

Echo's citizen science initiatives for soil literacy take off

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6 December 2024



Image: © Maximilian Carl Stahl

Led by ECHO partners, we hear about citizen science initiatives that aim to improve soil literacy and foster sustainable practices through workshops and community engagement

Citizen science has a long-standing history across Europe as a significant tool for addressing environmental issues by raising awareness and promoting best practices. Over the past 15 years, citizen science projects focusing on soils have gained significant traction, driven by a growing awareness of environmental issues and the integration of soil health into political agendas.

A key initiative in this direction is the European Soil Observatory (EUSO), a platform that monitors soil health and related policies to enhance soil protection. It integrates soil health data that can be further enriched by citizen-generated data collected through citizen science initiatives, such as the European project ECHO.

EUSO and ECHO support research and innovation through Horizon Europe's Mission, 'A Soil Deal for Europe' (Mission Soil), one of the five Missions for 2030. Citizen engagement, particularly in soil-related citizen science, is a fundamental pillar of the

Mission Soil, aimed at providing concrete solutions to the challenges of soil degradation across Europe.

Building foundations for behavioural changes towards soils in Europe

A key objective of the Soil Mission is to improve soil literacy across society by increasing awareness of the role and significance of soil, engaging citizens in soil and land-related issues, and ensuring that all stakeholders have access to relevant information and training. ECHO stands out as the only European project entirely dedicated to citizen science among the [45 initiatives funded by the Soil Mission](#), making significant contributions towards these goals through its activities.

ECHO's citizen science initiatives are being carefully organised and co-created to ensure all necessary factors are considered, ultimately driving meaningful behavioural change regarding soil health. From January 2025 to May 2027, the project aims to deploy its citizen scientists and collect 16,500 soil samples across Europe, from various biogeographical regions and land uses. The first engagement campaign began in Finland, Germany, Greece, Italy, Poland, Portugal, Romania, Scotland, and Spain by recruiting ECHO Ambassadors, the pillars of the citizen science initiatives. A second campaign will further extend involvement in the remaining EU Member States.

ECHO Ambassadors are being continuously recruited through an [open call](#). Their role will be central in organising and coordinating citizen scientists and their sampling efforts, and the project is currently providing them with relevant information and training. They are working closely with the project team to identify local issues and will facilitate the distribution of sampling kits to various communities. Over time, this collaboration will ensure that the project's results lead to tangible actions. This approach is known as co-created citizen science, the key innovation of the ECHO project.

First co-creation workshops with the ECHO Ambassadors

The co-creative process began by developing workshops with ECHO Ambassadors, conducted in-person or online. ECHO started organising the citizen science initiatives and provided them with relevant information and preliminary materials, including the first draft of the sampling kit and protocols.

This approach allows for an initial evaluation of the feasibility and usability of the ECHO materials, integrating the needs and opinions of ECHO Ambassadors from the very early stages of designing the citizen science methodologies, rather than limiting it to an internal project process. Additionally, during the workshops, participants collaboratively defined their ideas for activities for each initiative and identified their needs.

Almost 90% of the ECHO Ambassadors gave positive feedback on the provisional sampling kit and protocols during these workshops. They found them user-friendly, well-organised and practical, and pointed to their significant educational value, among other features.

The project estimates that more than 20% of the citizen scientists participating in the initiatives will be part of educational communities. Thus, this educational component of the material is important for meeting the needs of this group while also being suitable for the general public.

During the workshops, it also became apparent that the ECHO Ambassadors have a growing interest in soil and citizen science in general. To optimise the development of future ECHO initiatives, 33% of these individuals expressed the desire to enhance their skills and abilities, 25% wished to acquire more knowledge, and 21% aimed to broaden their connections.

Topics like soil health, resilience, and sustainable practices were frequently mentioned. However, their interest extended beyond these scientific aspects and tended to focus on social and communication-related fields. Enhancing communication/dissemination skills and the ability to motivate citizens are some of the key areas that ECHO Ambassadors wish to improve.

Collaborative action driven

by feedback: partnering with ECHO Ambassadors for impact The ECHO Ambassadors are actively engaged in ECHO by providing feedback and suggesting activities, while the project supports their interests and addresses their needs whenever possible.

In addition to two collective webinars that focus on the key areas identified through co-creation, namely soil science and communication, optional individual meetings are held to further refine the initiatives' design. These webinars and meetings are expected to continue even after citizen science initiatives and soil sampling begin, covering a broader range of topics.

Building strong foundations with the ECHO Ambassadors will greatly enhance citizen participation in ECHO. This approach is considered the most effective way to implement citizen science methodologies across various regions within each country. Moreover, it aims to create a real societal impact by fostering awareness and promoting behavioural change regarding soil, thereby supporting the goals of the Soil Mission.

How to join the ECHO's initiatives

The call for ECHO Ambassadors remains open in most countries participating in the first campaign and is accessible via the project's website. The call for citizen participation is anticipated to begin in early 2025, with local initiatives launching at various times.

Interested citizens can engage in these initiatives by downloading the forthcoming ECHO App and obtaining a sampling kit from their nearest ECHO Ambassador. The kit will simplify the sampling process, allowing the participants to upload their results to the ECHO App. They will also complete a survey as part of their participation.

All results will be accessible in the ECHOREPO.

Contributor Details

Stakeholder Details

- Article Categories
- Environmental Sciences

- Article Tags
- Soil Health

- Publication Tags
- OAG 045 - January 2025

- Stakeholder Tags
- SH - ECHO Project

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