with soil health
- Peatland, wetland and high organic matter soils management.

Practically speaking, to participate in the Horizon Europe programme with projects on soil, you need to follow these steps:

1) Find a suitable call for proposal: the European Commission publishes calls for proposals based on the Horizon Europe work programmes. The calls for proposals are grouped by subject areas, such as climate, energy and mobility, food, bioeconomy, natural resources, agriculture and environment, and health. You can find all calls for proposals, the specific call topics, the deadlines and application form templates (as well as an online facility for partner search) on the Funding and Tenders Portal [https://rea.ec.europa.eu/funding-and-grants/eu-mission-soil-deal-europe\\_en](https://rea.ec.europa.eu/funding-and-grants/eu-mission-soil-deal-europe_en).

2) Search project partners: for most calls for proposals, you must apply as a team of at least three partner organisations from different countries. To find potential partners, you can use the Partner Search facility on the Funding and Tenders Portal or join online networking events organised by the European Commission or other organisations.

3) Prepare and submit your proposal: to apply, you must create a profile in the Funding and Tenders Portal. Then you select the call for proposals you want to apply to and use the application form template on that call page to build and submit your proposal before the deadline. Some calls for proposals follow a two-stage application procedure: you first submit a concept note, then if your concept is successful, you draft and submit the full project proposal.

4) Wait for the evaluation and notification: after the call for applications for funding has closed, the process moves to the evaluation phase. The European Commission organises panels of experts who peer-review and evaluate each proposal against a set of pre-defined criteria. Once the evaluation has been finalised, the European Commission informs the successful applicants and proposes funding in line with the overall available budget. The evaluation phase lasts up to five months.

5) Sign the grant agreement: once the successful proposals have been selected, the European Commission draws up a grant agreement with the project partners. The grant agreement specifies the project's research and innovation activities, duration and budget, the EU's contribution, all rights and obligations and more. Generally, the parties sign the grant agreement within three months.

6) Start your project: once the grant agreement is signed, you can start your project and receive the EU grant. You will have to report on the progress and results of your project, as well as comply with the open science and gender equality principles of Horizon Europe.

These are the general steps for participating in the Horizon Europe programme with projects on any topic, including soil. However, the specific steps may vary depending on the type and complexity of the project, as well as the call for proposal.

### 3.4 Funding opportunities in the LIFE programme

The LIFE programme is the EU's funding instrument for the environment and climate action. It supports projects that contribute to the EU's environmental and climate objectives, such as the European Green Deal, the Biodiversity Strategy, and the Farm to Fork Strategy.

The LIFE programme provides funding for various types of actions, such as pilot, demonstration, best practice, integrated, and capacity-building projects. The LIFE programme covers several sub-programmes and thematic priorities, such as nature and biodiversity, circular economy and quality of life, climate change mitigation and adaptation, and clean energy transition.

In the list of priority topics for 2021-2024 (applicable to both Standard Action Projects and to Coordination and Support Actions) soil is explicitly mentioned as part of the sub-programme 'Circular economy and Quality of life'.

The idea is to contribute, through the funding of the programme, to the soil-related commitments set in the EU Biodiversity Strategy towards 2030, notably:

- Implementing actions that protect the quality of EU's soil, including innovative actions:
  - encouraging transition to sustainable practices of soil and land management,
  - promoting and scaling up innovative soil and land management techniques, and
  - scaling-up the implementation of the sustainable soil management,

with a view to eliminate and prevent adverse effects (erosion, pollution, loss of soil organic carbon, etc.) and negative impacts on provided soil ecosystem services,

and/or,

- preparing for extreme weather events and combating desertification,

in order to increase the resilience of agricultural and tourism sectors to climate threats (e.g. floods, soil erosion and droughts) by scaling up the implementation of effective nature based solutions;

- Restoration, protection and improvement of soil health and prevention of soil degradation including soil loss also through innovative actions:
  - sustaining soil fertility and soil biodiversity,
  - restoring them after pollution, and
  - enhancing their capacity to improve water quality,
  - applying cost-effective investigation, assessment and remediation solutions for point-source and diffuse soil contamination,
  - supporting sustainable soil and land management practices, including those specifically intended to remove CO<sub>2</sub>,
  - addressing soil degradation including soil loss to preserve land resources ('land degradation neutrality'),

and/or,

- apply cost-effective solutions to unseal already sealed areas.

Practically speaking, to participate in the LIFE programme with projects on soil, you need to follow these steps:

1) Find a suitable call for proposal: the European Commission publishes calls for proposals based on the LIFE work programmes. The calls for proposals are grouped by subject areas, such as nature and biodiversity, circular economy and quality of life, climate change mitigation and adaptation, and



clean energy transition. You can find all calls for proposals, the specific call topics, the deadlines and application forms on the Funding and Tenders Portal.

