

LAND DEGRADATION AND HEALTHY SOILS: TOWARDS A GLOSSARY AND MONITORING SYSTEM

April, 18th 2023
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Introduction The EJP SOIL programme Claire Chenu, INRAE



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2023-04-18-LandDegradation&HealthySoils-webinar-Chenu



Land degradation



State Department

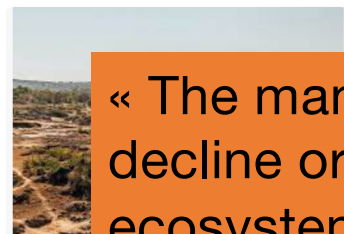


Food And Migration

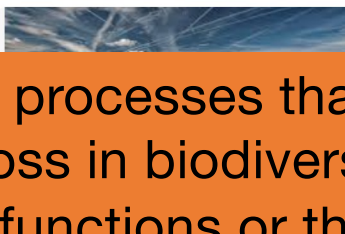


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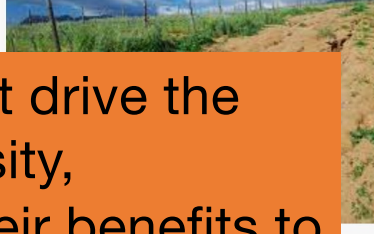
« The many processes that drive the decline or loss in biodiversity, ecosystem functions or their benefits to people and includes the degradation of all terrestrial ecosystems ». *IPBES glossary, 2017*



Rural 21



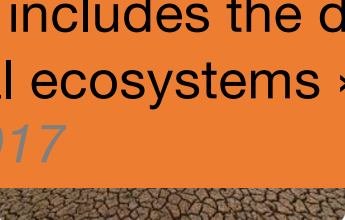
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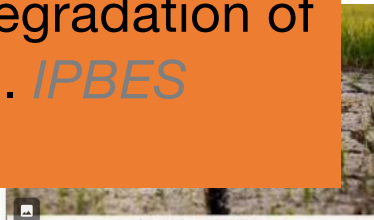
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Climate Action



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Down To Earth



EU Science Hub - europa.eu



EurekAlert!

Healthy soils



Ecological Landscape Alliance

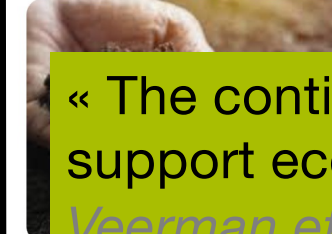


Food Tank



MedForest

« The continued capacity of soil to support ecosystem services »
Veerman et al. Soil Mission Board, 2020



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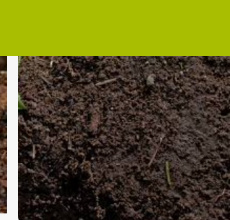
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Age Old Nutrients



