

INFO DAY
Missione A Soil Deal for Europe
16 febbraio 2023

Giovanni Stanghellini



Mission Soil Deal for Europe: le ragioni

- La salute del suolo è fondamentale **nell'attuazione del Green Deal** e delle sue strategie (dal produttore al consumatore, biodiversità, silvicoltura, inquinamento zero e clima) e dell'**Agenda 2030**.
- La vita sulla Terra dipende da suoli sani: **il suolo è alla base dei nostri sistemi alimentari**
- I suoli forniscono acqua pulita e habitat per la **biodiversità**, contribuendo nel contempo alla **resilienza climatica**.
- Si stima che tra il **60 e il 70%** dei suoli dell'UE siano **malsani**.
- **Un centimetro di terreno** può richiedere centinaia di anni per formarsi, ma può essere perso in un solo temporale o incidente industriale.
- I suoli ci aiutano a mitigare e ad adattarci ai cambiamenti climatici e questi esercitano una pressione sui suoli, accelerandone il degrado

Perchè bisogna agire adesso

- 2,8 milioni di potenziali siti contaminati (solo il **24% inventariato**) che presentano gravi rischi per la salute
- Il **50% delle torbiere si è prosciugato** e ha perso carbonio: questo sta contribuendo alla crisi climatica
- 24% della terra con tassi insostenibili di **erosione idrica**
- 25% della terra a rischio «alto» o «molto alto» di **desertificazione** nell'Europa meridionale, centrale e orientale
- I costi associati al degrado del suolo nell'UE superano i **50 miliardi di euro all'anno**
- Oggi assistiamo ad una grande sfida in termini di **scarsità idrica e insicurezza alimentare**

Obiettivi Generali e Specifici

- entro il 2030: almeno il **75% di tutti i suoli nell'UE** sono **sani** per cibo, persone, natura e clima.
 - entro il 2030: creare **100 living labs e lighthouses** per guidare la transizione verso suoli sani
1. ridurre degrado dei suoli, incluso desertificazione e salinizzazione
 2. conservare le scorte di carbonio organico del suolo (ad es. foreste)
 3. fermare impermeabilizzazione del suolo e aumentare il riutilizzo di suoli urbani
 4. ridurre l'inquinamento nel suolo e favorirne il recupero (obiettivo del 25% di agricoltura biologica)
 5. prevenire erosione del suolo sul 30-50% dei suoli
 6. migliorare la composizione del suolo per favorirne la biodiversità
 7. ridurre (del 20%-40%) impronta globale su suolo della produzione di cibo
 8. migliorare conoscenze sul suolo all'interno della società

Come raggiungere questi obiettivi

- Bandi 2021 – 67 milioni su indicatori di monitoraggio, e coinvolgimento di città, regioni e aziende, creazione di figure professionali specifiche
- Bandi 2022 – 96 milioni formazione, *carbon farming*, decontaminazione e progettazione dei suoli
- Bandi 2023- **125 milioni, SCADENZE 20 SETTEMBRE 2023** – 9 BANDI + 2 BANDI congiunti con altre Missioni

Living Labs & Lighthouses

- LL sono definiti come **ecosistemi di ricerca e innovazione** centrati sull'utente
- LL luoghi fisici in aree rurali o urbane dove persone con formazione o di settori differenti possono **co-creare, testare, monitorare e valutare soluzioni a un problema comune**. Questi possono essere fattorie, boschi, ambienti urbani o industriali. I diversi attori sono ricercatori, agricoltori, silvicoltori, pianificatori spaziali, gestori del territorio e cittadini che si uniranno per **co-creare innovazioni per un obiettivo concordato**.
- LH sono luoghi unici, come una fattoria o un parco, dove **testare e mettere in mostra le buone pratiche**. Questi sono luoghi per la dimostrazione e l'apprendimento peer-to-peer.
- LL & LH sono fondamentali per accelerare l'adozione di pratiche sostenibili da parte degli utenti con **soluzioni e metodi adatti ai contesti locali**.

