



# SOIL:OurInvisibleAlly

D.1.2.1 INFORMATION PACKAGE FOR MULTIPLIERS  
INCL. FACT SHEET, POLICY & COMMUNICATION  
RECOMMENDATIONS



### D.1.2.1 – Information package for multipliers incl. fact sheet, policy & communication recommendations

Based on a survey, fact sheets & policy feedback, it supports multipliers in identifying obstacles, overcoming communication challenges & engaging others in SSM; will be updated later, with further learnings from Activity 2.1 (survey continues) and integrated in Output 2.2 (booklet for municipalities & policymakers).

**NOTE:** This document is subject to changes and updates because data collection is planned to run until 2027. The corresponding survey will also be open for further answers until then.

#### General information

Project	SOIL:OurInvisibleAlly
Project ID	ASP0500310
Project duration	2024-2027 (36 months)
Priority	Climate resilient green Alpine region
Specific objective	SO1.2 – Enhancing protection and preservation of nature, biodiversity and green infrastructure, including in urban areas, and reducing all forms of pollution
Total eligible costs	2.849.646 EUR
ERDF grants	2.137.235 EUR

#### Project partners

**Slovenian Forestry Institute (SI)** • Art and Nature Foundation (DE) • Agricultural Institute of Slovenia (SI) • Salzburg Institute for Regional Planning and Housing (AT) • Climate Alliance Tyrol (AT) • National Research Institute for Agriculture, Food and the Environment (FR) • University of Torino (IT) • County Administration Landsberg a. Lech (DE) • Autonomous Region of Aosta Valley (IT) • Consulting for Naturland (Association for Organic Agriculture, DE) • Slovenia Forest Service (SI) • Orobie Valtellinesi Parc (IT)

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## Table of contents

Introduction.....	4
Overview of Key Soil Problems .....	5
Factsheet on Alpine Soil Problematics.....	8
Policy Recommendations .....	9
Communication Recommendations.....	11
Conclusion & Outlook.....	12
Imprint.....	13
Contact .....	13

## List of tables

Table 1: Why we need soils .....	4
Table 2: Key soil problems .....	6
Table 3: Questions of the survey .....	7
Table 4: Fact sheet on soil problems .....	10
Table 5: List of policy recommendations .....	12

# Introduction

Soils, our invisible allies, are under threat.



## Soil as a foundation of life

Soils provide food, clean water, biodiversity and climate stability. They filter water, cycle nutrients and host countless organisms. Beyond farming, healthy soils support public health, safe infrastructure and quality of life.



## Ecosystem services in practice

Healthy soils reduce floods, cool cities, store carbon and support biodiversity in fields, forests and green spaces. They strengthen local resilience and well-being every day.



## Current challenges

Soils face increasing stress: land take and sealing, erosion, contamination and climate change. These pressures threaten food security, water quality and soil functions.



## Why action is needed

Once degraded, soils recover only over decades or centuries. Protecting soils is an investment in communities, economies and resilience. Multipliers play a central role – and European and national frameworks such as the EU Soil Strategy or the Alpine Convention underline that this task is internationally anchored.

### Did you know?

About 33% of the world's soils are degraded due to erosion and pollution, with 50–70% of original soil carbon lost as CO<sub>2</sub> (FAO, Links4Soils, 2019).

A handful of soil contains billions of organisms, making it a vital,



## Multipliers play a key role

Municipalities, administrations, NGOs, advisors and educators shape how soils are used and protected. Through planning, campaigns and policies they decide whether soils are safeguarded or degraded – and connect science, practice and society.

# Overview of Key Soil Problems

Alpine soils are vulnerable to mismanagement and climate change.



## Fragmented governance and responsibilities

Soil protection is split across agriculture, construction, water, and climate policies. This fragmentation often leads to conflicting decisions and weak implementation. Without clear coordination, sustainable soil management remains inconsistent.



## Knowledge and data gaps

Many regions lack reliable and up-to-date soil data. Municipalities and decision-makers therefore have no solid basis for planning or monitoring. Missing knowledge also makes it harder to communicate soil's importance to citizens.



## Land pressure and soil sealing

Housing, tourism, and infrastructure create high pressure on land, causing sealing and loss of soils. Once built over, soils are permanently lost. With them disappear essential ecosystem services like water storage and climate regulation.



## Climate change impacts

More heavy rainfall, droughts and rising temperatures accelerate erosion, organic matter loss, and landslides. Healthy soils can buffer these risks, but degraded soils lose resilience. Climate adaptation without soil protection is nearly impossible.



## Biophysical limits in mountain regions

Steep slopes, shallow soils and short vegetation periods set natural limits in Alpine areas. Technical solutions are only partly possible. This increases the costs and risks of sustainable land management.

### Did you know?

Winter snow gliding and post-fire erosion damage Alpine soils (e.g., Susa Valley, Italy, Links4Soils, 2019). Hidden threats like soil organic matter loss release 50–70% of carbon stocks, amplifying climate risks.



