

Opportunities and challenges for shared environmental information in Europe – A PEER perspective



Conclusions of SEIS workshop (CEH, Wallingford, Jan 2009)
to conference "Towards eEnvironment" (Prague, March 2009)
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PEER - Partnership for European Environmental Research (created in 2001)

- 7 large European research centres, working mainly in multi-annual strategic research programmes
- dedicated to environmental research with a predominant focus on the interaction between man and the environment
- developing concepts and methods for sustainable development
- combining basic and applied interdisciplinary research, anticipating societal needs and covering the full spectrum of natural and social environmental sciences
- 4800 staff and 700 PhD students
- 400 M€ budget



PEER – Specific Aims

- To develop and promote joint strategies in environmental research in support of both EU and national policies
- To create synergies to avoid redundant work and improve the competitiveness of European environmental research
- To build the capacity to integrate European environmental research databases with a focus on their interpretation and exploitation

Topic	ALTERRA	CEH	CEMAGREF	JRC-IES	NERI	SYKE	UFZ
Climate Change	Paleoecology / Climate Archives						
	Carbon Cycle / Nitrogen Cycle						
	Greenhouse Gas Inventories						
	Climate Change Models and Scenarios						
	Climate Change and Ecosystem Health						
	Climate Change and Human Health						
	Climate Policy / Emissions Trading						
	Climate Change Mitigation Strategies						
	Climate Change Adaptation Strategies						
	Atmospheric Chemistry and Physics						
Atmosphere	Atmospheric (Dispersion) Modelling						
	Long-range Transport of Air Pollutants						
	Thermohaline Circulation						
	Marine Modelling / Projections						
	Marine Ecology / Biodiversity						
	Brackish Water						
	WFD Implementation / Good Ecological Status						
	Freshwater Monitoring						
	Freshwater Ecology / Biodiversity						
	River Ecology						
Water	Lake Ecology						
	Artificial Lakes (Mining Lakes, Reservoirs)						
	Sediments (and interaction with the water column)						
	Hydrogeology / Groundwater / Aquifers						
	Catchment Modelling						
	River Basin Management						
	Aquaculture						
	Inland Fisheries						
	Soil Chemistry / Soil Physics						
	Soil Ecology / Soil Biodiversity						
Soils, Forests, Agriculture	Forest Ecology						
	Forestry / Forest Management						
	Impacts of Farming / Agricultural Practice						
	Aquaculture						
	Bioremediation / Biofuels						
	Food Safety						
	Rural Development						
	Microbial Diversity / Env. Microbiology						
	Genomics / Molecular Ecology						
	Evolution						
Biodiversity and Land Use	Taxonomy / Specimen Archives						
	Population Ecology / Community Ecology						
	Biodiversity Monitoring / LTER						
	Nature Conservation Areas / Natura2000						
	Landscape Ecology / Landscape Patterns						
	Landscape Architecture						
	Urban Ecology / Urban Green						
	Land Use Change / Land Cover Change						
	Ecological Modelling / Ecosystem Modelling						
	Ecosystem Management						
Fragile Environments	Spatial Planning / Environmental Planning						
	Arctic Ecosystems						
	Mountain Ecosystems						
	Andisols and Ecosystems						
	Tropical Ecosystems (e.g. Rain Forests)						
	Wetlands, Wet Meadows, Moors, Heath						
	Coastal Ecosystems / Estuaries / Wadden Sea						
	Island Ecosystems						
	Megacities						
	Landslides / Avalanches						
Natural Hazards and Environmental Risks	Floods						
	Droughts						
	Forest Fires / Bush Fires						
	Impact of Mining Activities						
	Contaminated Magazines						
	Groundwater Pollution						
	Freshwater Pollution						
	Marine Pollution						
	Soil Pollution						
	Soil Erosion						
Society	Deforestation						
	Acidification / Eutrophication						
	Industrial Emissions						
	Emissions from Transport						
	Air Pollution (including deposition)						
	Radioactivity in the Environment						
	Ecotoxicology / REACH						
	Biological Invasions						
	Genetically Modified Organisms						
	Animal Diseases						
Geoinformation	Pathogens / Epidemiology						
	Human Exposure / Immunology						
	Indoor Air Quality						
	Environmental Burden of Disease						
	Risk Assessment Methodologies						
	Sustainable Transport						
	Recreation and Tourism						
	Sustainability Indicators / Environmental Indicators						
	State of the Environment Reports / Evaluations						
	Scenario and Forecasting Methodologies						
Decision Support Tools							
Perception and Behaviour (Env. Sociology)							
Environmental Education / Communication							
Environmental Ethics							
Poverty Alleviation / Resource Conflicts							
Environmental Economics							
Science and Institutions							
Environmental Policy							
Environmental Law							
Green Business / EMAS							
Remote Sensing and Remote Sensing							
GIS / GEO							
Satellite Calibration / Algorithms / Imaging							
Environmental Informatics / Data Management							
Ontologies							
INSPIRE / Interoperability							
Mapping and Visualisation Tools							
Integrated Monitoring Strategies / Technologies							
IT / Software Engineering							
Sensor and Instrumentation Development							
Biotechnology							
Remediation Technologies							
Carbon Sequestration and Storage							
Food Engineering							
Agro-engineering							
Sustainable Production and Consumption							
Life-cycle Analysis							
Solid Waste Management							
Water Supply / Hydraulics / Irrigation							
Waste Water Treatment							
Green Architecture							
Renewable Energy							
Energy Efficiency							
Hydrogen Economy							