Bandi Mission 2023

1. Discovering the **subsoil** – *12 mil / 6mil per progetto*
2. **Soil pollution processes** modelling and inclusion in advanced digital decision-support tools- *14 mil / 7mil per progetto*
3. **Onsite digital technologies to monitor** nutrients and chemical or biological stressors in soil and plants with relevance for food safety and nutrition - *14 mil / 7mil per progetto*
4. Innovations to prevent and combat **desertification** - *12 mil / 6mil per progetto*
5. Soil-friendly practices in **horticulture**, including alternative growing media- *12 mil / 6mil per progetto*
6. Soils in **spatial planning** - *12 mil / 6mil per progetto*
7. Back to earth: bringing **communities and citizens** closer to soil
8. **Co-creating solutions for soil health in Living Labs** *mil / 6mil per progetto*
9. **Carbon farming** in living labs - *12 mil / 6mil per progetto*

Bandi Mission 2023

Joint topic: Mission Climate - Ocean– Joint demonstration of an integrated approach to increasing landscape water retention capacity at regional scale

Joint Topic: Mission Ocean and Waters - Joint demonstration of approaches and solutions to address nutrient pollution in the landscape-river-sea system in the Mediterranean sea basin.

- Scadenza: 20 September 2023
- Official EU website: <https://ec.europa.eu/>

Bandi Mission 2023

01: RIA Discovering the subsoil – *12 mil / 6mil* IMPATTI ATTESI

- Improved access to data and knowledge on the conditions and dynamics of processes in subsoils.
- Support the development of sustainable soil management practices as well as financial and policy incentives.
- Accelerated deployment of sustainable management practices for protecting and restoring subsoils, while increasing relevant soil-dependent ecosystem services.
- Improved understanding of the role of the subsoil in climate change adaptation and mitigation, e.g. regarding carbon and water storage.

Bandi Mission 2023

01: RIA Discovering the subsoil – *12 mil / 6mil*

SCOPI PRINCIPALI

- **Identify and test sustainable management practices** to improve the conditions and functions of subsoils in close **cooperation with land managers** and allow for wide demonstration and dissemination of practices.
- **Develop tools/methods for risk assessment** as regards **subsoil degradation**, reflecting diverse soil uses. Demonstrate practical approaches for the use of these tools and methods by land managers and policy-decision makers.
- Establish robust **methods to improve data collection and monitor** the chemical, physical and biological characteristics of subsoils. Sampling methods for subsoil should be harmonised in order to provide comparable and reliable data.

Warning SUBSOIL vs.TOPSOIL

Bandi Mission 2023

02: RIA Soil pollution processes modelling and inclusion in advanced digital decision-support tools- *14 mil / 7mil* IMPATTI ATTESI

- Increased understanding of the **impact of pollution on soil processes**, soil functions and related ecosystem services along with responds to land-use dynamics and soil-management practices, restoration mechanisms & climate extremes.
- Enhanced access to knowledge and data for stakeholders that can **inform practices and policies** for reduced levels of pollution and restoration of polluted soils, especially those with high risk to human health and environmental wellbeing.
- Enhanced capacities to integrate diverse data streams (including from Earth Observation) to model and predict soil-related processes and their interactions with soil pollutants to demonstrate the effectiveness of policy measures (for air, water, soils).

Bandi Mission 2023

02: RIA Soil pollution processes modelling and inclusion in advanced digital decision-support tools- *14 mil / 7mil* *SCOPI PRINCIPALI*

- **Integrate and improve existing models, develop and test new models of soil processes** that allow for better and easier integration of, and reduced uncertainty about soil-related processes
- **Integrate soil processes modelling** for quantification of soil ecosystem services **with assessments of threats** from diverse pollution sources.
- **Develop use cases for soil modelling on the integration of local soil management practices.**
- **Develop scenarios based on integrated models** that show a) how changes in land management practices can reduce soil pollution (and in consequence air and water pollution) and b) the effects of policies on land management practices that avoid/reduce soil pollution.

Bandi Mission 2023

03: IA Onsite digital technologies to monitor nutrients and chemical or biological stressors in soil *12 mil/ 6 mil*

IMPATTI ATTESI

- Increased scale-up, availability and use of **onsite digital tools** (e.g., light-based technologies, remote sensing, Artificial Intelligence (AI)) to monitor nutrients, micronutrients, chemical and biological stressors in soil, plants and subsequently in food in various stages of the production process (from farm to processing stages).
- Improved capacities for food safety risk mitigation and management throughout the various food production stages.

