EUROSION

# European Soil Erosion Monitoring and Modelling Network for Sustainable Agricultural Land Management

## EUROSION Network Launch Event

## 20/10/2026

Funded by the European Union

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| Timing | Session | Presenter / Institution |
|---|---|---|
| 10:30–10:45 | Welcome and Introducing EUROSION | Dr Mahrooz Rezaei, Wageningen University & Research |
| 10:45–11:00 | Setting the EU context | Luis Sanchez Alvarez, European Commission |
| 11:00–11:20 | Introducing the EUROSION network | Dr Charlotte-Anne Chivers, Countryside & Community Research Institute, University of Gloucestershire |
| 11:20–11:30 | EUROSION dashboard for data exchange | Ester Miglio, VARDA |
| 11:30–11:40 | EUROSION modelling and data | Dr Victor Jetten, University of Twente |
| 11:40–11:50 | Introducing the INSER network | Dr Rachid Moussadek, ICARDA & Chair of INSER |
| 11:50–11:55 | Q&A | Chair: Dr Vera Silva, Wageningen University & Research |
| 11:55–12:00 | Next steps and what to expect | Dr Charlotte-Anne Chivers, University of Gloucestershire |

EUROSION

# Introducing EUROSION

Dr Mahrooz Rezaei, Wageningen University & Research

Project coordinator

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# Why erosion?

- Impacts soil fertility, water quality, air quality, and food production
- Threatens ecosystem services, especially for nutrient cycling, provision of food, water purification
- Leads to significant on- and off-site effects that needs to be monitored, studied and prevented

**A more integrated and dynamic understanding of soil erosion is needed**






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**Our aim: Develop a dynamic soil erosion monitoring system** able to estimate soil erosion across spatial and temporal scales, considering water, wind and tillage erosion effects in agricultural lands

## Connects monitoring, data, models and stakeholders

Horizon Europe - Mission Soil - Research & Innovation programme (€11.5M funding)

5 years (November 2025 -> November 2030)

Funded by the European Union

# Our consortium

24 partners from
13 countries



WAGENINGEN UNIVERSITY & RESEARCH

KU LEUVEN

CARDIFF UNIVERSITY

UNIVERSITÀ DEGLI STUDI DI PADOVA

zalf Leibniz Centre for Agricultural Landscape Research (ZALF)

UNIVERSITY OF TWENTE.

SRON Netherlands Institute for Space Research

cnrs

IRD

Institut des Régions Arides

NIBIO NORWEGIAN INSTITUTE OF BIOECONOMY RESEARCH

ÇANAKKALE ONSEKİZ MART ÜNİVERSİTESİ 1992

The Cyprus Institute RESEARCH·TECHNOLOGY·INNOVATION

Institute for European Environmental Policy

UNIVERSIDAD DE ALMERÍA

varda FIELD DATA EXCHANGE

ISRIC World Soil Information

CCRI COUNTRYSIDE AND COMMUNITY RESEARCH INSTITUTE

UNIVERSITY OF GLOUCESTERSHIRE at Cheltenham and Gloucester

hffa RESEARCH

UNIVERSITATEA „ALEXANDRU IOAN CUZA" din IAȘI

cambisol

Euroquality | tinexta innovation hub

Fast Hazard

Berner Fachhochschule
Haute école spécialisée bernoise
Bern University of Applied Sciences



# Project Objectives

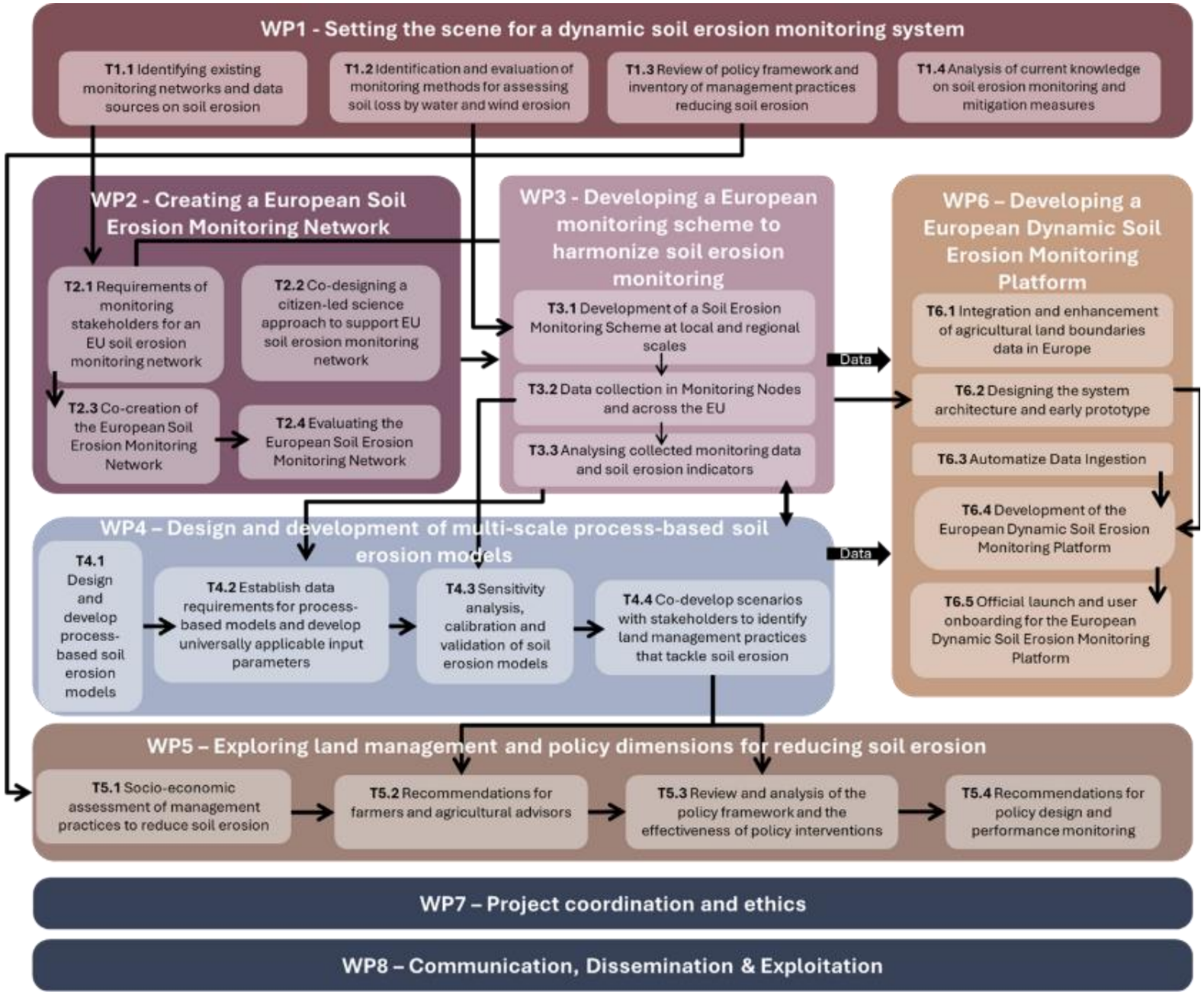
1. Develop **a multi-scale Monitoring Network** and provide up-to-date and accurate soil erosion data
2. **Enhance, calibrate, and validate** existing process-based erosion models to estimate soil erosion across space and time
3. Develop **a platform to facilitate the collaboration** between monitoring stakeholders and provide access to soil erosion data and knowledge
4. Assess the potential of **management practices in reducing soil erosion**
5. **Provide policymakers with recommendations** enhancing the adoption of practices reducing soil erosion