2) Search for a project partner: for most calls for proposals, you must apply as a team of at least three partner organisations from different countries. To find potential partners, you can use the Partner Search Service on the Funding and Tenders Portal or join online networking events organised by the European Commission or other organisations, such as the NCP (National Contact Point) for your country or the Enterprise Europe Network.

3) Prepare and submit your proposal: to apply, you must create a profile in the Funding and Tenders Portal. Then you select the call for proposals you want to apply to and use the online form on the call page to build and submit your proposal before the deadline. Some calls for proposals follow a two-stage application procedure: You first submit a concept note. If your concept is successful, you draft and submit the full project proposal.

4) Wait for the evaluation and notification: after the call for applications for funding has closed, the process moves to the evaluation phase. The European Commission organises panels of experts who peer-review and evaluate each proposal against a set of pre-defined criteria. Once the evaluation has been finalised, the European Commission informs the successful applicants and proposes funding in line with the overall available budget. The evaluation phase lasts up to five months.

5) Sign the grant agreement: once the successful proposals have been selected, the European Commission draws up a grant agreement with the project partners. The grant agreement specifies the project's activities, duration and budget, the EU's contribution, all rights and obligations and more. Generally, the parties sign the grant agreement within three months.

6) Start your project: Once the grant agreement is signed, you can start your project and receive the EU grant. You will have to report on the progress and results of your project, as well as comply with the open science and gender equality principles of the LIFE programme.

These are the general steps for participating in the LIFE programme with projects on any topic, including soil. However, the specific steps may vary depending on the type and complexity of the project, as well as the call for proposals.

### 3.5 Funding opportunities in the Recovery and Resilience Facility

The EU Recovery and Resilience Facility is a funding instrument that aims to support the recovery and resilience of the EU Member States after the COVID-19 pandemic. In fact it is the centrepiece of Europe's recovery plan, NextGenerationEU. The Facility provides grants and loans to Member States finance reforms and investments that contribute to the EU's green and digital transitions, as well as its economic and social cohesion. The investments must be finalised until 31 December 2026.

Member States may disburse funds internally to regions, municipalities and other public and/or private bodies under different modalities and through intermediaries to which the final beneficiaries will apply through procedures of public evidence.

The RRF is structured around 6 pillars:

1. Green transition
2. Digital transformation
3. Smart, sustainable and inclusive growth, including economic cohesion, productivity and competitiveness
4. Social and territorial cohesion
5. Health, economic, social and institutional resilience
6. Policies for the next generation.

To access the EU grants and loans, Member States have had to prepare and submit to the EC their own National Recovery and Resilience Plans (NRRPs), outlining the reforms and the investments that they intended to realise with the support of the Facility. The NRRPs had to address the challenges and opportunities identified in the European Semester, as well as contribute to the EU's climate and digital targets. The NRRPs could therefore include projects on soil health and quality, such as soil monitoring, soil protection, soil restoration, or soil carbon sequestration.

The process of NRRP definition, submission and approval is not one-off but can accept periodic and mutually agreed revisions. For example, in the month of December 2023, the announcement was given to the public press that 13 NRRPs received the green light from the EU Council. According to the analysis done by the Commission, the modifications put forward by the Member States do not affect the relevance, effectiveness, efficiency and coherence of those plans.

According to a recent overview done by the Commission staff, the NRRPs set a major focus of their expenditures on climate transition. Improvements to soil health may fall under this priority as soils have to both adapt to become more climate resilient, while also playing a part in preventing climate change. Activities that contribute to soil health may fall mainly under Pillar 1 'Green Transition' and Pillar 3 'Smart, sustainable and inclusive growth'. However, access to these funding resources can only occur through the participation of the generic beneficiary in the aforementioned procedures of public evidence launched at national level.

The European Commission maintains a page describing the NRRPs of all EU Member States, here: [https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/country-pages\\_en](https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/country-pages_en). Additional information (in native language) must be searched for at national level in the dedicated websites.

### 3.6 Funding opportunities in the European Regional Development Fund

The European Regional Development Fund (ERDF) is one of the 4 Cohesion Policy funds operating in the 2021-2027 programming period, the others being the Cohesion Fund (CF), the Just Transition Mechanism (JTM) and the European Social Fund Plus (ESF+). Its overall objective is to strengthen economic, social and territorial cohesion in the EU, by correcting imbalances between regions. In particular, there is an emphasis on reducing economic, environmental and social inequality in urban and rural areas, thus projects relating to soil in urban and rural areas are appropriate for this Fund.

The ERDF supports regional and national investments in line with the approved S3/S4, promoting climate change adaptation, risk prevention and resilience to disaster risk, as well as access to water and sustainable water management, which could encompass soil health obligations. In fact, these goals can be addressed through healthier soils and better soil quality management.

