



NESIS - A Network to enhance a European Environmental Shared and Interoperable Information System

ICT PSP Grant Agreement
No. 225062

Giorgio Saio - GISIG
Danny Vandebroucke - KU Leuven

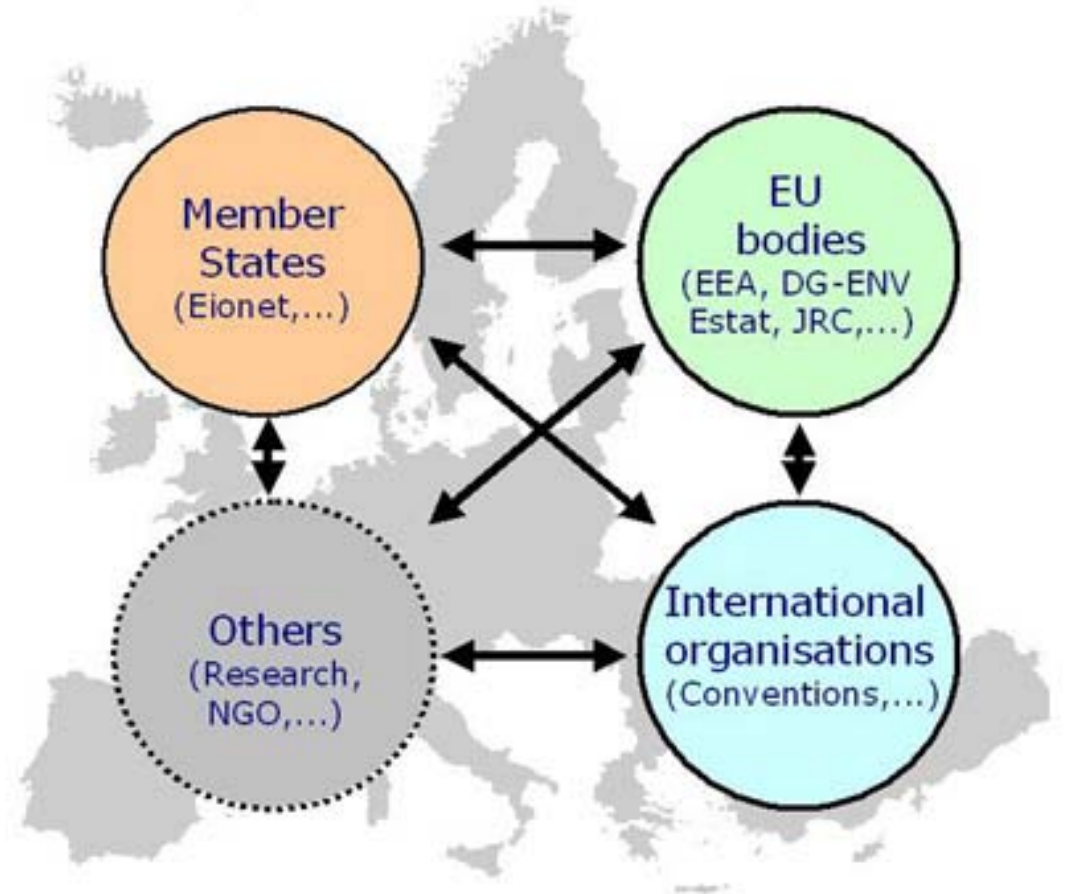


Prague, eEnvironment Conference,

March 25th, 2009

The NESIS context: SEIS

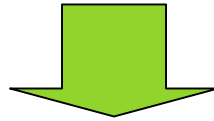
SEIS as a collaborative initiative of European and National bodies to establish an integrated and sustained information system for sharing environmental data



A system where the public authorities are the providers but also the main end-users and beneficiaries

(EEA source)

A contribution to SEIS



the Thematic Network NESIS
a Network to enhance a European Environmental
Shared and Interoperable Information System

Competitiveness and Innovation framework Programme (CIP)
Information and Communication Technologies (ICT) Policy Support
Programme (PSP)

Grant Agreement N° 225062

Duration: 30 months

Starting date: 1st May 2008

why NESIS

- To promote the uptake of ICT solutions to address the fundamental problems faced by public authorities in providing information related to monitoring and reporting environmental data.
- To support a shared vision for streamlining current information and reporting systems and to promote the adoption of an interoperable information infrastructure
- To provide a coherent ICT roadmap for the SEIS implementation with the consolidation of existing best practice.

SEIS components



(EEA source)

Criteria

- Awareness that there is not a single model to organise data flow, to be developed upon diverse needs in the topic areas

- From local to global and vice-versa, i.e. to improve data sharing at and among all levels

Objectives versus Outcomes -1

- Reports of the state-of-play in Environmental Information systems and services for monitoring and reporting
- Collection and organisation of Good Practices
- Communication forum for stakeholders in environmental data management

Objectives versus Outcomes -2

- An ICT roadmap for evolution towards a distributed, standards-based infrastructure for spatial and non-spatial environmental information based on the principles of shared access → SEIS
- Promotion of a ICT Pilot initiative
- Establishment of a NESIS INSPIRE SDIC

ICT Roadmap work package

Two complementary documents:

- ICT Roadmap for implementing SEIS, focuses on *what to do*
- Guidelines on ICT supporting environmental monitoring and reporting, focuses on *how to do it*

