

ENGAGING CITIZENS IN SOIL SCIENCE: THE ROAD TO HEALTHIER SOILS

# Deliverable 3.2 "Report on Citizen Science initiatives participating in the project and initiative activities"



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# Short description of the deliverable

This report provides an initial overview of the engagement of ECHO Ambassadors in various partner countries. It analyses their geographic distribution, target demographics, interests, motivations, expertise, and expected engagement numbers. Ten initial co-creation workshops were developed with applicants to the call, who finally became engaged Ambassadors, potential Ambassadors or future citizen scientists. They were developed both online and inperson, and provided valuable feedback on the ECHO toolkit and methodology, helping to identify trends, challenges, and opportunities for future strategies and activities. Proposed activities include preparation of dissemination materials, training courses, and regular meetings with Ambassadors, aiming to enhance engagement and knowledge in soil health and sustainable practices. The report concludes emphasizing the importance of a collaborative approach and laying the foundation for continuous engagement, and specially for the future coordination of citizen science initiatives across Europe.

# Versioning and contribution history

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# Foreword

Soil is a vital, yet often disregarded, resource that supports life on Earth by providing the foundation for agriculture, forests, and various other natural ecosystems. However, soil degradation is a growing concern around the world, and it can have severe consequences for our planet like reduced crop yields, increased greenhouse gas emissions, and decreased biodiversity. The ECHO project aims to prevent this by bringing together citizens and volunteer scientists from around Europe to work towards a common goal of protecting and preserving our soils, thus contributing to the transition towards healthy soils of the EU Mission: "A Soil Deal for Europe".

ECHO will generate new data on the health status of EU soils, complementing existing soil mapping and monitoring in EU Member States and Scotland, including the EU Soil Observatory (EUSO). The project will develop and deploy 28 tailor-made citizen science initiatives across EU Member States and Scotland, considering different land-uses, soil types, and biogeographical regions, as well as stakeholder needs. With 16 participants from all over Europe, including 10 leading universities and research centres, 4 SMEs, and 2 Foundations, under the coordination of the Free University of Bolzano-Bozen, ECHO will assess 16,500 sites in different climate and biogeographic regions to achieve its ambitious goals.

The project aims to engage citizens in protecting and restoring soils by building their capacities and enhancing their knowledge. Citizens will thereby not only actively contribute to the project's data collection but also promote soil stewardship and foster behavioural change across the EU. The ECHOREPO, a long-term open access repository with a direct link to the EUSO, will make the citizen science data available for exploitation not only by scientists but also by citizens, policy makers, farmers, landowners and other end-users, providing added value to existing data and other relevant soil monitoring initiatives. ECHOREPO will thus provide valuable information about the state of soil health in various regions, and help citizens make informed decisions about land use and conservation.

We believe that the ECHO project will have a significant impact on soil health and citizen engagement across Europe and become an important step towards protecting and preserving our soil for future generations. By working together, we can ensure that our soil remains healthy and productive, and that we continue to enjoy the many benefits it provides.







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# 1. Introduction

# 1.1. General introduction

This report provides an initial overview of the process and outcomes of engaging ECHO Ambassadors in partner countries (Italy, Spain, Portugal, Germany, Finland, Greece, Romania, Poland, Scotland). It covers the period when the online application form for Ambassadors first became available (25th of April) and marks the initial efforts to develop a unified methodology for reporting and analysing participation and engagement.

Here, we will present the results and analysis of engagement from our first call for Ambassadors. This initial call has provided valuable insights into the characteristics of our potential ECHO Ambassadors and the citizen scientists that they aim to engage. Our analysis covers the Ambassadors' geographic distribution, their target demographics and those of their prospective citizen scientists, as well as their interests, motivations, level of expertise, and anticipated numbers of citizen scientists they expect to engage.

Further, initial in person and online co-creation workshops have been conducted, providing valuable feedback and insights on the ECHO toolkit and testing the methodology. This data has been analysed and presented in this report. By reviewing these early findings, we have identified trends, challenges, and opportunities that will guide our future strategies to increase participation and maximise the impact of our project.

The report begins with an introduction to the actors participating in the ECHO engagement processes, followed by a detailed description of these processes, including communication strategies, tools, and methods used. It then proceeds with an analysis of available data to make recommendations for additional activities and next steps based on the findings.

This report outlines a structured approach that will be a crucial reference for ongoing and future initiatives aimed at engaging and empowering citizen scientists. It underscores our commitment to fostering an inclusive and dynamic community that values and acknowledges diverse voices and contributions. Through this comprehensive analysis, we aim to build a solid foundation for continuous engagement and meaningful scientific collaboration.

# **1.2.** The Citizen Science initiatives of ECHO

# 1.2.1. Main actors

**ECHO partners:** Consortium members distributed geographically across Europe, facilitating the sharing of knowledge among different scientific, social and economic domains and covering different soil types, land-uses and biogeographic regions. In this report, this definition is specially applied to the individuals involved in engaging stakeholders located within their respective countries, where they are responsible for coordinating citizen science initiatives. This concept specifically refers to those involved in WP3 "Development and coordination of citizen science initiatives".

<u>Communities of stakeholders</u>: organisation or group, or a single person, if not part of a community, who can contribute to the ECHO citizen science (CS) initiatives (mainly as Ambassadors and/or citizen







scientists) and influence the project's outcomes. These stakeholders may be associated with existing projects, connected to ECHO partners, generally engaged in soil-related environmental issues, or operating within communities targeted by ECHO for environmental and soil health awareness. They include diverse target groups such as farmers, land managers, environmental groups, NGOs, foresters, food associations, members of school communities, environmental groups, other citizen science initiatives, youth and women's groups. This concept specifically refers to those initially identified during the "Report on Identified Communities of Stakeholders and Engagement Activities" (Papadopoulou, 2024), conducted within the framework of ECHO's Task 3.1 "Mapping and engaging target citizen groups", and may also be simply referred to as "communities" or "stakeholders".

**ECHO Ambassadors:** local engaged facilitators and leaders of the ECHO's CS efforts and soil health assessment in their areas, supported by the ECHO team, dedicating time based on their schedules. They are vital for spreading awareness on soil health and ECHO's mission to contribute to improving European soil health in local communities.

# From April 2024 to January 2025, the ECHO Ambassadors will:

- 1) Be involved in designing CS initiatives becoming part of the ECHO team. Their profiles will be visible on the website for future projection and profile promotion.
- 2) Reach out to citizens and groups, encouraging their involvement in ECHO's initiatives and soil sampling.
- 3) Attend training courses by ECHO experts to enhance their soil knowledge.

# Starting from January 2025, the ECHO Ambassadors will:

- 4) Help to distribute soil sampling toolkits ("ECHO soil kit") in their regions, supported by the ECHO team.
- 5) Join ECHO in local, CS initiatives motivating participants to analyse different soils
- 6) Assist in data collection and analysis.

ECHO Ambassadors come from various backgrounds, including university researchers or high school teachers, farmers, foresters and their associations, NGOs representatives, and more. They can also be social media influencers, like artists, athletes, or bloggers, in order to promote soil conservation through their platforms. In fact, there are no specific restrictions placed on candidates to become ECHO Ambassadors. The main requirement is managing the ECHO soil kit distribution and sample collection after January 2025. This concept may also be simply referred to as "Ambassadors" in this report.

**ECHO citizen scientists:** engaged individuals who finally contribute to the ECHO CS initiatives after January 2025, carrying out the soil sampling, analysis in-situ, and activities with the ECHO team and Ambassadors. They will be engaged through increased knowledge and interest in soil health, empowered to take an active role in data collection and soil science, as well as enabled to directly participate in decision-making on soil issues based on the acquired knowledge. This concept may also be simply referred to as "citizen scientists" in this report.

# 1.2.2. Context

The ECHO stakeholder engagement process is implemented through a two-phase iteration (Fig. 1). The 1<sup>st</sup> iteration began with the onset of Task 3.2 "Development of citizen science initiatives on soil health", from February (M9) to June (M13) 2024, and includes the first attempts to engage stakeholders as ECHO Ambassadors and citizen scientists in the partner countries (Italy, Spain, Portugal, Germany, Finland, Greece, Romania, Poland, Scotland). Figure 1 and Table 1 provide information on the first and







second iterations of CS initiatives, including the countries involved, coordinator names, durations, and the numbers of Ambassadors and citizen scientists participating.



Figure 1: Workflow for the engagement of ECHO participants' communities.

first and second iteration of citizen science initiatives.				
	First iteration	Second iteration		
Countries and coordinators	Portugal (SOLUTOPUS) Spain (IBE) Italy (UNIBZ) Greece (AFS) Romania (USV) Poland (PlantPress) Germany (UHOH) Scotland (HUTTON) Finland (UEF)	France (SOLUTOPUS) Slovenia (IBE) Austria and Switzerland (UNIBZ) Cyprus and Bulgaria (AFS) Hungary and Croatia (USV) Czechia and Slovakia (PlantPress) Luxembourg and Belgium (UHOH) Ireland and Netherlands (HUTTON) Denmark, Sweden, Estonia, Latvia and Lithuania (UEF)		
Number of countries	9	19		
Citizen scientists and sites sampled per country	1200	300		
ECHO Ambassadors per country	Between ca. 5 and 50 (as it depends on the number of citizen scientists they will be able to engage: min. 25 – max. 250; see Section 4.1)	Between ca. 3 and 12 (as it depends on the number of citizen scientists they will be able to engage: min. 25 – max. 100; see Section 4.1)		
Period	July 2024 – ca. June 2026	ca. June 2026 – April 2027		
Total citizen scientists and sites sampled	10800	5700		

# Table 1: Geographic scope, coordinators and citizen science numbers of ECHO's first and second iteration of citizen science initiatives.

# 1.3. Objectives of the ECHO engagement

Five main objectives were set for this task, the corresponding report and the methodology of engagement:

- 1) To issue an open call for ECHO Ambassadors in the nine countries involved in the first iteration of ECHO.
- 2) To establish contact with the communities of stakeholders previously mapped for sharing the open call.





- 3) To engage ECHO Ambassadors by assessing the applications to the open call and maintaining open communication with all the applicants.
- 4) To develop initial co-creation workshops, either online or in person, with the engaged and potential ambassadors.
- 5) To gather feedback from the workshops to adapt future CS initiatives and meet the needs of the ECHO Ambassadors, citizen scientists and the ECHO team.

# 2. Methods

# 2.1. Stakeholder Engagement Plan

The Stakeholder Engagement Plan (SEP) was meticulously designed by Ibercivis (Spain), with each ECHO partner having the flexibility to make adaptations as needed. It includes the following steps (based on Hollman *et al.*, 2022; Table 2):

- 1) Mapping and categorising (section 2.1.1)
- 2) Implemented communication strategy (section 2.1.2)
- 3) Making contact and engaging (Application Form, Co-creation workshops, etc.; section 2.1.3)
- 4) Assessment and adjustment (section 2.1.4)

#### Table 2: General timeline of the ECHO Tasks 3.1, 3.2 and 3.3,

depicting the sequential execution of the SEP's steps across their corresponding months.