The Conversation



Love Your Landscape



Grainews



UC Marin Master Gardeners - UC ANR



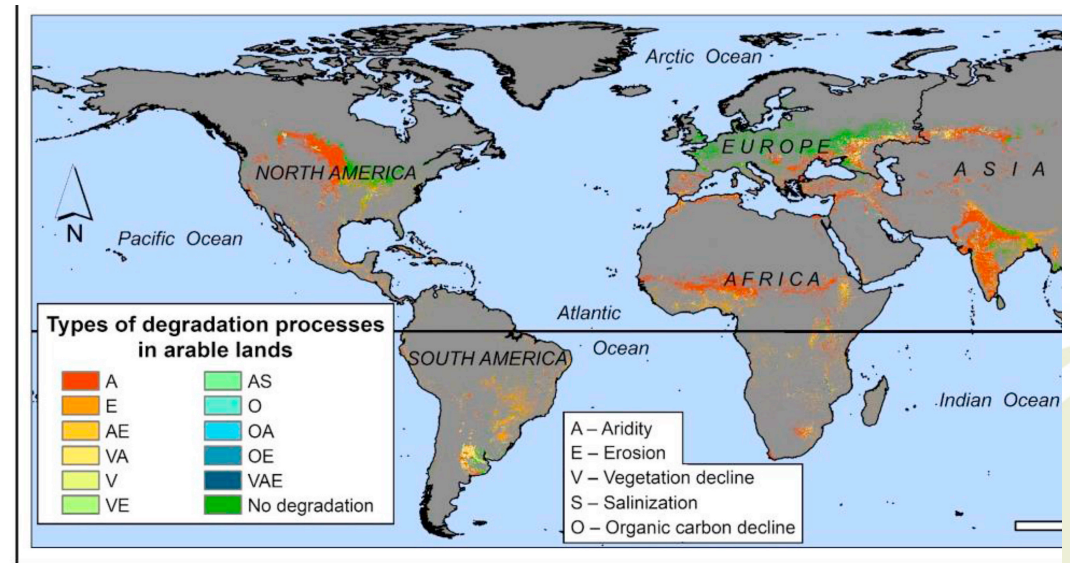
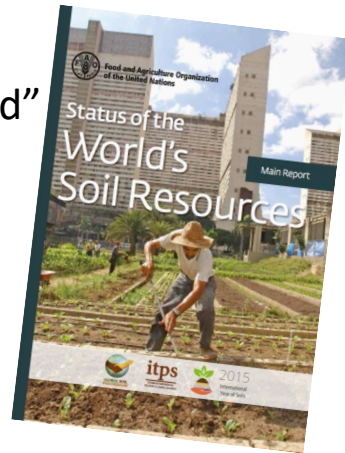


15 LIFE ON LAND



Target 15.3 : "By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world."

"33% world soils are degraded"
GSP, 2015



Právělie et al. 2021. Environmental Research



Soils are threatened: 60-70% of all soils in Europe are unhealthy as due to current management practices, pollution, urbanisation and the effects of climate change

➔ glossary, indicators, monitoring systems

EJP SOIL: A Joint Programme

- **Co-fund action:** 👉 coordinated national research and innovation programmes
- **Critical Mass:** 👉 consolidation of transnational research- 24 countries, 26 partners
- **Public- public funding:** 50% EC – 50% institutes
- **Annual Programming:** 2020-2025
- **Wide range of activities**



Participant organisation name	Country
Institut National de la recherche Agronomique (INRA)	FR
Wageningen Research (WR)	NL
BIOS Science Austria (BIOS)	AT
Flanders Research Institute for Agriculture, Fisheries and Food (EV-ILVO)	BE
Centre Wallon de Recherches Agronomiques (CRAW)	BE
Czech University of Life Sciences (CULS)	CZ
Aarhus University, Danish Centre for Food and Agriculture (AU)	DK
Estonian University of Life Sciences (EMU)	EE
Natural Resources Institute Finland (LUKE)	FI
Johann Heinrich von Thünen-Institut (vTI)	DE
Forschungszentrum Jülich (Jülich)	DE
Centre for Agricultural Research of the Hungarian Academy of Sciences (MTA ATK)	HU
Teagasc (Teagasc)	IE
Council for Agricultural Research and Economics (CREA)	IT
University of Latvia (UL)	LV
Lithuanian Research Centre for Agriculture and Forestry (LAMMC)	LT
Norwegian Institute of Bioeconomy Research (NIBIO)	NO
Institute of Soil Science and Plant Cultivation – State Research Institute (IUNG)	PL
National Institute for Agrarian and Veterinarian Research I. P. (INIAV)	PT
National Agricultural and Food Centre (NPPC)	SK
University of Ljubljana, Biotechnical Faculty, Centre for Soil and Environmental Science (ULBF)	SI
National Institute for Agriculture and Food Research and Technology (INIA)	SP
Swedish University of Agricultural Sciences (SLU)	SE
Agroscope (AGS)	CH
Ministry of Food, Agriculture and Livestock, General Directorate of Agricultural Research and Policies (TAGEM)	TR
Agri-Food and Biosciences Institute (AFBI)	UK

EJP SOIL: knowledge framework & expected impacts



understanding of soil management for climate change mitigation, adaptation, sust^o production & sustainable environment