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## Survey Answers

The project team has created a survey titled “Obstacles to implementing sustainable soil management (SSM) practices“. This survey was translated into the languages of the project partners and sent to practitioners (e.g., farmers) and relevant decision-makers. Conducted via SurveyMonkey across the project countries, the survey gathered insights from practitioners and decision-makers to complement the project's broader research about factors that hinder the adoption of SSM practices in the Alps.

**Table 3: Questions of the survey**

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<b>Question 1:</b>	What is your professional sector?
<b>Question 2:</b>	In which area or context are you active, and how much land or space do you work with or manage?
<b>Question 3:</b>	Which sustainable soil management methods have you already implemented or planned?
<b>Question 4:</b>	Was the implementation of the method(s) in your opinion successful?
<b>Question 5:</b>	[If “Yes”] Please select the reason(s) why the implementation of the tool was successful from the options below
<b>Question 6:</b>	[If “No” or “Partly”] Please select the reason(s) why the implementation of the tool was unsuccessful from the options below
<b>Question 7:</b>	To what extent did the following obstacles hinder your implementation efforts?
<b>Question 8:</b>	Were there any other specific factors that significantly influenced the success (positively or negatively)?
<b>Question 9:</b>	What kind of support would help you implement sustainable soil management practices more effectively?
<b>Question 10:</b>	Which additional sustainable soil management (SSM) measures would you like to implement in the future?

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With those questions (covering professional sectors, land management contexts, implemented methods, success factors, barriers, and support needs), the responses from approximately 20 participants provide a valuable practitioner perspective. Despite the small sample size limiting statistical representativeness, the results highlight key trends and challenges, offering a compelling basis to inform the "Overview of Key Soil Problems" section alongside existing Alpine and EU studies.

## A short summary of the collected results

### Implemented Practices

Vegetative cover/cover crops (25-37.5%), mulching (12.5-25%), organic matter building (12.5-25%), reduced chemicals (25%), erosion/compaction control (25-37.5%), multifunctional land use (25-50%), slope stabilization (100% Slovenia), de-sealing (25%), soil monitoring (25-100%), knowledge transfer (25-37.5%). "Other" common (50% Germany).

### Success Factors

Full success: 40-57%; partial: 43-60%. Enablers: policy alignment (50% Germany), streamlined permits (50%), stakeholder networks (free-text), funding/tech access where available.

### Barriers

- Funding/economic incentives shortages (50-100%)
- Expert shortages, limited tools/infrastructure (50-100%)
- Bureaucracy/policy misalignment (50-75%)
- Resistance to change, low awareness (75-100%)
- Local biophysical incompatibility (25-50%)

### Support Needed

Knowledge/training/advisory (50-100%), funding/incentives (50-75%), reduced bureaucracy (12.5-100%), technical tools (25-100%), collaboration (25-50%).

#### Did you know?

Erosion from tourism trails and compaction from farm machinery challenge alpine soils, worsened by steep slopes (Soil Etiquette, Links4Soils, 2019).



### Overall takeaways

Across the Alps, common issues include funding shortages, **lack of knowledge, administrative delays, and resistance to change**—made worse by mountain conditions. Success comes with **good policies** and **teamwork**, with calls for **more funding, training, and simpler rules**. These findings match EU and Alpine studies, though the small sample suggests reaching more people in future surveys.

# Factsheet on Alpine Soil Problematics



CAUSES / DRIVERS



IMPACTS



ACTIONS / SOLUTIONS

## KNOWLEDGE AND DATA GAPS

Soil maps, monitoring and expertise are often missing



Poor planning and low stakeholder confidence

Invest in mapping, training and simple tools

## FRAGMENTED GOVERNANCE AND RESPONSIBILITIES

Many sectors share soil duties but roles are unclear



Conflicting decisions and weak implementation

Strengthen local focal points and cross-sector coordination

## LAND PRESSURE AND SOIL SEALING

Housing, tourism and infrastructure drive land take



Permanent loss of soil functions and higher flood risk

Prioritize brownfield reuse, set land-take limits and promote de-sealing

## CLIMATE CHANGE IMPACTS

Heavy rain, droughts and heat stress soil systems



Stronger or faster erosion, fertility loss and landslides

Use cover crops, vegetation buffers and integrate soils in adaptation plans

## BIOPHYSICAL LIMITS IN MOUNTAIN / ALPINE REGIONS

Steep slopes, thin soils and short seasons restrict practices



Higher erosion risk and costly interventions

Apply nature-based solutions, managed grazing and cooperative tools

# Policy Recommendations

To foster soil health in the Alps.



## Strengthen planning & land use rules

- Integrate soil protection in spatial planning.
- Apply “avoid–reduce–compensate” for new developments.
- Use Zero Net Land Take (ZAN) as a guiding principle.



## Provide financial incentives & support

- Develop funding opportunities for de-sealing, soil-friendly farming and soil restoration.
- Link subsidies to soil protection (e.g. CAP conditionality).
- Support local pilot projects with co-financing.