The common structure of ERDF implementation plans - known as OPs (Operational Programmes) - focuses on 5 Policy Objectives (PO):

- PO1: Be more competitive and smarter – through innovation, the development of an inclusive digital society and support for SMEs
- PO2: Be greener – through a reduction in greenhouse gas emissions, improved water and waste management, protection of the environment, preserving biodiversity and reducing pollution
- PO3: Be more connected – through enhanced mobility
- PO4: Be more social – via support for effective and inclusive employment, enhancing the role of culture and sustainable tourism
- PO5: Be closer to citizens – by fostering sustainable urban development

In the current programming period, all EU regional and national OPs should concentrate at least 30% of their allocation to PO2. Additionally, more developed regions and countries will dedicate at

least 85% of their allocation to P01 and P02, transition regions or Member States at least 40% to P01, and less developed regions or Member States at least 25% to P01.

P01 may fund local innovative projects related to soil health via climate change mitigation and adaptation, access to water, circular economy, nature protection and biodiversity. Indirectly, it can also have an impact on soil via its focus on employment, education, skills, social inclusion, culture, and sustainable tourism. Through P02, the ERDF may directly target environmentally beneficial projects related to soil management or benefitting soil health, for example through enhancing the protection and preservation of nature, biodiversity and green infrastructure, including in urban and rural areas, and reducing all forms of pollution.

The ERDF also and notably finances sustainable land use projects including innovative planning and land-management instruments re-naturalisation of contaminated land and the transformation of misused and abandoned built areas into productive spaces, both of which are relevant to project proposals related to soil management.

However and much in the same way as mentioned for the funding opportunities of the EU Recovery and Resilience Facility, local projects from a given region or country aimed at soil health and quality restoration and/or improvement must find the specific call that is most appropriate to fund them by scrutinising the websites of the respective Programme Authorities in charge of designing and managing the ERDF OPs - also known as Managing Authorities (MAs). These are normally regional departments or even ministries in case of the smallest sized countries, depending on the distribution of thematic competencies within their respective governance systems.

Practically speaking, to participate in the ERDF programme with projects on soil, you need to follow these steps:

1) Find a suitable call for proposal: these are published on a dedicated website, usually in your native language. The calls for proposals are grouped by subject areas, which may not include soil as a specific priority. Some of them are dedicated to public bodies, others are open or restricted to the private sector.

2) Search for a project partner (optional): depending on the call for proposals, you may not apply as a single entity, but team up with a certain number of partner organisations from your same region or country. To find potential partners, you may use your network of contacts or join online or offline networking events organised by the responsible department of your Region or Ministry.

3) Prepare and submit your proposal: to apply, you must create a profile in a dedicated portal run and managed by the responsible department of your Region or Ministry or directly by the MA. Then you can use the online form on the call page to build and submit your (single or joint) proposal before the deadline.

4) Wait for the evaluation and notification: after the call for applications for funding has closed, the process moves to the evaluation phase. The Managing Authority organises panels of experts who peer-review and evaluate each proposal against a set of pre-defined criteria. Once the evaluation has been finalised, the funding body informs the successful applicants and awards them in line with the overall available budget. Funding may take the form of grants and/or bank loans at favourable conditions (supported by a third party guarantee and/or with a discount on paid interests). Equity or quasi-equity interventions are also possible, alone or in combination with the previous ones.

5) Sign the grant agreement (optional): once the winning proposals have been awarded, the funding body draws up a grant agreement with the project partners or not. The grant agreement specifies the project's activities, duration and budget, the ERDF contribution, all rights and obligations and more.



6) Start your project: Once the grant agreement is signed, you can start your project and receive the ERDF grant. You will have to report on the progress and results of your project, as well as comply with the specific rules and principles of the ERDF OP.

As funding is allocated on a region-by-region basis, eligibility rules set by national and regional MAs apply along with EU regulations. These cover:

- Time period: there are limits on the period during which operations and expenditure can take place;
- Scope of intervention: there are restrictions on the types of activities that can be co-financed;
- Cost categories: certain cost categories are excluded;
- Geographical location of operations: only certain locations are eligible;
- Durability of operations: investments may have to be maintained for a minimum period after the operation is completed;
- Types of beneficiaries: only certain enterprises, bodies or economic actors are eligible for support.

Common rules and principles across the ERDF OPs include, as an example, the obligation of using standard approaches and materials for the communication and dissemination of funded actions, or the verification of the DNSH - Do No Significant Harm - requirement, consisting in documenting the impacts of project activities per se on the environmental situation of participating territories.

Some additional funding opportunities of the ERDF available for local and regional projects aimed at soil health and quality restoration and/or improvement can materialise through the collaboration with other similar or different partner organisations that are not residing in your same country or region.