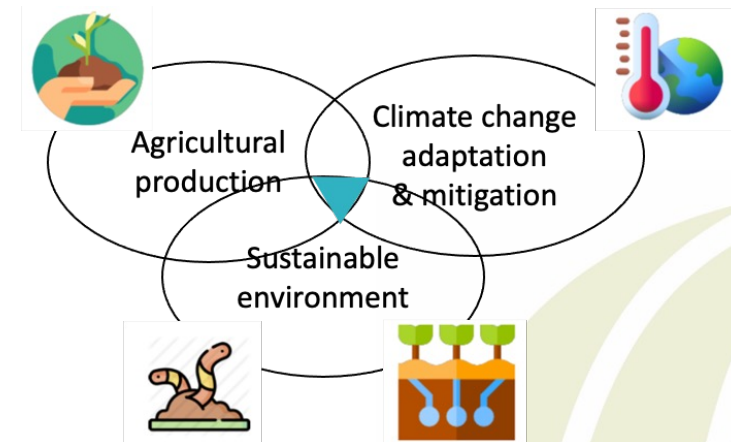
understanding soil carbon sequestration and its contribution to climate change mitigation

strengthening scientific capacities and cooperation

supporting harmonised European soil information

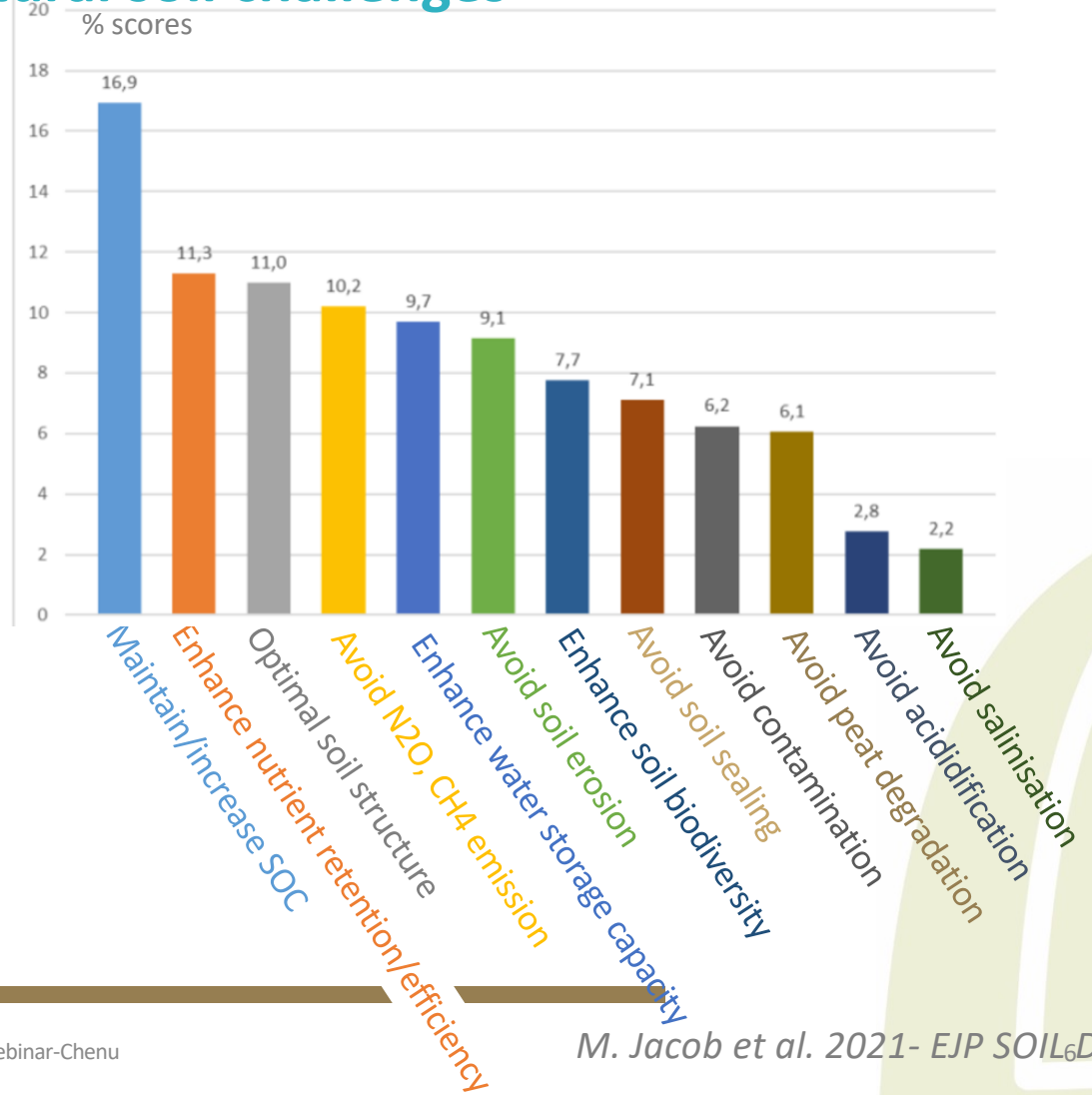
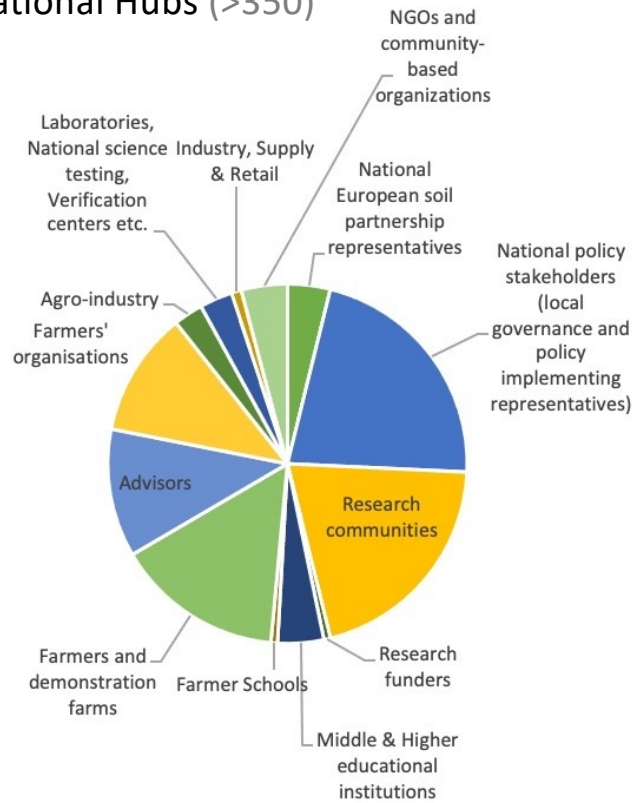
fostering the uptake of climate-smart sustainable soil management practices