# Expected results

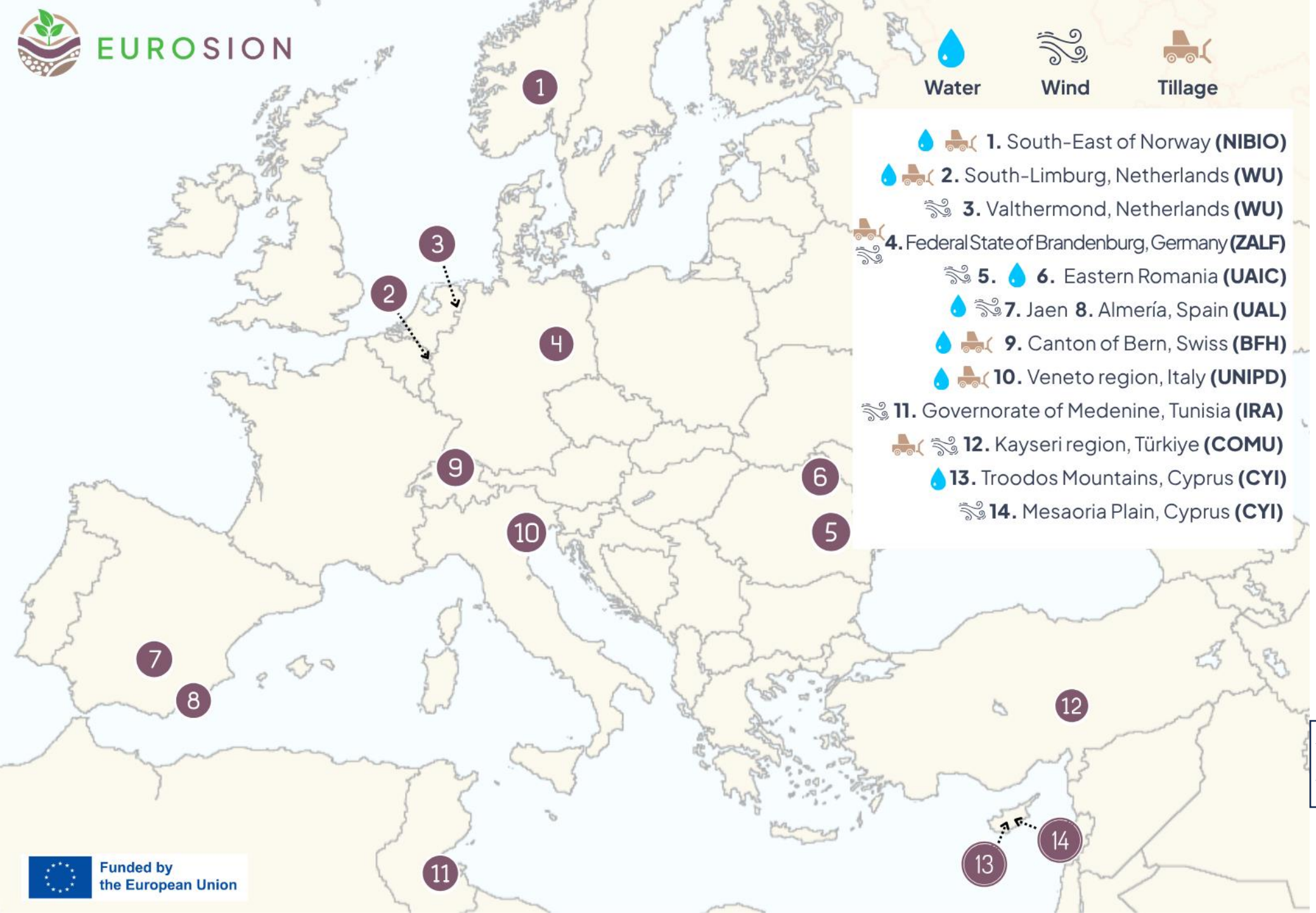
- Co-creation of a European Soil Erosion **Monitoring Network** — October 2026
- Co-development of a Soil Erosion **Monitoring Scheme.** The Monitoring Scheme will be implemented, tested, and validated in the 14 Monitoring Nodes — October 2026
- Delivering an enhanced wind, water and tillage **Process-based models** to enhance existing datasets — March 2030
- Development of an **open-access interactive platform** serving both as a user-friendly data repository and an analytical tool for stakeholders — March 2030
- Translation of the project's outputs for farmers in a **Management Practices Guidance** — August 2030
- **Delivering policy recommendations** to national and EU policymakers — August 2030

Funded by the European Union

# EUROSION Framework



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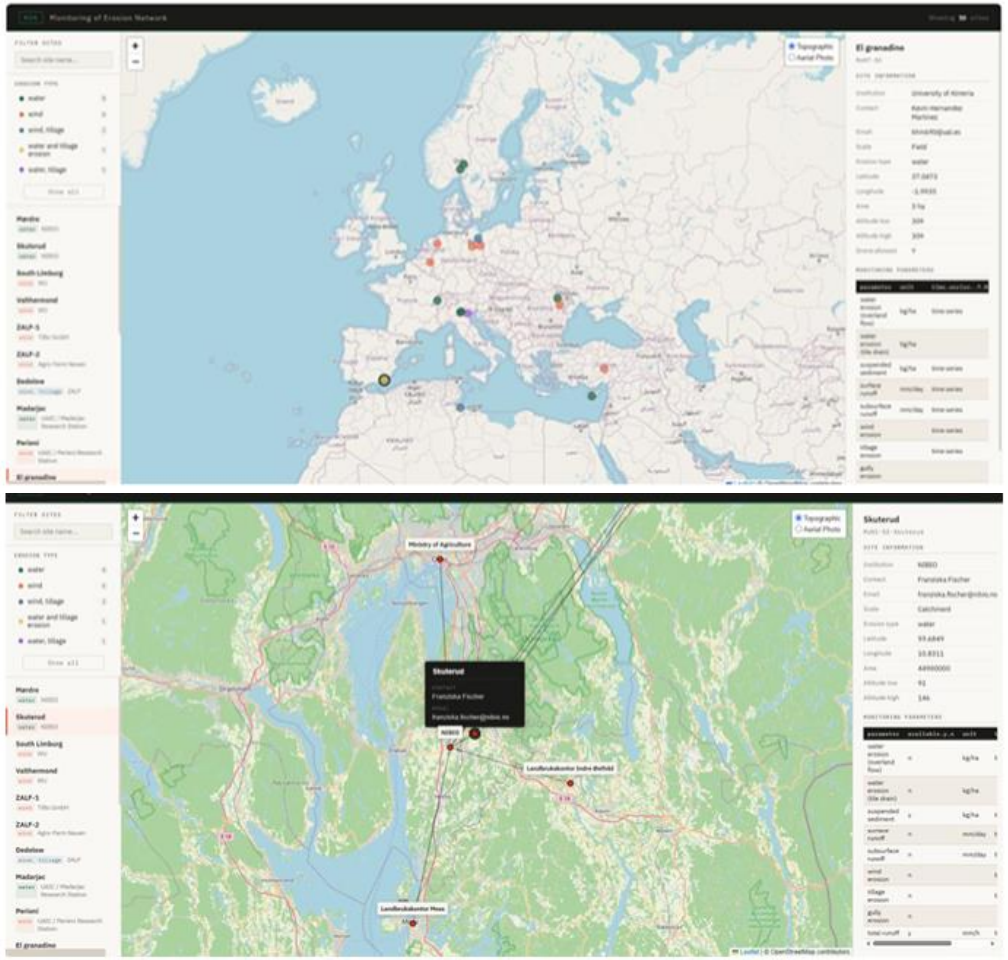

EUROSION's **monitoring nodes cover water, wind and tillage erosion processes** in Europe and beyond

- ✓ Monitoring Scheme
- ✓ Modelling framework

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# Map of monitoring stakeholders and networks

**Now:** EUROSION MoN + metadata (site characteristics, monitoring activities, and measured variables)



*Example of monitoring stakeholder network mapping for MoN1*

**Future: +** additional monitoring programmes, stakeholder information, and erosion datasets



# Milestones achieved (first year)

- Review of monitoring methods
- Database on policy framework to reduce soil erosion
- Measures to reduce soil erosion
- Citizen science data collection protocol
- Monitoring Network launch
- Monitoring Nodes set-up
- Europe wide coverage of global FieldID system
- Data template established

Questions? Contact: eurosion@wur.nl or mahrooz.rezaei@wur.nl

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# Setting the EU context

Luis Sanchez Alvarez, European Commission

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# Introducing the EUROSION network

Dr Charlotte-Anne Chivers

Network and citizen science lead (WP2)