Such collaboration may be framed under the umbrella of the following programmes and initiatives:

- The Interreg programmes: these are cross-border, transnational, or interregional cooperation programmes that support projects that address common challenges and opportunities in specific regions or themes. The Interreg programmes can support projects on soil health and quality, such as soil erosion prevention, soil biodiversity enhancement, or soil organic matter improvement.
- The European Urban Initiative (EUI): this provides funding for urban development projects that contribute to the EU's policy objectives, such as the European Green Deal, the Digital Agenda, or the New European Bauhaus. The EUI can support projects on soil health and quality, such as soil monitoring, soil protection, or soil restoration.

Interreg programmes are financed by the ERDF and are designed to encourage cooperation across regions and countries on a range of issues, one of which is environmental protection. Geographical areas covered include EU Member States, Member State regions, EU enlargement countries and neighbourhood countries. The cooperation with enlargement and neighbourhood countries is financed also by the Instrument for Pre-Accession Assistance (IPA) and the Neighbourhood, Development and International Cooperation Instrument (NDICI).

To the 5 Policy Objectives that are common to all ERDF OPs, Interreg programmes add 2 specific ones, ISO1 A better Cooperation governance and ISO 2 A safer and more secure Europe. However, they must focus their support on a small number of POs (which is referred to as thematic concentration) and PO2 must always be included.

As territorial cooperation programmes directly contribute to the achievement of EU Cohesion policy objectives, owing to their special nature, they are implemented differently from mainstream ERDF programmes.

There are four types (or strands) of Interreg programmes:

- Cross-border cooperation (Interreg A), which focuses on promoting integrated regional development between neighbouring land and maritime border regions in the territory of the European Union;
- Transnational cooperation (Interreg B) promotes cooperation between national, regional and local partners in transnational programme areas in order to increase the territorial integration of these areas;
- Interregional cooperation (Interreg C) focuses on the reinforcement of the effectiveness of the cohesion policy on a pan-European level and does not only involve the 27 EU Member States but also neighbouring countries; it promotes networking, innovative approaches and capacity building with the aim of identifying and transferring good practices and strengthening the exchange of experiences in the field of regional and urban development, as well as analysing development trends in relation to the aims of territorial cohesion;
- Outermost regions' cooperation (Interreg D) supports cooperation among the outermost regions themselves and with their neighbouring countries, overseas countries and territories, and regional integration and cooperation organisations to facilitate regional integration and development in their neighbourhood.

Interreg A, B and D programmes support cooperation to jointly tackle common challenges and to find shared solutions in different fields. One such field is the environment, which means these programmes are appropriate to support soil health projects with environmental benefits. Examples of projects include developing and integrating green infrastructure and encouraging SMEs to assess and address resource use issues.

Interreg C programmes often support more intangible actions such as capacity building and the exchange of experiences, mostly among public authorities.

Examples of funded projects can be retrieved from the KEEP database: <https://keep.eu>. As per the PO2, there are projects enhancing the protection and preservation of nature, biodiversity and green infrastructure, including in urban areas, and reducing all forms of pollution. Other projects address issues such as pollution problems, loss of biodiversity, which normally extend beyond national borders. Projects related to soil health that fall into these areas are likely to have positive benefits for biodiversity, preservation of nature and the improvement of green spaces.

The European Urban Initiative (EUI) - formerly Urban Innovative Actions (UIA) - is an Initiative of the EU that provides urban areas throughout the EU with resources to test new and unproven solutions to address urban challenges. EUI offers urban authorities the opportunity to take a risk and experiment with innovative and creative solutions.

Since it is uniquely focused on urban areas, the target territory of this initiative are cities. In fact, EUI supports cities of more than 50 000 inhabitants or groups of urban authorities with a total population of at least 50 000 inhabitants.

Calls for proposals have been launched to support agreed topics of the Urban Agenda for the EU including air quality, carbon emissions, climate adaptation, culture and cultural heritage, demographic change, digital transition, energy transition, housing, integration of migrants and refugees, jobs and skills in the local economy, sustainable use of land and nature-based solutions, urban mobility, urban poverty, urban security. A list of funded projects can be retrieved at these URLs: <https://www.uia-initiative.eu/en/uia-cities> (for previous programming period projects) and <https://www.urban-initiative.eu/calls-proposals/first-call-proposals-innovative-actions/selected-projects> (for the current programme projects).

Both Interreg programmes and the EUI distribute their financial provisions through procedures of public evidence (yearly calls for proposals) according to their respective OPs rules and principles. It is therefore necessary to make reference to the contents of the specific programme and call one is

interested in applying to. For a full list of all the Interreg programmes operating in 2021-2027 and the contacts of the respective Managing Authorities one can consult the directory shown at: <https://interreg.eu/list-of-programmes/> or the interactive map displayed at <https://interreg.eu/>.

Practically speaking, the needed steps to participate in the Interreg programmes of the EUI with projects on soil are more similar to the previously provided descriptions (in §§ 3.3 and 3.4) referring to Horizon Europe and the LIFE programme, than to those in this paragraph concerning access to ERDF funds at the regional or national levels.