developping region-specific fertilisation practices



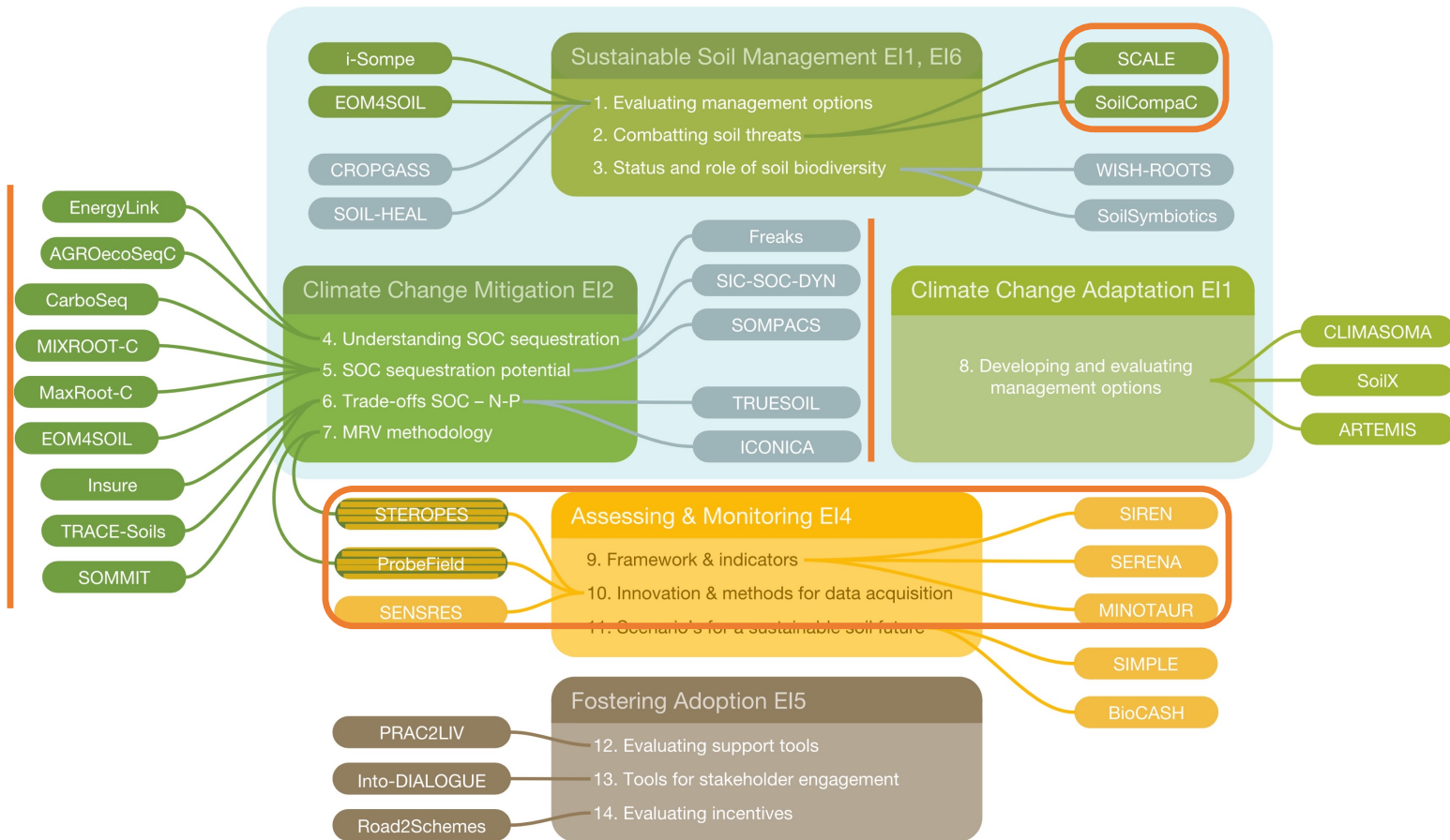
EJP SOIL : Perception of agricultural soil challenges

National Hubs (>350)