Countryside & Community Research Institute,

University of Gloucestershire

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# Introduction

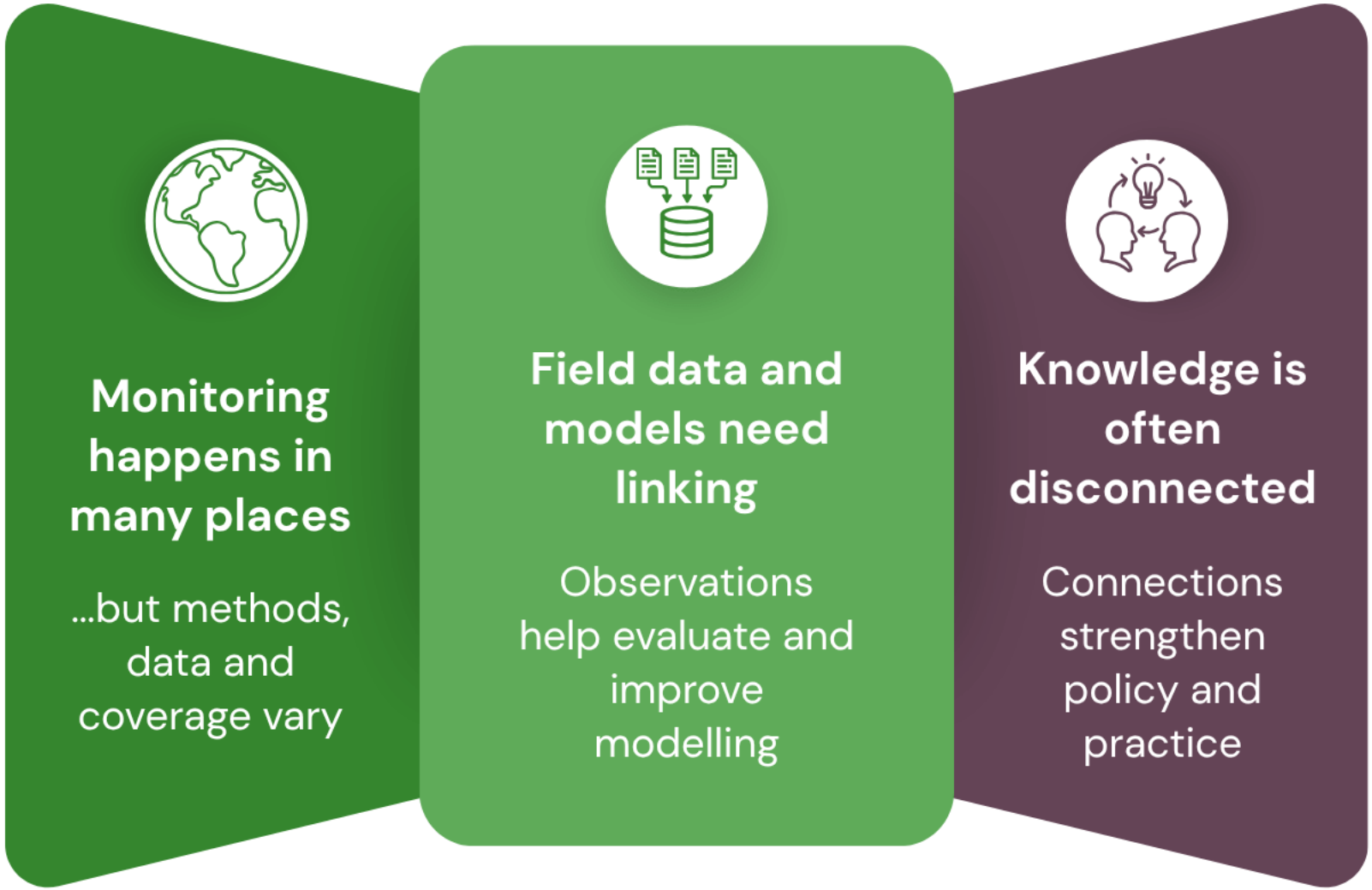
We hope to create a lasting European community that strengthens collaboration, monitoring and knowledge exchange, supporting more effective soil erosion management.

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EUROSION
Network

# Why a European soil erosion network?

*Soil erosion evidence is fragmented*




**EUROSION hopes to connect existing efforts**

EUROSION Network

# Network member requirements

Literature review
Online stakeholder survey
Expert interviews
EUROSION consortium workshop
Ongoing consultation

**Members want an accessible, collaborative network offering useful data, practical learning opportunities and flexible ways to participate.**

**88% expressed interest in joining the EUROSION network.**

**Strong demand for erosion risk mapping (84%) and downloadable datasets (85%).**

**Need for harmonised monitoring methods and comparable data.**

**Concerns about intellectual property, workload and data sensitivity when sharing data.**

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# What do prospective members want?

Findings from the EUROSION network requirements survey (2026; 72 respondents overall)




Multiple selections permitted; n = 69 for this survey question.

# OUR AIMS

**CONNECT**

Bring together monitoring efforts, researchers, policymakers and land managers

**HARMONISE**

Share approaches and knowledge, strengthen comparability across monitoring contexts

