DIREÇÃO-GERAL DE AGRICULTURA E DESENVOLVIMENTO RURAL

Parceria Portuguesa para o Solo

# Soil for Europe

30th of April 2025

## Institutional level planning towards a model for co-constructing a soil monitoring system anticipating the SML in Portugal

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*According to the deal, member states will have to monitor and assess soil health across their territories using common soil descriptors and an EU methodology for sampling points.*


Source: EC (2023)

## Main challenges in transposing the law:

- **Establishing soil units**
- **Determination of sampling points**
- Defining sustainable target values and operational trigger values
- Identifying and assessing the critical loss of ecosystem services for certain descriptors
- Definition of sustainable land management practices
- Operational issues (access to properties, accreditation of laboratories, human and material resources).

GLOBAL SOIL PARTNERSHIP

EUROPEAN SOIL PARTNERSHIP

Public Administration

Parceria Portuguesa para o Solo

***DGADR** chairs the partnership of 51 members*

### *Education and R&D*

- *Research*
- *Training*
- *Capacity building*
- *Knowledge transfer*

### *Producer associations and organizations*

- *advice and technical support to farmers*
- *best practices and demonstration*

### *Business sector*

- *Factors of production*
- *Equipment*
- *Services*

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# Portuguese Soil Partnership

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- Produce technical and scientific advice on policy proposals related to sustainable soil use and management;
- Creation of a network to hold agricultural and forestry demonstrations on sustainable soil management practices (Agri-Dem Solo Network)
- 2 Regional soil related Living Labs:
  - LivingSoiLL – Healthy Soil to Permanent Crops Living Labs
  - IBERSOILL – Iberian Living Soils
- Support the activities on the World Soil Day commemorations
- Publish news, info on projects and soil related documents.

- Promote the Portuguese ‘Soil Observatory’ project, which aims to develop a shared data infrastructure (for collection, transmission, sharing, dissemination) that integrates national and European reporting obligations and guarantees interoperability with other national and European platforms.

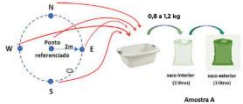
## MAIN ROLES AND ACTIVITIES OF **PTSoilObservatory** :

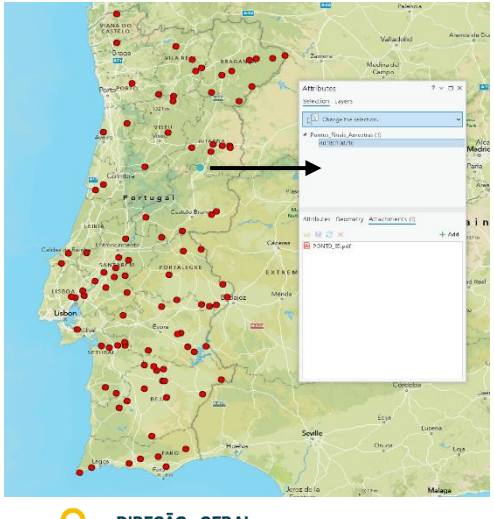
1. Collaborate, in articulation with the relevant public administration bodies, to create an official **monitoring system harmonized at national level** and integrated into the European system in accordance with the guidelines of the Soil Monitoring Law.
2. Development of a **shared data infrastructure** (for collection, transmission, sharing, dissemination) that integrates national and European **reporting** obligations and guarantees interoperability with other national and European platforms. The following should be available: i) data from **official soil monitoring**, ii) data from **research projects** and iii) data from **soil user sampling**.
3. Implement an **active communication and awareness-raising program** involving stakeholders - two-way dialogue. Access to online resources, newsletters, articles, videos, conferences and workshops. Also, through technical working groups and workshops. Close ties will be maintained with the Portuguese Soil Partnership.

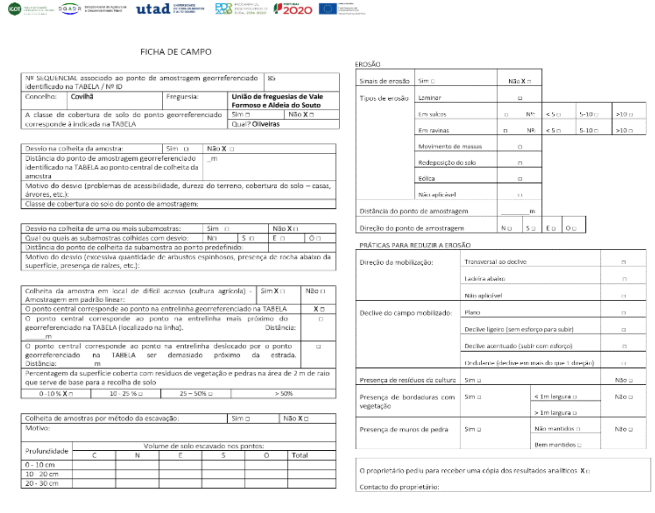
# The **PTSoilObservatory**

OBSERVATÓRIO NACIONAL DO SOLO

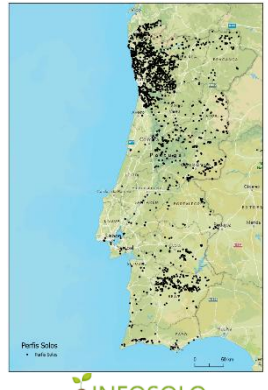
**100 samples** collection and laboratorial analyses



