

Requirements and use for soil
data at the EU level (results
from the ESDaC Consortium)

ESDaC Project 09/1 INSPIRE

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ESDaC Project: 09/01 INSPIRE

Having 3 tasks, the project set out to:

- Document “applications” using soil data
- Collect “reference material” from each soil-related Legally Mandated Organisation (LMO)

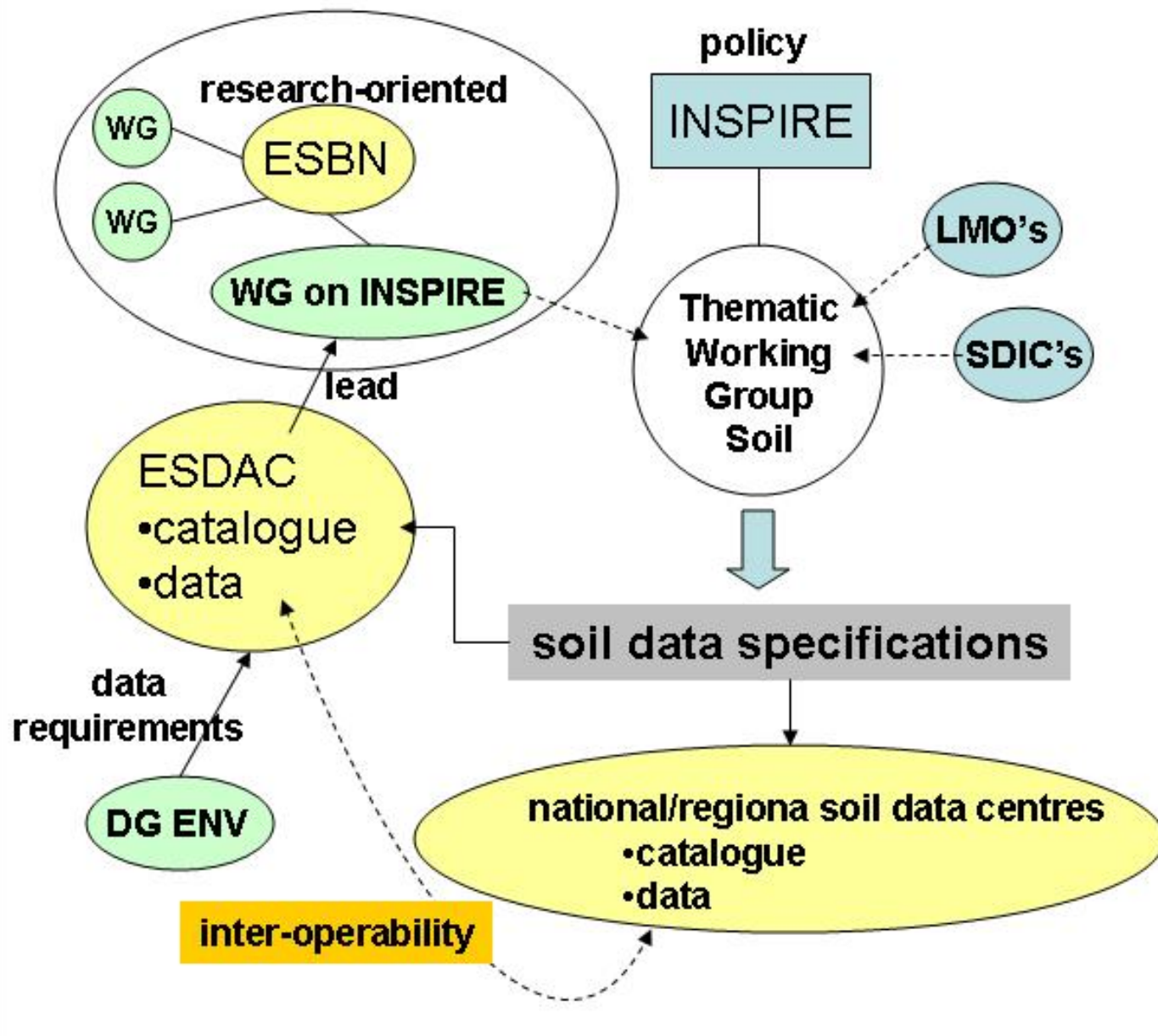
- Contribute to the collection of user requirements in terms of soil related applications and to the collection of “reference material”;**
- Contribute to the development of use cases; and**
- Make an in-depth analysis of the collected reference material.**



Project Partners

These organisations/persons contributed to the research:

- Cranfield University (CU) – lead partner;
- Umweltbundesamt – Austria (UBA-A).
- Szent Istvan University (SIU);
- Institut National de la Recherche Agronomique (INRA);
- Alterra-Wageningen University and Research Centre (Alterra);
- Dr Endre Dobos.