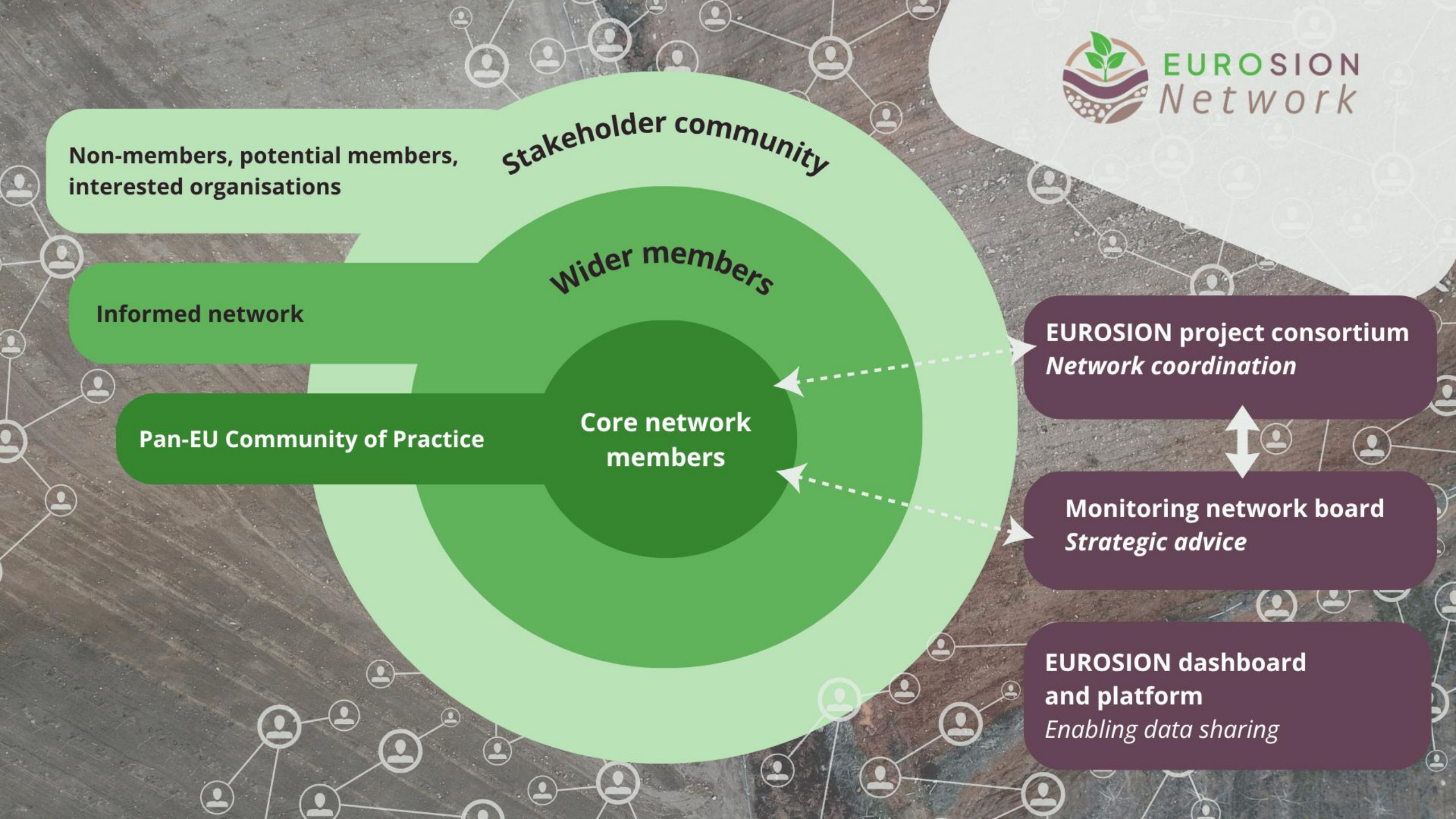
**EXCHANGE**

Make data, methods, tools and expertise more accessible

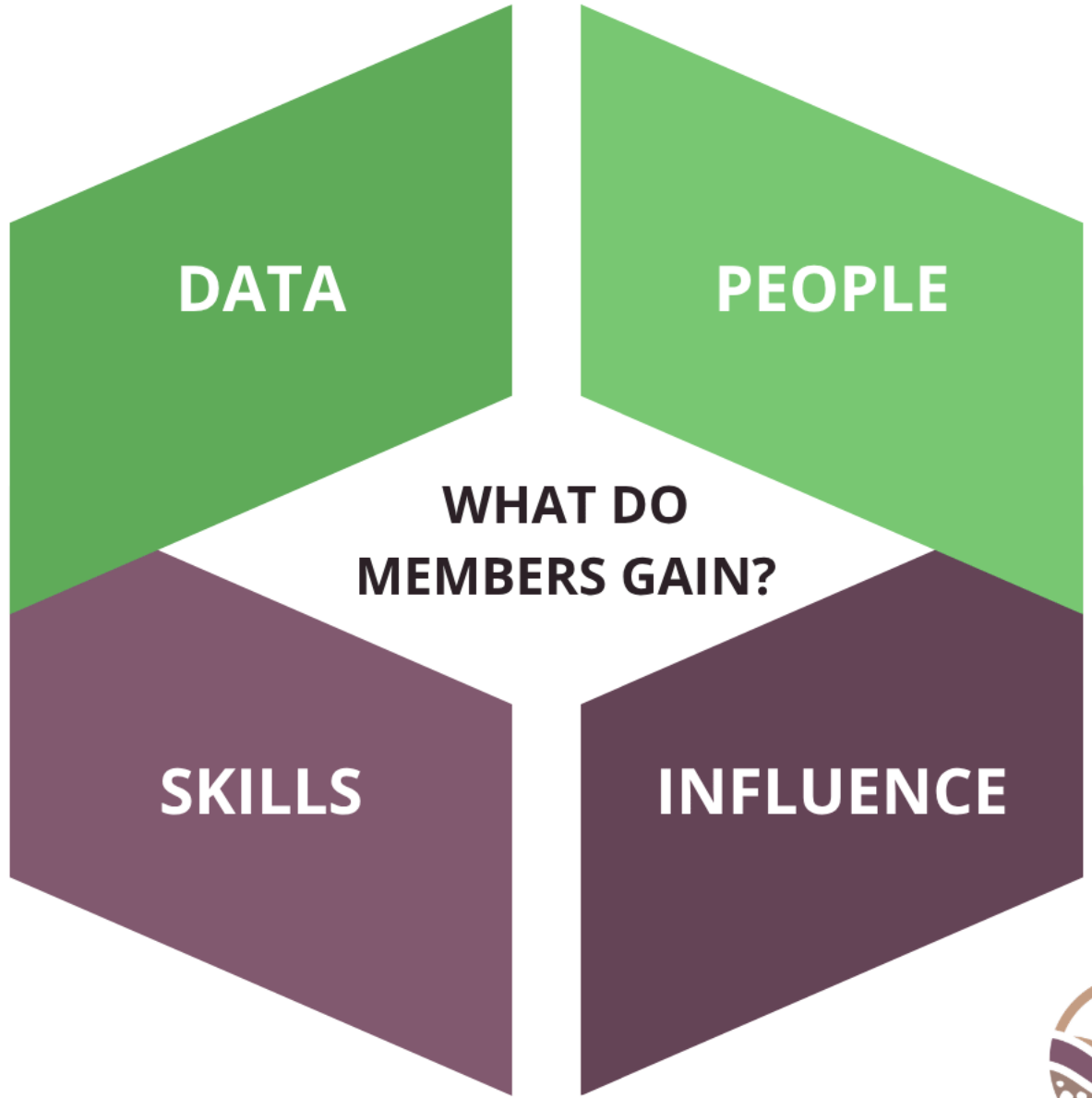
**APPLY**

Support better erosion modelling and informed soil conservation decisions in policy and practice

EUROSION Network


EUROSION Network
Stakeholder community
Non-members, potential members, interested organisations
Wider members
Informed network
Pan-EU Community of Practice
Core network members
EUROSION project consortium
Network coordination
Monitoring network board
Strategic advice
EUROSION dashboard and platform
Enabling data sharing

| Group | Who and what they do |
| --- | --- |
| **EUROSION consortium and Monitoring Nodes** | Coordinate network development, deliver project activities, connect national monitoring initiatives and support recruitment |
| **Monitoring Network Board** | 8–10 representatives providing strategic advice on governance, the Monitoring Scheme, user needs and sustainability |
| **Core network members: Pan-European Community of Practice** | Actively contribute to data exchange, monitoring discussions, collaboration, co-design and knowledge exchange |
| **Wider network members** | Access resources, receive communications and attend activities or contribute occasionally |
| **Wider stakeholder community** | Interested individuals and organisations who access public outputs and may participate in open activities or join the network |




Access monitoring evidence and modelling outputs

Find collaborators across countries and disciplines

Learn about erosion, monitoring methods and digital tools

Help shape resources, co-create the network, identify future priorities

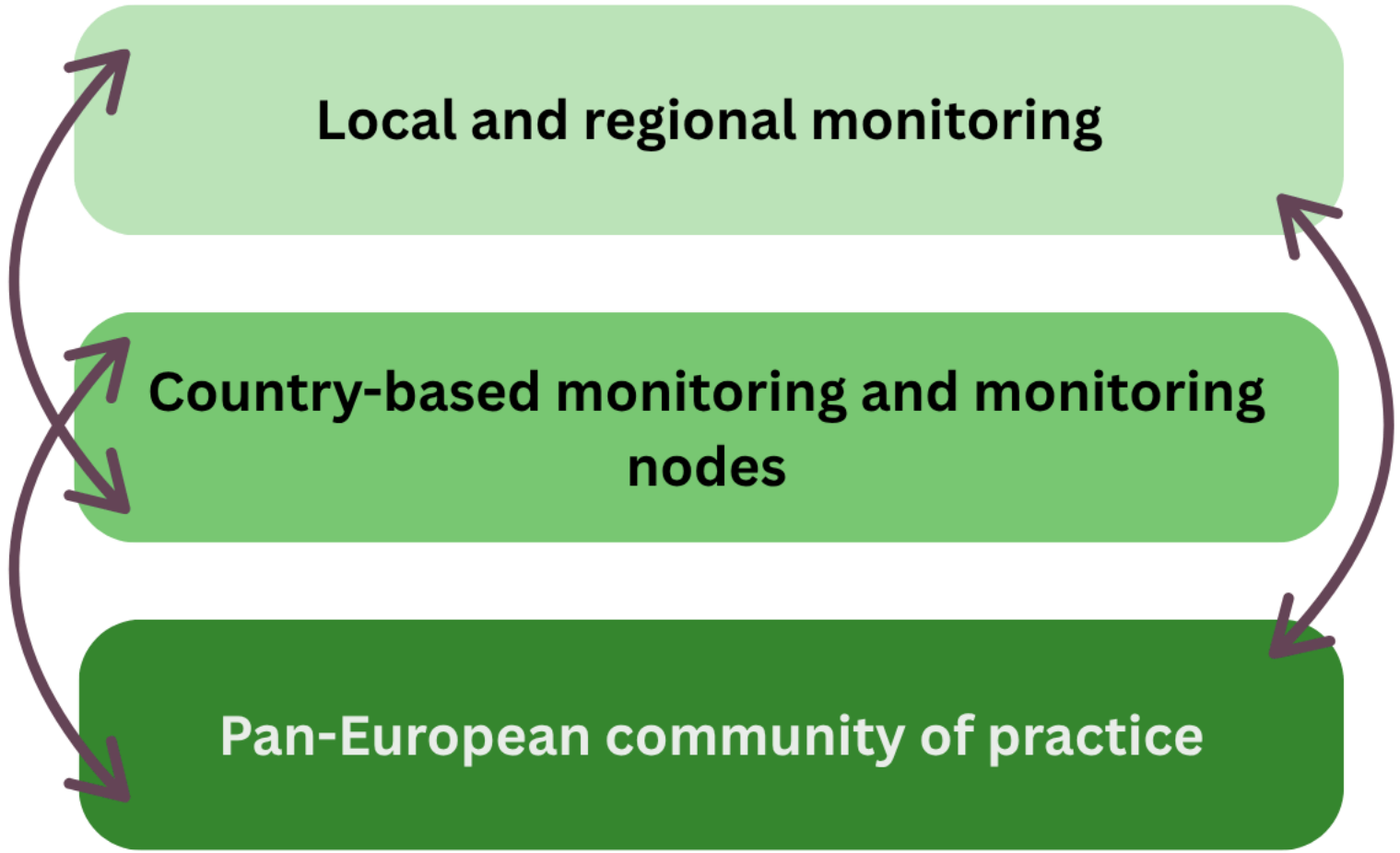
EUROSION Network


EUROSION Network
Our principles
Learning opportunities
Reciprocity
Data and knowledge exchange
Policy relevant
Flexible collaboration
Recognition of contributions
Meaningful Participation and engagement

# A dynamic approach to participation



# Working at different scales




EUROSION Network

# Network and dashboard

## The network

- Connects people and organisations.
- Facilitates knowledge exchange, harmonisation and data contribution.
- Builds collaboration and monitoring capacity.

## The dashboard

- Brings together monitoring and modelling information.
- Supports erosion risk mapping and visualisation.
- Aims to help users explore management scenarios and conservation measures.

**We invite you to:**

**Join:** Become part of a European community working on soil erosion.

**Connect:** Meet others working in monitoring, research, policy and land management.

**Contribute:** Share expertise, methods, experiences and data where appropriate.

**Participate:** Take part in events, training and co-creation opportunities.

**Shape:** Tell us what you need from the network and help guide its development.

# Join the network:

https://eurosion.eu/eurosion-network/

**Complete the registration form above.**

**We will be in touch with a short follow-up survey to determine which activities will suit you.**

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Questions? Contact: eurosion@wur.nl or cchivers@glos.ac.uk

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# EUROSION dashboard for data exchange

Ester Miglio
Dashboard lead
VARDA

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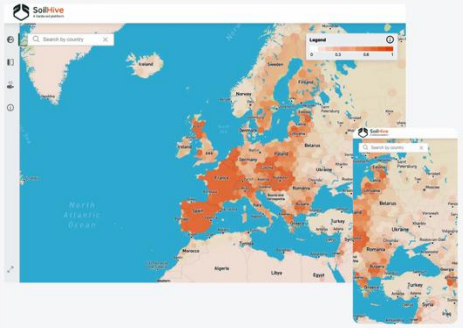
# Who we are: Varda Foundation

Not-for-profit foundation working to accelerate the transition to a nature-positive food system, with a focus on soil data infrastructure.

## SoilHive

A **collaborative platform** improving access, sharing, and interoperability of **soil data**.

Serves researchers, policymakers, and agribusinesses by making soil insights **more discoverable and usable**.