All the financial provisions described so far follow the principle of co-financing, i.e. require the beneficiary's participation to the expenses foreseen in the proposal budget for the realisation of the project's objectives. The percentage of co-financing normally varies from case to case.

### 3.7 Funding opportunities in the European Agricultural Fund for Rural Development

As described in §3.2 The Common Agricultural Policy (CAP) is funded by two funds: the European Agriculture Guarantee Fund (EAGF) and European Agriculture Fund for Rural Development (EAFRD). The new CAP seeks to simplify and harmonise the objectives of the CAP and make the dual funding sources less distinct than it previously was. The EAGF will therefore be used for direct payments and eco-schemes only, while the EAFRD will support rural development interventions including to implement environmental, climate related and other management commitments, conversion to and maintenance of organic farming, Natura 2000 and forestry measures, investments in equipment and infrastructure.

The increased environmental ambition of the new CAP is mirrored by the requirement for the EAGF to allocate at least 25% of Member State funding to environmental delivery. It is also evident in the enhanced conditionality requirements, which include meeting Statutory Management Conditions (SMRs) and Good Agricultural and Environmental Conditions (GAECs). SMRs include e.g. existing EU rules on public, animal and plant health, animal welfare and the environment, while GAECs are basic requirements set out for all Member States, with options to adapt them to respond to national situations. New GAECs (e.g. GAEC 2) on protecting peatlands and wetland, have been added in the previous programming period, and existing GAECs have been enhanced to ensure that the CAP will deliver increased support for more sustainable practices.

The funding opportunities align with the different types of interventions in CAP Strategic Plans (see §3.2). The interventions funded by EAGF include:

- Basic income support for sustainability, conditional on meeting SMRs and GAECs and paid as an annual decoupled payment per eligible hectare;
- Coupled income support for 19 specific sectors or types of farming where they are important for environmental or socio-economic reasons. Examples include protein crops, olive oil, fruit and vegetables, and silkworms;
- Eco-schemes: new voluntary schemes to support climate, environment and animal welfare activities that go beyond conditionality;
- Sectoral interventions for 17 specific sectors, including aid schemes to improve sustainability and competitiveness of certain sectors, such as fruit and vegetables, wine and olive oil.
- Operational programmes for the fruit and vegetable sector will allocate 15% of their spending on environmentally beneficial activities.

In turn the interventions funded by EAFRD include the following:

- Agri-environment-climate and other management commitments. These are usually 5-7 year commitments related to soil. These may also include organic farming conversion and maintenance, which may have shorter commitment periods (eg. for conversion);



- Cooperation, where farmers come together to deal with issues, for example related to soil. There must be new forms of cooperation or innovative activities. Funding can support EIP operational groups, LEADER projects, the promotion and support of quality schemes, producer groups and organisations or the creation of 'smart-village strategies;
- Investments in tangible or intangible assets to help achieve one or more objectives;
- Payments to compensate for natural or area specific constraints;
- Area specific disadvantages due to requirements under the Water Framework Directive or Birds and Habitats Directive;
- Specific support for young farmers through generational renewal payments for 377 000 new young farmers. This includes efforts to improve gender equality and bolster women in farming;
- Knowledge exchange and innovation are also key elements across all Strategic Plans, as well as training, advice and knowledge exchange.

Member States are encouraged to support farm practices through a single funding stream or a mix, highlighting the complementarity of the instruments. What is key is that each intervention builds on the one before, without being the same. For example, you may start with soil management practices under GAECs, then these can be improved upon under Eco-schemes and then further expanded under agri-environment-climate and other management commitments. The design of all interventions depends on the identified needs of each Member State as stated in their Strategic Plans (see §3.2).

### 3.8 Other funding or financing opportunities not described above

The Cohesion Fund operates for EU Member States with a Gross National Income per capita below 90% of the EU-27 average. This currently includes (2023): Bulgaria, Czechia, Estonia, Greece, Croatia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Portugal, Romania, Slovenia and Slovakia. The Fund aims at meeting two of the five objectives of the Cohesion Policy Fund in the 2021-2027 period, which are PO2 (a greener, low-carbon transitioning towards a net zero carbon economy and resilient Europe) and PO3 (more connected Europe). PO2 is most relevant to soil health.

The Cohesion Fund focuses on the following components:

- Promoting energy efficiency and reducing greenhouse gas emissions;
- Promoting renewable energy and developing smart energy systems, grids and storage;
- Promoting climate change adaptation and disaster risk prevention and resilience;
- Promoting access to water and sustainable water management;
- Promoting the transition to a circular and resource-efficient economy;
- Enhancing the protection and preservation of nature, biodiversity and green infrastructure, including in urban areas, and reducing all forms of pollution;
- Promoting sustainable multimodal urban mobility, as part of transition to a net-zero carbon economy;
- Developing a climate-resilient, intelligent, secure, sustainable and intermodal trans-European transport network;
- Developing and enhancing sustainable, climate-resilient, intelligent and intermodal national, regional and local mobility, including improved access to the trans-European transport network and cross-border mobility.