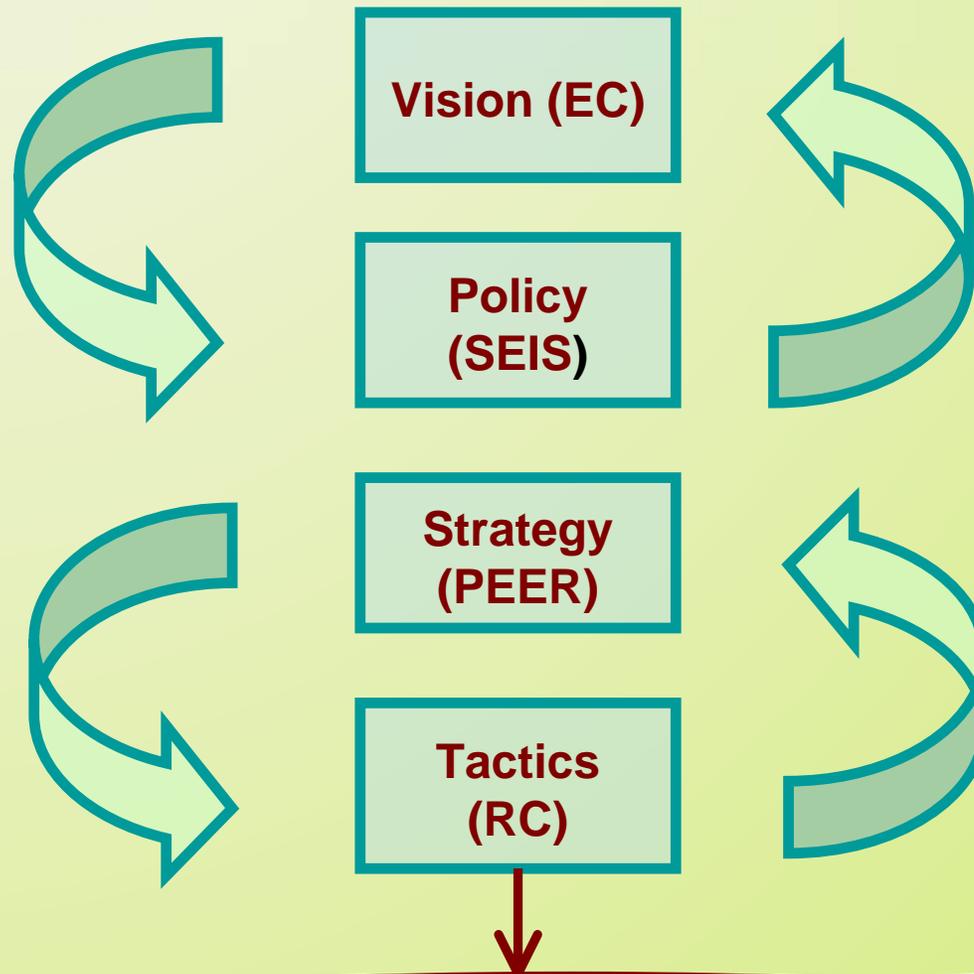
PEER Climate Change Initiative - linking environmental information and policy