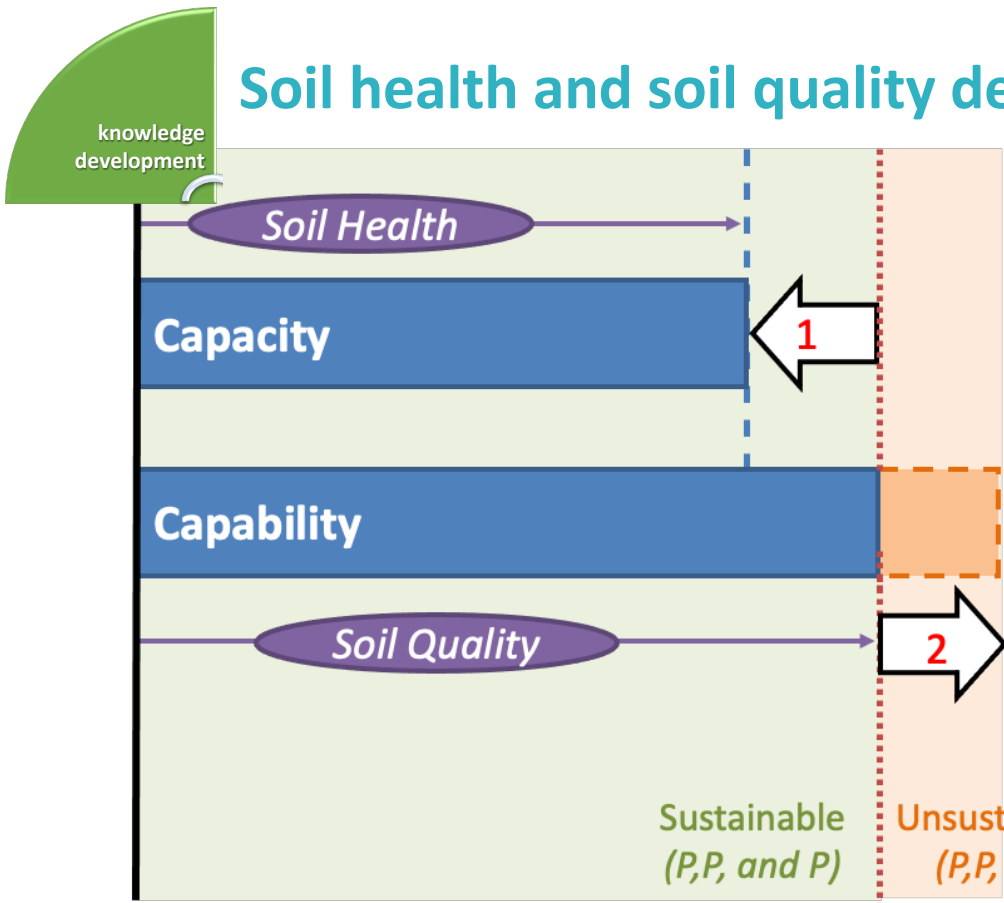




EJP SOIL research projects



Soil health and soil quality definitions



Faber et al. 2021

https://ejpsoil.eu/fileadmin/projects/ejpsoil/Policy_briefs/SIREN/SIREN_Policy_brief.pdf