M1-M8	M9	M10	М	11	М	12	M13	M14-M47
Jun 2023 - Jan 2024	Feb 2024	Mar 2024	Apr	2024	May	2024	Jun 2024	Jul 2024 – Apr 2027
Task 3.1			Tas	k 3.2				Task 3.3
	Design of the SEP							
Mapping 1		Mapping 2 (if needed)					Mapping 3 (if needed)	
				Communication strategy 1		Communication strategy 2		
		Making contact and engaging 1			engaging 1	Making contact and engaging 2		
						Co-crea	tion workshops 1	Co-creation workshops 2
	Assessment and adjustment 1					Assessment and adjustment 2	Adjustment 3 (if needed)	

The current Task 3.2 focused on engaging ECHO Ambassadors, and potential stakeholders who haven't been engaged at this level, toward their participation as citizen scientists in future ECHO initiatives. Direct engagement with citizen scientists will be undertaken during the upcoming Task 3.3 "Coordination of citizen science initiatives across Europe".

Partners were responsible for the implementation of the SEP within their own countries, where they are also responsible for coordinating ECHO's CS initiatives (Table 1). Each ECHO partner made adaptations to the plan based on factors such as their geographical location, internal capacity or expertise, among other factors. Nevertheless, the plan was solidly structured to always prioritise the perspectives and needs of the different communities of stakeholders.

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# 2.1.1. Mapping and categorising

A total of 262 stakeholders were initially identified during the "Report on Identified Communities of Stakeholders and Engagement Activities", conducted within the framework of ECHO's Task 3.1, led by American Farm School (AFS, Greece), which ended in January 2024 (see "Mapping 1" in Table 2). This stakeholder mapping enabled the evaluation and comparison of the different interests and motivations of specific stakeholders on ECHO, as well as how the project can meet diverse stakeholder needs or expectations. The data were structured in a matrix designed to record key data for each community (Papadopoulou, 2024). Similarly, selected existing European initiatives mapped during the "Report on the state of the art of citizen science applied to soil", conducted within the framework of ECHO's Task 1.1 (Ibercivis, 2023), finalised in first stages of the project and led by Ibercivis (Spain), were considered for participation as potential ECHO Ambassadors.

# **2.1.2.** Implemented communication strategy

The communication strategy of the SEP was based on key messages designed in accordance with the Communication, Dissemination and Exploitation Plan of ECHO (D6.1), led by Plantpress (Poland).

The ECHO messages of the SEP were communicated in all the native languages of the partners, using some of the most common communication channels in ECHO (see Annex 1):

- **ECHO website:** Open call release, including information regarding the ECHO Ambassador's role and the future CS initiatives. Dedicated banners have been prepared in various language versions for use by partners (Annex 1A).
- **Social media:** Open call shared on ECHO Facebook and LinkedIn pages, referring to the open call on the website. Dedicated graphics have been prepared in various language versions for use by partners (Annex 1B).
- **Leaflets:** Informative document with general information, the tools and activities of the project, to be delivered during all our in-person activities.
- **Direct emails:** With common messages regarding the open call and an invitation to be part of ECHO as Ambassador. These messages were translated, adapted and enriched by partners for fluent communication and to facilitate their acceptance as ECHO ambassadors (Annex 1C).
- **Online meetings:** brief online sessions were conducted with stakeholders, to share information about ECHO, provide details about the initiative, and invite participation in the open call.
- Press releases: featured as an article on the latest news of the Mission Soil Platform (mission-soil-platform.ec.europa.eu/news-events/latest-news/open-call-echo-ambassadors) or on local newspapers (Dolomiten: Das Tagblatt der Südtiroler; WIKU WirtschaftsKurier; SALTO; Die Neue Südtiroler Tageszeitung, UNIBZ Agr Faculty Press Release; Annex 1D).
- Newsletters:
  - European Soil Data Centre Newsletter No. 165 (May 2024; Annex 1E)
  - ReSoil Newsletter (May 2024)

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- o ECHO Newsletter No. 2 (June 2024; Annex 1E)
- Oral or poster presentation:
  - European Citizen Science Ass. (ECSA) Conference (Vienna, 3-6 April 2024; Annex 1F)
  - 4th Communication and Stakeholder engagement cluster meeting of the Mission Soil Platform (Online, May 29)
  - Launch of the CURIOSOIL Community of Practice





- Webinar "Improving Soil Health: A Systemic Approach for Co-Creating Living Labs in Urban and Industrial Environments" organised by the project NatiOons (Online, June 25, 2024)
- Centennial Celebration and Congress of the International Union of Soil Sciences (Florence, Italy, May 19-21, 2024)
- National Events of NATIOONS in Italy (Rome, May 13, 2024), Germany (online, April 23, 2024) and Greece (Thessaloniki, 21 May 2024)
- o Bodengesundheit im Fokus (Bolzano, Italy, May 16, 2024)
- Cultivating vitality from the ground up: soil activation & gardening (Bozen, May 3, 2024), workshop organized by the Faculty of Design and Art from the Free University of Bolzano.
- Marie Curie Alumni Association Annual Conference (Milan, March 14-16, 2024)
- o ERIAFF 10th Annual Conference (Seinäjoki, Finland, June 11-13, 2024)

Given the diverse communities spread across a wide geographic area and the varying nature of stakeholder involvement, a range of strategies and media tools were adopted to effectively reach and engage each group. Moreover, the SEP not only addressed the involvement of previously identified stakeholder communities but also considered the possibility of engaging unmapped communities. These new stakeholders, who showed interest by visiting ECHO's website or channels, were subsequently engaged through continuous and tailor-made communication, highlighting their high interest in the project.

For example, solely issuing newsletter or sending basic messages via direct email to key stakeholders was sometimes insufficient. To keep them engaged, additional strategies such as online meetings were implemented. Conversely, for other stakeholders, communication through social media, the project website, and the newsletter was adequate. The greater the stakeholder's interest and influence, the more robust the communication flow needed to be (Hollman *et al.*, 2022).

Figure 2 illustrates an idealised journey from an unaware stakeholder to an engaged, enthusiastic ECHO Ambassador, highlighting the wide range of communication channels available and utilised at every stage. Efforts were made to provide potential entry points for various types of stakeholders. Known stakeholders were engaged through direct meetings, already-known potential ECHO Ambassadors were targeted through communication directed at current social media followers and newsletter subscribers, and unknown potential ECHO Ambassadors were reached by engaging interested participants from unmapped communities.

Regardless of the level of detail, both basic and thorough messages within the SEP included the same exact information about ECHO and its activities. These messages were always designed to comprehensively communicate the same relevant information for stakeholder engagement.

It is worth highlighting that the co-creation workshops developed for this task also served as an effective communication channel, even though that was not their main purpose. Participants in these workshops became engaged Ambassadors, potential Ambassadors or future citizen scientists, who were ultimately convinced to take part in ECHO throughout these activities.

Throughout the process and especially after Task 3.2 concludes (M13), fluent communication will be maintained with all applicants and interested stakeholders. This ongoing communication will include







sending project updates, soliciting their opinions, inviting them to additional co-creation workshops, training courses, events, and more, to ensure long-term stakeholder engagement.



Figure 2: An idealised engagement journey for potential Ambassadors.

# 2.1.3. Making contact and engaging

Following the previously outlined communication strategy, ECHO's general messages and call for participation as ECHO Ambassadors were disseminated across a diverse network of individuals supportive of soil-related initiatives. Moreover, in countries where co-creation workshops were being organised within the current task, invitations to participate in these activities were shared as part of the two-way communication process.

The matrix from Task 3.1 (Papadopoulou, 2024) was expanded to include additional columns primarily focused on their engagement status: Sent messages, Accepted invitation, Completed the form, Fluent communication, Engaged as Ambassador, Engaged as Citizen Scientist, Disengaged, and Other. This expansion also facilitated the collection of information regarding the potential application of criteria for selecting Ambassadors and their potential participation in the co-creation workshops, thereby enhancing understanding of the level of engagement and willingness of individuals to participate.

# • Application form for ECHO Ambassadors

The application form for ECHO Ambassadors available on the ECHO website was open and accessible to any individual and/or organisation who visited the project's website, enabling them to apply independently based on their keen interest in ECHO, even without prior contact with the project.

This form enabled the collection of information regarding potential roles as ambassadors, interests, motivations, experience, abilities and other relevant needs (see Annex 2 for details). All applicants for ECHO Ambassador positions provided their consent for the processing of their personal data (name, surname, email address) which was shared with the responsible partner in accordance with the privacy policy of the call (see Annex 3 for details).

# • Criteria for selection

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In Italy and Spain, the number of applicants to Ambassadors rapidly exceeded the capacity of the first iteration of ECHO. Specifically, Ambassadors anticipated engaging over 1200 citizen scientists for future ECHO initiatives and soil sampling efforts in those countries. As a result, a basic set of criteria for Ambassadors' selection was developed for potential application by each ECHO partner if needed.





The criteria consisted of two distinct sections encompassing various factors, resulting in a total score of 36 points (see Annex 4 for details). The first section evaluated responses provided in the application forms, which served as a basis for comparing fundamental common information from each stakeholder. This section allowed for a total score of 21 points to be attained. The second section of the criteria delved into more conceptual aspects, considering insights gained by ECHO partners through individual meetings or participation in co-creation workshops, helping in evaluating the engagement of the participant. This section facilitated a total score of 15 points to be achieved.

These criteria were defined as a foundation for selecting applicants but were never used for rejection purposes. Applicants who did not meet the criteria will be informed that their application had been placed on a waiting list. Given that participation rates in the future ECHO CS activities and soil sampling may vary from initial expectations, there could arise a future need for additional Ambassadors. Therefore, those applicants may be contacted again.

# • Co-creation workshop

The initial ECHO co-creation workshops with potential ECHO Ambassadors, or resulting citizen scientists, were conducted both online and in person across various countries, aiming to achieve two primary objectives:

- Testing the preliminary CS ECHO toolkit and training materials being developed within WP2, assessing their feasibility and user-friendliness.
- Co-determining and co-defining general ideas for activities of each initiative.

Materials for these co-creation sessions were initially developed by Ibercivis (Spain) and corrected, adapted, endorsed, and translated into local languages by consortium partners. These materials were designed to be used in both online and in-person workshops, to ensure consistency in the information gathering across formats and facilitate subsequent feedback provision and analysis.

In the in-person workshops, activity materials were typically distributed in printed form, with participants using physical post-it notes to engage in the activities. Conversely, in the online workshops, activity materials were shared via a Miro board, presented as illustrations, and participants interacted using digital post-it notes within the platform.

Insights from WP1 were incorporated to address various motivations and barriers to participation among stakeholder groups, aiming to bolster their engagement throughout these activities and across the project's duration.

