



CNR-Pisa

The biggest research area in Italy



Institutes:

1. Biofisica
2. Biologia e Biotecnologia Agraria
3. Chimica dei composti organo-metallici
4. Fisiologia clinica
5. Geoscienze e georisorse
6. Informatica e Telematica
7. Istituto Nazionale Ottica
8. Linguistica Computazionale
9. Neuroscienze
10. Processi Chimico-Fisici
11. Scienza e Tecnologia dell'Informazione
12. Ricerca sugli Ecosistemi Terrestri
13. Tecnologie Biomediche

Staff: about 1200 employees

Agrivivai, Pistoia, 12 October 2018



Institute of Ecosystem Study (ISE)

The **Institute of Ecosystem Study-ISE** performs research into the structure and functioning of aquatic and terrestrial ecosystems, focusing in particular on anthropogenic pressure and global change. The ISE knowledge gives the scientific basis for identifying the most appropriate protective and corrective interventions, and provides support for the bodies entrusted with formulating policies for environmental protection and recovery. ISE included 4 units, Verbania (head unit), Pisa, Florence and Sassari. The 20th of September 2018 ISE was abolished. From 21st September ISE Pisa, Florence and Sassari joint with IBaf (Institute of Agro-Environmental and Forest Biology)



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IRET

**(Research Institute on
Terrestrial Ecosystems)**

Agrivivai, Pistoia, 12 October 2018

Research group: A women Team



Grazia Masciandaro
Team leader



Cristina Macci



Serena Doni



Eleonora Peruzzi

Supported by:

- 2 Technicians: (men support)



Fernando
Di Giovanni



Manuele
Scatena

- a Financer:



Alessandra Bartolini

- Students: Thesis, Stage, PhD



Pablo and Asunciones

From Murcia

Collaborations

Nationals:

- University of Pisa, Viterbo, Roma, Napoli, Firenze, Padova, Milano, Cagliari
- Acque S.p.A. (Pisa)
- San Giuliano Terme Municipality (Pisa)

Internationals:

- CSIC. Consejo Superior de Investigaciones Cientificas of Murcia, Madrid, Granada, Salamanca (Spain), University of Santiago de Compostela (Spain)
- Warwick University (United Kingdom)
- China University of Geoscience (China)
- Università BIOTERRA Bucarest (Romania)
- Colpos-Colegio de post graduados of Veracruz, Mexico

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Main research topics

✓ Bioremediation and recycling of dredged sediments

- 2018 -2021 European project SUBSED LIFE17 ENV/IT/000347 "Sustainable substrates for agriculture from dredged remediated marine sediments: from ports to pots"
- 2017-2019 National project financed by Fondazione Cassa di Risparmio Pistoia e Pescia "Posidonia oceanica e sedimenti per la produzione di substrati per la vivaistica"
- 2015-2018 European project HORTISED LIFE13 ENV/IT/113 "Demonstration of the suitability of dredged remediated sediments for safe and sustainable horticulture production"
- 2014-2016 European project CLEANSED: LIFE12 ENV/IT/000652 "Innovative integrated methodology for the use of decontaminated river sediments in plant nursing and road building"
- 2009-2012 European project AGRIPORT ECO/08/239065/SI2.532262 "Agricultural Reuse of Polluted Dredged Sediments"



Main research topics

✓ Soil quality and functionality and ecological techniques to recover stressed soil

- 2018-2022 European project ZEOWINE LIFE17 ENV/IT/427 “ZEOLite and WINery waste as innovative product for wine production”
- 2016-2019 National project financed by Società Chimica Larderello S.p.A. «Fitotrattamento di suoli contaminati da Hg nell’area CANOVA»
- 2015-2018 European project ERASMUS+ 2015-1-ES01-KA203-016214 “Land degradation and rehabilitation in Mediterranean Environments”
- 2013-2015 European project BIOREM LIFE11 ENV/IT/000113 “Innovative System for the Biochemical Restoration and Monitoring of Degraded Soils”
- 2006-2012 National project financed by San Giuliano Terme Municipality “Ecological approach to remediate polluted soil located in Madonna dell’Acqua (San Giuliano Terme municipality) through natural technologies”
- 2005-2008 European project ALMOND PRO-SOIL LIFE05/ENV “Soil protection in Mediterranean areas through cultivation of new varieties of almond tree”



Main research topics

- ✓ Valorization of organic residue (organic fraction of waste residues, Olive residues, biological sewage sludges) through biological techniques
 - 2004-2012 National project financed by Acque S.p.A. (Pisa) “Phytomineralization of sewage sludge”
 - 2000-2002 National project financed by San Giuliano Terme Municipality “Valorization of olive residues through vermicomposting process (*Eisenia foetida*)”

- ✓ Bioindicators to evaluate soil degradation and desertification
 - 2004-2006 European Project INDEX. STREP n° 505450 “Indicators and Thresholds for Desertification, Soil Quality, and Remediation”



Biological and biochemical parameters are useful indicators to monitor rapid change occurred in soil or other matrix such as sediment during a recovery or decontamination processes or organic matter transformation such as composting. They are considered to be the most sensitive indicators even of slight modifications occurring in soil or other matrices because they are dependent on microbial biomass activity and are strictly related to active nutrient pools



Greenhouse



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Our laboratories and equipment



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LIFE17 ENV/IT/000269, LIFE AGRISED

"Use of dredged sediments for creating innovative growing media and technosols for plant nursery and soil rehabilitation"

Beneficiaries:

Coordinator -**AGRIVIVAI**: Agri Vivai S.r.l.

Partners

- ISECNR**: IRET, the National Research Council, Pisa, Italy
- EPS**: EPS biotechnology s.r.o
- MCM**: m.c.m. Ecosistemi.
- UNIFI** University of Florence, Italy
- GORINI**: Società Agricola F.lli Gorini Piante s.s.

Total budget	1,742,401 €	CNR contribution	186,185€
EU contribution	1044,461 €	EU contribution CNR	111,222€

Start date: 01/10/2018

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End date: 30/09/2021



LIFE17 ENV/IT/000269, LIFE AGRISED

CNR is involved in:

A. Preparatory actions

A1. Review of the EU and national regulations on the use of sediments for plant nursery and soil rehabilitation and of the analytical protocols **01/10/2018-31/12/2018**

B. Implementation actions

B1. Analysis and characterization of dredged sediments and green waste (responsible).
CNR involvement: physical, chemical and biological characterization of sediments and waste **01/10/2018-31/03/2019**

B2. Sediment and green waste co-composting and analysis of the process
CNR involvement: analysis of the process **01/04/2019-31/03/2021**

B4. Use of dredged sediments and composted sediments as components for preparing reconstituted soils
CNR involvement: physical, chemical and biological analyses.
01/04/2019-31/09/2019

B5. 1/10/2020-30/09/2021; **B6** 1/01/2021-30/09/2021...all partners



LIFE17 ENV/IT/000269, LIFE AGRISED

CNR is involved in:

C. Monitoring of the impact of the project actions

C1. Monitoring and validation of composted sediments (responsible).

CNR involvement: Physical, chemical and biological analyses. **01/01/2019-30/06/2019**

C3. Monitoring and validation of dewatered and composted sediments for soil reconstitution

. 01/07/2019-30/06/21

C.4 Monitoring of socio-economic impact of the project and LCA.... all partners

01/10/2020-30/09/2021

C.5 Performance indicators monitoringall partners



Thanks for your attention



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