Project 1: Comparison of European and National Adaptation Strategies
Coordinator: Alterra

Project 2: Climate Change Policy Integration, Coherence and Governance
Coordinator: SYKE

Workshop: Towards Shared Environmental information in Europe
Coordinator: CEH (in collaboration with AGILE and EEA)

SEIS and PEER Link



PEER – AGILE - EEA Workshop, Wallingford, Jan 2009

Towards Shared Environmental Information in Europe: Opportunities and Challenges for Integrated Research

The workshop aimed at connecting the research community, sharing experiences and best practices and discussing the development of new tools and methodologies

Objectives:

- To discuss the opportunities and challenges for sharing environmental information across Europe.
- To share best practices and identify new integrated research with the aim of adding value to initiatives such as SEIS.
- To agree on joint activities to support systems for sharing environmental information from a research perspective.

Thematic Sessions on:

1. Making environmental datasets talk to each other – data sharing and interoperability
2. Being smart in getting environmental data – strategies for integrated monitoring
3. Transforming environmental data into environmental information – delivering data for user needs
4. Letting environmental data work- platforms for integrated modeling and scenario building

The presentations from these sessions are available at
<http://www.ceh.ac.uk/SEIS/PEER-EEA-AGILEworkshop.html>

Emerging Priorities for R & D to support SEIS – Common Themes

Session 1

Standards and quality
Socio-economic and cultural aspects
Semantic interoperability
Techniques and tools to share information
Use cases, pilots

Session 2

Future data needs / users / benefits
Data collection
Quality/standardization
Availability, accessibility, costs

Session 3

Users needs
Data collection/finding data sources
Data integration
From data to information
Dissemination of information

Session 4

Modelling approaches in climate change adaptation research
Inventory of existing models
Case studies: CC impacts versus LUC impacts
Testing models / approaches / scenarios
Identifying gaps

Emerging Priorities for R & D to support SEIS from Sessions– Common Themes

User Related Themes

- Identify gaps through use cases and pilots studies
- Data Availability, accessibility, costs – data policy
- Techniques and tools to share information
- Standards and Quality
 - Establish cross disciplinary projects with common standards for integration and quality
- Measuring success

Data Integration / Interoperability Themes

- Lack of harmonisation of data from various monitoring programmes
- Turning data into information
- Accuracy and Uncertainty
- Semantic interoperability

PEER perspective on User Themes

- PEER can identify case studies to provide information content for SEIS by linking its research and environmental data.
- Contribute to a joint frameworks for the integration and analysis of this data
- Develop methods for the integration and scaling of information across Europe – e.g. local to global and across themes.
- Data accessibility - How are datasets made available and in what form
- Cultural issues of managing and maintaining data to new standards – data curation

PEER perspective on Data Integration/Interoperability

- Identifying requirements for interoperability from different user perspective e.g. policy, research
- Mapping from base data to various forms identified by policy and research
- Turning data into relevant information
- Technological challenges to link the data together – how to implement ontologies
- How interoperability techniques and methods are tested and validated

Conclusions

- Require clearly defined drivers to share information and develop the information management infrastructure to do it
 - These can be political e.g. Policy
 - They can be scientific (research capability)
- PEER has experience in managing multidisciplinary collaborative research across organisational and national boundaries
- PEER can contribute to improving quality of information in SEIS
 - Addressing standards and data collection practices
- Need a clearly defined process for implementing not only technological but cultural change in data curation
 - Actively managing, maintaining and promoting its use
 - Available for discovery and re-use

SEIS and PEER Link