# • General structure

# Title: Getting closer to Soils and Citizen Science with the ECHO Project

Time requirement: approx. 1 hour, or 1 hour and a half. Minimum participants: 3 Maximum participants: not specified

# Part 1. Presenting ECHO

Utilising a PowerPoint presentation, the session started delving deeper with participants into aspects of the project that are essential for their engagement (Fig. 3). While this information is already available on the website, it may have been underestimated or not thoroughly



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covered during previous communication interactions. The presentation included the following key details:

- What is ECHO?
- Why is ECHO important?
- Our objectives
- Tools & Activities
- ECHO Ambassadors
- Expected impact



Figure 3: Cover page of the template created for presenting the ECHO project during the co-creation workshops, along with its translation into the local languages used and planned for the workshops.

### Part 2. Workshop

#### **Icebreaker**

With brief sections like: Tell us about you / Sharing soil experiences.

### Activity 1. Insights of the ECHO toolkit (15 min.)

Steps to be followed by participants:

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- 1. Take a look at the toolkit components, the soil health indicators and the brief preliminary sampling instructions.
  - <u>Online format</u>: the toolkit components are presented in an illustration and the instructions are also presented (Figure 4 a, b).
  - <u>In-person format</u>: the toolkit components are presented in a physical preliminary version or as an illustration, and the instructions are also printed for participants (Fig. 5 a, b).

During workshops, it was highlighted that the instructions were preliminary, and that the final comprehensive ones will be developed in the upcoming months (see Annex 5 for details).

2. Familiarise yourself with its features and functions, ask us if you don't understand something.









- 1. Precise <u>guidelines</u> for conducting soil sampling activities (leaflet, also available on the app/website)
- 2. Protective gloves to be used during the sampling procedure
- 3. A metal shovel for soil sampling
- 4. A wooden spoon for soil handling
- 5. A plastic <u>container</u> for soil sample pH
- 6. paper strips for measuring soil sample pH
- 7. A plastic <u>container</u> for collecting soil samples for biodiversity analysis
- 8. A small <u>biodegradable plastic bag</u> for collecting soil samples for heavy
- metals analysis
- A large <u>biodegradable plastic bag</u> for storing both soil samples to be returned
- 10. Contact information of designated person and lab for returning the kit



Figure 4: a) Illustration of the preliminary toolkit components; and b) Cover of the brief preliminary sampling instructions; both determined within the framework of WP2.



Figure 5: a) Presenting the preliminary toolkit components; and b) Providing printed instructions for participants; both belong to the in-person workshops carried out by the University of Bolzano (Italy).





3. Choose two adjectives from the post-its we provided you, that you believe describe your feelings about them. Add new ones if necessary.

This is the list of adjectives that could loosen up interaction between participants and an initial feedback provision:

<u>Positive adjectives:</u> User-friendly, Clear, Comprehensive, Accessible, Informative, Engaging, Intuitive, Empowering, Interactive, Efficient, Well-organised, Inspiring, Practical, Innovative, Supportive and Useful in my region.

<u>Negative adjectives:</u> Confusing, Complicated, Incomplete, Ambiguous, Overwhelming, Disorganized, Repetitive, Boring, Uninformative, Uninspiring, Inaccessible, Inefficient, Rigid, Outdated, Frustrating and Useless in my region.

Online format: digital post-it notes in the Miro board.

In-person format: physical post-it notes.

4. Explain why you chose those adjectives, and if you think there are things that need improvement.

### Activity 2. Shaping participation (15 min.)

Steps to be followed by participants:

- 1. Carefully read the post-it notes we provided you.
  - This is the list of possible expectations participants had about the ECHO project to have into account for its future CS initiatives:

I would like ECHO to...

- ENHANCE MY KNOWLEDGE ABOUT: environmental conservation, soil health, soil types and uses, sustainable practices in general, sustainable agricultural techniques, needs and concerns of the agricultural community.
- ENHANCE MY ABILITY TO: address local environmental issues, maintain the integrity of samples during collection, storage, and transport to the laboratory, engage relevant participants and/or communities, boost motivation among participants and/or communities, manage the toolkit distribution, improve my outreach capabilities, use social media, use digital tools in general.
- FACILITATE MY ACCESS TO: digital devices in general, soil science information.
- HELP ME: replace my habits rooted in unsustainable soil practices with sustainable ones, understand the protocols for collecting samples on my own, collect my soil sample because I can't do it on my own, resolve sample collection issues due to scheduling, address sample collection problems due to weather conditions.
- BROADEN MY CONNECTIONS WITH: local environmental activists or organisations, local farmers or agricultural associations, soil science professionals.

# 2. Evaluate the urgency and/or necessity they have for you, others or the project. Add new ones if necessary.

### 3. Place them on the graph according to that.

Participants were provided with a graph based on the Eisenhower's Time Management Matrix popularised by Covey (2020), to help prioritise and focus efforts within the project (Fig. 6).

<u>Online format</u>: digital graph and post-its in the Miro board (Fig. 7a). <u>In-person format</u>: printed graph and physical post-its (Fig. 7b).







Figure 6: General graph provided to participants for activity 2 at both the online and in-person formats of the workshop, based on the Eisenhower's Time Management Matrix popularised by Covey (2020).



Figure 7: a) Placing post-its in the graph of activity 2 at both the online (a) and in-person (b) formats of the workshop. The online workshop was carried out by Ibercivis (Spain) and the in-person workshop by the Stefan cel Mare University (Romania).





## Activity 3. Perspectives and activities (15 min.)

Steps to be followed by participants:

- 1. Observe the clusters of cards on the graph from the previous exercise.
- 2. Discuss possible activities for Ambassadors and/or Citizen Scientists that address the aspects that are most urgent and/or necessary for you and/or the group.

A table was provided to participants, in order to organise responses in two possible time spans separated by the milestone of developing the ECHO app and platform in January 2025 (Fig. 8), which will determine the starting point of the citizen science initiatives. Therefore, from today to January 2025, activities will be focused on the ECHO ambassadors, and starting January 2025, activities will be focused on citizen scientists and the ambassadors.



Figure 8: General table provided to participants for activity 3 at both the online and in-person formats of the workshop.

### Activity 4. Wrap up (5 min)

This is a brief space at the end of the event where each participant can ask final questions, express their interest in the project and future activities, and discuss the ambassador or citizen scientist roles. The event organisers will then wrap up the activity.







# 2.1.4. Evaluation and adjustment

Assessment during the SEP's design, mapping, making contact and engagement steps, was conducted within the specific explanatory documents of the ECHO Teams channel, and orally during monthly or specific WP3 meetings, where all ECHO partners involved provided feedback, ideas or concerns about the process.

Furthermore, designing the same co-creation workshop in both online and in-person formats allowed to obtain consistent and measurable feedback. This feedback can be evaluated, compared, and used to propose feasible activities for ECHO.

Feedback was provided to all partners via Teams channel and analysed by Ibercivis (Spain), in their role as task leaders. The feedback included:

- A brief paragraph summarising the leaders' post-workshop impressions, covering aspects such as participation levels, participant interactions, and any additional contributions that may not have been fully captured in the formal activities. Each co-creation workshop was led by one or two ECHO leaders and speakers. This summary aimed to provide non-participating partners with an understanding of the overall atmosphere and dynamics that characterised each workshop.
- The list of adjectives chosen by participants during Activity 1, translated into English.
- A photo or a screenshot of the graph, table and responses to Activities 2 and 3, with translation into English.
- The notes of participants' oral comments, translated into English, taken by an additional team member dedicated to capturing comprehensive notes of participants' verbal feedback during the event.

This feedback is essential for the subsequent evaluation and adjustment of not only this initial cocreation workshop, but also other ECHO tasks and WPs. Workshop outputs will inform the selection of appropriate soil health assessment methods and tools, as well as the quality assessment identified and developed in WPs 1 and 2. Furthermore, we expect them to provide a comprehensive basis to guide the CS initiatives of ECHO.

# 3. Limitations of the ECHO engagement

Task 3.2 faced a constrained time frame (M9-M13) for its development, considering the substantial workload, creation of material and extensive involvement required from all ECHO partners at various levels. The design of the SEP by Ibercivis (Spain), subsequent revisions, team approval, and translation of materials into required languages, took nearly three months of the task duration (see "Design of the SEP" in Table 2). This timeline constraint limited the implementation of the SEP and the execution of co-creation workshops to a brief window at the end of M11, and mainly during M12 and 13, for all ECHO partners (Table 2).

The mapping of stakeholders, which began in Task 3.1 of the SEP, continues into the current Task 3.2 and is likely to extend into Task 3.3 (see "Mapping 2 and 3" in Table 2) for several reasons:

In certain countries involved in the first ECHO iteration, this mapping exercise was already scarce during Task 3.1 and remains so in the present task.







- During the establishment of contact with stakeholders, following our communication strategy during the present Task 3.2, some stakeholders were not ultimately engaged as ECHO Ambassadors.
- Even though continuous communication will be maintained with confirmed ECHO Ambassadors, there is a possibility of disengagement from the project over time.
- Current ECHO Ambassadors may have limited availability due to their schedules, potentially contributing for shorter durations to the first project iteration, allowing for more active participation.

Because of these previous four reasons, additional efforts in mapping new stakeholders were needed during Task 3.2 and will be required in Task 3.3. This is crucial to ensure that ECHO partners, together with Ambassadors' intervention, reach the project's objectives and its final quantitative target of involving 16,500 citizens.

In countries like Germany, the new mapping of stakeholders during the current Task 3.2, and the SEP's second step of making contact and engaging them, have been particularly time-consuming. In the context of Hohenheim (Germany), their work within the Institute of Education, Work & Society, has presented challenges in establishing strategic links with key stakeholders in soil-related fields. To overcome this, they have invested significant efforts into a successful contact campaign and the creation of appealing materials, in collaboration with Plantpress (Poland), to attract and motivate key stakeholders. Due to these efforts, the organisation of workshops in Germany was limited to the end of June, and their outcomes could not be included in this deliverable. However, they are expected to provide valuable feedback for the implementation of CS initiatives in subsequent tasks. Similarly, in Greece or Portugal, the implementation of the SEP started later, and ongoing activities are being carried out to achieve these objectives and organise workshops as part of future tasks.

Likewise, Finland will not be included in the call for Ambassadors or in the development of co-creation workshops scheduled for the initial phase of ECHO. Harsh winter conditions, including snow and inclement weather, have necessitated postponing the start of their ECHO CS initiatives, from January to spring 2025. Consequently, the implementation of the SEP has been directly delayed beyond Task 3.2. This delay also affects certain activities with Ambassadors in Scotland. However, these postponements provide an opportunity for better planning and preparation, ensuring optimal conditions for effective citizen engagement and data collection once the weather improves in the spring.

# 4. Characteristics of stakeholders applying for ECHO Ambassadors

During the stakeholder mapping exercise of Task 3.1 the analysis of stakeholders revealed a diverse and interconnected landscape of initiatives, projects, and organisations. These stakeholders represented various citizen groups, or were related with different environmental challenges, collaborative models, and technological uses in scientific research and education. The majority of these previously mapped stakeholders were contacted and included in the workshop participation lists of Task 3.2, together with the new mapped ones and the ones who reached the project independently. However, not all of them have gone through the workshops at this time due to the limitations described in the previous section.