Bandi Mission 2023

03: IA Onsite digital technologies to monitor nutrients and chemical or biological stressors in soil *12 mil/ 6 mil SCOPI PRINCIPALI*

- Advance and/or develop **onsite digital technologies** and applications to analyse nutrients and pollutants that could support appropriate interventions at the various food production stages to enrich soil or remove excess nutrients and micronutrients
- Advance and/or develop innovative digital technologies including exploratory **modelling** for calibration and prediction, to detect nutrients and micronutrients, chemical and biological contaminants which have a bearing on food quality and safety.
- Advance and/or develop digital technologies and applications for **in-field detection of soil parameters** with relevance for food safety and nutrition to improve soil management practices
- Identify challenges to the scale-up of existing digital technologies related to the soil-food nexus.

Bandi Mission 2023

04 – IA: Innovations to prevent and combat desertification - *14 mil / 7mil per progetto* IMPATTI ATTESI

- **Understanding** and **measurement** of desertification drivers, extent and impacts, in connection with specific land uses; **sharing** of knowledge
- **Demonstration** of solutions for the **prevention** of desertification and for the **restoration** of degraded land, re. economic viability and environmental effectiveness
- Enhanced **access** to effective, context-specific restoration and prevention **solutions** and to information about the **conditions** under which they are effective
- More, bigger **areas** under sustainable soil and water **management**
- Dryland soils become **more resilient** and less vulnerable to drought and desertification

Bandi Mission 2023

04 – IA: Innovations to prevent and combat desertification *14 mil / 7mil per progetto* - SCOPI PRINCIPALI

- Synthesise and gather **evidence** on drivers and impacts of land degradation, using diverse **data** flows and where relevant **models**, with a view to **supporting** alternative land **management** actions (scenarios)
- Identify, **demonstrate** the effectiveness, and promote the **scale-up** of **measures** against desertification, at different scales and addressing various types of land use/land use changes
- **Agricultural** land: identify, demonstrate land-use **practices** which are more resilient and are suitable for combatting desertification while sustaining ecosystem services and preventing land abandonment

Bandi Mission 2023

04 – IA: Innovations to prevent and combat desertification - 14
mil / 7mil per progetto
Scopi principali

- Facilitate **learning** and **exchange** among relevant actors, incl. across sectors, by promoting **various types** of innovations and/or land use
- **Policy recommendations** for creating incentives, overcoming obstacles for widespread **uptake** of measures demonstrated to be effective and suitable for scaling up
- **Awareness-raising** on desertification and for demonstration and dissemination of solutions

Multi-actor approach / **TRL 5-7** by end of project / **Collaboration** esp. with PRIMA and NewLIFE4Drylands / **International** cooperation, esp. with non-EU Mediterranean

Bandi Mission 2023

05: IA Soil-friendly practices in horticulture, including alternative growing media- *13 mil / 6.5 mil per progetto*

IMPATTI ATTESI

Reduced carbon/environmental **footprint** of the horticultural sector and more sustainable **production systems**, reducing negative impacts on soil health

Novel **products**, production **processes**, management options developed and tested, with improved environmental, social, health and safety performance

Sustainable **alternatives to peat** are more widely available and used in horticulture

Policy **measures** and other **incentives** explored and elaborated to further the uptake of sustainable alternatives to peat

Bandi Mission 2023

05: IA Soil-friendly practices in **horticulture**, including alternative growing media- *13 mil / 6.5 mil per progetto*

Scopi principali

- Identify, develop and promote horticultural **practices and production systems** that conserve or improve soil health, incl. **alternative materials** to be used as sustainable substitutes for peat as substrate or soil improver
- Demonstrate **feasibility** and economic **viability** of newly developed alternatives
- Generate **data** to support improved environmental, social, health and safety **performance** of alternative growing media
- develop and/or improve sustainable management practices in horticulture (including **digital technologies and infrastructures**) to **reduce the use of inputs**
- Identify **barriers** for uptake of soil-friendly practices; suggest suitable **measures** to overcome them
- **awareness, dissemination** and **training** for soil-friendly horticultural practices

Bandi Mission 2023

06: RIA Soils in **spatial planning** - *7mil* IMPATTI ATTESI

- More systematic recognition of the value of **soil functions in spatial planning** and land use decisions
- Improved access to information and planning tools for more adaptive land management
- Promotion of **nature based solutions** to support soil functions
- Approaches for **rezoning, restoration and de-sealing** are more widely applied to land infrastructure for reuse.