Managing a European-Wide Project



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TWiki > Main Web > WebHome (2010-02-09, FirenzeFumanti)

Welcome to the ESDaC Consortium web

This website is the home of the 'ESDaC Consortium', dedicated to broadening and developing the knowledge base of the [European Soil Data Centre](#).

- original or value-added - informed by a comprehensive and up-to-date knowledge of soil and related sciences drawn from cutting-edge research
- timely - in terms of responsiveness to urgent requests and meeting tight deadlines;
- policy relevant - framed and focused to clearly and concisely answer questions posed by policy-lead officials;
- trans-national in perspective - with a European level viewing point.

The ESDaC consortium seek to address a requirement to be able to interpret requests from the European [Joint Research Centre](#) (JRC) accurately into data, and then to manage delivery of a series of studies to achieve:

- a high technical standard that can be confirmed by peer review;
- excellent timings;
- willingness to respond flexibly to new perspectives;
- awareness of the need for confidentiality;
- the highest quality of document presentation.

These studies will be documented here as the work is undertaken.

INSPIRE Project

The first project being undertaken relates to the [INSPIRE](#) (Infrastructure for Spatial Information in Europe) Directive, concerning computer-based applications.

We are approaching [LMO](#) Legally Mandated Organisations, who have expressed they either produce, or use soils data, with a soil application stakeholder.

- [Project INSPIRE Soil Application Questionnaire](#) - MS Word document download
- [Letter of introduction](#) - from the EU Joint Research Centre

Benefits of TWiki web portal:

- Central Document Store;
- Feedback/Comments;
- Data collection/Forms;
- Consistency of approach.



Application Questionnaire

- The initial Soil Application questionnaire was the standard document used during data specification of all Annex I and II themes to-date
- 103 LMO's and SDIC's were approached across the 27 member states
- 31 completed questionnaires were returned
- 15 reference material documents were identified

Returned Questionnaires

Page Link	Application title
SoilQuestionnaire00001	Soilscapes Viewer
SoilQuestionnaire00002	COBIE / FM-10
SoilQuestionnaire00003	GS SOIL Portal (a future information system to be developed in the framework of the eContentplus-project GS SOIL "assessment and strategic development of INSPIRE compliant geodata-services for European soil data")
SoilQuestionnaire00004	Soil and agri-environment schemes
SoilQuestionnaire00005	Soil portal, Slovakia
SoilQuestionnaire00006	Geological information related the Soil
SoilQuestionnaire00007	Geographic Information System of Lithuania (LGII), https://www.geoportal.lt/
SoilQuestionnaire00008	Cadastral Virtual Office-Oficina Virtual del Catastro
SoilQuestionnaire00009	Keskkonnaregistri avalik teenus (Estonian Environment Register)
SoilQuestionnaire00010	Soil Map application, X-GIS (Estonian national Web Map Service)
SoilQuestionnaire00011	ISOP (Informations et Suivi Objectif des Prairies) – Information and Monitoring of Grasslands)
SoilQuestionnaire00012	Indiquasol
SoilQuestionnaire00013	UK Environmental Change Network (ECN)
SoilQuestionnaire00014	Soil Geographical Information System of Romania at scale 1:200,000, version 2 beta
SoilQuestionnaire00015	Countryside Survey (soil component)
SoilQuestionnaire00016	Digital Kreybig Soil Information System
SoilQuestionnaire00017	DOV (database for the (sub)soil in Flanders)
SoilQuestionnaire00018	Databases of the Hungarian Institute of Geodesy, Cartography and Remote Sensing
SoilQuestionnaire00019	Regional Spatial data infrastructure of National Government Committee about soil remediation and water protection emergency in Campania Region.
SoilQuestionnaire00020	The Soil Information System "FIS Boden"
SoilQuestionnaire00021	PortalU
SoilQuestionnaire00022	BORIS – an Austrian Soil Information System
SoilQuestionnaire00023	Organization and dissemination of special information of the Agricultural Sector
SoilQuestionnaire00024	Verdachtsflächenkataster (register of potentially contaminated sites)
SoilQuestionnaire00025	Carte des sols du Grand-Duché de Luxembourg
SoilQuestionnaire00026	Bulgarian contribution to GS Soil project
SoilQuestionnaire00027	WEBSOL : Internet platform of broadcasting of soil data
SoilQuestionnaire00028	Géoïdd: Interactive statistical data mapping tool
SoilQuestionnaire00029	Soil Monitoring System of Hungary
PublicSoilQuestionnaire00002	ISIS
PublicSoilQuestionnaire00003	Digital Soil Map of Austria - eBOD