Ground component and target

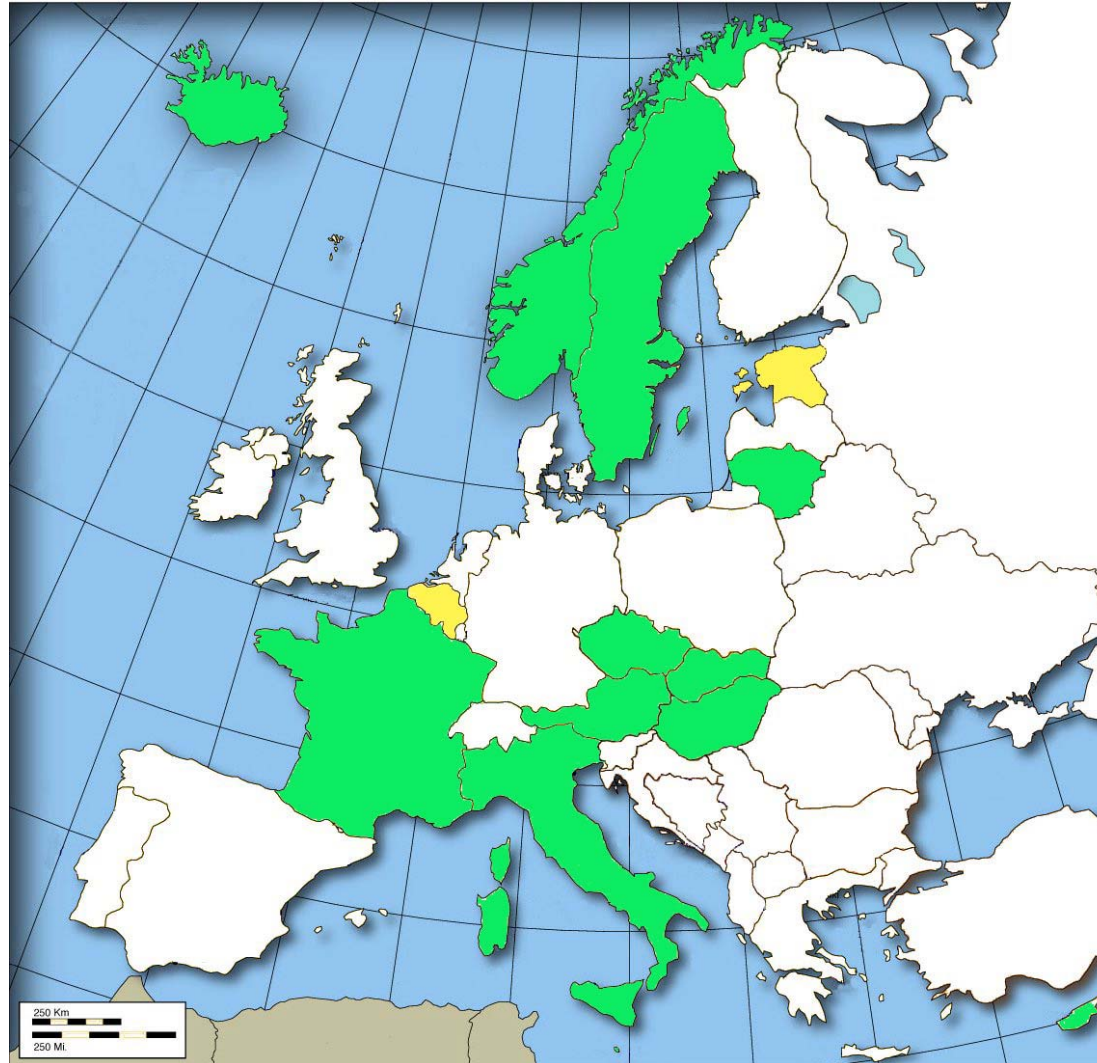
- the EIONET “component” as a grounding community of some 900 experts from over 300 agencies and bodies in 38 Countries
- the long term target: regional and local stakeholders, and those of other Communities (public and private sector, Academy, NGO’s, civil society), in the EFTA and EU Countries



The initial partnership

- **16 partners**
- **14 Countries**
- **12 EIONET NFPs**

**EEA, JRC, DG ENV,
ICT experts in the
Advisory Board**



- **GISIG – GIS International Group**
- **Katholieke Universiteit Leuven (BE)**
- **Czech Environmental Information Agency**
- **Slovak Environmental Agency**
- **Norwegian Pollution Control Authority**
- **Hungarian Ministry of Environment and Water**
- **ISPRA- Istituto Superiore per la Protezione e la Ricerca Ambientale**
- **Icelandic Environment and Food Agency**
- **Austrian Environment Agency**
- **Malta Environment and Planning Authority**
- **ICCOPS (IT)**
- **Institut Français de l'Environnement**
- **TietoEnator Eesti (EE)**
- **Swedish Environmental Protection Agency**
- **Cyprus Environment Service**
- **Environmental Protection Agency (LT)**

NESIS Preliminary Results

- First analysis of the State of Play in the Countries participating in the Network, about the ICT components that will contribute to the development of SEIS
- “first round” identification of good practices of ICT solutions for managing environmental data and collection of relevant information about them into the “NESIS Best Practice Catalogue”

State of Play at national level

- Aims at defining the current state of play in terms of existing components which could contribute to SEIS
 - Technical organization
 - Adopted technologies
 - Data handling and sharing policies
 - Links to INSPIRE and GMES
 - Working examples of NEIS ICT solutions