## Global FieldID

A universal **geospatial reference system** that standardises field boundaries for traceability.

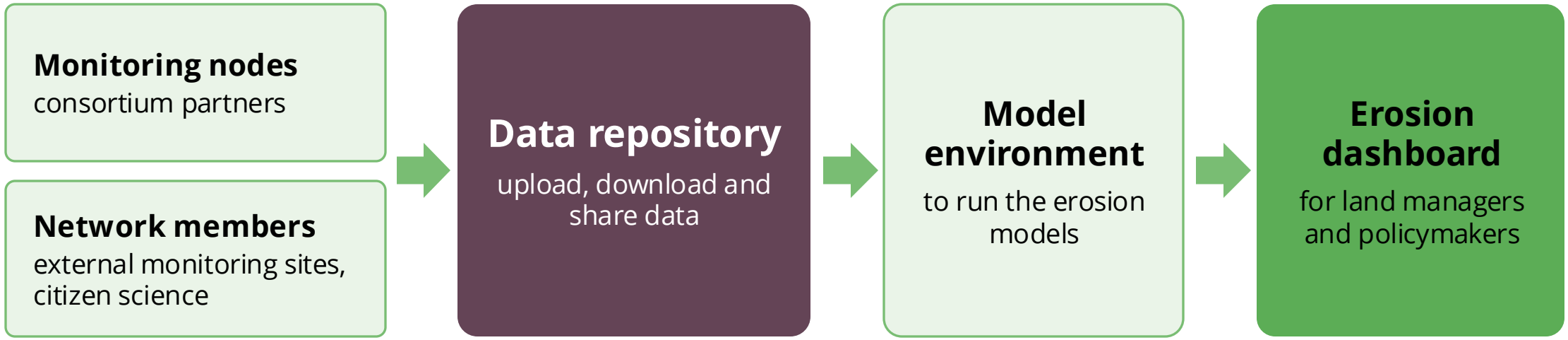
Enables **interoperability** across supply chains, regulatory **reporting**, and sustainability initiatives.



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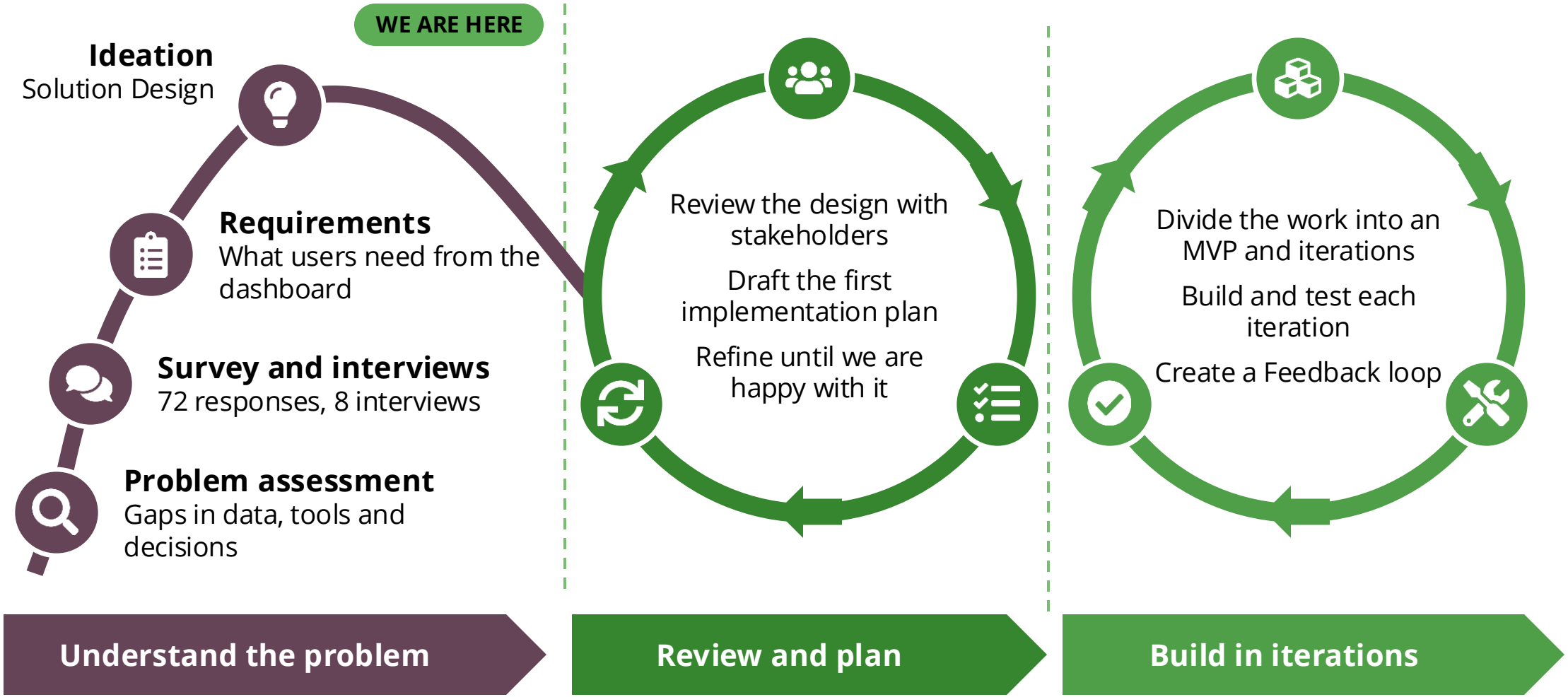
# Our role: data management and the dashboard

*The platform will most likely have three components: data repository, model environment and dashboard.*




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# How we work: understand, review, then iterate




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# What we heard: three clear priorities for the dashboard

**72**
survey responses

**8**
in-depth interviews

Interviews mainly with policymakers and science-policy advisors, from EU institutions, Spain, Switzerland and Norway.

1

## Trust comes first

***What is it good for, and what is it not?***

2

## Scenario tools

***What happens if I do X in this region?***

3

## Shared platform

***Land managers and policymakers***

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# What we heard: shaping the design

## Several spatial scales

Navigating from national down to field-level scale

## Low technical barriers

Simpler way to show erosion risk, beyond soil loss in t/ha.

Support multiple languages.

## Connect to what exists

We will explore whether we can link the platform with other existing ones, to avoid duplication.

## Co-development

Build a community around the dashboard, with a regular and clear channel for feedback and contribution.

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# Next steps: from design to iterations

WE ARE HERE

PHASE 1: UNDERSTAND

## Finish Mockups v1

Turn the requirements into a first mockups of the platform and the dashboard (v1).

IN THE NEXT 6 MONTHS

PHASE 2: REVIEW AND PLAN

## Review and plan

Review v1 with partners and draft the first implementation plan (April 2027).

LATER IN THE PROJECT

PHASE 3: ITERATIONS

## Build and iterate

Start with an MVP (Minimum Viable Product), then build on it iteratively based on feedback from partners and the wider network.

### What we will do together:

1. **Data sharing and governance**
2. **Land managers interviews**
3. **Co-development**

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# Thank you!

*Questions and discussion*

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# EUROSION modelling and data

Dr Victor Jetten
Modelling lead
University of Twente

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# Monitoring and modelling

We will create a model system that, for the whole of the EU:

- Calculates annual soil loss from fields
- Calculates multi-annual trends
- Uses state of the art physically-based modelling





Facts:

156 million hectares;
8.8 million holdings;
2/3 less than 5 hectare in size (2023);



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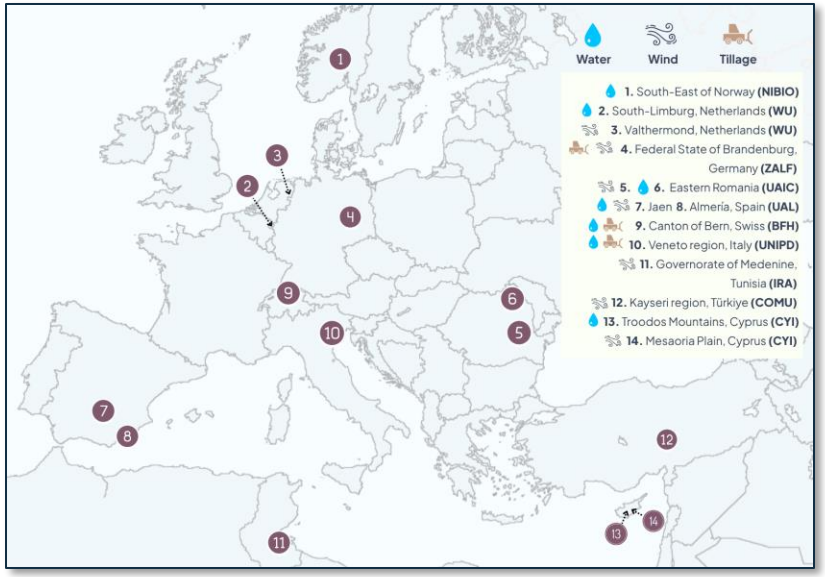
# The Monitoring Nodes