The analysis of the characteristics of stakeholders follows a dual approach and considers the lists of stakeholders updated until the 14th of June 2024. An overall analysis was attempted in order to evaluate some general characteristics/profiles of the stakeholders who have expressed interest in becoming ECHO Ambassadors. The evaluations include elements such as their interests and motivations, their experience and network of people, their knowledge and abilities relating to soil health, soil sampling, and citizen science methodologies. Other, specific elements were analysed per country in order to identify specific characteristics, needs and challenges pertinent to each case. At present, a total of **274** applications for potential ECHO Ambassadors have been received and assessed.

# 4.1. Description of stakeholder groups: Target groups, age groups and communities' sizes

According to the results of the application forms, ECHO Ambassadors applicants have indicated a diverse range of stakeholder groups that vary by country. They expect that educational communities will be the primary target group for future citizen scientists they engage, closely followed by local communities and farmers (Table 3 and Fig. 9). Educational communities might be predominant in Spain, Romania, and Greece, whereas local communities could be more prevalent in Scotland. In countries like Italy, Poland, and Germany, multiple target groups are expected to be equally represented, while NGOs are likely to be the primary focus in Portugal. Land managers might be the least common target group.

	Farmers	Land-Managers	Educational communities	Local communities	Scientific comm./ Academic institutions	NGOs & their networking communities	l don't know yet
Italy	76	40	76	76	15	38	5
Spain	20	13	29	24	23	8	4
Romania	5	3	15	6	5	7	0
Portugal	7	2	5	3	5	8	1
Poland	5	2	4	1	5	3	0
Greece	35	11	36	31	24	17	7
Germany	1	2	1	2	2	0	2
Scotland	4	1	8	10	4	3	1
	153	74	174	153	83	84	20

 Table 3. Number of references to target groups facilitating participation in ECHO's future citizen science initiatives and soil sampling, by country. Total responses exceed 274 due to multiple choices allowed.









The expected citizen scientists encompass young and middle-aged adults (between 19 and 60 years old), as well as children and teenagers (under 18 years; Table 4 and Fig. 10). Older adults (above 60 years old) might be the least represented age group in our citizen science activities.

	Adults (19-60)	Adults (Above 60)	Children and teenagers (under 18)	l don't know yet
Italy	98	26	74	9
Spain	33	13	25	4
Romania	13	1	8	0
Portugal	11	0	6	2
Poland	4	2	4	0
Greece	49	6	22	8
Germany	4	1	0	1
Scotland	11	6	6	2
TOTAL	223	55	145	26

Table 4. Number of references to age ranges that applicants estimate for the citizen scientists to be engaged for the ECHO's future initiatives and soil sampling per country. Total responses exceed 274 due to multiple choices allowed.









Figure 10. Total age ranges estimated by all applicants for citizen scientists to be engaged in ECHO's future initiatives and soil sampling.

Following the plan of the Grant Agreement, the ECHO Ambassadors in each country were to establish communities during the 1st iteration of the project as follows: 4 regional communities (larger initiatives with approximately 250 participants each) and 4 extra regional communities (smaller initiatives with about 50 participants each). This required a total of 8 ECHO Ambassadors per country.

However, applicants for ECHO Ambassadors have indicated challenges in recruiting the large groups of people initially planned, such as the expected 250 participants for regional initiatives. Figure 11 illustrates their estimates of the number of citizen scientists they anticipate identifying, engaging, and welcoming to their initiatives. The expected larger communities constitute a minority, with groups ranging from 75 to 250 participants representing only 19% of the responses. In contrast, groups ranging from 25 to 75 participants represent 65% of the responses. This indicates that smaller initiatives can be feasible at the extra-regional level, as originally planned according to the Grant Agreement, but suggest a need to revise the initial target numbers to align with more achievable goals at the regional level. number Therefore. of ECHO the total Ambassadors per country could potentially increase to a maximum of ca. 50 (Tab. 1), as they may focus on engaging smaller communities instead.



Figure 11. Total number of citizen scientists that all applicants expect to engage for the ECHO's future initiatives and soil sampling.





# 4.2. Interests and motivations of stakeholders

Regarding the interests and motivations of the candidates, which were collected through the application form, half of the applicants expressed their interest in environmental conservation, soil health, and/or citizen science, indicating a strong alignment with the fundamental focus areas of ECHO (Fig. 12). Additionally, 27% of applicants have shared personal connections or stories closely tied to environmental or agricultural topics, highlighting a personal motivation for their involvement. There is a lesser interest among applicants in promoting sustainable practices, indicating a need for further emphasis on this goal. Finally, a smaller percentage of applicants seek to contribute to a Europe-wide initiative, demonstrating a higher commitment to the project's subject matter rather than its context. It is worth highlighting that Figures 12-14 show the results gathered from multiple-choice questions that consider multiple aspects. They provide an overview of the candidates, serving as a starting point for identifying individual aspects to define tailored future activities.



Figure 12. Interests and motivations of the applicants, as stated by applying as ECHO Ambassadors.

# 4.3. Other relevant stakeholder information

Applicants were given the opportunity to provide additional information that would be useful at this stage of the project. Nearly all applicants (62%) have previous experience leading participatory or CS activities, primarily in leadership or organisational roles within community groups, events, or projects (Fig. 13). Many of them (35%) are also actively involved in local environmental, agricultural, or science-related communities, groups, associations, or foundations. This indicates that our stakeholder mapping has successfully targeted its intended audience, ensuring robust community engagement and soil stewardship at various levels.









Figure 13. Previous experience of applicants as declared in the form by applying as ECHO Ambassadors.

Regarding their English Language proficiency, applicants were asked to provide information as it supports international applicability and collaboration among Ambassadors, for the future international replication of the project, but it is not a disqualifying factor. Forty-one percent of applicants can speak and/or understand English, an ability that can be leveraged for fostering synergies, interactions, and exchanges between communities from different countries participating in ECHO (Fig. 14). Additionally, 33% have the capability to manage logistics for distributing kits to participants, reinforcing the collaborative efforts between Ambassadors and the ECHO team. Furthermore, 26% possess skills in using social media and other digital tools, enabling them to effectively disseminate project updates and information through their own channels.









The majority of applicants for ECHO Ambassadors have stated proficiency and experience in both their knowledge of soil health (Fig. 15a) and their practical skills in soil sampling (Fig. 15b). This dual competency underscores their preparedness to effectively engage in our CS activities across diverse environments and land uses. Among applicants, 26% and 42% respectively indicated beginner-level knowledge in soil health and experience in soil sampling. They will receive continuous support from the ECHO team and will have the option to participate in additional workshops and training sessions if desired, ensuring continuous learning and development opportunities throughout their ambassadorship.



The majority of estimated citizen scientists in the applications are beginners in both their knowledge of soil health and their experience in soil sampling (Fig. 16). Approximately 30% believe they will direct their efforts towards engaging adepts or experts. This is promising news as it indicates ECHO will focus on enhancing soil literacy among this audience, thereby advancing the project's primary objective.



Figure 16. Level of knowledge regarding soil health (a) and level of experience in soil sampling (b) that all applicants estimate for the citizen scientists that are expected to be engaged in ECHO's future initiatives and soil sampling.



# 5. Co-creation workshops

From May 16th to June 18th, 2024, a total of 10 co-creation workshops were conducted to facilitate stakeholder engagement, collaboration, and to gather insights into feasible CS activities for ECHO. Seven workshops were held online, due to time and logistical constraints, yet providing valuable feedback. Three workshops were conducted in-person, initially enhancing ECHO's visibility, although two faced challenges with large participant numbers or time constraints, resulting in limited feedback. Attendees represented various key target groups identified during Task 3.1, including academia, local communities, educational communities, farmers and land managers, and civil society organisations. Each workshop served as a platform for interactive discussions and idea generation, with total attendance exceeding 100 participants who became engaged Ambassadors, potential Ambassadors or future citizen scientists. Italy hosted 5 workshops in Bolzano (unibz), Spain (Ibercivis) hosted 2, and Romania (USV), Scotland (Hutton), and Poland (Plantpress) each hosted 1 workshop, laying the groundwork for future development in other countries and significantly advancing project objectives.

Responses and feedback gathered from participants in both in-person and online sessions were collected, categorised based on activities, and analysed to provide insights into how to direct future ECHO activities in alignment with ambassadors' requests. This comprehensive approach ensures that the project can effectively meet the needs and expectations expressed by participants, guiding strategic decisions and initiatives moving forward.

# 5.1. Responses from activity 1: Insights of the ECHO toolkit

During Activity 1, as presented in paragraph 2.1.3, participants were introduced to the ECHO toolkit and given brief preliminary instructions for soil sampling. The most commonly selected adjectives used to describe these elements were "user-friendly" and "practical" (Fig. 17). Additional adjectives were "well-organised", "clear" and "interactive". This positive feedback underscores the toolkit's and instructions' effectiveness and accessibility for participants. Regarding negative feedback, participants mentioned "incomplete" and "confusing" adjectives less frequently, primarily due to the simplified nature of the preliminary instructions tailored specifically for these workshops. The final version of the ECHO instructions will comprehensively address these aspects, ensuring clarity and completeness for all participants. A newly added adjective frequently mentioned across different workshops was "educational", highlighting its suitability for educational settings and its capacity to enable children and teenagers to independently understand the instructions.



Figure 17: Word cloud depicting the most frequently chosen adjectives by participants to describe their thoughts or feelings about the ECHO preliminary material for soil sampling explained during Activity 1 of the co-creation workshops.



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# 5.2. Responses from activity 2: Shaping participation

During Activity 2, participants evaluated different future aspects of the ECHO project. Specifically, 33% expressed interest for ECHO to enhance their abilities, 25% indicated a desire for ECHO to increase their knowledge and 21% aimed to broaden their connections (Fig. 18). It is worth highlighting that this reflects participants' proactive approach and preference to develop their skills and take a more active role in the project, rather than relying on direct assistance from the ECHO team (only 11% of responses specified "help me").



In particular, the most frequent requests were for ECHO to enhance participants' knowledge about soil health, which directly aligns with the project's objective of fostering soil literacy (Table 5). Additionally, participants' expressed a desire to improve their abilities in outreach, citizen scientists engagement, motivation boosting and independently addressing environmental issues. They also seek to broaden their connections with farmers, academia, and environmental organisations, while seeking guidance on behavioural shifts related to soil practices. Finally, participants highlighted challenges in accessing valuable soil information.

Ranking	Main general request	Specific request
1	ENHANCE MY KNOWLEDGE ABOUT	Soil health
2	ENHANCE MY ABILITY TO	Improve my outreach capabilities
3	BROADEN MY CONNECTIONS WITH	Local farmers or agricultural associations
4	ENHANCE MY ABILITY TO	Engage relevant participants and/or communities
5	BROADEN MY CONNECTIONS WITH	Soil science professionals
6	ENHANCE MY ABILITY TO	Address local environmental issues
7	FACILITATE MY ACCESS TO	Soil science information
8	HELP ME	Replace my habits with sustainable ones
9	ENHANCE MY ABILITY TO	Boost motivation among participants and/or communities
10	BROADEN MY CONNECTIONS WITH	Local environmental activists or organisations

Table 5. Ranking of the top 10 most frequent requests made for ECHO by participants during Activity 3 of the co-creation workshops.