State of Play at national level

Template for State of Play at national level

- Organization of the technical work
- Overview of SEIS related activities
- Data and information flows
- Infrastructure and systems
- Use of standards
- Obstacles
- Priorities for SEIS
- Good practices
- List of contacts, List of references
- List of standards in operation
- List of technologies and services in operation

State of Play at national level

Organization of the technical work

- *Organisational set-up for technical issues*
- *Technical implementation plan(s) and guidelines*
- *Funding*

Overview of SEIS related activities

- *User requirements analysis*
- *Review and evaluation of monitoring & reporting mechanisms*
- *Pilot projects*
- *Link with INSPIRE/GMES activities*

State of Play at national level

Data and information flows

- *Electronic versus analogue data*
- *Major information flows*
- *Data sources and metadata*
- *Streamlining monitoring and reporting*
- *Data sharing*

Infrastructure and systems

- *NEIS architecture*
- *Existing systems and applications*
- *Network services*
- *Portals*
- *Use of Reportnet*

State of Play at national level

Use of standards

- **Generic ICT standards**
- **GI and EO related standards**
- **Community specific standards**

Obstacles

*major technical obstacles encountered as well as obstacles related to the organizational set-up for follow-up of technical issues
+ how to overcome such obstacles*

Priorities for SEIS

- *Priorities in funding*
- *Priorities in maintaining existing systems*

Good practices

- *Technical*
- *Organizational*

The template was subjected to consultation and review with the Steering Committee and the Advisore Board, and with JRC and EEA in order to be complementary with SEIS Country Visit reports with focus on ICT aspects of SEIS.

So far the NSoP reports were drafted by:

- CENIA (CZ)
- SFT (NO)
- MoEW (HU)
- ISPRA (IT)
- IEFA (IS)
- UBA-A (AT)
- MEPA (MT)
- IFEN (FR), (2 scenarios of SEIS development);
- SEPA (SE)
- AAA (LT)
- ARI (CY)

Based on the state of play: assessment at European level

Assessment at European level

Objectives

The assessment consists in a comparative analysis and synthesis of the results from the National SoP to produce a comprehensive and validated document defining the

State of Play of information systems for monitoring and reporting on environmental status, impacts and threats at EU level and within the EIONET Community

Deliverables:

Summary report on the status of environmental monitoring and reporting in Europe

Assessment at European level

Sources for the assessment

- *NSoP reports*
- *NESIS Best Practises Catalogue*
- *EEA SEIS Country Visits' reports*
- *INSPIRE SoP*

Analysis chain: NSoP results -> transform in indicators -> matrix -> conclusions and recommendations (comparable to INSPIRE SoP)

4 main chapters in the Summary Report

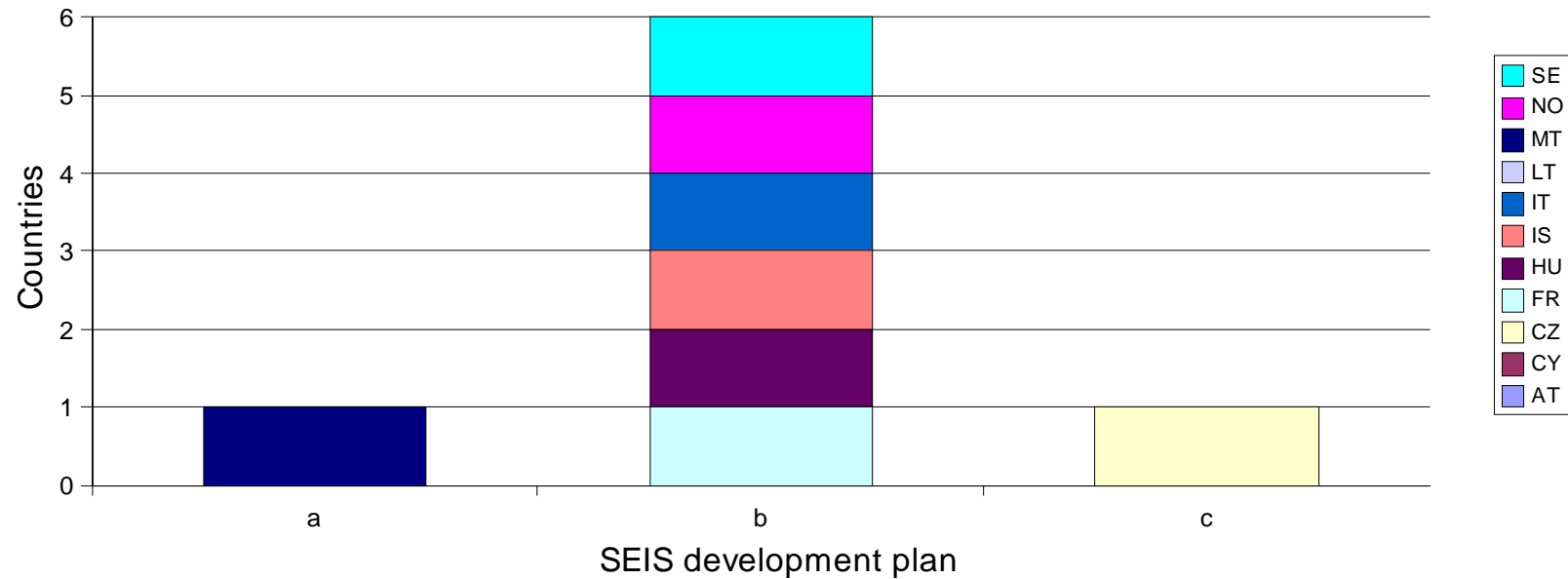
- *Methodology (NSoP, indicators)*
- *Assessment at EU level (results' matrix, indicators)*
- *Highlighting some Good Practices*
- *Recommendations*