## Improve data & knowledge access

- Invest in soil monitoring and maps as decision tools.
- Share GIS layers with municipalities.
- Provide simple indicators and guidelines for local actors.



## Enhance governance & coordination

- Use Alpine Convention & Soil Protocol as cross-border frameworks.
- Strengthen EUSALP AG6, Alpine Soil Partnership and similar networks for regional alignment.
- Establish local “soil focal points” to connect different levels.



## Build awareness & capacity

- Promote communication campaigns on soil value.
- Train municipal staff, planners and advisors.
- Support cooperation platforms (e.g. Links4Soils) for exchange.

### Did you know?

Agro-ecological farming and permeable surfaces can tackle Alpine soil issues, aligning with natural hazard management needs (Soil Etiquette, Links4Soils, 2019).



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## Additional Insights

Survey responses from Italy and Slovenia confirm that policies alone are not enough. Stakeholders highlight missing financial incentives, limited technical knowledge, and administrative hurdles as major barriers. Without practical tools and clear responsibilities, municipalities and farmers struggle to implement soil-friendly practices.

At the same time, European frameworks already offer orientation. The Alpine Convention and its Soil Protocol, as well as EUSALP Action Group 6, show that soil protection is recognised at transnational level. In France, the principle of “Zero Net Land Take” (ZAN) demonstrates how soil protection can be translated into a measurable planning goal. Such examples underline the fundamental fact that local authorities do not act in isolation but can draw on wider experiences.

For municipalities and multipliers, the challenge is therefore to **connect local action with these broader frameworks**: using pilot projects to test solutions, relying on platforms like the Alpine Soil Partnership for knowledge exchange, and ensuring that communication and awareness remain central. In this way, **soil protection can shift from abstract strategies to concrete decisions that benefit communities**.

### Did you know?

Soil ecosystem services like water filtration are threatened by sealing, requiring pilot projects like trail planning (Links4Soils, 2019, Soil Ecosystem Services in the Alps, p. 59–62).

### And did you also know?

Contour planting reduces erosion in agriculture, while gap regeneration boosts forest soil productivity on steep slopes (Soil Etiquette, Links4Soils, 2019).



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# Communication Recommendations

## Awareness and visibility

Soils are largely invisible and often underestimated. Communication should make them tangible, for example through maps, indicators and simple visuals. The French Soil Information Sectors (SIS) could inspire similar municipal soil maps. Storytelling and infographics help translate complex information into clear messages.

## Local engagement

Schools, farmers and community groups can be involved through campaigns, workshops or “soil days”. Activities such as soil pits, exhibitions or guided walks turn soil into a visible, touchable and relatable topic in daily life.

## Multipliers and continuity

NGOs, advisors and educators ensure long-term outreach. Projects like SOIL:OurInvisibleAlly and NBSOIL are developing workshops and train-the-trainer activities to spread knowledge across sectors. Linking science with daily life can make soil a visible part of community well-being.

**Did you know?**

Soil awareness and literacy can be boosted in different ways through informative posters, fun facts, comprehensive but clear reading materials, and arts and cultural events.

**Here's an example:**

Take a look at the Soil Etiquette developed during the Links4Soils project (2019).

**And a fun fact:**

One handful of soil contains billions of organisms.

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# Conclusion & Outlook

## Main takeaways

Healthy soils are the foundation for food, water, climate resilience and biodiversity. Yet across the Alpine region, stakeholders face common barriers: fragmented governance, lack of data and tools, economic and bureaucratic obstacles, and resistance to change. Survey results from Italy and Slovenia confirm these challenges and underline the need for practical support.

### Did you know?

33% of global soils are degraded, threatening alpine biodiversity, while ski run restoration can enhance resilience (Links4Soils, 2019).



## Next steps

To move forward, multipliers should build on existing European frameworks (e.g. Alpine Convention, Soil Protocol, EU Soil Strategy) and adapt them locally.

Priority actions include cross-border cooperation, expanding pilot projects, and providing municipalities with simple tools, guidelines and data. Local communities and NGOs can be key drivers, if backed by financial incentives and targeted training.

## Long-term vision

Sustainable soil management must become a shared responsibility across sectors and borders. With better monitoring, research on soil biodiversity, and strong cooperation platforms, Alpine regions can turn soils from an “invisible resource” into a visible cornerstone of resilient, sustainable communities.

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# Imprint

## About the SOIL:OurInvisibleAlly project

The project aims at ensuring the long-term vitality of Alpine soils, and thus the ongoing provision of soil ecosystem services, by fostering soil literacy and bridging the gap between pre-existing knowledge about sustainable soil management measures and their implementation. In this process, pilot sites showcasing best practice examples will also be highlighted. Additionally, the project places a strong focus on artistic expression and (scientific-) cultural events as powerful awareness raising tools that can help build curiosity and affinity towards the topic of soil.

## Project partners

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# Contact

Project Website 

[www.alpine-space.eu/project/soilourinvisibleally](http://www.alpine-space.eu/project/soilourinvisibleally)



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