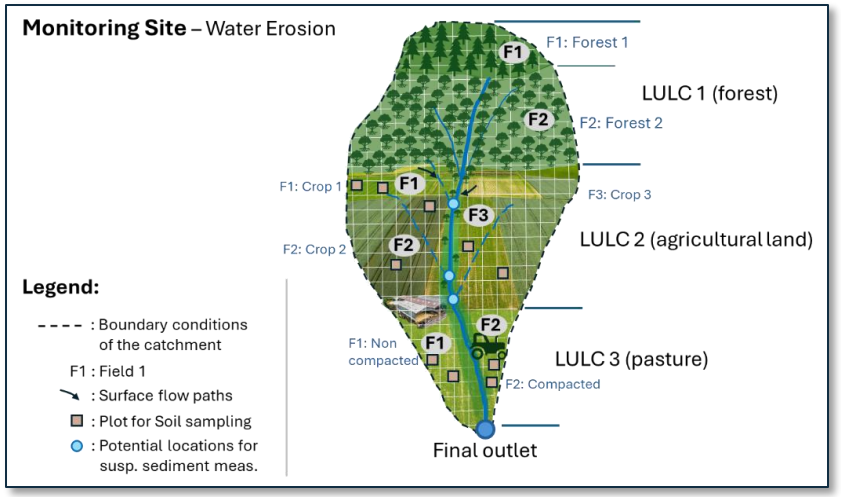
We have established 14 Monitoring Nodes in many countries where water and wind erosion is measured (an additional existing 15 are contacted)

Each “Node” consists of several “Sites” with different crops and soils

With this data we understand better the differences in erosion between the regions in Europe

The data is also used to test and verify the water and wind erosion models




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# The Monitoring Nodes

We will measure:

- Rainfall and wind speed
- Sediment/Dust traps (wind)
- Discharge and sediment in the nearest stream (water)
- Soil properties, texture infiltration, the effect of tillage practices, organic matter etc.
- Crop/vegetation properties
- Observations of erosion and deposition
- Sediment traps
- Drone flights
- Observations of erosion and deposition









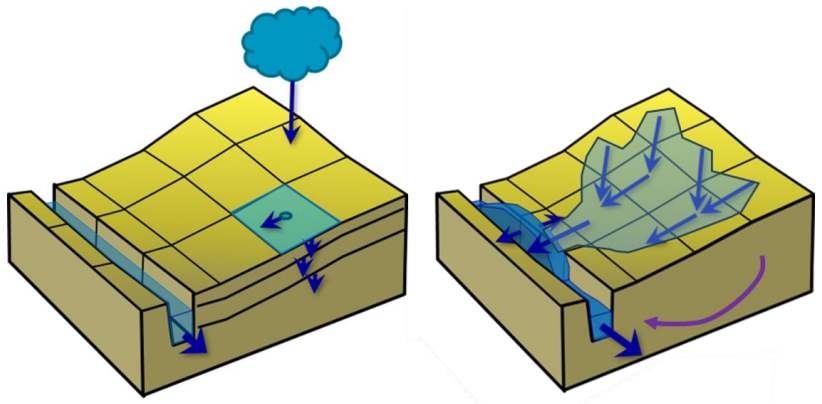




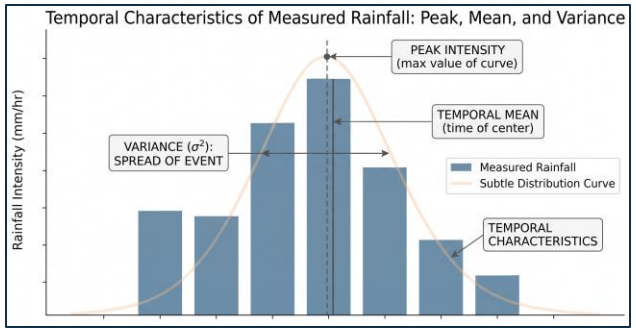
EUROSION Network

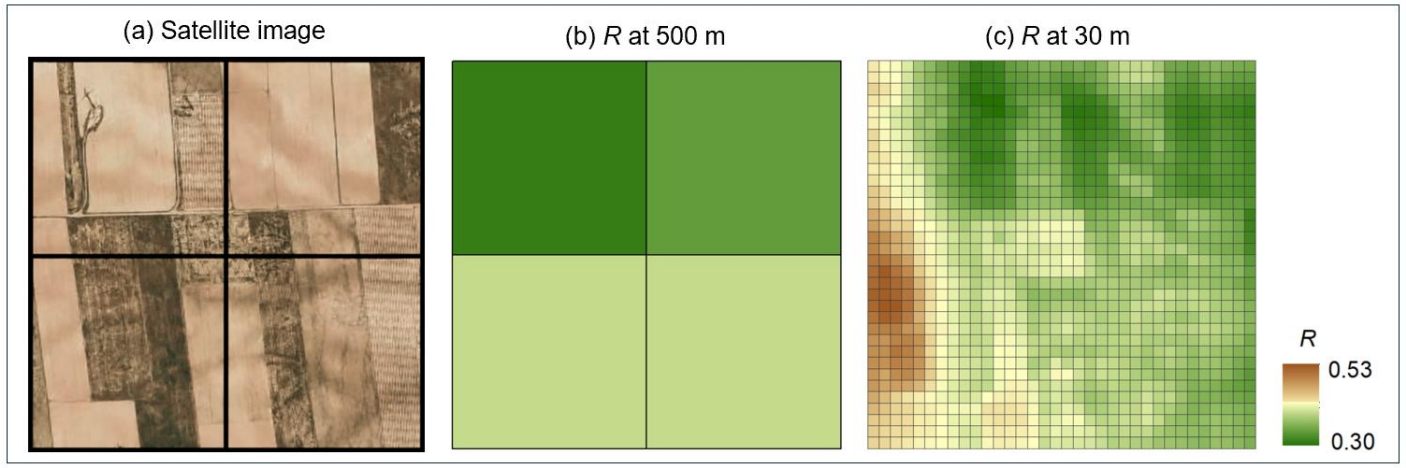
# The five models

- A new **water erosion model**
- Three **wind erosion models** that operate with different principles (to be merged later)
- A **tillage erosion model**



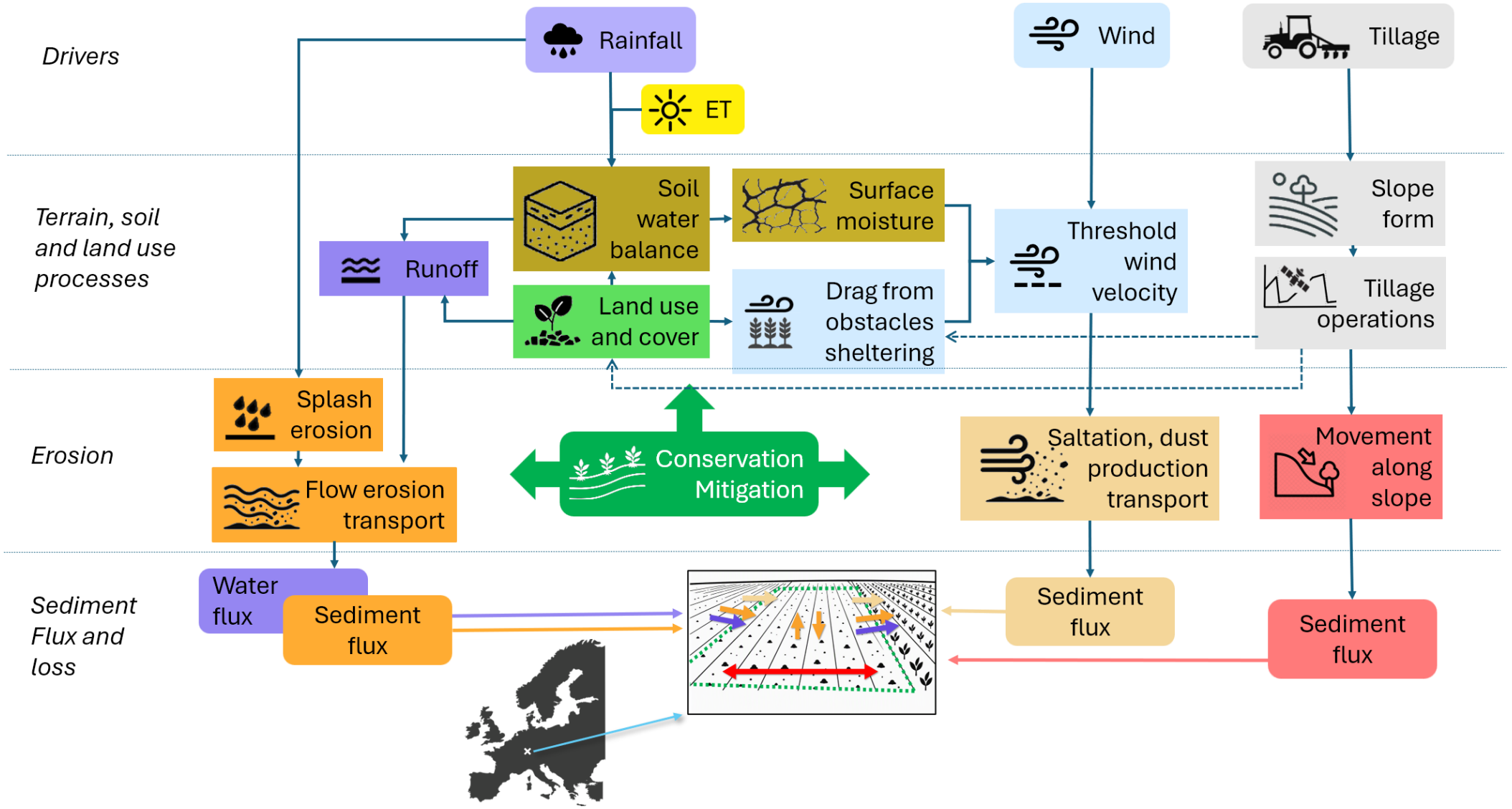
Using smart sampling techniques, we have a surface resolution of **30m** and **hourly** rainfall and wind speed, aggregated to a daily totals.



