

REECOL

Ecological rehabilitation and long term monitoring of post mining areas

Newsletter No. 4

WELCOME to the 4th newsletter of the REECOL European project!

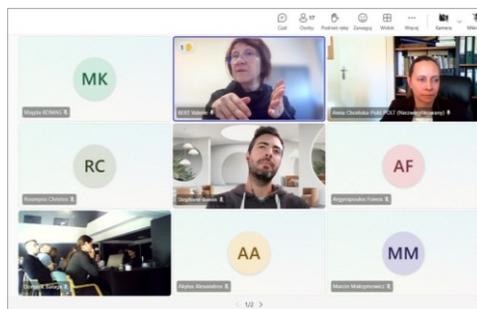
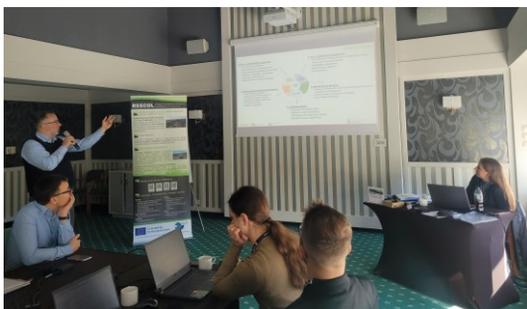
Last few months have been quite busy for us. We've worked hard on the development of the project results and had also a lot of meetings to maintain the best cooperation. Additionally, we've carried out a lot of work to reach our target audience. More details you can find on the project social media and website.

REECOL Team

What's going on in the project?

The partners' progress meeting

On 04-05.11.2025 we had a **project progress meeting** - in Szczyrk, Poland, with both in-person and online participation. The project has been thoroughly discussed and necessary arrangements and decisions were made. This hard work was rewarded with a visit to Guido Mine Museum in Zabrze.



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Work on the results

Several new deliverables have been developed and uploaded on the project website – see [Deliverables](#) webpage. Work on the project study plots and processing of the collected data have also been carried out. See a [photo gallery below](#) and find out more on the project website and social media.

Call | RFPIS-2022
Project number | 101112657

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Deliverable 3.2
Identification of post-mining reha schemes regarding future land use and affordability of the solutions

Author | beneficiary | Michal Rohoz, Pavel Schmidt | VUHRJ, Adam Hamelela, Mariusz Kruceak, Lukasz Bartlomiej Boczak | PGG, Aleksandra Szwalb, Makary Muszalek | P, Alai Lamot, Marjod Kamenik | PV, Valerine Bert | INERIS, Roumpis Christos | PPC

Version | Date | Dissemination level | VERSION | 31.7.2024 | PU

Call | RFPIS-2022
Project number | 101112657

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Deliverable 4.1
Method for a steered success of low-growing plants and their field

Author | beneficiary | Lukasz Pieczochala, Marcin Gliednicki, Pawl Malgorzata Blakows, Aleksa Wiarzecha | Bartlomiej Boczak | PGG, Valerine Bert | INERIS, Michal Rohoz, Lenka Arbošová | VUHRJ, Christos Roumpis, Akaterini Servou | P, Alai Lamot, Marjod Kamenik | PV

Version | Date | Dissemination level | VERSION | 29.01.2026 | PU

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Project number | 101112657

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Deliverable 4.2
Technology of a non-contact soil re

Author | beneficiary | Donnik Baka, Michal Siegmund, Matej Marek Kubla, Křezová Kaczmarczyk, DK Křezová Nejedliková, Danuša Michael Jarolíková, Tokarczyk, Magdalena Rozmus, Bartlomiej Boczak | PGG, Christos Roumpis, Georges Loubauds, Akaterini Servou | PPC

Version | Date | Dissemination level | VERSION | 1 | 26.09.2025 | SEN

Call | RFPIS-2022
Project number | 101112657

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Deliverable 4.3
Technology for soil regeneration by composts of high biological

Author | beneficiary | Justyna Sobolczyk-Bednarek | POLTEGOR, Anna Chojniska-Pujł | POLTEGOR, Danuša Kubla | POLTEGOR, Amelija Zelivkica | POLTEGOR, Marcin Makymowicz | POLTEGOR, Makary Muszalek | POLTEGOR