All the participants' requests were categorised based on the perceived urgency and necessity for themselves or the project as a whole. For the statistical analysis of responses to this activity, five sections of the graphic were identified, as shown in Figure 19. Within these sections, their primary requests were:



Figure 19: Sections within the graph provided to participants during Activity 2 of the co-creation workshops, where participants could add post-its about aspects of ECHO depending on their needs.

#### Section 1: ↓ Need, ↓ Urgency

- Enhance my ability to use social media
- Facilitate my access to digital devices in general

### Section 2: ↓ Need, ↑ Urgency

- Enhance my knowledge about needs and concerns of the agricultural community
- Help me replace my habits rooted in unsustainable soil practices with sustainable ones

### Section 3: ↑ Need, ↓ Urgency

- Enhance my knowledge about sustainable agricultural techniques
- Enhance my ability to use digital tools in general
- Enhance my ability to manage the toolkit distribution •
- Enhance my ability to connect with soils •

### Section 4: **1** Need, **1** Urgency

- Broaden my connections with soil science professionals •
- Enhance my ability to address local environmental issues •
- Enhance my knowledge about soil resilience ٠
- Enhance my ability to understanding my results and choose cultivations •
- Enhance my knowledge about sustainable practices in general •
- Broaden my connections with local environmental activists or organisations •

### Section 5: **11** Need, **11** Urgency

- Enhance my knowledge about soil health •
- Enhance my knowledge about improve my outreach capabilities •
- Enhance my knowledge about engage relevant participants •
- Broaden my connections with local farmers or agricultural associations •
- Enhance my knowledge about boost motivation among participants
- Facilitate my access to soil science information

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# 5.3. Responses from activity 3: Perspectives and activities

During Activity 3, participants discussed the aspects identified on the graph from Activity 2. They focused on brainstorming possible activities based on their needs and urgency for the two main phases, to be carried out before or after January 2025 of the project. The suggestions from the participants were grouped and simplified as shown in Table 6.

emerged during Activity 5 0				
Before January 2025	After January 2025			
Material development				
Creating official dissemination materials tailored to various age groups and target audiences, specifically schools, high schools, the general public, and farmers.	Providing certificates to Ambassadors and participants, as well as possible merchandising when possible.			
Training courses	s and workshops			
From the team to Ambassadors, to deepen their understanding of project details, improve mapping and communication skills for dissemination purposes, and enhance their theoretical and practical knowledge of soil health. Topics will include where and when sampling, toolkit distribution and return schedules.	From the team to Ambassadors, with advanced sessions to interpret results analysis, understand sustainable soil practices, and implement practical improvements to soil health.			
Inner cor	nnections			
Establishing effective communication between the Ambassa knowledge sharing. Also creating specific communication ch	adors and the ECHO team for feedback, task scheduling and annels among Ambassadors based on geographic areas.			
Engag	ement			
Providing guidance from the team to Ambassadors on map processes.	ping citizen scientists and fostering community engagement			
Eve	ents			
Between Ambassadors and citizen scientists (and the project team), organising dissemination talks, recruitment activities and initial sessions with the engaged citizen scientists for key factors.	With citizen scientists, joint field trips for sampling and data upload sessions via the app. Hosting educational events such as poster competitions or student congresses. Additionally, holding events between the project team and Ambassadors for result dissemination and a final project event.			
Social	media			
Development of content for sharing and intensifying activity	to amplify project's awareness.			
Feedback				
	Regularly sharing project results with citizen scientists on both local and national levels.			
Contin	uation			
	Ensuring support for monitoring programs and fostering the adoption of sustainable soil practices beyond the project's duration.			

#### Table 6: List of activities proposed by the participants to be carried out before and after January 2025, emerged during Activity 3 of the co-creation workshops





# 6. Proposed activities formulated through co-creation workshops

Based on the outcomes gathered during the co-creation workshops, the following activities can be proposed for the development and activities of Task 3.3:

## To be carried out before January 2025, before the CS starts:

- The ECHO team prepares **dissemination materials** for Ambassadors' own dissemination activities. It can consist in:
  - One presentation with the project's information, and different social media content;
  - Adaptable content depending on the target group: schools, high schools, the general public, or farmers;
  - Translated into all languages.
- Each ECHO partner sets regular online or in-person meetings or interactions with Ambassadors to share general aspects:
  - Project's updates;
  - Task scheduling;
  - Toolkit distribution planning;
  - Problem solving.
- The ECHO team prepares an online training course for Ambassadors to learn mapping, engagement and communication methods and strategies, and the partners who are most expert on the subject develop it. It could provide Ambassadors with:
  - Techniques for clear and effective communication, storytelling, the use of multimedia or social media management;
  - Examples of stakeholder analysis and engagement plans, understanding their interests and influences;
  - Examples of interactive activities, group discussions, practical exercises and ideas' exchanges;
  - Techniques to increase both personal and team motivation, leadership, stress management and goal setting;
  - Strategies for task planning, to structure, execute and assess them efficiently;
  - Methods for connection and raising awareness of soils, focusing on its role in ecosystems;
  - It can be developed in English with slides translated into all languages, always in presence of native partners who will translate any questions that may arise during the course.
- The ECHO team prepares an **online training course for Ambassadors for soil literacy**, and the partners who are most expert on the subject develop it. It could provide Ambassadors with:
  - Knowledge about soil health, soil resilience and soil sustainable practices;

- Access to soil science information;
- Tools to address local environmental issues;
- Connections (or strategies or examples to connect) with soil science professionals, local environmental organisations and farmers. Also with an idea of needs and concerns of the agricultural community;





- It can be developed in English with slides translated into all languages, always in presence of native partners who will translate any questions that may arise during the course.
- The ECHO team creates a specific **digital channel for communication** with and between Ambassadors based on geographic areas.

## To be carried out after January 2025, once the CS starts:

- The ECHO team prepares **incentives for citizen scientists** and, if necessary, for Ambassadors. It can consist in:
  - Special events, like competitions. Joint field trips can also play an important role;
  - Certificates.
- The ECHO team prepares an **online training course for Ambassadors and Citizen Scientists to learn about results and implications**, and the partners who are most expert on the subject develop it. It could provide Ambassadors with:
  - Knowledge on how to interpret results analysis;
  - Applications of sustainable soil practices that improve soil health;
  - Knowledge on how to select crops according to soil health status.
  - It can be developed in English with slides translated into all languages, always in presence of native partners who will translate any questions that may arise during the course.
- Each ECHO partner continues with the **regular online or in-person meetings or interactions with Ambassadors** to share general aspects:
  - Project's updates;
  - Task scheduling;
  - Toolkit return planning;
  - Problem solving.
- The ECHO team possibly repeat the online training course for soil literacy for Cltizen Scientists.
- Each partner can participate in a **joint field trip** for soil sampling in their local initiatives. The characteristics of this activity will vary depending on the location, demographics and specific needs, but could include an initial presentation, explanation of the app, data collection in groups and focusing on different soil types and areas, and a closure.
- Each partner guides and supports Ambassadors to **provide feedback to citizen scientists**. It could provide citizen scientists with updates of the project's outcomes and results on both local and national levels.
- The ECHO team organises an **in-person final event of ECHO** for both Ambassadors and citizen scientists in each country or at European level, yet to be determined. Specific sessions only for Ambassadors should be included in this event.

This proposed set of activities is solely derived from information gathered through application forms, co-creation sessions, and interactions thus far within the framework of Task 3.2. These activities are not mandatory for the ECHO team, partners, or citizen scientists, and can be tailored to meet the specific needs of each country, locality, climate, schedule, and the capacities of each initiative during Task 3.3.







# 6.1. Potential impact and feasibility of proposed activities

To be carried out before January 2025					
Activities	Impact	Feasibility			
	<ul> <li>Effectively communicate project goals and activities to various target groups</li> </ul>				
Dissemination materials tailored for Ambassadors	<ul> <li>Enhance outreach, increase awareness, and foster engagement across diverse demographics</li> <li>Enhance their feeling of creating impact for the project and their individual activities (incentive and motivation factor), since it will provide an opportunity for them to promote their personal work and efforts</li> </ul>	High: straightforward task for the ECHO team. Translation efforts will require coordination with native speakers but are manageable within the proposed timeline.			
Regular meetings with Ambassadors	- Help build a strong network of informed and motivated Ambassadors     - More effective local engagement, timely updates, and efficient problem-solving	High: may pose challenges in terms of workload and time management. Effectively managed With proper planning and the use of digital communication tools.			
Training courses for Ambassadors	Empower Ambassadors with the skills needed to effectively participate and lead within the project     Improve the quality of data collected     Enhance community involvement	High: partners who specialise in the areas will make the task feasible. Translating materials and providing live translation during courses will require additional coordination and effort by the partners.			
Creation of a digital communication channel	<ul> <li>Facilitate real-time information sharing, collaboration, and support among Ambassadors</li> <li>Strengthen the community and streamline project coordination</li> </ul>	High: relatively simple with the right IT support			

Table 7: Impact and feasibility of the proposed activities to be carried out before January 2025.

#### Table 8: Impact and feasibility of the proposed activities to be carried out after January 2025.

To be carried out after January 2025				
Activities	Impact	Feasibilty		
Incentives for citizen	- Boost motivation and participation	Moderate to High: manageable tasks, though they will require budgeting and logistical planning. Certificates can be easily designed and distributed		
Ambassadors	<ul> <li>Higher engagement and sustained involvement in the project</li> </ul>			
Advanced training Courses	<ul> <li>Deepen the understanding and ability to contribute meaningfully to the project</li> <li>More impactful local initiatives and better data utilisation</li> </ul>	Moderate to high: developing these courses requires expertise and time. Ensuring accurate translations and effective delivery will be essential		
Continued regular meetings with Ambassadors	<ul> <li>Ensure that Ambassadors remain engaged and informed, facilitating continuous improvement and adaptation of project activities</li> </ul>	Moderate: essential, but the feasibility remains high with effective planning and use of digital tools		
Joint field trips for soil sampling	<ul> <li>Provide practical experience, foster</li> <li>collaboration, and enhance understanding of</li> <li>soil science among participants</li> <li>More accurate data collection and stronger</li> </ul>	Moderate: requires significant logistical coordination, especially considering diverse locations and participant needs. However, the benefits make this a worthwhile endeayour		
Support for Ambassadors to provide feedback	- Keep the citizens informed and motivated. - Enhance trust and encourage participation	High: can be integrated into regular communication channels and meetings		
Final in-person	<ul> <li>Celebrate achievements, share results, and strengthen the network of Ambassadors and citizen scientists</li> </ul>	High: requires significant planning, coordination, and funding. Determining the scale (national or European) will affect		
event	<ul> <li>Reinforce community spirit and highlight the project's impact</li> </ul>	participant morale and project visibility is substantial and it is an activity already foreseen by the project		





Overall, the proposed activities have the potential to significantly enhance the engagement, skills, and effectiveness of Ambassadors and citizen scientists. They aim to create a well-informed, motivated, and collaborative community that can drive the project's success.