*Each chapter reviewed by NFPs and **bodies addressing SEIS***

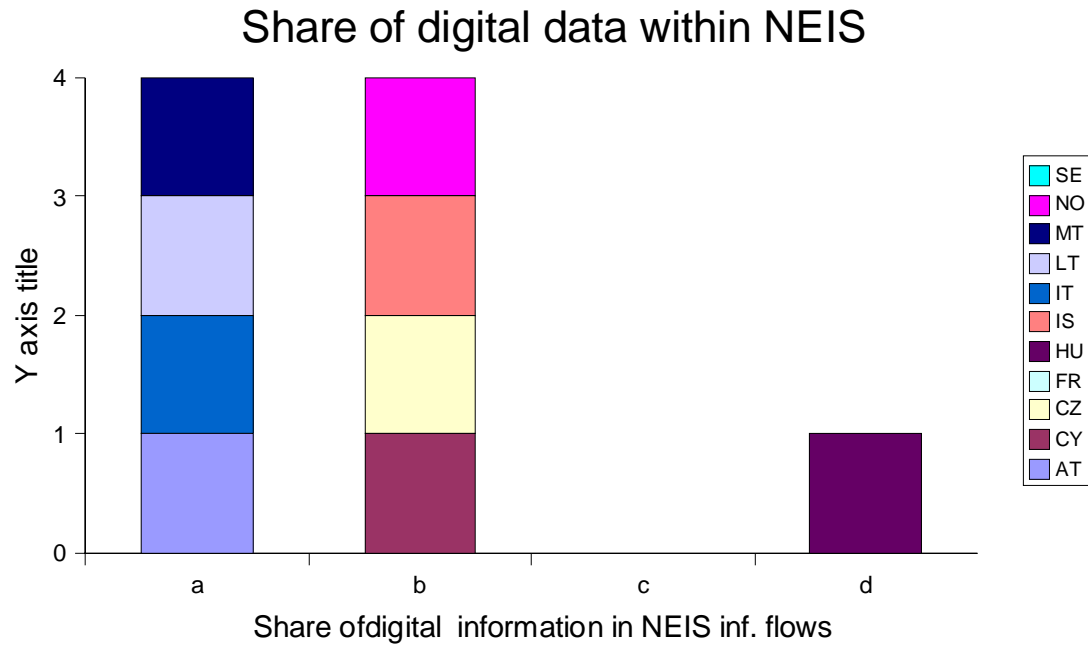
Assessment at European level

- Indicators based on several aspects
 - E.g. Infrastructure and systems
 - Architectural model (decentralised, centralised)
 - Number of users of the system (components)
 - Basic technologies used
 - Number of INSPIRE services used
 - Number of GMES services used
 - ...

Existing technical implementation plan or guidelines for the development and implementation of SEIS or SEIS components

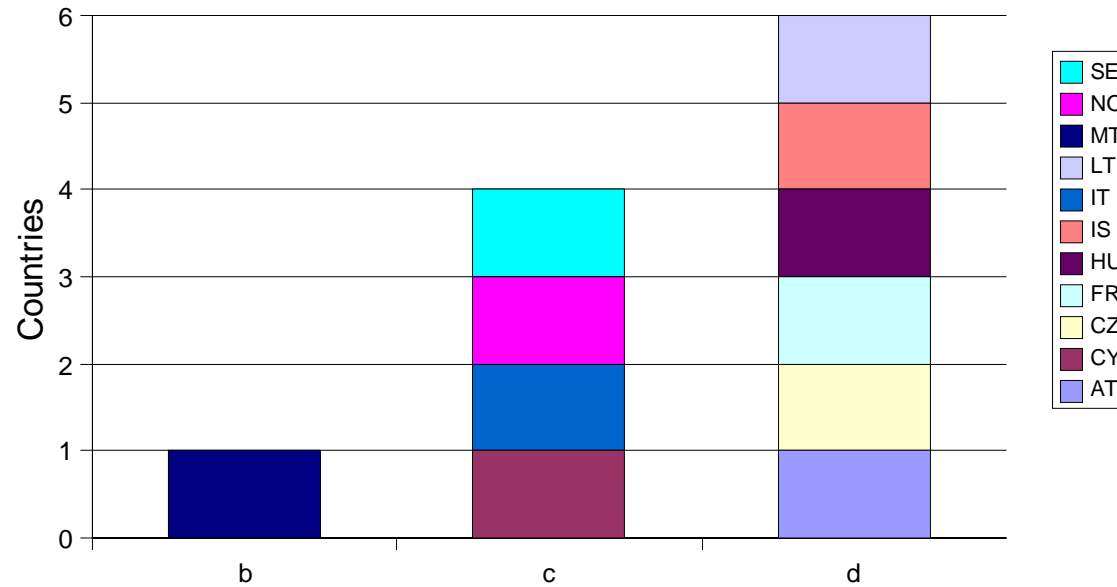


- directly addressing SEIS
- NEIS. Potentially addressing SEIS or its components (independent to INSPIRE)
- based upon INSPIRE