Version | Date | Dissemination level | VERSION | 1 | 0 | 30.09.2025 | SENSITIVE

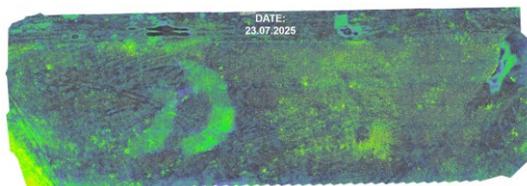
Call | RFPIS-2022
Project number | 101112657

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Deliverable 4.4
Analysis of revegetation options including plants for industrial uses

Author | beneficiary | Valerine Bert | INERIS, Marcin Makymowicz | POLTEGOR, Makary Muszalek | POLTEGOR, Beata Mierowicz | POLTEGOR, Barbara Rogosz | POLTEGOR, Stephane Dolvin | VALORHIZ, Marjod Kamenik | PV, Alai Lamot | PV

Version | Date | Dissemination level | VERSION | 1.0 | 30.01.2026 | PU

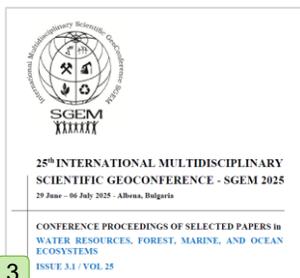


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Reaching the project target audience

We shared the REECOL ideas and research results at conferences and via papers:

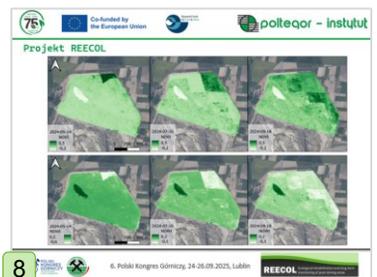
- 1 **XXV Seminar in the Series “Methodology of Deposit Exploration, Documentation, and Geological Supervision of Mines”**, Wałbrzych, Poland, 27-30.05.2025. A presentation: „An integrated approach to short- and long-term monitoring of post-mining land reclamation - selected aspects of the REECOL project” was given.
- 2 **GEO-MINE-ECO conference**, Wrocław, Poland, 29.05.2025. A presentation: ”Research and development projects carried out by the Department of Sustainable Development and International Cooperation at Poltegor-Institute - REECOL and COFA” was given.
- 3 **SGEM 2025** conference (Survey, Geology, Ecology and Management), Albena, Bulgaria, 29.06-06.07.2025. A presentation „ Results of case study areas monitoring within the REECOL project and their initial pedological characteristics” was given, followed by a publication of a paper.
- 4 **XII SGO** conference (Open-Pit Mining School), Wisła, Poland, 02.09.2025. A presentation „Sustainable use of post-lignite mining areas: the case of Eastern Greater Poland” was given.
- 5 **Science Horizons** festival Chorzów, Poland, 06-07.09.2025. Slides on the project were included in the presentation run on a screen. The project informative roll-up was also exhibited.



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Reaching the project target audience – cont.

- 6 **TUR 2025** conference (XIV International Conference “Mining Techniques”), Krynica-Zdrój, Poland, 18.09.2025. a presentation: „Non-contact soil remediation technology developed in the REECOL project - assumptions and conclusions from the first field tests” was given.
- 7 **INCORP 2025** conference (4th International Conference on Responsible Consumption and Production), Chania, Grece, 22.09.2025. a presentation: „Innovative Approaches for Sustainable Transition of Former Coal Sites: A Review of ErEnMine, MidSafe, and REECOL research projects” was given.
- 8 **VI PKG** conference (Polish Mining Congress), Lublin, Poland, 25.09.2025. Presentations: „Integrating Geospatial Technology for Sustainable Energy Transition in Coal Regions” and „Sustainable use of post–lignite mining areas: the case of Eastern Greater Poland” were given.
- 9 **SUITMA 13** conference (Soils of Urban, Industrial, Traffic, Mining and Military Areas), Pisa, Italy, 06.10.2025. A presentation: „Mine Soil Rehabilitation: Integrating Field-Based Approaches and Remote Sensing Tools” was given.
- 10 **XXV CPSYS** conference (Conference of PhD Students and Young Scientists), Wrocław, Poland, 14.10.2025. A presentation: „ Continuation of Research on the Integrated Approach to Monitoring Post-Mining Land Reclamation – Selected Aspects of the REECOL Project” was given.
- 11 **RFCS Workshop** organized as accompanying to kick-off meeting of FRAM and MEMO projects, Dolní Vítkovice, Czechia, 14.10.2025. A presentation „Ecological rehabilitation and long-term monitoring of post-mining areas. Overview of the REECOL Project” was given.