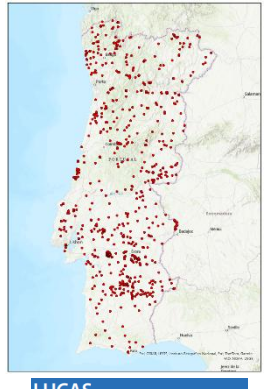




**Harvest data** from existing sources and repositories




INFOSOLO



LUCAS
THE EU'S LAND USE AND LAND COVER SURVEY
eurostat

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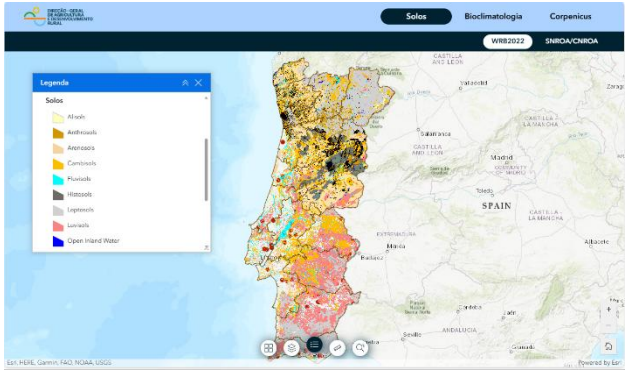
# The PTSoilObservatory

## OUTPUTS

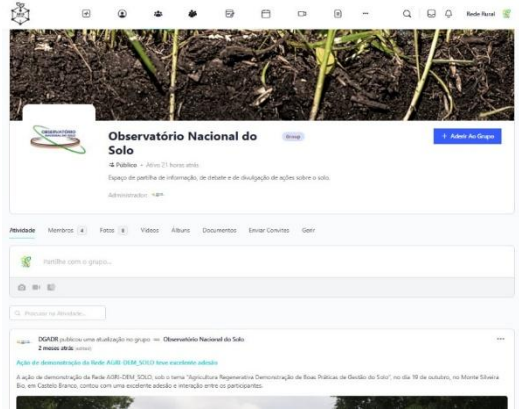



Expandible **Platform** (**WebGIS**)
– towards more functionalities and data –


Sample collection and field data **manual**

| | |
|---|---|
| DOI | https://doi.org/10.60620/e2fq-hc24 |
| ISBN | 978-989-8539-22-9 |
| Edição | DGADR |
| Nº | novembro de 2024 - 1ªEdição |

**Communication/Coordination**
between organizations




- Discussion fórum
- Upload documents (resource centers)
- Events and public agenda
- News dissemination

5 **Training** sessions for technical advisors

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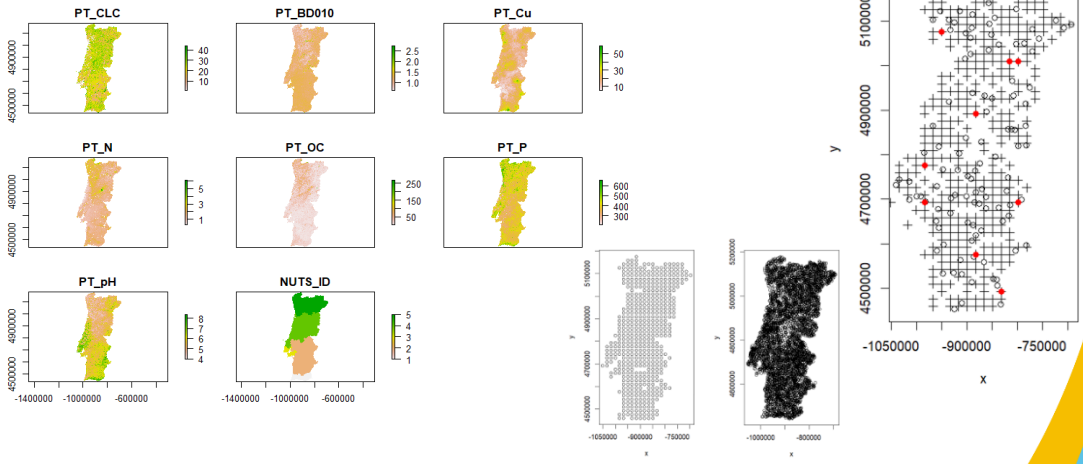
beEU belgium24.eu