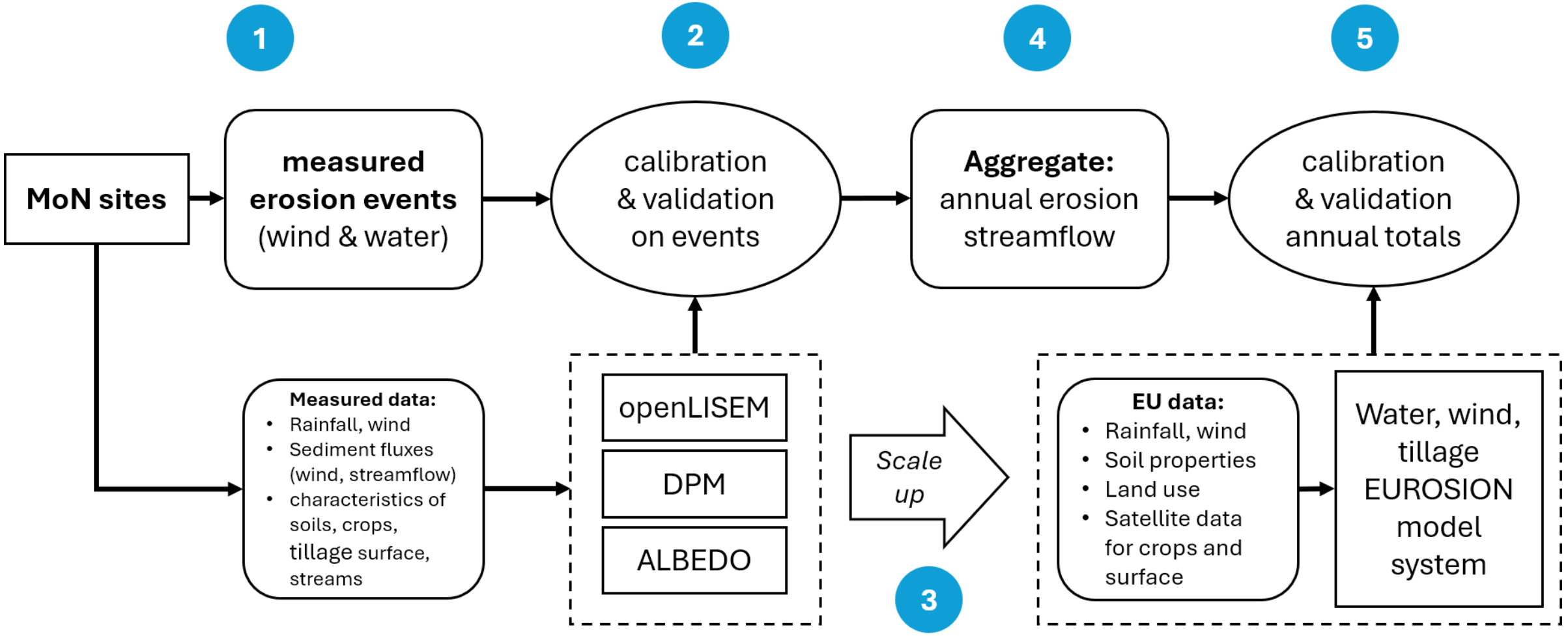




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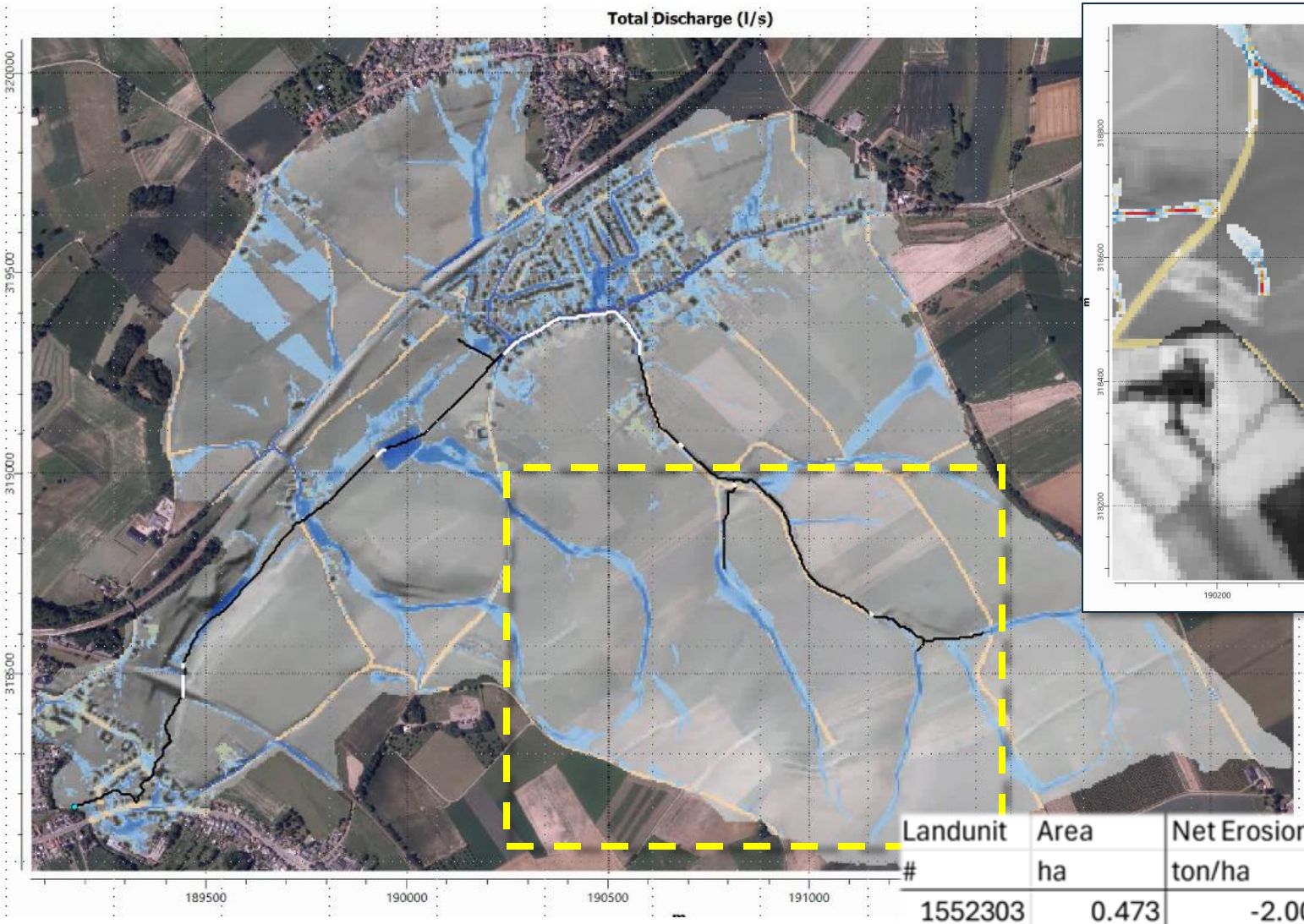
# The integrated EUROSION model system