The Just Transition Fund (JTF) is the first pillar of the Just Transition Mechanism (JTM) which is meant to alleviate the negative impacts of the transition towards climate neutrality, focusing on the most affected regions.

The aim of the JTF is to help the most affected regions and sectors to alleviate the negative impacts of the transition and to carry out transition necessary to achieve at least a 55% reduction in emissions by 2030, and climate neutrality by 2050.

The JTF supports the economic diversification and reconversion of the territories concerned. This means:

- Investments in SMEs
- Creation of new firms
- Research and innovation
- Environmental rehabilitation
- Clean energy
- Up- and reskilling of workers
- Job-search assistance
- Transformation of existing carbon-intensive installations

There are no distinct components or pillars within the JTF itself. The JTF is relevant to soil health as it can support projects directly related to soil health, such as investments of soil regeneration, land restoration and repurposing, and decontamination of brownfield sites. Support is mostly provided in the form of grants. Eligibility criteria and access conditions are managed at individual Member State level.

Apart from the JTF, other two pillars of the Just Transition Mechanism (JTM) are the InvestEU programme and a new Public Sector Loan Facility.

The InvestEU programme aims to boost green growth, innovation, and job creation in Europe by leveraging substantial private and public funds and mobilising private investment.

The InvestEU programme is composed of three pillars:

- The InvestEU Fund, aiming to mobilise more than EUR 372 billion of public and private investment through an EU budgetary guarantee of EUR 26.2 billion that backs the investment of implementing partners such as the European Investment Bank (EIB) Group and other financial institutions;
- The InvestEU Advisory Hub, providing technical support and assistance including capacity building to project developers and entities – private and public – helping with the preparation, development, structuring and implementation of investment projects;
- The InvestEU Portal, bringing together investors and project promoters on a single EU-wide platform, by providing an easily accessible and user-friendly database of investment opportunities available within the EU.

According to a recent overview done by the Commission staff, key areas of intervention of the InvestEU programme connected with soil health include:

- Water resources and pollution prevention control
  - Healthy soil is important for effective filtration and storage of water
  - Improvements to soil health may be supported under InvestEU where it can improve water resources and pollution prevention control
- Protection and restoration of biodiversity and ecosystems
  - Soils form the basis of many ecosystems, and healthy soils will mean greater biodiversity and improved ecosystems
  - Support of biodiversity and ecosystems will also improve soil health
- Sustainable forests and agricultural practices
  - Forestry and agricultural practices significantly impact soil health. Support from InvestEU to improve sustainability of these practices will mean sustainable use of soils, and therefore healthy soils
- Transition to the circular economy
  - Sustainable and efficient use of the resources including land and excavated soil contribute to the transition to the circular economy, which is supported by the Fund.

In order to benefit from InvestEU support, potential projects must:

- Address market failures or investment gaps and be economically-viable;
- Need EU backing in order to get off the ground;
- Achieve a multiplier effect and where possible crowd-in private investment;
- Help meet EU policy objectives.

The main implementing partner for InvestEU is the European Investment Bank, supported by EU based financial intermediaries as implementing partners. These will offer tailor-made financing to the project promoters residing in their area of operation, or use their own financial products being covered by the EIB guarantee of the InvestEU Fund.

The Public Sector Loan Facility (PSLF) is the third pillar of the Just Transition Mechanism (JTM), which supports a fair transition towards a climate-neutral economy, leaving no one behind. The PSLF provides loans and grants to the public sector, including to support projects on soil health and quality, such as soil remediation, soil rehabilitation, or soil management innovation.

Overall, the Facility is expected to mobilise between €25 and €30 billion of public investments over the 2021-2027 programming period. The EIB will be the main finance partner. The PSLF will be implemented under direct management by the EC and its dedicated agency, the European Climate, Infrastructure and Environment Executive Agency (CINEA), and will either provide support to individual projects or through framework loans.

For more information on the JTM and its contents and opportunities, one can contact the Just Transition Platform ([https://ec.europa.eu/regional\\_policy/en/funding/jtf/just-transition-platform](https://ec.europa.eu/regional_policy/en/funding/jtf/just-transition-platform)), which provides a single access point to support and knowledge on EU's transition to a sustainable, climate-neutral economy.

### 3.9 Funding opportunities from the HuMUS call (deadline 29 February 2024)

As mentioned in the Introduction, the overarching aim of the HuMUS project is to facilitate the deployment of the EU Mission Soil at regional and local levels in Europe. It will do so by creating collective spaces of constructive dialogue on soil health and quality threats, both inside and outside the consortium, which should adopt participatory governance methods and tools for soil quality and health governance in the territories involved.

