



SOIL PLATFORM WORKSHOP, 24 September 2013, Athens

STRATEGIES AND POLICIES FOR SOIL PROTECTION



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LIFE - SOIL PROJECTS

AgroStrat Sustainable strategies for the improvement of seriously degraded agricultural areas: The example of Pistachia vera L.

AGROWASTE Sustainable strategies for integrated management of agroindustrial wastes

BIODIVINE Demonstrating functional biodiversity in viticultural landscapes

BIOREM to restore degraded soils, enhancing physical-chemical and biochemical soil properties, and increasing fertility by integrating addition of composted organic substrates

BIOREWIT New Soil improvement products for reducing the pollution of soils and waters and revitalizing the soil system

BIOXISOIL New approach on soil remediation by combination of biological and chemical oxidation processes

Crops for better soil Profitable organic farming techniques based on traditional crops: contrasting soil degradation in the Mediterranean

DEMETER Sustainable and integrated soil management to reduce environmental effects

EcoPest to develop, apply and demonstrate a viable Strategic Plan for the sustainable use of pesticides and fertilizers in the Voiotikos Kifissos

HydroSense to improve the water, fertilizer and pesticide use efficiency of cotton in the Mediterranean, by employing advanced technologies in proximal remote sensing

LOS TOLLOS Project for the comprehensive restoration of the basin of Los Tollos

New Life Environmental recovery of degraded soils and desertified by a new treatment technology for land reconstruction

oLIVE-CLIMA Introduction of new olive crop management practices focused on climate change mitigation and adaptation

PROSODOL to develop protective/remedial technologies that can be used to remove or limit the presence of pollutants in soils and water bodies affected, by the disposal of olive oil mills' wastes

SAGE 10 aiming at the sustainability of Mediterranean agroecosystems (olive crops), through the development of an environmental Impact Assessment Procedure

SOILCONS-WEB - Multifunctional Soil Conservation and Land Management

SOIL-Montana - Agroecosystems health cards: conservation of soil and vegetal diversity in mountain and bottom valley grazing areas

SOILPRO Improvement of soil fertility and productivity, reducing environmental impact (water contamination, atmospheric emissions) and protecting habitats or ecosystems.

So.S. (Soil Sustainability) refers to the identification of various soil risks and the provisions of the European Soil Thematic Strategy (Anthemountas river basin)

The Green Deserts: new planting techniques for trees in desertified environments

WASTEREUSE – Best practices for agricultural wastes treatment and reuse in the Mediterranean countries

Threats



Erosion



Factors affecting soil organic matter content



Sealing



Landslides



Crusting



Soil compaction



Desertification



Saline soils



Soil pollution

Contribution of LIFE projects to the Thematic Strategy for Soil Protection

•Monitoring

-Improvement of soil fertility and productivity, degraded soils

Comments

- Across Europe long term monitoring of soils is inadequate
- Relations between soils and climate change have not been examined

•Land degradation- remediation

- Soil erosion risk maps have been compiled (Italy and Greece)
- Environmental recovery of degraded soils and desertified areas
- Best practices for agricultural wastes reuse (Med. Countries)
- Soil improvement for reducing the pollution of soils and waters
- Soil remediation by biological and chemical processes
- Crop management practices focused on climate change mitigation and adaptation (olive trees)

Comments – future work

- Harmonisation of criteria for compilation of erosion risk maps
- Impact of soil erosion on biodiversity change

•Biodiversity

-**Conservation of soil and vegetal diversity**

Comments – future work

-Impact of climate change and land use changes on biodiversity

-Improvement of knowledge on the relations between soil erosion and biodiversity

•Strategies and policy

-**Strategies for the improvement of degraded agricultural areas**

-**Implementation of “cross-compliance” in certain countries**

Comments – future work

- **Methods-protocols and standards to compile maps from soil databases for assessing policy (soil and water management, land use planning, etc.)**

Gaps on soil protection

- **All soil threats are not included and only certain Member States have specific legislation on soil protection**
- **At country level, methods and strategies for soil protection vary greatly**
- **Different EU policies which link farmers' eligibility for agricultural subsidies have affected soil and environmental conditions**
- **How agriculture affects soil conditions and land management practices and what measures are needed for improvement of soil properties?**

Harmonization of monitoring results across the EU

- **Official frameworks for soil monitoring exist in most countries, but adopted methodologies are not uniform and vary considerably**
- **Fixed-depth sampling is suitable for assessing the human impact (heavy metals, organic materials, nitrates movement)**
- **Standardisation of soil sampling methods to decrease cost in soil monitoring**
- **Soil Monitoring Networks are not dense in most countries and additional new sites are required**

MANAGEMENT PROBLEMS OF EUROPEAN SOILS

- Over 320 major soil types have been identified in Europe**
- Soil degradation processes vary considerably from Member State to Member State**
- Different measures and practices must be applied according to soil type and climatic conditions**
- Absence of a common soil sampling protocol (site specific conditions)**
- There is a need to improve access of policy and decision makers to soil data**

- **Most soil threats are partially addressed by LIFE projects**
- **New projects should focus on rational land use**
- **European initiatives should preferably aim at pollution prevention rather than soil remediation and removal of pollutants**

- **Spatial variability of soils (vertical and lateral) is a crucial issue**
- **Field surveys and soil sampling campaigns are required for accurate and reliable soil mapping (a number of thematic maps will be compiled)**

Selected future activities on soils

- **Assessment of soil loss by water, wind and tillage erosion at national level**
- **Role of agriculture on SOM (land use changes, burning of plant residues, land cover, tillage, various agricultural practices, CoGAP)**
- **Manure usage and management, open period of application in agriculture (in each agro ecological zone), N mineralization, application methods**
- **Soil pollution, contamination: heavy metals, nitrates, organic pollutants**

• **Soil compaction - crusting:** land use planning, cultivation practices, drainage conditions

• Lack of data for soil compaction, such as bulk density (are not measured in many countries)

• **Soil sealing:** rules for public works

• **Decline in soil diversity:** mapping of microfauna and microflora activity, N fixation, invassible plants

• **Soil salinization, acidification:** mapping, origin, remediation, irrigation, fertilization

• **Landslides :** designation of vulnerable zones

• **Desertification:** mapping of desertified areas and vulnerable zones to desertification

OTHER INDICATIVE TOPICS (future work)

- 1. National and regional action plans for soil protection**
- 2. Soil survey products and interaction with climate changes and soil carbon sequestration**
- 3. Fires and biodiversity, impact on soils and air quality**
- 4. Technologies for the prevention and control of desertification**
- 5. Monitoring of soil drought, policies and actions to mitigate water deficit**
- 6. Methods and practises for decreasing emissions from soils**
- 7. Restoration of soils at high altitudes, road embankments, open cast mining areas**

General conclusions (partially based on Astrale Rep., R. Giandrini et al., 2013)

- **All the selected projects deal with one or more of the soil threats identified by the Soil Thematic Strategy**
- **Few projects dealing with soil surveys, further efforts for harmonization of findings are required**
- **Several LIFE projects dealing with habitat restorations do not assess the positive effects on soils, usually focus on improvements of vegetal and animal ecosystems**
- **New efficient methodologies for the implementation of local policies are required**
- **A common EU strategy is required to deal with all aspects of soil protection**
- **The specific conditions in each country must be taken into account**

THANK YOU VERY MUCH