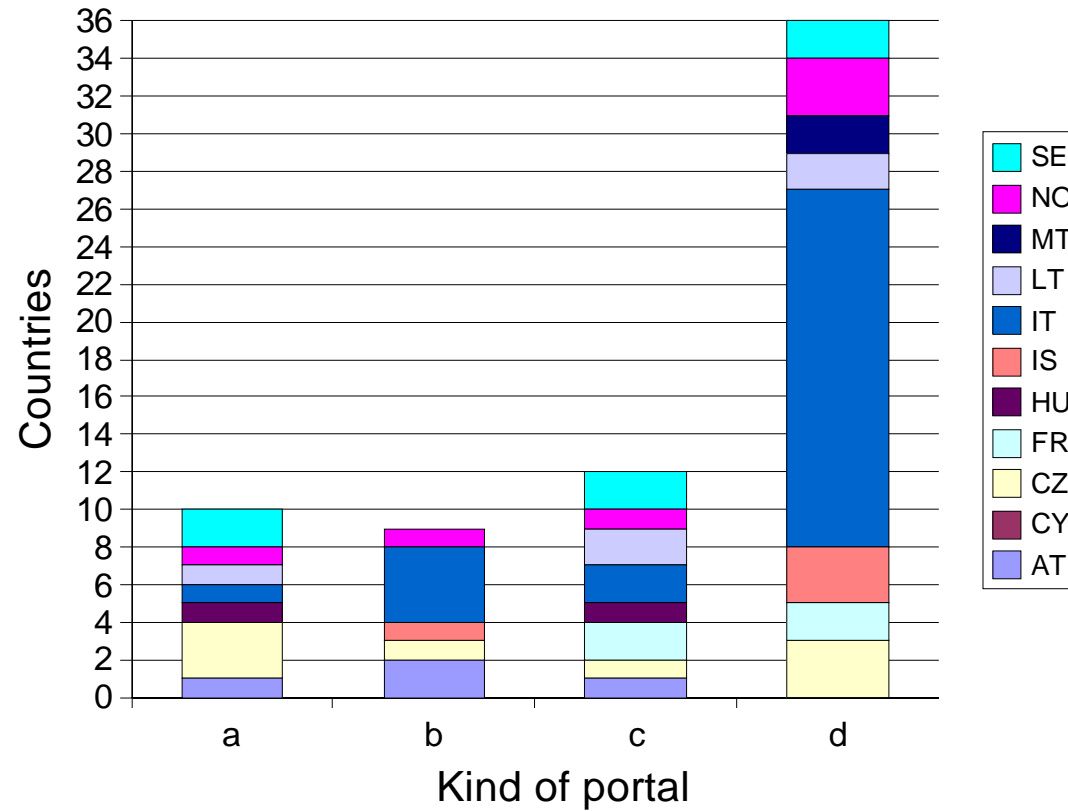
- a. All data is in digital form
- b. Most of the data in digital form
- c. Considerable share of digital data
- d. Some o the data are digital

Existing general architecture within NEIS, basis for SEIS



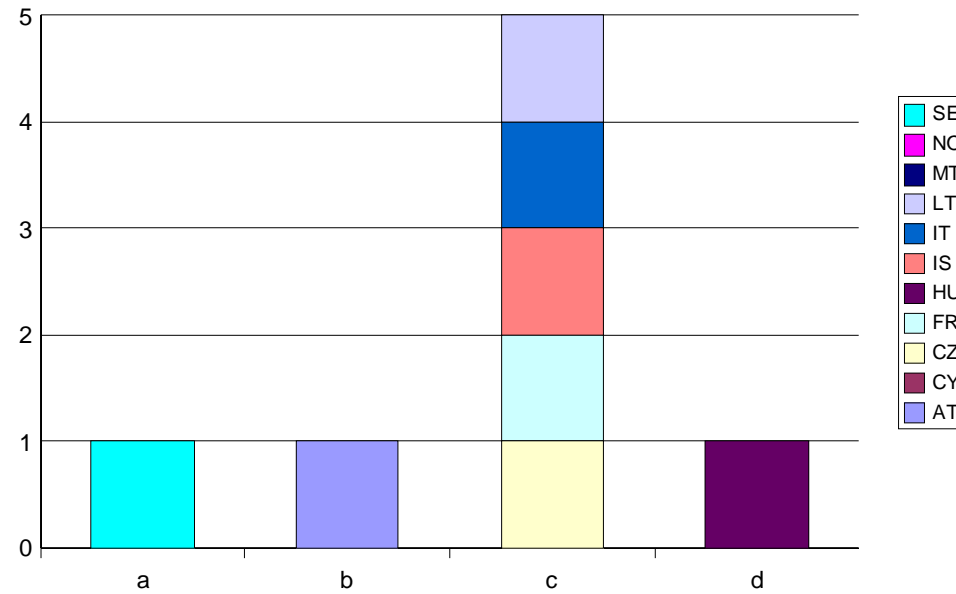
- a.
- b. Centralized
- c. Decentralized
- d. Combined

Number of EI portals



- a. Centralized
- b. Air
- c. Water
- d. Other

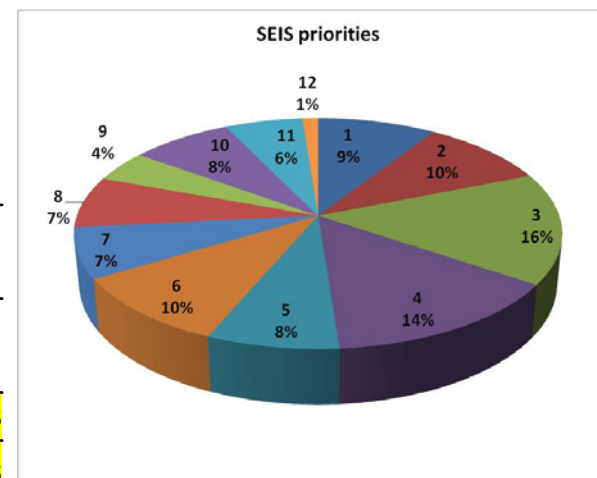
Data sharing



- Excellent. Ensured in national regulations on sharing of environmental information
- Good. In big part on voluntary basis and inter-sector agreements
- Internal. Information shared mainly between public parties
- Limited. Limited in both public and private sectors.