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Reaching the project target audience – cont.

- 12** **KOMTECH 2025** conference (Mining in the Age of Green Transformation), Szczyrk, Poland, 04.11.2025. Presentations at a special REECOL session: **1.** Ecological rehabilitation and long-term monitoring of post-mining areas – Overview of the REECOL Project. **2.** Technology for soil regeneration by composts of high biological activity. **3.** Technology of a non-contact soil remediation. **4.** Rehabilitation of hard coal heaps by steering the succession of low-growing vegetation. **5.** Assessing soil refunctionalisation in a post-mining area: a case study from a greek coal mine. **6.** Development of an audit tool for the certification of the ecological rehabilitation of mined areas.
- 13** **Environmental Processes 12(45), 2025.** Paper: Varouchakis, E.A., Komnitsas, K. & Galetakis, M., Spatiotemporal Analysis of Vegetation Health and Moisture Dynamics in Rehabilitated Mining Quarries Using Satellite Imagery; <https://doi.org/10.1007/s40710-025-00781-3>
- 14** **RUDAR 4/25.** Paper: Premogovnik Velenje na srečanju mednarodnega razvojnoraziskovalnega projekta REECOL; <https://www.rlv.si/casopis-rudar/2025-2>
- 15** **Mining Machines vol. 43.** Paper: Siegmund, M; Bałaga, D.; Roumpos, C.; Servou, A.; Gkoutzou, A.; Hullot, O., A. Automated Spraying System for Post-Mining Land Reclamation –Structural Design and Functional Testing; <https://doi.org/10.32056/KOMAG2025.22>
- 16** **Innovative Green Economy. Part 6. Climate and Biodiversity.** Paper: Markowska M., Pierzchała Ł., Reclamation of Post-Mining Areas in the Context of Adapting to Climate Change and Protecting Biodiversity’.



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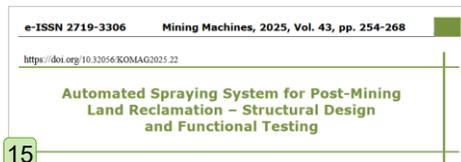
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Małgorzata Markowska, Łukasz Pierzchała
 Główny Instytut Górnictwa – Państwowy Instytut Badawczy – Zakład Ochrony Wód

Rekultywacja terenów pogórnicznych w kontekście adaptacji do zmian klimatu i ochrony bioróżnorodności



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Get some knowledge...

Why Soil Matters?

Soil performs several essential functions that support ecosystems, food production, water systems, and climate regulation. In post-mining areas, restoring these functions is key to environmental recovery.

Biomass Production. Soil provides plants with support, nutrients, water, and air for root growth. Mining often leaves soils compacted and nutrient-poor, but reclamation can restore fertility and enable vegetation to return.

Nutrient Cycling. Soil organisms such as bacteria, fungi, and earthworms break down organic matter and release nutrients that plants can use. In disturbed mining soils, contamination and low organic matter can disrupt these natural processes.

Water Regulation and Purification. Healthy soil acts like a sponge - it absorbs, stores, and slowly releases water while filtering pollutants. Degraded post-mining soils often lose this capacity, increasing runoff and water contamination.

Biodiversity Support. Soil is home to a vast range of organisms that form complex underground ecosystems. Mining disturbance reduces this biodiversity, but restoration and revegetation help it recover.

Physical Stability and Erosion Control. Well-structured soil stabilizes landscapes and reduces erosion. In mining areas, rebuilding soil structure is crucial to prevent landslides and surface degradation.

Chemical Buffering and Pollutant Attenuation. Soil can neutralize acidity, bind contaminants, and support the breakdown of pollutants - a particularly important function in areas affected by mining residues.

Carbon Storage and Climate Regulation. Soil stores large amounts of carbon. Restoring soil and vegetation in post-mining sites helps increase carbon sequestration and supports climate protection

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Stay tuned! REECOL will soon intensify its dissemination activities, with **workshops** planned **in Poland, Czechia and Greece**, as well as **a closing conference** at the end of the year.

Event announcements and participation details will follow in the coming weeks!