



Welcome to the EDAPHOS Newsletter #2



A word from the coordinator

Dear EDAPHOS Community,

As we look back on an exciting and productive year for the EDAPHOS project, it's impossible not to reflect on the moments that brought us together and moved our mission forward. This year, the **consortium meeting in Thessaloniki, Greece**, was a highlight. It provided a great hands-on opportunity for partners, researchers, and experts to connect and explore real-world applications of our work in phytomanagement and sustainable land reclamation. The visit to Kozani was particularly inspiring, offering tangible insights into how our collective efforts are working towards better soil restoration practices across Europe.

Another pivotal moment was the **EU Soil Week in Brussels**, where I had the privilege of representing EDAPHOS among a dynamic community of soil health advocates. The week was a whirlwind of energy and collaboration, showcasing **10**

leading soil-related research projects, the first **25 Mission Soil Living Labs**, and advancements in harmonised soil monitoring across the EU. It was also a time to connect with our fellow projects in **clusters focusing on data management**, stakeholder engagement, and soil indicators. These discussions not only highlighted research gaps but also sparked new ideas for collaboration and strengthened our shared commitment to protecting and restoring Europe's soils.

As we close this chapter of 2024, I am filled with gratitude for the partnerships, knowledge exchange, and passion that drive EDAPHOS forward. Whether through on-the-ground exploration in Thessaloniki or policy-driven discussions in Brussels, we are building momentum and shaping the future of sustainable soil management.

I'm honoured to be part of this community and look forward to what we will achieve together in the year ahead.

*Michel CHALOT,
EDAPHOS Coordinator.*

[Visit the website](#)