Highest priority actions

	Activity	Share [%]
1	Creation of new data sets (GI, statistics, in situ measurement data, ...)	9.1
2	Creation of metadata for data sets	9.8
3	Harmonisation of existing data sets and information	15.6
4	Re-engineering data/information flows in order to reduce the timeframe for monitoring and reporting	14.3
5	Automated creation of indicators and reports	7.6
6	Set-up of own network services to have easier access to the information	9.9
7	Set-up of network services at European level to have easier access to the information in a cross border context	7.1
8	Development of end-user applications	7.2
9	Implementation of standards	4.4
10	Set-up of better coordinating mechanisms	7.8
11	Incentives for better sharing	6
12	Other: coordination group	1.2
Total		100



The NESIS Good Practices Inventory

- Identification of existing, operational ICT solutions to manage environmental data, about infrastructures, dataflows and related services
- Aims at starting **Good Practice sharing and an exchange of experience**
- The outcome is the "**NESIS Best Practices Catalogue of ICT solutions for managing environmental data**", a living output organised to better share information among the partners and the network of Stakeholders, as well contributing with their own experience

Key-word(s)

Monitoring
Reporting
Organisational set-ups
Infrastructure creation
Dataset harmonisation

.....

Theme(s) mainly addressed

Air
Climate change
Land-use
Biodiversity
Water
Soil
Forests
Waste
Chemicals
Natural resources
Noise
Horizontal management of environmental data

.....

Country(ies)

Outline/General description

Short description
Kind of practice
Objectives vs. needs
Legal aspects
Geographical area covered

Actors

Data producer(s)
Data analysis by ...
Quality assurance by ...
Others to be quoted
Primary users

.....

Template to collect Best Practice (2)

Data aspects

Origins of data
Considered datasets
Metadata
Information flow

Technical implementation/ Solutions

Infrastructure/System architecture
Data logging and transmission
Services set-up
.....

Information on the implementation

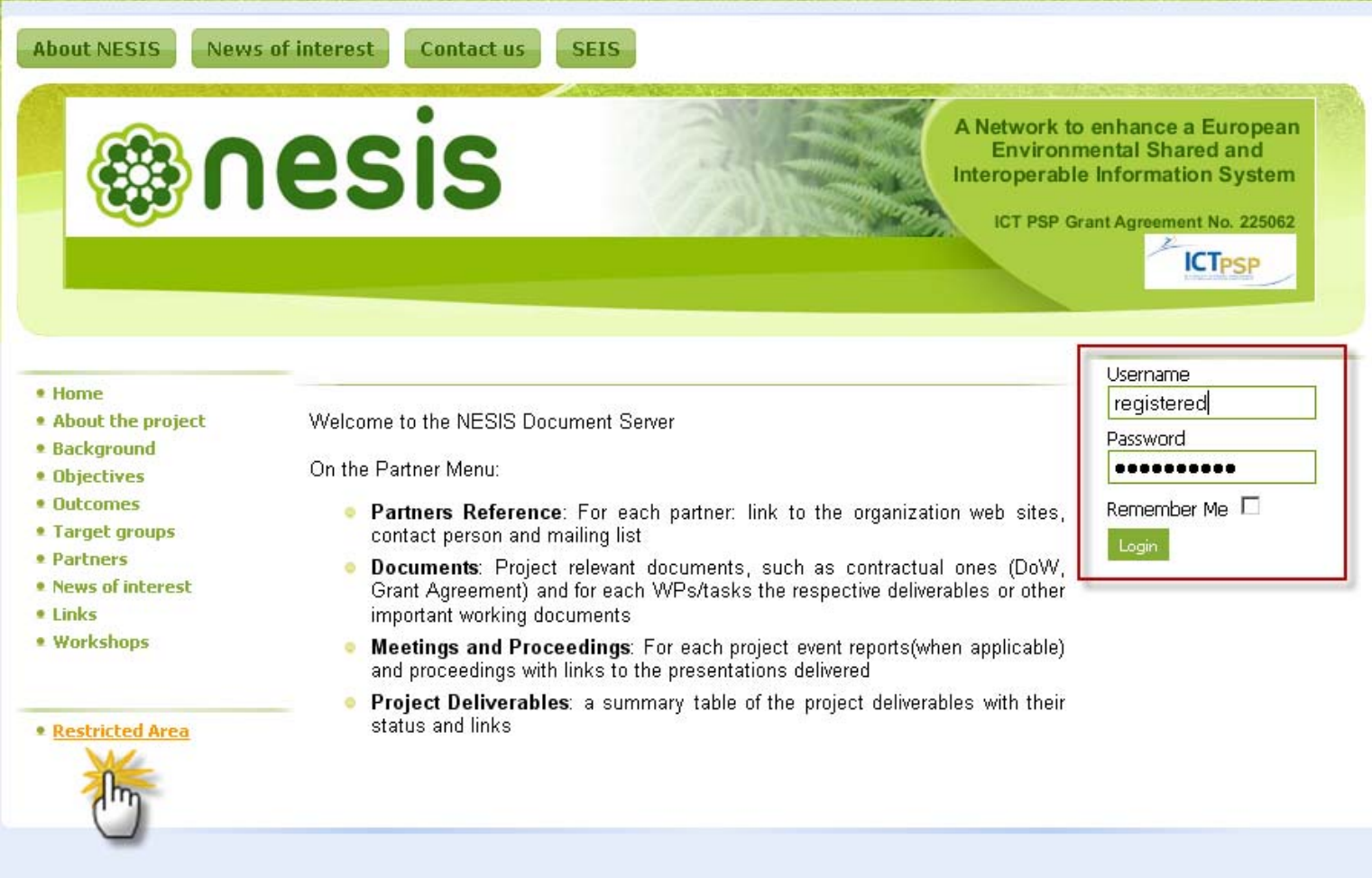
Status of implementation
Funding
Communication policy
Year of start
Year of steady state
Future planned development(s)
Problems, lessons, comments and recommendations