From inside the consortium, we expect the signature of 13 Territorial Management Agreements among relevant and engaged Quadruple Helix stakeholders of each HuMUS partner community.

The target of the HuMUS Call for proposals (available at <https://humus-project.eu/open-call/>) is to identify and support another 20 Pilot Projects, involving a total number of at least 300 Quadruple Helix stakeholders. The latter may consist of, for example, farmers and other entrepreneurs, including SMEs, consumer associations and other NGOs, professional soil experts, researchers and academics, government managers and public officials, as well as the general public of the Pilot location, notably including marginalised people and vulnerable groups.

This critical mass of 33 Pilot Projects is expected to provide substantial evidence that participatory governance methods and tools can promote, procure, and stimulate an increased and more diffused awareness of existing soil health issues and threats at local and regional levels and more effective approaches to their resolution.

Before the end of their lifetime, the 20 Winners of this Call are expected to deliver:



1. The copy of a signed Territorial Management Agreement by all relevant Quadruple Helix stakeholders of the chosen Pilot Location;
2. Evidence of successful adoption of the HuMUS Methodology, described in Annex G to the Call, or of another equivalent approach to instantiate the concept of participatory governance of soil health issues and threats at local or regional levels, gathered in the form of a Short final report;
3. An analysis of replication potential of the Pilot Project and approach, including details of the specific methodology adopted and highlighting the main barriers, drivers, enablers, and conditions for constructive dialogue and participatory governance of soil health issues and threats to materialise at the regional or local levels in Europe.

Only the Territorial Management Agreement and an executive summary of the Short final report will be published on the HuMUS website, while the other contents will be kept confidential and used only for internal purposes by the HUMUS consortium.

The HuMUS Call for Pilot proposals has a total budget of €600.000,00 and expires on 29.02.2024 at 5pm CET (Brussels time).

The maximum subgrant per Pilot Project is € 30.000,00 (lump sum).

### 3.10 Summary of evidence

The common trait of all the descriptions of available funding and/or financing opportunities offered in the previous paragraphs is that there hardly is a dedicated priority to soil management within the objectives of the different programmes and initiatives, but the possibility to present soil health and quality related project proposals comes as the outcome of a second level reasoning, i.e. that soil does play a vital role in tackling the global carbon cycle, biodiversity conservation, and food security challenges.

Some of the connections between soil health and quality and environmental and climate objectives are that:

- Soil is a major carbon sink, storing more carbon than biomass and the atmosphere combined. By improving soil management practices, such as reducing tillage, increasing organic matter, and restoring degraded lands, more carbon can be sequestered in the soil and less carbon dioxide can be emitted to the atmosphere. This can help mitigate climate change and its effects;
- Soil is a home for a rich diversity of life, hosting a quarter of the world's biodiversity. By protecting and enhancing soil biodiversity, such as soil microorganisms, fungi, and invertebrates, soil functions and services, such as nutrient cycling, water regulation, and pest control, can be maintained or improved. This can help conserve ecosystems and their resilience;
- Soil is a foundation for food production, supporting 95% of the global food supply. By preventing and reversing soil degradation, such as soil erosion, compaction, salinization, and contamination, soil fertility and productivity can be increased or sustained. This can help ensure food security and quality, as well as reduce the pressure on land and water resources.

Truth be told, similar considerations to the above could also be drawn from the scientific literature and the practical evidence on water and air, the other two natural resources we cannot live without. What is probably missing, and should be recommended in terms of action to the EU Member States, as we will do in the next and final Chapter, is a more diffused awareness at the level of the general public of the crucial importance of clean, fertile and uncontaminated soils, much in the same way as limpid and unpolluted waters and skies (not to mention the existing connections among the three typologies of issues).

The provided example of the HuMUS call for pilot projects shows the possibility of directly financing (although with small budgets) public or even private initiatives aimed at increasing the visibility and prominence of soil health issues within the participating local and regional communities.

However, compared with the ambition of the requirement, it is doubtful that programmes such as those described earlier may find sufficient room for funding similar projects on a large scale.

It is perfectly possible that in the coming years, the three pillars of the Just Transition Mechanism, the Just Transition Fund - the InvestEU programme and a new Public Sector Loan Facility - may act as game changers in the extension of financing possibilities (loans rather than direct grants) for the investments addressing soil issues in Europe. However, and maybe a bit paradoxically, the mobilised financial mass does not cover the financial requirements of awareness raising, communication and dissemination, which are not considered as part of the definition of 'hard' investments.

The situation is slightly better for the Horizon Europe, LIFE and Interreg programmes, which create a wide - and to many respect obligatory according to the various programme rules - room for the organisation of 'soft' initiatives, especially involving the broad population. However these initiatives are to be carried out collaboratively at transnational level, which may raise doubts on their capacity to have impact on the local and regional communities involved.

A fundamental role must therefore be played by the revision of policy priorities for the current and future programming periods, as suggested in the following, concluding Chapter.