While some activities require careful planning and resource allocation, they are generally feasible within the given timeline. Leveraging the expertise of partners and utilising digital tools will be key to successful implementation. By addressing both preparatory and ongoing needs, these activities provide a comprehensive approach to supporting and empowering Ambassadors and citizen scientists, ensuring the project's sustainability and impact.

# 7. Conclusions and key findings

The SEP implementation has successfully engaged key stakeholders in ECHO, particularly in Italy, Spain, Scotland, Romania and Poland. Greece, Portugal, Germany, and Finland are currently carrying out activities to reach these objectives in the upcoming months. Continuous mapping of new stakeholders will extend into Task 3.3 "Coordination of citizen science initiatives across Europe" across all countries.

Initial ECHO co-creation workshops with potential Ambassadors and citizen scientists were held in Italy, Spain, Scotland, Romania, and Poland, both online and in-person. Additional workshops are planned in Germany, Greece, Portugal and Finland. These workshops tested the feasibility and userfriendliness of the preliminary CS ECHO toolkit and training materials, and confirmed that we are on the right track with user-friendly, well-organised, and efficient materials. However, we will continue working to further expand and enhance these materials and ensure its completeness within the activities of WP2.

Based on the responses of the application forms and workshop interactions, the ECHO Ambassador profile includes: Individuals deeply connected to educational, local, and/or farming communities, capable of identifying groups of 25-75 citizen scientists below 60 years old. They share interests with the ECHO's main subject areas, as they are passionate about environmental conservation, soil health or citizen science, and may have personal ties to environmental or agricultural topics. This has facilitated their active participation or leadership in local groups, allowing them to have prior experience leading participatory activities, but may require logistical support in distributing kits to participants (emphasising collaborative efforts among ECHO partners). They possess sufficient knowledge and experience in soil sampling to understand soil-health issues. However, they would like to delve deeper into soil-health issues, enhance their outreach and engagement skills and broaden connections with farmers and soil science professionals. They want to connect with soils and the ECHO community, demonstrating care and concern for citizen scientists and their fellow Ambassadors. They value mutual feedback and show proactive initiative toward the project, seeking to play a more active role in soil science and in decision-making processes.

Furthermore, the typical ECHO citizen scientist profile comprises: Children, teenagers, and/or young/middle-aged adults from educational, local, or farming backgrounds, lacking awareness of soil health and lacking experience in soil sampling. Their engagement may be more or less difficult depending on their background, and they expect to receive appealing materials and feedback, see social media movement, participate in joint activities and in a final event, to achieve all proposed objectives. It is highly likely that the project will foster or ignite their interest in soil health and the







adoption of sustainable soil practices, enabling them to make informed decisions and effectively disseminate the project's results.

Finally, co-creation workshops also facilitated the co-determination of general activity ideas for each initiative, proposed by participants and the ECHO team in a bottom-up process. They provided valuable initial feedback for subsequent workshops, training courses, and the overall design of future citizen science initiatives. This approach ensures alignment with stated needs and requirements, fostering the ideal environment for both active participants' engagement and achievement of the ECHO's objectives.

# 8. References

Covey, S. R. (2020). The 7 habits of highly effective people. Simon & Schuster.

- Hollmann, S., Regierer, B., Bechis, J., Tobin, L., & D'Elia, D. (2022). Ten simple rules on how to develop a stakeholder engagement plan. *PLoS Computational Biology*, *18*(10), e1010520.
- Ibercivis Foundation. (2023). Preliminary table of Citizen Science initiatives for monitoring soil health (Preliminary Version) [Data set]. Zenodo. https://doi.org/10.5281/zenodo.10218825
- Papadopoulou, E. (2024). Preliminary Stakeholder Mapping and Engagement Tracking matrix [Data set]. Zenodo. https://doi.org/10.5281/zenodo.10598040







# ANNEX 1.

Examples of ECHO's messages and channels for the communication strategy of the stakeholder engagement plan

A) Project website

EGIÓ	Constant About + Partons   Have & Rossett + Constant () 🔟 22 D.
	ECHO
	Open Call Join the ECHO Project for Europe's future! Become an ECHO Ambassador.
What will ECHC ECHO Antensative are viai fo Trevent lance Fabrican circum	• Ambassadors do? • secular provide an and in with note to candular to introving Escapement heads to be a consumption, recording and all another that are associated to a constraint the beaut or that another,
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Who can be an Anyonet Whether you are parati- during the saming (April 2024 -	ECHO Abassador? ene labat dal halfe or commuting instrument, yas are welcome to sopry no matter yar lawe of espectise, you cer lawn January 2025;
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	Looston and country where you excluding strates participation in SCII/9 . In Journal output in counce, in management of sampling.
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ECHO THE RO	In CHITTRE IN SIGN SCIENCE: AD TO RELATE 12 SOLIS  Configurate Union  Configurate Solis  Configurate Solis

#### - Website banners:



#### B) Social media:

- Linkedin:



431 sequidores 2 semanas • C Are you passionate about soil health and eager to make a difference in your

Are you passionate about som hearin and eager to make a dimeterice in your community? Here's your chance to become an ECHO Ambassador and join the movement towards a healthier future for our planet ...

As an ECHO Ambassador, you'll play a vital role in spreading awareness about soil health and contributing to the improvement of European soil health in local communities. You'll be part of a dynamic team and have the opportunity to lead ECHO's citizen science efforts and soil sampling in your area.  $\mathbf{X} \not \in$ 

What will you do as an ECHO Ambassador?

- $\P$  Be involved in designing citizen science initiatives and become an integral part of the ECHO team
- $\fbox$  Reach out to citizens and groups, encouraging their involvement in ECHO's initiatives and soil sampling

A Attend training courses by ECHO experts to enhance your soil knowledge
 B Help distribute soil sampling toolkits (ECHO kits) in your region, supported by
ECHO

- # Join ECHO in local citizen science initiatives, motivating participants to analyse different soil types

If Assist in data collection and analysis to generate valuable insights

To apply, please visit our website - https://lnkd.in/djGtQ7bK - and fill out the form provided. We will notify you if you have been selected. Regardless of the outcome, you are welcome to participate as a citizen scientist in our call for participation in January 2025 &

Let's bring together a community of fervent advocates for soil health!

#echosoil #soilhealth #missionsoil #EUmission #horizonEU #citizenscience #ECHOambassador

Ver traducción



#### - Facebook:



#### C) Direct emailing:

Basic common message regarding the open call and an invitation to be part of ECHO as an ambassador, that was translated, adapted and enriched by partners:

 ${f T}$  Join the ECHO Project and become a soil ECHO Ambassador for Europe's future!

Did you know that soil is a vital resource for life on Earth?

It is the most superficial layer, and it is a non-renewable resource due to the slowness at which it is generated. That is why preserving soil health is crucial for our future generations.

We are an exciting initiative at engaging citizens like you in the vital task of analyzing and preserving our soil health. We are now looking at citizens like you who are interested in delving deeper and taking a more active role in ECHO.

The ECHO Ambassadors will be key figures for our citizen science initiatives and soil sampling in their own regions or provinces, and will always have the continuous support of the ECHO team. These Ambassadors will support awareness of soil health in Europe and beyond the project's lifespan, starting in April 2024. Together, we will contribute to the Soil Mission.

Please visit our project website to learn more about the role of ECHO Ambassadors, as well as other project details. To apply, simply complete the application form available on the same website.

Not sure if you want to become an ambassador? Join ECHO as a citizen scientist and stay tuned for more information about our upcoming call for participation in January 2025.

Let's work together to protect Europe's soils and its sustainable future! 🕄

# Protezione suolo, il progetto ECHO coinvolge i cittadini

Coordinato da unibz mira ad aumentare la consapevolezza e sviluppare le competenze

BOLZANO. Il suolo è una risorsa preziosa non rinnovabile, spes-so trascurata, che sostiene la vi-ta sulla Terra. È la base su cui si basano l'agricoltura, le foreste e numerosi altri ecosistemi naturali. Tuttavia, la sua degradazione è diventata una preoccupazione crescente, con gravi con seguenze per il nostro pianeta, come la diminuzione dei raccolti, l'aumento delle emissioni di gas serra e la perdita di biodiversità.

Per affrontare questa sfida globale, è necessario coinvolge-re attivamente i cittadini nella protezione e nel ripristino della salute dei suoli. È qui che entra in gioco il progetto ECHO (Engaging Citizens in Soil Science: The Road to Healthier Soils) un'iniziativa europea volta a promuovere la partecipazione attiga dei interinatione presento attiva dei cittadini per preserva re la salute del suolo.

L'obiettivo principale del pro Si preleva un campione di suolo

coinvolgere la cittadinanza in tutta Europa per la raccolta di dati e campioni – con unibz che partirà proprio dall'Alto Adige promuovendo pratiche di ge

# Imprese, nuovi finanziamenti da iNEST

Il progetto. Il focus è sull'innovazione nei contesti montani: fondo dioltre 1.100.000 euro

BOLZANO. Seconda chiamata per progetti di ricerca e innovazione con focus sullo sviluppo sostenibile e la vitalità economica, ambientale e sociale delle aree montane. Pronto un finanziamento di oltre 1.100.000 euro per progetti selezionati inoltrati da imprese operanti nel Nord-Est. La presentazione della seconda call è prevista per il 29 mag-

#### E) Newsletters

ESDAC:

pare registrandosi sul sito https://www.unibz.it/it/home/research/competence-centre-mountain-innovation-ecos vstems/ e sarà un'occasione per spiegare il bando rivolto alle imprese che intendono presentare progetti d'innovazione nei contesti montani.

Nel corso dell'incontro onli-ne, i responsabili del progetto iNEST - Spoke1 illustreranno le tematiche dei bandi e le caratteristiche attese dai progetti parte-cipanti, oltre a fornire dettagli sulla struttura e l'articolazione dei bandi a cascata. Il Bando iNEST-Spokel per il gramma Next-GenerationEU dell'Unione Europea e parte in-tegrante di questa seconda call, mette a disposizione una dota-tione finenziaria complemente di zione finanziaria complessiva di 1.162.082,11 € per progetti che devono essere sviluppati nelle seguenti aree territoriali: Provincia Autonoma di Bolzano, Provincia Autonoma di Trento, Regione Autonoma Friuli-Venezia Giulia e Regione Veneto.