Analysis

The returned questionnaires and reference materials were analysed to identify:

Actors

Processes and Use Cases

Data Structures

Legal frameworks



Classification of Actors

Prototype Actors
Government
Government ministries (Environment / Agriculture)
Government ministries (Health)
Public agencies
National mapping agencies
Planning agencies
Environmental Protection agencies
Emergency Services agencies
Municipal agencies
Transport agencies
Land Survey agencies
Land Registry and Cadastral agencies
Earth Sciences agencies
Non-Governmental Organisations (NGOs)
Non-Governmental Public Bodies (NGPBs)

EU bodies
EU Commission
Public interest
General Public
Private sector
Contractors
Scientific Community (Research Institutes)
Education sector
Agricultural private sector
Real-Estate private sector
Civil Engineering private sector
Agricultural Extension private sector
Services private sector
Landowners
Environmental private sector
Architectural private sector

Classification of Use Cases



Prototype Use Cases

Generalised soil quality and conditions, soil landscapes viewer / interrogation for educational purposes

Development-oriented site investigation and conditions and contaminated land

Agri-environmental scheme, with habitat recreation and restoration

Planning, land and property registry application with cadastral and valuation administration

Agricultural and Forestry productivity and rational land capability assessment

Soil monitoring activities, resilience to environmental change

Scientific toolkit for environmental modelling applications

Biodiversity and environmental zonation

Assessment of impact of soil threats

European and national Policy-making support



Collection of soil information

Section '7.3 Soil' of the Definition of Annex Themes and Scope document (INSPIRE Drafting Team, 2008a), identifies the collection of soil information as being broadly classified into three categories:

- a) **Soil mapping**, enabling to identify areas of land for management purposes.
- b) **Soil inventories**, providing a one-off assessment of soil conditions and/or properties at a point in time, and **soil monitoring**, providing a series of assessments showing how soil conditions and/or properties change over time.
- c) **Soil thematic mapping** providing for policy-relevant maps for soil protection and environmental reporting.

Over-arching classification of Use Cases



Soil mapping	Soil Inventories and monitoring	Soil thematic mapping	Prototype Use Cases
✓		✓	Generalised soil quality and conditions, soil landscapes viewer / interrogation for educational purposes
	✓	✓	Development-oriented site investigation and conditions and contaminated land
	✓	✓	Agri-environmental scheme, with habitat recreation and restoration
		✓	Planning, land and property registry application with cadastral and valuation administration
✓	✓		Agricultural and Forestry productivity and rational land capability assessment
	✓		Soil monitoring activities, resilience to environmental change
✓	✓	✓	Scientific toolkit for environmental modelling applications
		✓	Biodiversity and environmental zonation
		✓	Assessment of impact of soil threats
	✓	✓	European and national Policy-making support

Analysis of relevant legislation

Captured key (a) National and (b) EU legislation - Examples ...

Summary of Highlighted Relevant Legislation: Austria

National legislation

- Austrian Environmental information act (BGBl No. 495/1993)
- ALSAG Law for the Cleanup of Contaminated Sites (BGBl No. 299/1989)