## 4 Conclusions and recommendations

### 4.1 Including soil health issues in the transition from S3 to S4

The transition from national/regional Smart Specialisation Strategies (S3) to Sustainable S3 (S4) is an ongoing evolution in EU member states and IPA countries, aiming to add the dimensions of social inclusivity and environmental sustainability to investments that are considered economically beneficial for a certain territory.

By integrating soil health and quality principles into the next revisions of S3/S4, the EU and IPA countries and regions can add a significant dimension to their efforts towards achieving long term sustainability goals while fostering prosperity and social cohesion.

The following steps should be highlighted as most relevant:

- 1. Review of Existing Evidence on Soil Health:** an initial assessment should be conducted to identify areas where actions can be taken within existing policy and regulatory frameworks and others that may require adjustments or new strategies.
- 2. Capacity Building and Training:** stakeholders at all levels, including policymakers, businesses, and citizens, need to be equipped with the necessary skills and knowledge to implement soil health and quality restoration activities effectively. This may involve ad hoc training programs, workshops, and information campaigns.
- 3. Development of New Soil Quality Restoration Initiatives:** based on the assessment and capacity building efforts, new regional and local initiatives should be developed that incorporate some ad hoc funding requirements. These initiatives should set out clear goals, indicators, and action plans to ensure efficiency and efficacy of investments, mobilisation of private resources, and the needed support from the population where appropriate.
- 4. Monitoring and Evaluation:** A robust monitoring and evaluation system should be established to track progress towards the stated objectives and adjust actions as needed based on feedback and performance data.

### 4.2 Making room for dedicated priorities to address soil issues in the current and future Operational Programmes

The analysis carried out in the previous Chapter has shown the difficulty of retrieving and mapping dedicated soil priorities in the vast majority of the Member States programming documents - from the CAP Strategic Plans to the NRRPs of the Recovery and Resilience Facility, from the ERDF to the EAFRD Operational Programmes.

The situation is slightly better for the Horizon Europe, LIFE and Interreg programmes, although they are mostly acting at the transnational level. There are also good chances that the three pillars of the Just Transition Mechanism - the Just Transition Fund, the InvestEU programme and a new Public Sector Loan Facility, may act as game changers in the extension of financing possibilities for the investments addressing soil issues in Europe.

However, the problem remains that without providing a huge and diffused effort towards awareness raising, communication and dissemination - and we could add education and training to this list - the other programme priorities related to e.g. water and air, not to mention climate mitigation and adaptation, or the twin digital and ecological transition, may prevail over these.



For example, according to a recent overview done by the Commission staff, the following EU funded programmes neither have a focused priority, nor specific components or subcomponents related to soil themes clearly defined:

- ERASMUS+;
- The European Solidarity Corps;
- Neighbourhood, Development and International Cooperation Instrument (NDICI);
- Instrument for Pre-Accession (IPA), and
- TAIEX - Environmental Implementation Review Peer to Peer Tool (EIR PEER 2 PEER).

These programmes indeed have wider objectives which can be related to social inclusion, green and digital transitions, providing support, fostering dialogue and cooperation with non-EU Member States, which might address (especially) the 'soft' investment aspects related to soil issues. But it remains an open question whether such project proposals might compete on a peer basis with others oriented to different, and far more explicitly stated in the programme documents, thematic priorities.

### 4.3 The HuMUS call as a learning opportunity for all

There can be several reasons for the current lack of dedicated policies to address soil issues, compared with water and air. Some of them are that:

- Soil is a complex and heterogeneous resource that varies widely in its characteristics, functions, and services across regions and landscapes. This makes it difficult to define, measure, and monitor soil quality and degradation, as well as to establish common standards and indicators for soil protection and restoration, which may be used as reference in the design of new policies, strategies and initiatives;
- Soil is often perceived as a low-priority or invisible issue, as its benefits and impacts are not always evident or immediate. Soil degradation is a slow and cumulative process that may not manifest itself until it reaches a critical threshold. Soil quality is also affected by multiple and interacting factors and causes, such as climate change, land use change, agricultural practices, and socio-economic drivers, which make it challenging to identify and address the 'root' causes and solutions;
- Soil is subject to competing and conflicting interests and demands from various different stakeholders, such as farmers, landowners, developers, industries, consumers, and policymakers. These stakeholders may have different views and values on soil, as well as different incentives and disincentives to adopt soil-friendly practices. Soil governance also involves multiple and overlapping levels and sectors of policy and regulation, which may create gaps, inconsistencies, or trade-offs in soil management.

In light of the above, we are convinced that the experience of the HuMUS call - when it is finalised and with the awarded pilot projects having sufficient time allowance to produce their expected results - may be inspiring for all involved stakeholders, notably for the policy makers at the regional and local levels, to identify new and existing soil health and quality priorities by means of an intense usage of participatory governance methods and tools.