L'obiettivo generale dei pro-getti da presentare è lo sviluppo di nuovi prodotti e processi capaci di consolidare e sostenere le tradizioni locali, garantendo la sopravvivenza e la vitalità demo-

punto di vista economico, am bientale e sociale, e mitigare i ri-schi particolarmente rilevanti in questi contesti dovuti alla frammentazione dei sistemi produtti-vi, alle difficoltà logistiche, ai rivi, alle dufficoltà logistiche, arri-schi idrogeologici, alla riduzione della qualità della vita nel suo complesso. La call si chiuderà lunedi 8 lu-

glio 2024, alle ore 24:00. Parteciglio 2024, alle ofe 24.00.1 arter pare all'incontro online del 29 maggio, è possibile visitare il sito web di iNEST: di https://www.unibz.it/it/home/research/competence-centre-mountain-innovation-ecos ystems/.

stione responsabile del suolo e favorendo un cambiamento comportamentale in tutta l'Unione Europea. "Con una forte attenzione al-

la ricerca scientifica innovativa, il progetto ECHO intende am-pliare la consapevolezza e l'alfa-betizzazione delle questioni le-gate alla salute del suolo", afferma la prof.ssa Tanja Mimmo che coordina il progetto per unibz, "prossimamente individueremo dei cosiddetti ambasciatori del progetto che avranno il comuei progetto che avranno il com-pito di coinvolgere le comunità di riferimento affinché i cittadi-ni partecipino a iniziative di mappatura dei suoli". I campio-ni di suolo raccolti dai "cittadini scienziati", verranno analizzati e contribuiranno alla creazione e contribuiranno alla creazione

e contribuiranno alla creazione di un database del suolo in Alto Adige, che attualmente manca. L'iniziativa ECHO è allineata con la Mission Soli dell'Unione Europea 'A Soil Deal for Euro-pe', che si propone di stabilire 100 living labse elighthouses per guidare la transizione verso suo-li sani entro il 2030. La missione suolo si concentra su obiettivi suolo si concentra su obiettivi suolo si concentra su obiettivi chiave come proteggere eripri-stinare i suoli, promuovere pra-tiche di gestione sostenibile e sensibilizzare l'opinione pubbli-ca. Le missioni dell'UE rappre-sentano un nuovo approccio per affrontare le sfide più urgen-ti, offrenda obiettivi, ambigiori ti, offrendo obiettivi ambiziosi ma realistici e garantendo risul-tati concreti entro il 2030. Con un forte orientamento all'impatto e una particolare visibilità, queste iniziative interdisciplinari offrono un chiaro valore aggiunto europeo nel perseguire la sostenibilità ambientale e sociale.

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EUSO/ESDAC Newsletter No 165 (May 2024)

#### European Soil Database v2 Raster Library 1kmx1km

This database (2024) is a new set of raster data (GeoTIFF) that have been derived from the European soil Database v2, for 71 attributes. The values for the attributes are categorized (non -continuous). These rasters are an interpretation of the data that are contained in the ESDB v2.0. The resolution is at 1km. For each GeoTIFF, we also provide the corresponding legend file. Download the data:

https://esdac.jrc.ec.europa.eu/content/european-soil-database-v2-raster-library-1kmx1km

#### Call for expression of interest – scientific trainee

As the science and knowledge service of the Commission, the JRC provides independent, evidence-based knowledge and science, supporting EU policies to positively impact society. For the October 2024 call, the JRC seeks to recruit scientific trainees in different thematic areas. The place of traineeship can be one of the following JRC sites: Ispra (Italy), Geel (Belgium), Petten (the Netherlands) or Karlsruhe (Germany). Complete information is available (project fields, eligibility conditions, etc.) in the notice of competition. Deadline for application: 21.5.24. If you would be interested to do a traineeship in EU Soil Observatory, you could apply:

https://recruitment.jrc.ec.europa.eu/vacancy/922

#### ECHO: Open Call for Ambassadors!

The Horizon Europe ECHO project is looking for Ambassadors to raise awareness on and enhance soil health across Europe. These Ambassadors will engage in citizen science initiatives and soil sampling in their regions, supported by the ECHO team. This initiative aligns with the EU Mission 'A Soil Deal for Europe', promoting participatory processes at local and regional levels. Training workshops will be offered from April 2024 to January 2025, welcoming participants of all levels of expertise. Interested individuals can access the participation form on the ECHO website, available in multiple languages. Compile the form:

https://echosoil.eu/become-an-echo-ambassador







ISSUE #2



2024

# **HELLO AGAIN!**

#### Welcome back! We hope 2024 has been treating you well so far!

In this issue of the ECHO Newsletter, you'll read about all the ways our project has been growing. We've been expanding our reach through collaborations, strenghtening our roots with the Advisory Board and planting new ideas through workshops in the field.

You'll also find out how you can join us as an ECHO Ambassador. Stay tuned for more ways to get involved in the project!

# BECOME AN AMBASSADOR!

#### OPEN CALL FOR ECHO AMBASSADORS!

Help us work from the ground up and join our efforts as an ECHO Ambassador. We're looking for enthusiasts, educators, entertainers and everyone in between! As an Ambassador, you can look forward to working with citizen scientists, attending courses and - of course - getting your hands dirty in the field! Check out the application form and share it with your fellow community leaders!

OPEN CALL



# ADVISORY BOARD



#### It's good to surround yourself with smart people!

We're proud to have the support of external experts who can provide current knowledge, give us advice and help us explore new opportunities.

#### F) Examples of conference presentations





# **ANNEX 2.** Structure of the application form for ECHO Ambassadors

\* Indicates required question

# Welcome to the ECHO Ambassador application form

1. Your full name: \* 2. Your contact email: \* 3. Location and country where you would facilitate citizen participation in ECHO's future citizen science initiatives and soil sampling: Select one or more target groups you would facilitate participation with in ECHO's future citizen science initiatives and soil \* 4. sampling: Check all that apply. Farmers Land Managers Educational communities Local communities Scientific communities/Academic institutions Non-Governmental Organizations (NGOs) and their networking communities don't know yet Other: 5. Approximate number of citizen scientists you expect to identify and engage for the ECHO's future initiatives and soil sampling:

\*

Note: Do not worry, this approximation helps ECHO to know when we will be able to reach the 16500 soil samples!

Check all that apply.

0-25 25-50 50-75 75-100 100-175 175**-**250

don't know yet

б. Age range of the citizen scientists you expect to identify and engage for the ECHO's future initiatives and soil sampling \* (select all that apply):

Check all that apply.

Children and teenagers (under 18)

- Adults (19-60)
- Adults (above 60)
- don't know yet

#### 7. Regarding your interests and motivations \*

Select all that apply:

Check all that apply.

am interested in environmental conservation, soil health, and/or citizen science

- want to volunteer and contribute to a Europe-wide initiative
- I am commited to promoting sustainable practices
- have a personal connection or story related to environmental or agricultural topics

Other:

#### 8. Regarding your experience and network of people \*

Select all that apply:

Check all that apply.

I have previous experience in leading or organizing community groups, events, or projects

I am actively involved in local environmental, agricultural, or science-related communities, groups, associations or foundations, and
would leverage it for facilitating participation in ECHO's future citizen science initiatives and soil sampling

Other:

9. Name of the latter community (if applicable):

#### 10. Regarding your abilities \*

Select all that apply:

Check all that apply.

 $\hfill \square \hfill I$  can manage logistics to distribute kits for participants

- I am able to use social media and other digital tools
- I can speak and/or understand English (not mandatory)

Other:

#### 11. Your level of knowledge regarding soil health: \*

Mark only one oval.

Beginner

- Adept
- Expert

#### 12. Your level of experience in soil sampling: \*

Mark only one oval.

Beginner

- O Adept
- Expert
- 13. Level of knowledge regarding soil health you estimate for the citizen scientists you expect to identify and engage for the \* ECHO's future initiatives and soil sampling:

Mark only one oval.

- Beginners
- Adepts
- Experts
- I don't know yet

14. Level of experience in soil sampling you estimate for the citizen scientists you expect to identify and engage for the \* ECHO's future initiatives and soil sampling:

Mark only one oval.

Beginners
Adepts
Experts
I don't know yet

15. Other abilities you or the the citizen scientists you expect to identify and engage for the ECHO's future initiatives and soil sampling have and would like to mention (optional):

16. Other engagement needs for you or the the citizen scientists (optional):

Note: The data collected will be used solely for purposes related to the ECHO project and will not be shared with third parties without your consent.

17. Having read and understood the privacy policy, I hereby: \*

Check all that apply.

Give my consent

Deny my consent (you will not be able to apply for the ECHO Ambassadors)



#### Research project

"ECHO - Engaging Citizens in Soil Science: The Road to Healthier Soils"

#### Short description of the research project:

ECHO is a Research and Innovation Action co-funded by the European Union that aims to engage citizens in protecting and restoring soils by building their skills and enhancing their knowledge on soils. The open call for ECHO Ambassadors is out. ECHO Ambassadors are vital for spreading awareness of soil health and our mission to contribute to improving European soil health in local communities. They will lead ECHO's citizen science efforts and soil sampling in their areas, supported by our team.

# Data protection information pursuant to Articles 13 and 14 of EU REGULATION 2016/679 (General Data Protection Regulation, hereinafter "GDPR")

Dear Participant,

Thank you for your participation in the abovementioned research project. The present privacy notice applies to the data processing necessary for the recruitment of the ECHO Ambassadors. Your personal data will be processed by the partners of the ECHO project, as listed in section 1 of this privacy notice.

**Questions or concerns?** Reading this privacy notice will help you understand your privacy rights and choices. If you still have any questions or concerns, please contact the project coordinator at privacy@unibz.it.

The following information is provided in accordance with GDPR 2016/679 and the relevant national legislation in force:

	1.Joint Data Controllers :	
	<ul> <li>Portugal and France: Rec. e Desenvolvimento, Lda.</li> </ul>	
$\nabla$	<ul> <li>Spain and Slovenia: Ibercivis Foundation, located in Campus Río Ebro Edificio I+D C, C. de</li> </ul>	
	Mariano Esquillor Gómez, s/n, 50018 Zaragoza	
	<ul> <li>Italy, Austria, Switzerland: Free University of Bozen-Bolzano, located in Piazza Università n.</li> </ul>	
	1, 39100 Bolzano, in the person of the President and legal representative pro tempore.	
	<ul> <li>Greece, Cyprus, Bulgaria: Perrotis College, M.Antypa 54, 57100 Thermi, Thessaloniki, Greece.</li> </ul>	
	<ul> <li>Romania, Hungary, Croatia: Stefan cel Mare University of Suceava, Str. Universitatii, no. 13,</li> </ul>	
	720229, Suceava, ROMANIA, in the person of the Rector - Prof. univ. dr. Mihai DIMIAN, as	
	legal representative	
	<ul> <li>Poland, Czechia, Slovakia: Plantpress Sp. z o.o., Królowej Jadwigi 262a, 30-218 Kraków</li> </ul>	
	<ul> <li>Germany, Luxembourg, Belgium: University of Hohenheim, 70594 Stuttgart, Germany,</li> </ul>	
	represented by the President Prof. Dr. Stephan Dabbert	
	<ul> <li>Scotland, Ireland, Netherlands: The James Hutton Institute, Invergowrie, Dundee, DD2 5DA,</li> </ul>	
	Scotland, UK	
	<ul> <li>Denmark, Sweden, Finland, Estonia, Latvia, Lithuania: University of Eastern Finland, P.O. Box</li> </ul>	
	111, FI-80101 Joensuu, Finland	
	2. Data Protection Officers and contact details	
	<ul> <li>Portugal and France: Ana Maria Ventura (<u>a.m.ventura@solutopus.pt</u>); Dr. Ricardo Serrão</li> </ul>	
$\checkmark$	<ul> <li>Spain and Slovenia: Francisco Sanz, can be contacted at the following e-mail address:</li> </ul>	
	ethics@ibercivis.es	