Selected projects should **liaise with the Joint Research Centre** as relevant to populate the European Soil Observatory with data and information

- **Seek to build synergies** between the integration of soils in planning practices with the **management of other resources such as water**
 - Build on **good practices from Third Countries**, as appropriate

Bandi Mission 2023

06: RIA Soils in **spatial planning** - *7mil* - SCOPI PRINCIPALI

- **Systematic review and analysis** of how soils, their functions and ecosystem services are considered in the various levels of spatial planning in EU and ACs.
- **Improve the knowledge on potential trade-offs** between the provision of ecosystem services and the further expansion of urban, peri-urban and rural areas.
- **Identify good planning practices** that integrate soils into spatial planning. **Show the impact of these practices** on actual land use in urban and rural areas.
- **Develop strategies to progress towards zero net land take by 2050. Provide practical recommendations** and **identify bottlenecks** for a better integration of soils into existing spatial planning practices.
- **Provide opportunities for training and skill development of planners** as well as for the **exchange of experiences** between the various actors

Bandi Mission 2023:

CSA 07: Back to earth: bringing communities and citizens closer to soil 6 MIL- IMPATTI ATTESI

- Increased **societal awareness** on the importance of soil and the challenges it faces and of the **impact of individual decisions** on soils >> **increased engagement** in the protection and restoration of soil health.
- **Opportunities for engaging in creative ways in soil protection are widely available** and supported by soil related arts products and innovative methodologies
- **Cultural and creative industries (CCIs), artists and civil society organisations are mobilised** and work together alongside with universities, research institutes and public institutions and citizens **to increase soil literacy in society**
- **Increased capacity of public and private institutions at different levels to engage with the wide public** in creative ways to promote sustainable soil management

Bandi Mission 2023:

CSA 07: Back to earth: bringing communities and citizens closer to soil 6 MIL SCOPI PRINCIPALI

- **Establish a network** of relevant actors and projects around art, humanities, cultural and creative industries and carry-out activities and campaigns **to increase people's awareness on soils**, as well as ensure meaningful **citizens' engagement**. -> the network should gradually expand
- **Coordinate, monitor and evaluate** the actions of the projects and initiatives from third parties receiving financial support. Support and **scale up successful initiatives**.
- **Design and provide tools and material** as well as **build capacities and skills** for supporting public and private institutions at different levels to **engage with citizens in creative ways** in the protection and restoration of soil health.
- **Organise regular festivals** (at least two) **open to the public** with the participation of the projects and initiatives financed through the financial support to third parties.
- **The projects and initiatives financed through the financial support to third parties** should:
- **Run innovative communication campaigns** through different tools to raise awareness on the importance of soil; and **organise and promote artistic, soil-related activities and events**
- **Engage citizens in the protection and preservation of soil as well as in tackling soil challenges** (including the ones addressed by the specific objectives of the Soil Deal Mission), **through innovative, participatory and creative methodologies**

Bandi Mission 2023:

CSA 07: Back to earth: bringing communities and citizens closer to soil 6 MIL – EXTRA RULES

- **International organisations** with headquarters in a Member State or associated country are exceptionally eligible for funding
- **Legal entities established in non-associated third countries** may exceptionally participate in this CSA
- Must: **multi-actor approach, SSH (social science and humanities)**
- **Financial support to third parties** (grants) max EUR 150 000 each – in total not exceed 40% of the EU funding (approx. 2,4 M euro)
- Should: create synergies with **HuMUS** and **HORIZON-MISS-2022-SOIL-01-07 “Foster soil education across society”**
- Suggestion: Creative Europe programme <https://culture.ec.europa.eu/creative-europe/about-the-creative-europe-programme>

Bandi Mission 2023:

RIA 08: Co-creating solutions for soil health in Living

Labs *36mil / 12mil per progetto* – IMPATTI ATTESI

- **Fully operational Living labs (LL)** are established, where **co-creation and testing of solutions** for soil health in rural and urban areas takes place;
- Increased capacities for **participatory, interdisciplinary and transdisciplinary R&I** approaches allowing for effective cooperation between science, practice, policy;
- Practice oriented **knowledge and tools** are **more easily available** to land managers and **contribute to an enhanced uptake of solutions** for soil health and related ecosystem services;
- **Strengthened collaborations** and increased consideration of effective solutions for soil health;
- **Policy makers** are more **aware** of local needs regarding soil health and can use this knowledge to design more effective policies

Bandi Mission 2023:

RIA 08: Co-creating solutions for soil health in Living Labs

36mil / 12mil per progetto SCOPRI PRINCIPALI

- Set up **four to five LL** to work together under **one project, sharing related soil health challenges**;
- Establish a detailed **work plan** with the activities to be undertaken ensuring the **co-design, co-development, and co-implementation of solutions**;
- Demonstrate how they do research, considering the relevant **drivers and pressures** as well as the **scaling up** and the **transferability of solutions**;
- **Establish** for each LL a **baseline** for the selected soil health challenge(s), in order to allow **for an accurate assessment and monitoring** of progress towards the objectives of the LL and the objectives of the project overall;

Bandi Mission 2023

RIA 08: Co-creating solutions for soil health in Living Labs *36mil / 12mil per progetto* – SCOPI PRINCIPALI

- **Monitor** and carry out an **assessment** of the **effects** of the innovative solutions **on soil health and related ecosystem services**. This should include a **demonstration of the viability** of the proposed solutions;
- Propose **strategies to ensure long-term sustainability** and continuity of the living labs beyond the Horizon Europe (e.g. possible business models);
- **Document** in an easy and accessible way the **developed solutions** in order to facilitate their uptake and transfer to relevant actors.
 - **Multi-actor approach** / Beneficiaries may provide **financial support to third parties** (max. EUR 200 K);
 - Capitalize from **ongoing projects** such as PREPSOIL, NATI00NS, NBSSOIL and the **future Support Structure** under the SGA;
 - Interact with networks active at local level, such as **EIP-AGRI OG** / Close collaboration with **EUSO**;
 - Agricultural activities should benefit both **conventional and organic farming**.

Bandi Mission 2023:

09: RIA Carbon farming in living labs - *12 mil / 12mil per progetto* – IMPATTI ATTESI

- Increased **carbon sequestration and protection of carbon in soils**, living biomass and dead organic matter
- Increased capacities for **participatory, interdisciplinary and transdisciplinary** R&I approaches
- Practice-oriented **knowledge and tools** are **more easily available** to land managers and contribute to an enhanced uptake of carbon farming.
- **Strengthened collaborations** and **increased consideration of effective solutions for carbon farming** in regions where the selected LL are operating.
- **Policy makers** are more **aware** of local needs regarding soil health and can use this knowledge to design more effective policies.

Bandi Mission 2023:

09: RIA Carbon farming in living labs - *12 mil / 12mil per progetto* –
SCOPI PRINCIPALI

- Set up **four to five LL** to work together **on carbon farming**, covering one or several land use types. Proposals should **describe the rationale for cooperation** across the various LL.
- Establish a detailed **work plan** with the activities to be undertaken ensuring the **co-design, co-development, and co-implementation of solutions**.
- Carry out **participatory and transdisciplinary** research in LL, considering relevant **drivers and pressures** as well as the **scaling up** and the **transferability of solutions to carbon farming challenges**;

Bandi Mission 2023:

09: RIA Carbon farming in living labs - *12 mil / 12mil per progetto* - SCOPI PRINCIPALI

- Establish for each LL a **baseline for carbon farming** to monitor the progress towards the objective of the LL and of the project overall. **Make use of relevant accounting methodologies for quantification of carbon removals.**
- Monitor and carry out an **assessment of the innovative practices for carbon farming**, considering the effects of ongoing climate change on carbon sequestration potential and dynamics.
- Propose **strategies to ensure long-term sustainability** and continuity of the living labs beyond the Horizon Europe (e.g. possible business models).
- Capitalize from **ongoing projects** such as PREPSOIL, NATION00NS, NBSSOIL and the **future Support Structure** under the SPECIFIC GRANT AGREEMENT (SGA);
- Interact with networks active at local level, such as **EIP-AGRI OG**;
- Close collaboration with **EUSO**; / Agricultural activities should benefit both **conventional and organic farming**.