Current soil status and ecosystem management limits provision

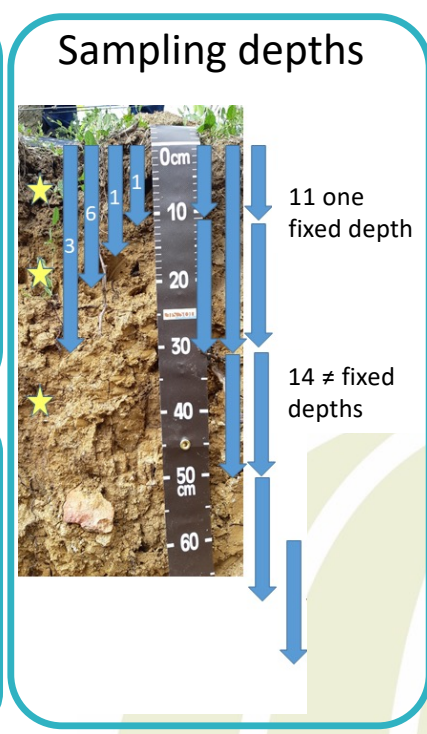
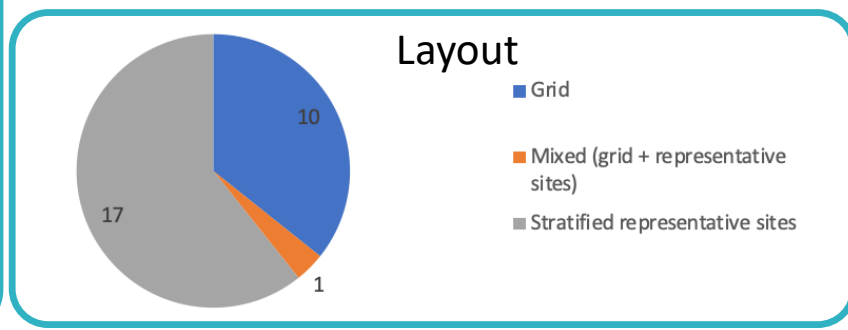
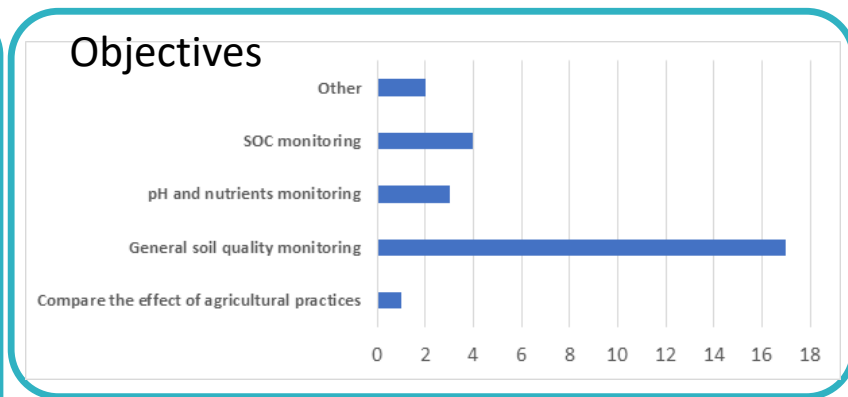
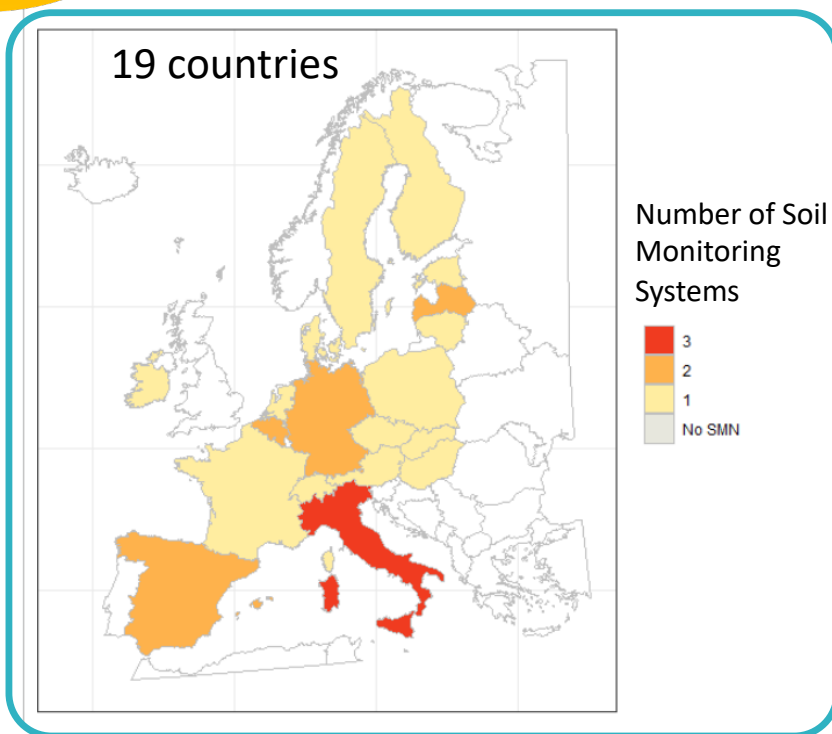
Context properties (e.g., soil type and land use) define potential at sustainable use

Land use sustainability in terms of people, planet, profit (P,P,P)

1 Reduction of ecosystem services provision can be linked to e.g. soil degradation, management practices, climate change...

2 Increase of ecosystem services provision is possible by using e.g. fertilizers, pesticides, other management practices... that may lead to an increase in trade-offs to other ES, or to other people, elsewhere or later

Taking stock: Existing national soil monitoring programmes



Soil monitoring systems with very diverse protocols and with different soil parameters monitored

➔ ongoing LUCAS – EJP SOIL National soil monitoring systems intercomparison

Indicators of soil health: Recommendations and way forward (Soil Health Law)

Project SIREN

Stocktaking for Agricultural Soil
Quality and Ecosystem Services
Indicators and their Reference
Values *Faber J. et al. 2022*

- A Tiered system Tier 1- Tier 2- Tier 3
- Harmonization rather than standardisation
- Indicator selection process: top-down (policy relevant soil indicators for a given policy objective) rather than bottom-up
- Use the indicators already used by > 50% Member states as minimum dataset
- Stakeholders contribution to the development of indicators

knowledge application

Indicators of soil health: Recommendations and way forward (Soil Health Law)

Project **SIREN**
Stocktaking for Agricultural Soil Quality and Ecosystem Services Indicators and their Reference Values *Faber J. et al. 2022*