# Test runs to address the **sampling scenarios** for the Soil Monitoring Law (Bethel algorithm)

## February 2024

Objectives of the tests : implement the SML methodology, evaluate a range of potential number of sampling point at MS level, and identify potential improvements of Part A of Annex II for the final compromise

| MS | LUCAS 2022 | LUCAS 2022 x 5 | Test minimum | Test min % | Test maximum | Test max % |
|---|---|---|---|---|---|---|
| AT | 1 512 | 7 560 | *511* | *7%* | *9 727* | *129%* |
| BE | 1 158 | 5 790 | *346* | *6%* | *2 960* | *51%* |
| BG | 1 356 | 6 780 | | | | |
| CY | 290 | 1 450 | | | | |
| CZ | 1 414 | 7 070 | *384* | *5%* | *5 160* | *73%* |
| DE | 2 845 | 14 225 | *Written comments* | | | |
| DK | 1 348 | 6 740 | *584* | *9%* | *1 469* | *22%* |
| EE | 461 | 2 305 | *58* | *3%* | *2 353* | *102%* |
| EL | 1 605 | 8 025 | | | | |
| ES | 4 362 | 21 810 | *794* | *4%* | *886* | *4%* |
| FI | 1 818 | 9 090 | *180* | *2%* | *1 943* | *21%* |
| FR | 4 776 | 23 880 | *3 067* | *13%* | *4 700* | *20%* |
| HR | 607 | 3 035 | | | | |
| HU | 911 | 4 555 | *1 757* | *39%* | *7 522* | *165%* |
| IE | 740 | 3 700 | *131* | *4%* | *506* | *14%* |
| IT | 2 579 | 12 895 | *2 839* | *22%* | *9 506* | *74%* |
| LT | 1 110 | 5 550 | *1 099* | *20%* | *1 594* | *29%* |
| LU | 201 | 1 005 | *110* | *11%* | *283* | *28%* |
| LV | 717 | 3 585 | *519* | *14%* | *965* | *27%* |
| MT | 20 | 100 | *20* | *20%* | *20* | *20%* |
| NL | 895 | 4 475 | *2 322* | *52%* | *3 520* | *79%* |
| PL | 3 230 | 16 150 | *688* | *4%* | *6 051* | *37%* |
| PT | 998 | 4 990 | *66* | *1%* | *2 807* | *56%* |
| RO | 1 614 | 8 070 | | | | |
| SE | 2 845 | 14 225 | *913* | *6%* | *5 305* | *37%* |
| SI | 512 | 2 560 | *422* | *16%* | *595* | *23%* |
| SK | 1 080 | 5 400 | | | | |
| **Total** | **41 004** | **205 020** | *(16 810)* | ***13%*** | *(67 872)* | ***51%*** |

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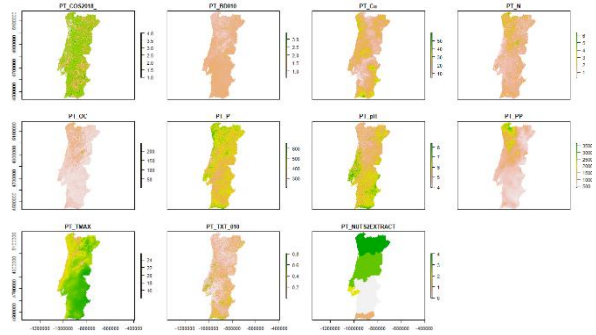
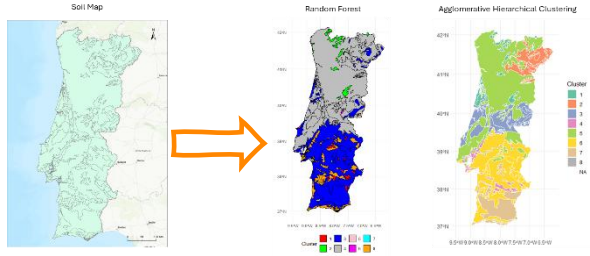
# Science4policy Project