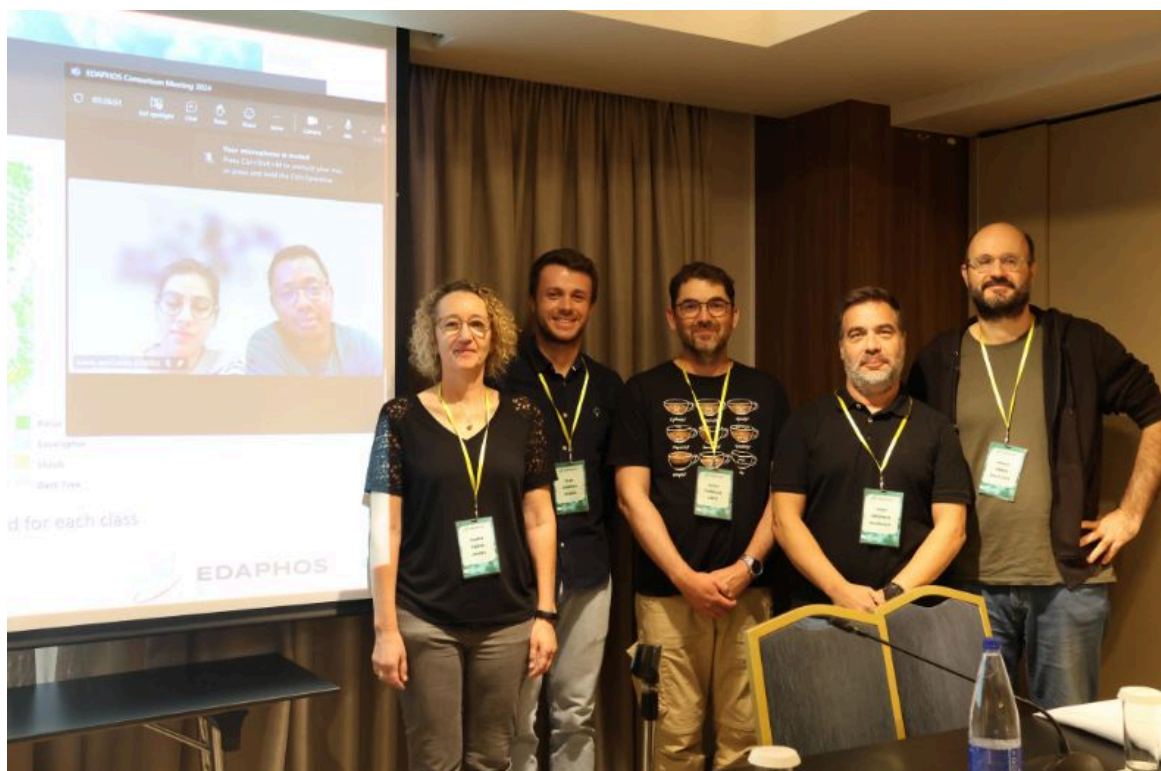
Project updates

The **EDAPHOS project** has achieved remarkable progress in its first year, focusing on data collection, ecological risk evaluation, and testing innovative remediation strategies.

Our **Work Packages (WPs)** play a vital role in driving these advancements. Each WP addresses a specific area of the project, working in close collaboration to ensure synergy and collective impact. Together, they contribute to achieving our shared goals for sustainable land remediation and ecosystem restoration.

Work Package 1: land mapping at different geographical scales

WP1 aims to build on **publicly available national contamination maps** to identify specific pollution hotspots. The team collects **geolocated remote sensing (RS) data**, including spectral reflectance and lab-characterized samples, at various scales, from ground-based to space-borne sensors. This data **helps in retrieving maps of variables that characterize contamination**, such as vegetation traits and soil composition, providing a detailed understanding of the polluted areas.



Work Package 2: ecological risk & ecosystem services

Work Package 2 (WP2) focuses on **soil monitoring throughout the NBS remediation process**, studying physico-chemical, ecological, and ecotoxicological indicators. Its aim is to **characterise ecological risk through a holistic approach based on the TRIAD methodology**, evaluate the ecosystem services of contaminated sites, and propose a testing strategy that stakeholders can easily apply.

During the project's first year, partners from WP1, WP2, and WP3 established a **general toolbox for characterising the contaminated soils** of the various case studies in alignment with ERA requirements. This work was summarised in WP2's first deliverable, finalised at the end of August 2023.

The characterisation of the initial site conditions (prior to NBS implementation) has commenced. In collaboration with WP3 partners, **five sampling campaigns have been conducted across five of the project's seven case studies**. These campaigns aimed to collect the necessary soil samples for soil spectral signature determination (WP1), chemical analysis (contaminant concentrations) (WP3), ecotoxicological analyses, and soil ecological characterisation. Work is ongoing to finalise the soil profiles in terms of physico-chemical, ecological, and ecotoxicological aspects.

In **close collaboration with WP3**, soil monitoring, including selected WP2 indicators, will be initiated and will continue throughout the NBS implementation phase. Work on ecological risk assessment and ecosystem services evaluation is also set to begin.



Work Package 3: demonstrating the effectiveness of NBS

WP3 focuses on creating sustainable strategies for remediating contaminated lands while supporting ecosystem services. This involves **selecting suitable crops** (poplar hybrids and companion species) and **microbes for extracting metal(loid)s, testing these on seven polluted EU sites**, and assessing plant and soil health through specific indicators. The goal is to compile a portfolio of effective remediation practices.

During the first year, **laboratory tests evaluated five poplar hybrids and companion species** like *Brassica juncea* and *Lablab purpureus* on contaminated and control soils. The results identified one hybrid and two companion species per case study with the highest tolerance and phytoextraction potential. Additional tests explored the impact of amendments (e.g., compost, activated carbon) on enhancing remediation, which is still ongoing. **Preliminary field trials on most sites validated these selections.**

WP3's work directly **supports WP2 and WP4**, providing data for risk assessments (TRIAD method), ecosystem service evaluations, and economic and social analyses. **Early field trials also informed WP1's research on correlating spectral signatures with plant growth and metal(loid) accumulation.**

In the second year, the **focus will shift to long-term field trials** using selected species under monocropping and co-cropping systems, following a unified protocol. Monitoring will continue, alongside lab tests to optimize microbial consortia for improved phytoextraction.