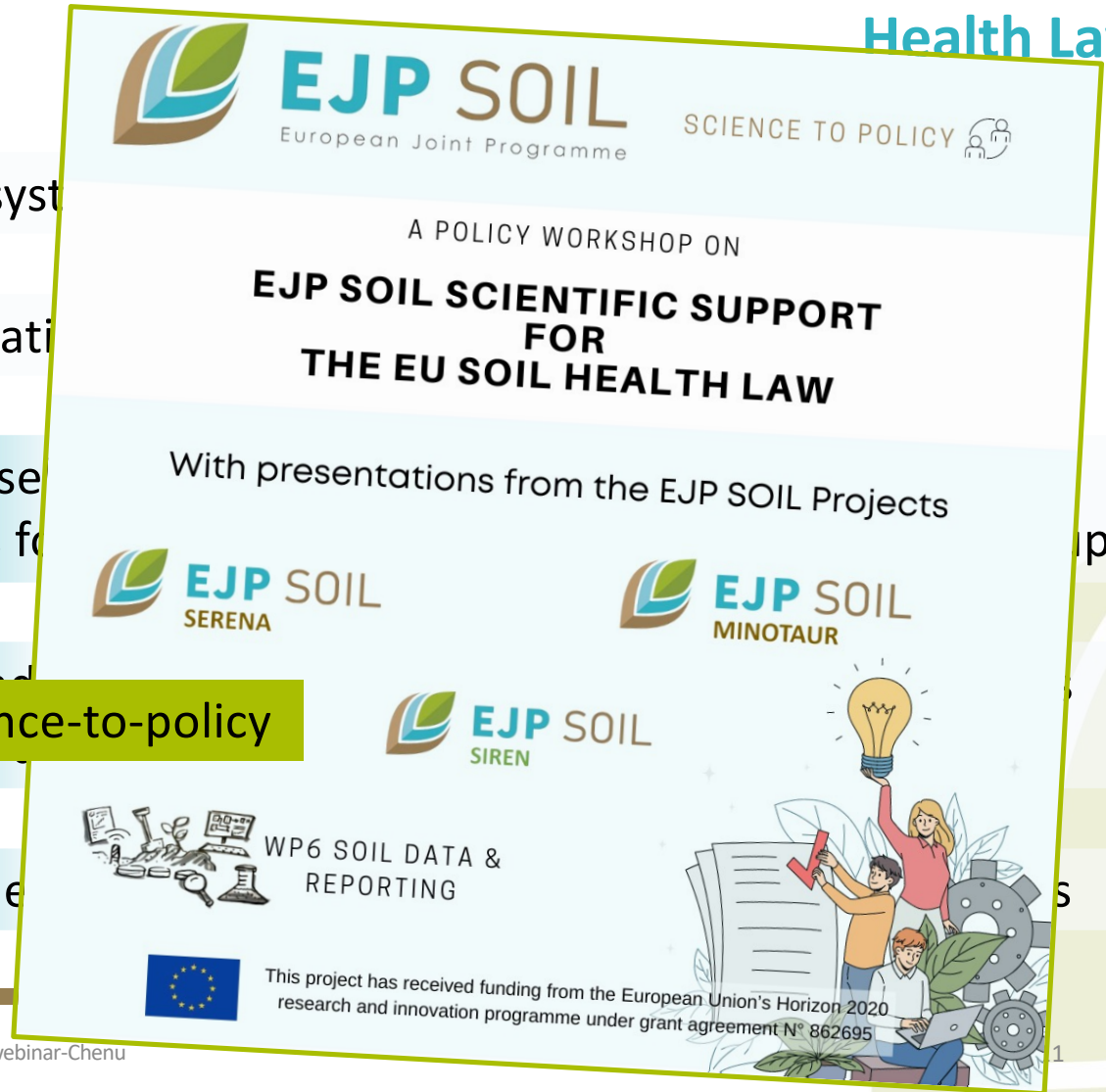
- A Tiered system

- Harmonization

- Indicator selection
indicators for

<https://ejpsoil.eu/science-to-policy>

- Stakeholder



Thank you for your attention
www.ejpsoil.eu



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