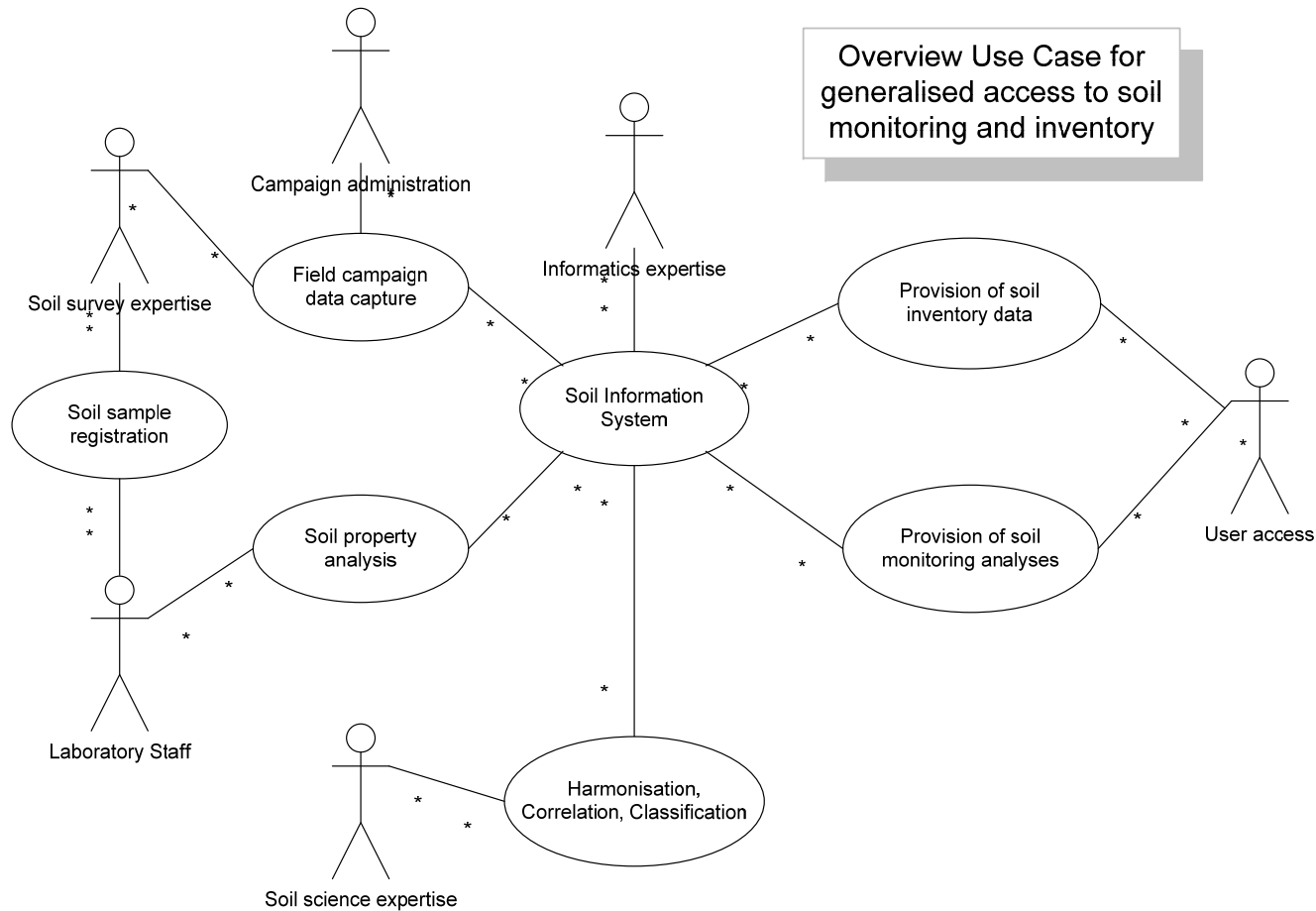
Summary of Highlighted Relevant Legislation: Ireland

EU Legislation

- Communication on a Thematic Strategy for Soil Protection in Europe
- anticipated (forthcoming) Soil Framework Directive (SFD).....
- Directive 2007/2/EC, Infrastructure for Spatial Information in the European Community (INSPIRE)
- United Nations Framework Convention on Climate Change (UNFCCC)
- Communication COM(2009)161 of 21 April 2009 "Towards a better targeting of the aid to farmers in areas with natural handicaps"

etc..

Example Use Case





Project Outcomes

- LMOs and selected SDICs approached and responses gathered;
- Development of classification for
 - Actors and
 - Use Cases
- Analysis of Reference Materials received
- Materials placed onto the JRC INSPIRE portal
- Full reports provided to the ESNB Working Group on INSPIRE and also the INSPIRE TWG



General Conclusions

- There were found few ‘truly European’ soil ‘applications’ as defined by the INSPIRE-sourced questionnaire
- Much use is made of soil information for policy support (maps, reports), ... but few OGC standards-compliant web-based services soil applications exist ... yet
- Reference materials seem even scarcer!
- Use Cases are useful for stakeholder communication
- Much soils activity is occurring away from formal LMO and SDIC organisations (scope limitation for our work)
- A need for harmonised ‘best practice’ soil schemas is certainly required for all application stakeholders