	<ul> <li>Italy, Austria, Switzerland: Free University of Bozen-Bolzano is ReNorm Srl and can be</li> </ul>		
	contacted at the following e-mail address: privacy@unibz.it		
	<ul> <li>Greece, Cyprus, Bulgaria: Diogenis Zachariades <u>zrlawoffices@qmail.com</u></li> </ul>		
	<ul> <li>Romania, Hungary, Croatia: USV - the office can be contacted at the following e-mail address:</li> </ul>		
	dpo@usv.ro		
	<ul> <li>Poland, Czechia, Slovakia: Weronika Zuk-Skarszewska weronika.zuk@plantpress.pl</li> </ul>		
	<ul> <li>Germany, Luxembourg, Belgium: UIMC Dr. Voßbein GmbH &amp; Co. KG, Otto-Hausmann-Ring</li> </ul>		
	113, 42115 Wuppertal, Germany (dsb@uni-hohenheim.de or <u>datenschutz.uni-</u>		
	hohenheim@uimc.de)		
	<ul> <li>Scotland, Ireland, Netherlands: Thorntons Law LLP, Whitehall House, 33 Yeaman Shore,</li> </ul>		
	Dundee, DD1 4BJ, Scotland, UK <u>dpo@hutton.ac.uk</u>		
	<ul> <li>Denmark, Sweden, Finland, Estonia, Latvia, Lithuania: Helena Eronen, <u>tietosuoja@uef.fi</u></li> </ul>		
-	3. Categories of data processed		
	3.1 The collection and/or processing of the following personal data is necessary for the execution of		
	the above-mentioned research project: name, surname, e-mail address, location and country where		
	you would facilitate citizen participation in ECHO's future citizen science initiatives and soil sampling.		
<b>M</b>	4. Purpose of processing		
<b>S</b>	4.1 The personal data you provide by completing the questionnaire will be processed exclusively for		
	the purposes of the above-mentioned research project and		
	for the following purpose: recruiting ambassadors for the ECHO project.		
	5. Methods of processing		
	5.1 Personal data will be processed in accordance with the principles of fairness, lawfulness and		
	transparency, minimization and restriction of data storage, accuracy, integrity and confidentiality, in		
	full compliance with the GDPR and the relevant national legislation and will be carried out in such a		
	way as to ensure their security.		
	5.2 Processing of personal data may be carried out by manual operations and/or by the use of		
	computer and telematic tools, either by persons specifically appointed and authorized to process		
	personal data in accordance with Article 29 of the GDPR, operating under the direct authority of the		
	Joint Data Controllers, who has instructed them to do so, or by subjects qualified as Data Processors		
	in accordance with Article 28 of the GDPR (e.g. cloud providers,).		
	5.3 The processing of personal data for scientific purposes may also be carried out beyond the period		
	of time necessary to achieve the various purposes for which the data were originally collected or		
	processed in accordance with Art. 5.1 (b) GDPR. In any case, all the safeguards set out in Art. 89 of		
	the GDPR and in the "Deontological rules for processing for statistical or scientific research purposes		
	published pursuant to Art. 20, par. 4 of Legislative Decree no. 101 of 10 August 2018" shall be applied		
	to the processing.		
	5.4 The questionnaire can be filled in as follows: Google form		
	5.5 The data will be processed making sure that any reference that could be related to a specific		
	person will be minimised.		
<b>a</b>	6. Data recipients		
	6.1 Personal data may be communicated with autonomous determination and exclusively for scientific		
$\mathbf{V}$	research purposes to the subjects indicated in Art. 100 of Legislative Decree 196/2003 (e.g. project		
	assistants, experts in the field, etc.) who may subsequently process them for the only purposes for		
1111	which they have been disclosed and always in compliance with all the restrictions set out in the		
	Legislative Decree n. 196/2003 (Art. 97 ff.), in the GDPR (Art. 89) and in the "Deontological rules for		



	processing for statistical or scientific research purposes published pursuant to Art. 20, paragraph 4, of Legislative Decree 10 August 2018, no. 101".
	6.2 Operations of dissemination and communication of data in scientific publications, conferences, seminars, lectures will take place only in anonymous and/or aggregate form and, in any case, in a way that does not make the data subject identifiable.
	7. Transfer of personal data to third countries
(?	7.1 Personal data will be processed by the Joint Data Controllers within the territory of the European
$\mathbf{\mathbf{\nabla}}$	Economic Area (EEA).
	<ul> <li>Should it be necessary, for technical and/or operational reasons, to make use of subjects (e.g. suppliers) located outside the European Union, such subjects, if they process personal data on behalf of the Joint Data Controllers, will be appointed as Data Processors in accordance with Art. 28 of the GDPR. The transfer of personal data will be possible within the restrictions and under the conditions referred to in Articles 44 et seq. of the GDPR and therefore only: <ul> <li>to countries subject to an adequacy decision by the European Commission (Art. 45 of the GDPR);</li> <li>to countries located outside the EEA, subject to the signing of the Standard Contractual Clauses adopted/approved by the European Commission in accordance with Art. 46(2)(c) (d) of the GDPR and in any case only in the presence of appropriate safeguards;</li> </ul> </li> </ul>
	<ul> <li>towards subjects that have an international organization and have provided for the signing, at group level, of specific Binding Corporate Rules, as referred to in Article 47 GDPR;</li> </ul>
	<ul> <li>when the data subject has given his/her explicit consent, in the performance of a contract or pre- contractual measures for the establishment or defend of legal claims or to protect the vital interests of a data subject or other persons and the data subject is physically or legally incapable of giving consent (Art. 49 GDPR).</li> </ul>
9	8. Storage
۵	<b>8.1</b> The data of selected candidates will be kept for the entire duration of the project thus until December 2027 and then anonymized or irreversibly deleted. Data of candidates who have not been selected will be deleted immediately upon completion of the selection process and no later than December 2027. The data will be stored in a secure repository to which only the joint controllers have access.
~	9. Provision and source of data
	9.1 The provision of data is necessary for the execution of the research project and does not derive from a legal obligation. Any refusal to provide the data or any lack of consent to their processing will not lead to any consequences other than the impossibility to participate in the research project. 9.2 Personal data are directly provided by the data subject.
$\sim$	10. Legal basis of processing
	10.1. The lawfulness of the processing of personal data is based on:
	<ul> <li>the consent expressed by the data subject (art. 6, par. 1, lett. a. of the GDPR);</li> <li>performing a task in the public interest (art. 6, par. 1 lett. e. of the GDPR)</li> </ul>
	11. Automated decision-making
	<b>11.1.</b> You shall not be subject to a decision based solely on automated processing of the personal data provided by you which produces legal effects concerning you or similarly significantly affects you.
ATA	12. Rights of the data subject
	<b>12.1</b> In your quality of data subject and participant in the research project in question, you have the rights set out in sections 2, 3 and 4 of Chapter III of the GDPR (e.g. you can request from the Joint



 Data Controllers the access to your personal data or their rectification and cancellation or restriction of processing as well as the right to object to their processing).

 12.2. You also have the right to:

 • withdraw your consent at any time without affecting the lawfulness of the processing based on the consent given before its withdrawal. In this case, no further data concerning you will be collected, without prejudice to the use of any data already collected in order to establish, without altering them, the results of the research or of any data which, originally or after their processing, cannot be traced back to an identified or identifiable person;

 • lodge a complaint with the relevant national supervisory authority as well as to exercise the other rights recognised by the applicable legislation (Art. 15 ff. GDPR).

 If you wish to exercise your rights or receive further information, please contact the Data Protection Officer of the Coordinator, who can be reached at privacy@unibz.it.

 Having read and understood the privacy policy, I hereby:

 give my consent

# ANNEX 4. Structure of the criteria for selection of ECHO Ambassadors (when needed)

#### Target groups the applicant would facilitate citizen participation in ECHO's CS

Selects multiple target groups (2 pt)

Selects at least one target group (1 pt)

Does not select any target group or does not know yet (0 pt)

#### Number of citizen scientists the applicant expects to identify and engage for the ECHO's CS

If the applicant is located in your same region/province, and estimates between 175 and 250 (3 pt)

If the applicant is located in your same region/province, and estimates between 100 and 175 (2 pt)

If the applicant is located in your same region/province, and estimates between 75 and 100 (1 pt)

If the applicant is located in your same region/province, and estimates less than 75 (0 pt)

If the applicant is located in a different region/province, and estimates more than 75 (3 pt)

If the applicant is located in a different region/province, and estimates between 50 and 75 (2 pt)

If the applicant is located in a different region/province, and estimates between 25 and 50 (1 pt)

If the applicant is located in a different region/province, and estimates between 0 and 25 (0 pt)

Does not select any amount or does not know yet (0 pt)

Note: If they state that their location is "Spain" or "Italy", full countries' names in general, their location should be considered in a different region/province

#### To avoid misrepresentation of citizen scientists in certain region/provinces

If the applicant is located in a different region/province with no other already confirmed ECHO ambassador or applicant (+2 additional pt)

Age range of citizen scientists the applicant expects to identify and engage for the ECHO's CS

Selects multiple age ranges (2 pt)

Selects at least one age range (1 pt)

Does not select any age range or does not know yet (0 pt)

### Regarding the interests and motivations of the applicant

Selects multiple relevant situations (2 pt)

Selects one relevant situation (1 pt)

#### Regarding the experience and network of people of the applicant

Selects two relevant situations (2 pt)

Selects one relevant situation (1 pt)

### **Community Affiliation of the applicant**

Affiliation with community is mentioned (1 pt)

Community affiliation missing (0 pt)

### Regarding the abilities of the applicant

Selects multiple relevant situations (2 pt)

Selects one relevant situation (1 pt)

### Level of Knowledge Regarding Soil Health of the applicant

Self-assessment indicates an expert knowledge (2 pt)

Self-assessment indicates adept knowledge (1 pt)

Self-assessment indicates beginner knowledge (0 pt)

### Experience in Soil Testing of the applicant

Self-assessment indicates an expert experience (2 pt)

Self-assessment indicates adept experience (1 pt)

Self-assessment indicates beginner experience (0 pt)

Note: we do not assess the characteristics of citizen scientists

#### Other abilities of the applicant

Identifies some additional and useful abilities (+1 additional pt)

#### Other needs of the applicant

Identifies some additional but unfeasible needs (-1 additional pt)

### If the ECHO partner has had individual meetings or they have already participated in workshops

**Commitment to project objectives:** assess the alignment of the applicant activities with the objectives and values of the ECHO project (1 to 5 additional pt)

**Active engagement:** assess the degree of active participation demonstrated by the applicant during those interactions, including questions asked, comments contributed, and meaningful involvement in discussions (1 to 5 additional pt)

**Creativity and innovation:** assess the originality and creativity of ideas and solutions proposed by the applicant during the workshop, as well as their willingness to think innovatively and suggest novel approaches to challenges (1 to 5 additional pt)

**TOTAL SCORE: 36 points** 