References

URL
Reference person
Organisation
Department
e-mail contact

The Good Practices Catalogue

(at www.nesis.eu, upon registration)



The screenshot displays the NESIS Document Server website. At the top, there is a navigation bar with buttons for "About NESIS", "News of interest", "Contact us", and "SEIS". Below this is a large banner featuring the NESIS logo and the text "A Network to enhance a European Environmental Shared and Interoperable Information System" along with the grant agreement number "ICT PSP Grant Agreement No. 225062" and the ICTPSP logo.

On the left side, there is a vertical menu with the following items:

- Home
- About the project
- Background
- Objectives
- Outcomes
- Target groups
- Partners
- News of interest
- Links
- Workshops

Below the menu, there is a section titled "Restricted Area" with a hand cursor icon pointing to it.

The main content area contains the following text:

Welcome to the NESIS Document Server

On the Partner Menu:

- **Partners Reference:** For each partner: link to the organization web sites, contact person and mailing list
- **Documents:** Project relevant documents, such as contractual ones (DoW, Grant Agreement) and for each WPs/tasks the respective deliverables or other important working documents
- **Meetings and Proceedings:** For each project event reports(when applicable) and proceedings with links to the presentations delivered
- **Project Deliverables:** a summary table of the project deliverables with their status and links

On the right side, there is a login form with the following fields and options:

- Username:
- Password:
- Remember Me:
- Login:

The current content of the Catalogue: ("first round" collection)

■ AUSTRIA

- Environment Portal Austria

■ CZECH REPUBLIC

- Information System of Statistics and Reporting ISSaR
- Information System of Technical Environment Protection (ISTOZP)
- Czech Environmental Metaportal

■ FRANCE

- Geoportal
- Environmental Portal
- National Interest Group on the Soils
- NatureFrance , portal of the SINP: Système d'Information sur la Nature et les Paysages
- Système d'information sur l'eau en France: Water Information System France

■ ICELAND

- Interactive map solution - Icelandic nature

■ ITALY

- GELSO - Best Practice database

■ NORWAY

- Norway digital - Norwegian Spatial Data Infrastructure
- The Artsdatabanken biodiversity information resources

■ SWEDEN

- WaterInformationSystem Sweden (WISS)

■ EEA (European level)

- Near real-time air quality system (Ozone web and PM web)

The collected Practices represent different/combined environmental themes:

■ Air	4
■ Climate change	4
■ Land use	4
■ Biodiversity	7
■ Water	7
■ Soil	6
■ Forests	3
■ Waste	4
■ Chemicals	3
■ Natural resources	7
■ Noise	3

Some considerations can already be made:

Key-word	I) Creation of infrastructure II) Data harmonisation III) Organisational set-ups
Theme	Rather homogeneous distribution (see above)
Country/area	Country scope is generally national, with examples of wider coverage
Short description	A strong component of public information and involvement is usually present in the text of the description
Kind of practice	Mainly repositories and projects, but also catalogues and portals
Objectives vs. needs	Basic is the need of high quality repositories; also data dissemination and information to citizens is a general objective
Actors	It is worth to note that in general no external body is charged for data quality: producers (usually public bodies) are also responsible for validation and quality assessment
Users	In general, data producers are also primary users. In many cases there is a users' wide range, from research organisations and above all citizens (also as NGOs)

Metadata	Answers difficult to classify. However it is worth to quote: a) There are examples of parallel running projects (one for data, one for metadata) b) When data are accessed also metadata are given c) Language and terminology problems are present
Architecture	Different solutions; portals are very frequent
Services set-up	Mainly WMS
Funding	Mainly national
Years	Start from from 1999 to 2009, steady state 2003 to 2012
Future development	a) Harmonisation and further integration at the international level (e.g. INSPIRE) b) Upgrade of the available information c) Faster search
Lessons & recommendations	a) Is recommended further integration of thematic systems (for better and data mining, analysis and reporting) b) Metadata is essential c) Is recommended attention in integrating data from different sources (e.g. about different terminology and localization methods) d) Management problems found and divergences (priority, end-users, goals, leadership) e) Is very difficult to take into account the INSPIRE constraints in a national context f) Is crucial the technical coordination of actors