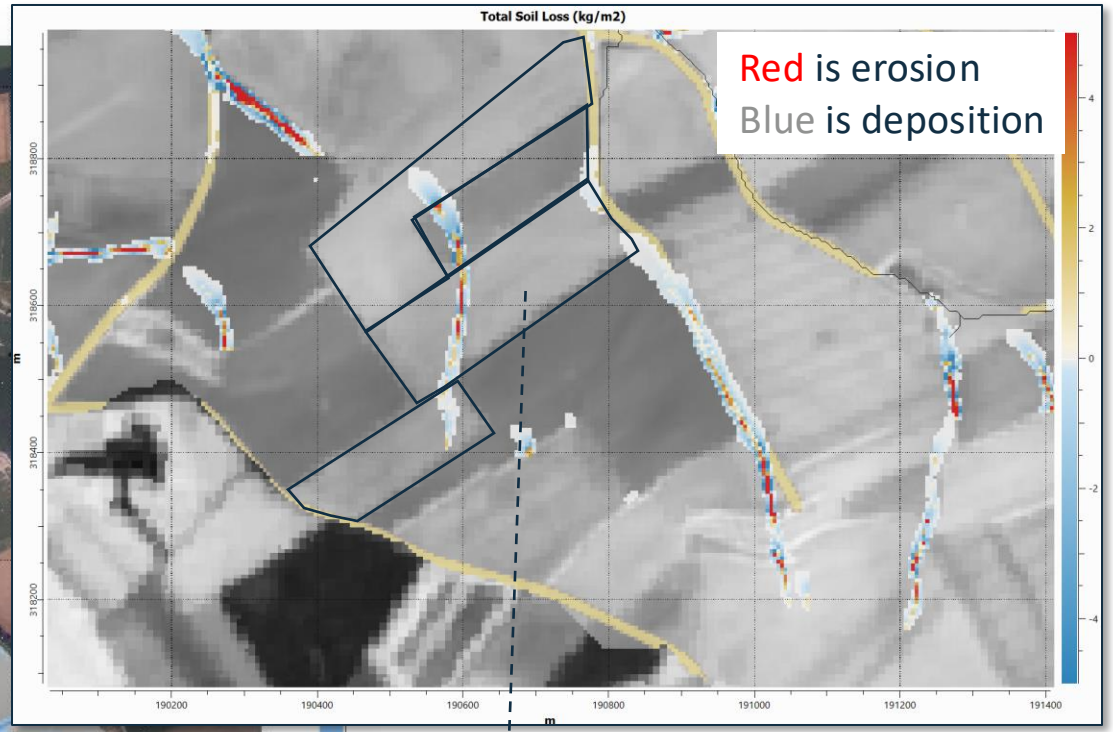


# Strategy to create the EUROSION model



# Example output water erosion model




| Landunit | Area | Net Erosion | Splash | Flow | Dep | Flux in | Flux out |
|---|---|---|---|---|---|---|---|
| # | ha | ton/ha | ton/ha | ton/ha | ton/ha | ton/ha | ton/ha |
| 1552303 | 0.473 | -2.00 | 0.02 | 46.40 | -48.43 | 3.80 | 1.21 |
| 1283132 | 0.521 | 0.00 | 0.10 | 0.00 | -0.10 | 0.00 | 0.00 |

# All models generate *per field*

- Daily soil loss
- Daily sediment flux and sediment balance
- Annual tillage erosion (soil redistribution)
- Because we use hourly weather, we can see the effect of extreme events
- Aggregate per season, per year, per crop, etc.
- We can simulate scenarios of mitigation/conservation

- Calibrated and validated with MoN site data
- We will give indications of uncertainty

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# Introducing the INSER network

Dr Rachid Moussadek

ICARDA & Chair of INSER

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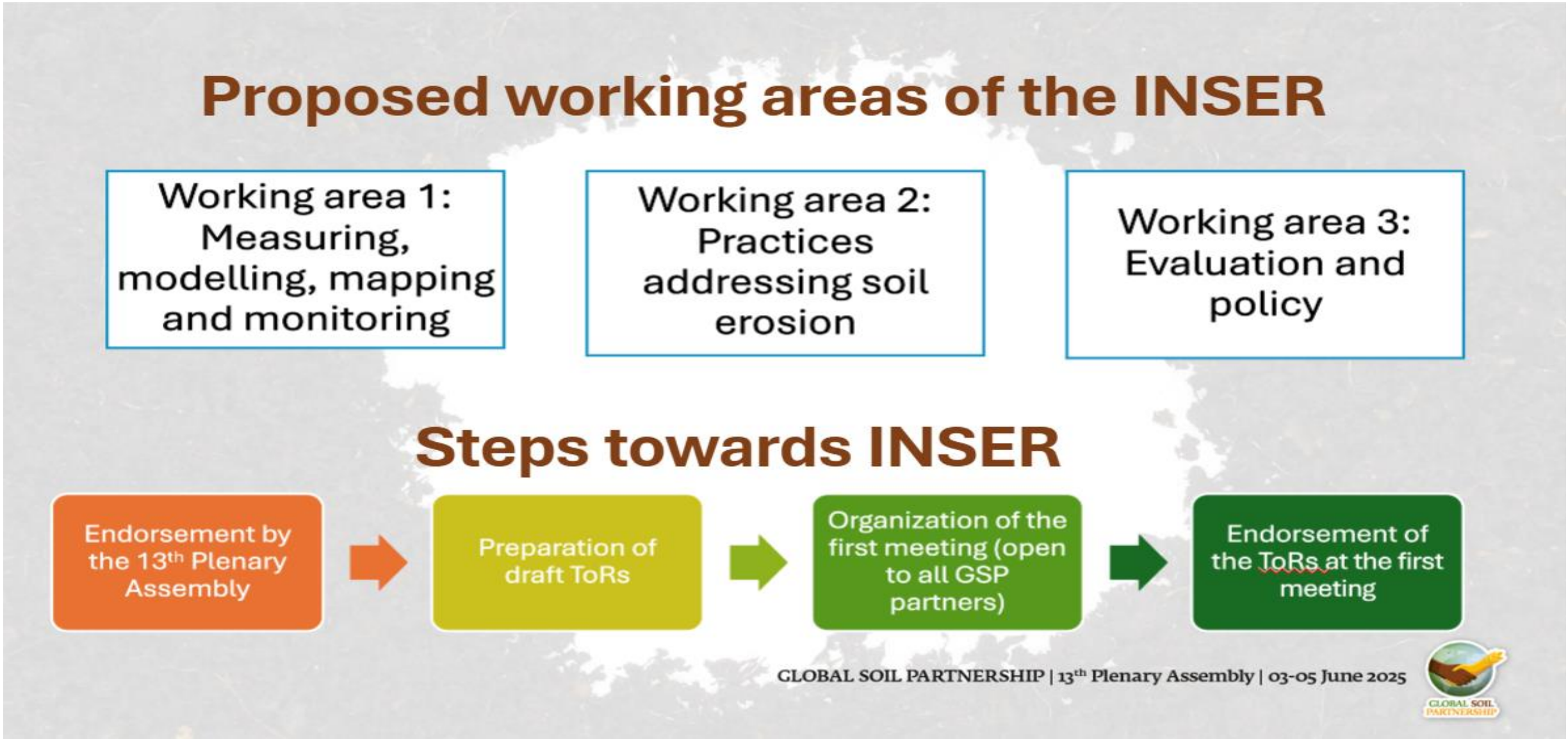

# Presentation of the International Network on Soil Erosion- GSP-FAO

# By INSER Chair

Funded by the Europe

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# Endorsement in 13th GSP Plenary Assembly June 2025






Food and Agriculture Organization of the United Nations

GLOBAL SOIL PARTNERSHIP

## Official launch — key facts

| | |
|---|---|
| **15 Sep 2025** | **Rabat Morocco** |
| Launch date | Hybrid event |
| **300+** | **365** |
| Global participants | Registered members |



# Launch of International Network on Soil Erosion

# 1st network meeting for INSER




Food and Agriculture Organization of the United Nations | GLOBAL SOIL PARTNERSHIP

**580+** participants

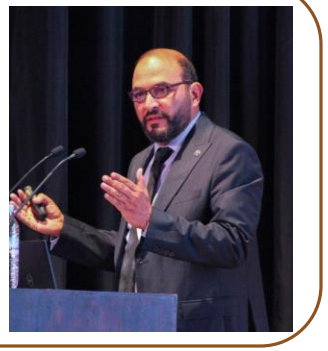
**60+** countries

**3** working groups

## Governance and Working Group Structure

**INSER Chair**

**Rachid Moussadek | Morocco**



**WG1 Lead**

**Baoyuan Liu | China**



**WG2 Lead**

**Farid Eltom Abdallah | Sudan**



**WG3 Lead**

**Fei Wang | China**



**Coordination support: GSP Secretariat / INSER Coordinator and ITPS scientific oversight.**

# INSER Roadmap (2026-2027)

## Q2-Q3 2026 Establish

- Governance finalized
- Working Groups operational
- Membership expansion

## Q3-Q4 2026 Develop

- Collaboration platform
- Technical cooperation
- Capacity building

## 2027 Deliver

- Global Erosion Mapping Framework V1
- Harmonized Database
- Guidelines & Policy Reports

**Expected Outputs:** Soil Erosion Mapping Framework | Erosion Database | Capacity Building | Policy Support

# Actions to Support INSER

- Support the governors of INSER
- Encourage GSP partners, member countries to join and support INSER
- Support the soil erosion mapping from the member countries
- Facilitate partnerships, in-kind support and resource mobilization for capacity building, data sharing and implementation

# Collaboration with Eurosion

Dr Rachid Moussadek
INSER Chair
General Secretary
INRA Morocco
Contact: Rachid.moussadek@inra.ma



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# Q&A

Chaired by Dr Vera Silva

Wageningen University & Research

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# Next steps and what to expect

Dr Charlotte-Anne Chivers

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# Thank you!

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