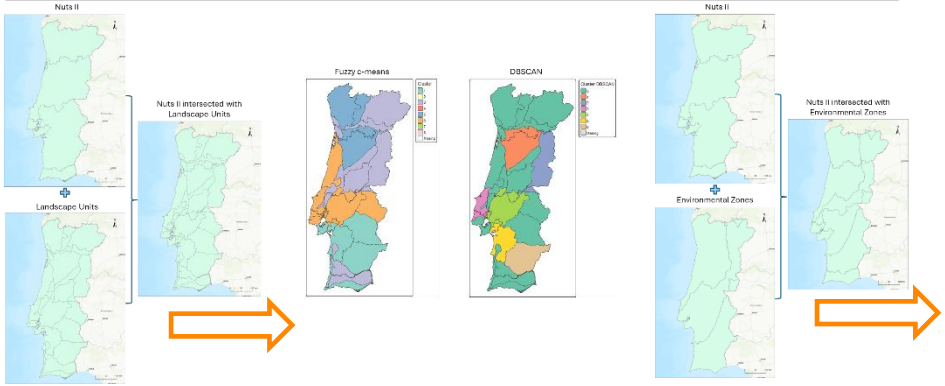
CEG Centro de Estudos Geográficos | fct Fundação para a Ciência e a Tecnologia | PLANAPP Centro de Planeamento e de Avaliação de Políticas Públicas

**ML-SOIL** - Co-participatory Modeling of Soil Districts using Machine Learning (November 2024, 12 months)

| Domínio | Variáveis | Nº de Pontos de Amostragem | Unidades de Solos |
|---|---|---|---|
| Carta de Solos (APA) | B010, Cu, N, OC, P, pH | 395 | 33 |
| | CLC, B010, Cu, N, OC, P, pH | 431 | 29 |
| Unidades de Paisagem (DGT) | B010, Cu, N, OC, P, pH | 877 | 71 |
| | CLC, B010, Cu, N, OC, P, pH | 938 | 57 |
| NUTS II e Zonas Ambientais | B010, Cu, N, OC, P, pH | 458 | 39 |
| NUTS II | B010, Cu, N, OC, P, pH | 286 | 16 |
| | CLC, B010, Cu, N, OC, P, pH | 236 | 14 |
| | BD010, Cu, N, OC, P, pH, PP, TMAX, TXT010 | 557 | 13 |
| | COS2018, BD010, Cu, N, OC, P, pH, PP, TMAX, TXT010 | 519 | 14 |
| | BD1020, Cu, N, OC, P, pH, PP, TMAX, TXT1020 | 382 | 12 |
| | COS2018, BD1020, Cu, N, OC, P, pH, PP, TMAX, TXT1020 | 375 | 11 |
| | BD2030, Cu, N, OC, P, pH, PP, TMAX, TXT2030 | 377 | 12 |
| | COS2018, BD2030, Cu, N, OC, P, pH, PP, TMAX, TXT2030 | 418 | 11 |

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# Portuguese Soil Partnership

## Workshop 28th October 2024 Soil Mission: Projects, Synergies and Impacts

* **80 soil experts**
* Representatives from **63 research projects** on soil health - from the Mission and others
* **Six thematic areas**:
    * Improving soil literacy in society;
    * Reduce soil contamination and improve recovery;
    * Conserve and increase soil organic carbon reserves;
    * Improve soil structure to increase its biodiversity;
    * Preventing erosion;
    * Monitoring soil health.


Each project a poster and a pitch presentation

+ discussions on data produced, complementarities, future developments

*All information collected in a* Catalogue of projects


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# So, a strategy is being outlined…

## Workshop 20th February 2025 National Strategy for Monitoring Soil Health

Contributions from the scientific community


Reliable

Statistically representative of the national territory

Harmonised with the monitoring systems of the other Member States

Feasible

Co-operation and knowledge sharing are essential

## next steps / roadmap with actions and main outputs

- Identify the entities potentially involved (what role they could play)
- the need to certify the laboratories involved, standardize all soil collection methods
- Sampling strategy regarding the design that includes the minimum parameters defined in the different proposals of the SML
- The threats/management practices aspects should be considered when defining soil units (in addition to climate and soil types)
- Opportunities of using soil units for priorities other than reporting
- The need to decentralize the sampling effort

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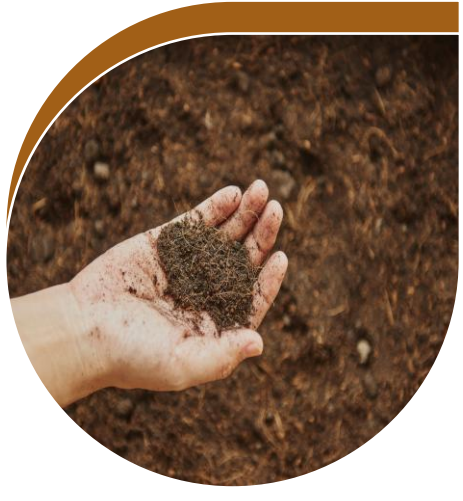
# Thank you for your attention



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