Good Practice: Next steps

- Upon the preliminary results, assessment of the template to get better classifiable answers (on going)
- Update of the Catalogue, enriched with a “second round” Good Practice collection
- Other runs will follow (the Good Practice collection is a living task, also with the aim to collect good operational practices in other EU Countries)

March 25th Afternoon (14:00 - 16:00)

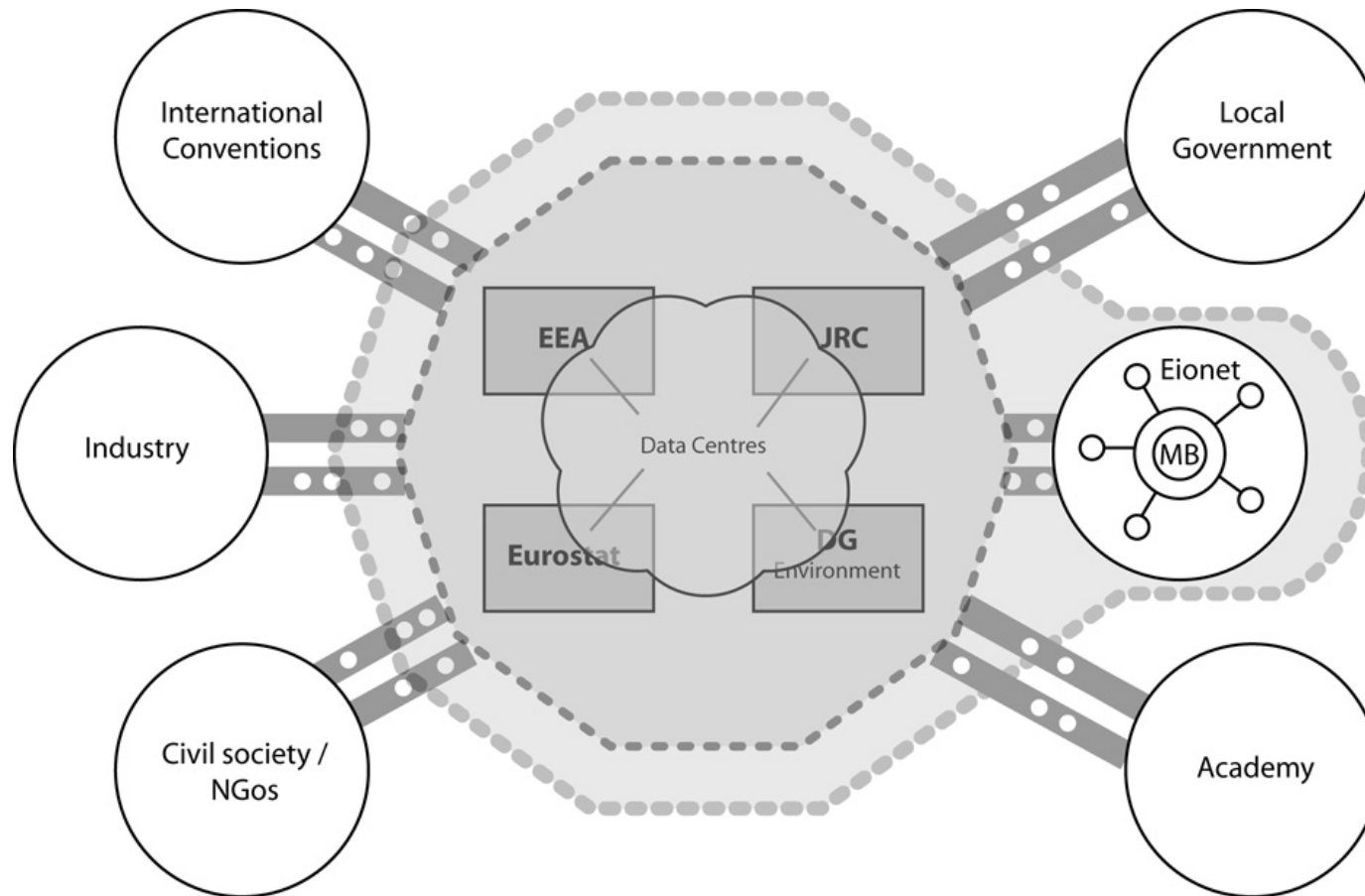
NESIS Presentation during the session S2-Building SEIS, Europe's backbone for eGovernment environment services

March 26th Afternoon (16:30 - 18:30) - NESIS workshops (Hall B)

W5 SEIS/NESIS - ICT Components for SEIS around Europe

- NESIS - a Network to enhance a European Environmental Shared and Interoperable Information System (Giorgio Saio)
- NESIS preliminary results about the analysis of the State of Art and of identification of good practices on management environmental information (Danny Vandembroucke)
- PortalU[®], a Tool to Support the Implementation of the Shared Environmental Information System (SEIS) in Germany (Fred Kruse, Stefani Uhrich, Martin Klenke, Christiane Giffei)
- SOSI Spatial Observation Services & Infrastructure (Gerhard Triebnig, Lubos Kucera, Stephan Meissl, Milan Novacek, Wolfgang Weghofer, Laszlo Zsidai)
- Species Map and Species Observation (Rengifo Zenon Ortega)
- Discussion

NESIS and SEIS potential stakeholders



**NESIS is an
open Network**

WELCOME!

(source EEA)



Thank you,
for your interest and
contribution to NESIS

Giorgio Saio
g.saio@gisig.it

Danny Vandenbroucke
Danny.vanderbroucke@SADL.kuleuven.be