Work Package 4: environmental, economic & social performance

Work Package 4 (WP4) focuses on **developing tailored socio-economic and environmental performance metrics** for Nature-Based Solutions (NBS). Its key goals include aligning the Sustainable Development Goals (SDGs) with NBS through robust econometric frameworks, monetizing ecosystem services (ESS) using innovative economic methods, conducting Product Environmental Footprint (PEF) analyses at seven Case Studies with attention to eco-toxicological impacts, and laying the groundwork for standardized reporting obligations for NBS.

Progress so far includes **identifying ecosystem services in collaboration with other project tasks to ensure comprehensive and accurate metrics**. WP4 is closely coordinating with other work packages to integrate these metrics into the broader project framework, ensuring alignment with overall objectives.

Looking ahead, WP4 will advance ESS monetisation and begin PEF analyses across the case studies, maintaining a collaborative and holistic approach to assessing the benefits and impacts of NBS.



Work Package 5: innovative business, spatial & financial models

WP5 is laying the foundation for innovative financial systems to support **nature-based solutions (NBS)** for soil bioremediation, aiming to establish NBS as a mainstream market in Europe. The team is developing tools such as the **EDAPHOS Treasuries**, a novel financial institution to manage ecosystem services, and performance-based instruments like **Green Bonds** linked to soil remediation success. Progress so far includes identifying hydroclimatic time-series and poplar performance metrics to support the **Bio-Leasing (BioL)** business model, along with establishing collaboration protocols between the EDAPHOS Treasuries and **NBS Soil Remediation Observatories (NBS-SROs)** for Green Bond issuance. Three Green Bond indices are under development to be tested in EDAPHOS case studies.

Furthermore, two versions of an **enviro-econometric model**—developed in coordination with WP4—enable evaluation of crop performance, environmental conditions, and lifecycle impacts, while ongoing work on **Ecosystem Services (ES)** and **Product Environmental Footprint (PEF)** analyses compares sustainable bioremediation methods to conventional practices. Looking ahead, the alpha-testing of the enviro-econometric models is set for early 2025, marking a key milestone in refining these tools. Finally, WP5's efforts were recently showcased at the **Agribusiness Forum 7 International Edition (November 2024)**, emphasising the role of innovative financial solutions in reclaiming contaminated land for agricultural use and advancing sustainable development.



[Learn more on the project](#)

Latest News

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A Look Back on the EDAPHOS Consortium Meeting in Thessaloniki, Greece

The EDAPHOS consortium recently gathered in Thessaloniki, Greece, for a hands-on meeting that brought together our project's partners, researchers and environmental experts. This meeting provided an invaluable opportunity to dive into the project's real-world applications in phytomanagement and sustainable land reclamation, as well as to witness cutting-edge technology in action.

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A Comprehensive Soil Sampling Campaign

The soil sampling campaign is meticulously organised to assess the baseline conditions of each case study site within the EDAPHOS project. The primary objectives are to collect soil samples for detailed physico-chemical and biological analyses. These analyses will leverage the advanced tools developed in Work Packages 1, 2, and 3 (WP1, WP2, WP3) of the project. By establishing a comprehensive understanding of the soil's current state, the project aims to develop effective remediation strategies tailored to each site's unique conditions.

[More](#)

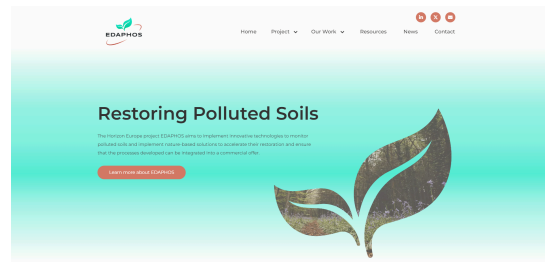
Resources

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