Bandi Mission 2023:

IA Joint topic: Mission Climate - Ocean– Joint demonstration of an integrated approach to increasing landscape water retention capacity at regional scale, 15 MIL. – IMPATTI ATTESI

- Increased **resilience** to climate change impacts on soils, waters, habitats and biodiversity
- Increased landscape/soil **water retention capacity**
- Enhanced **mobilization** of relevant **actors** (local/regional authorities, planning bodies, farmers, foresters, land owners, economic operators, citizens)
- Enhanced **implementation** of EU legislation/policies: EGD, Adaptation Strategy, Biodiversity Strategy, Water Framework and Groundwater Directives, Soil Strategy

Bandi Mission 2023:

IA Joint topic: Mission Climate - Ocean– Joint demonstration of an integrated approach to increasing landscape water retention capacity at regional scale, 15 MIL. – SCOPI PRINCIPALI

- Full-scale **demonstration** of socio-ecological approaches and nature-based solutions to increase the landscape and soil water retention capacity, resilience to climate change, surface and ground water quality, soil health, and biodiversity protection/conservation
 - At least 75 demonstrations
 - In at least three Member States or Associated Countries
- Demonstration activities at the level of socio-ecological **territorial units** large enough to comprise different living/non-living systems
- **Planning, implementation** and management of effective measures with the **involvement** of relevant authorities, stakeholder and local communities

Bandi Mission 2023.

IA Joint Topic: Mission Ocean and Waters - Joint demonstration of approaches and solutions to address nutrient pollution in the landscape-river-sea system in the Mediterranean sea basin. 16 MIL/ 8 MIL – IMPATTI ATTESI

- **Uptake** of innovative and reproducible approaches to:
 - Prevent/minimize/remediate soil and water **pollution** from **excess nutrients**
 - Reduce **use of fertilisers**, inland water and ocean **eutrophication**
- Empowerment of **citizens** to take action against pollution
- Support to **implementation** of Marine Strategy Framework, Water Framework and Maritime Spatial Planning **Directives**
 - Third-party cascaded grants to '**associated regions**' (at least five)
 - **Dissemination** and **training/communication** activities for potential users
 - Cooperation with European Soil Observatory (JRC-EUSO)

Bandi Mission 2023. IA Joint Topic: Mission **Ocean** and Waters - Joint demonstration of approaches and solutions to address nutrient pollution in the landscape-river-sea system in the Mediterranean sea basin. 16 MIL/ 8 MIL
SCOPI PRINCIPALI

- **Demonstration** activities addressing the landscape-river catchment-sea system, including coastal ecosystems, in the **Mediterranean** sea basin
 - Upstream prevention and reduction of **nutrient losses** from soil
 - Prevention/reduction of **entry of nutrients** in rivers, catchment areas and estuary/sea
 - Measures to **reduce/eliminate excess nutrients** in/from the estuary/sea
- **Demonstration activities** at the level of **territorial units** (rural areas, urban communities, region, river basin, estuary) and considering local conditions
- **Involvement** of users (land owners, soil/water managers, river manager, authorities)

Link Utili

- [European Green Deal](#)
- [Soil Mission Implementation Plan](#)
- [Work Programme 2023/2024](#)
- [Soil strategy](#)
- [Farm to Fork Strategy](#)
- [Biodiversity Strategy](#)
- [Action Plan Circular Economy](#)
- [Taxonomy on Sustainable Activities](#)
- [Climate Adaptation Strategy](#)
- [Zero Pollution Action Plan](#)
- [Forest Strategy](#)
- [Organic Action Plan](#)
- [Education for Climate Coalition](#)
- [Global commitment for land degradation neutrality](#)
- [Proposed Nature Restoration Law](#)
- [Common Agriculture Policy](#)
- [A Long-term Vision for Rural Areas](#)

GRAZIE

Missione *A Soil Deal for Europe*

16 febbraio 2023

Giovanni Stanghellini

giovanni.stanghellini@unisi.it

Contact: EU-HORIZON-MISSION-SOIL@ec.europa.eu



**la cura del suolo dipende dall'azione e dallo
sforzo di ognuno di noi!**