

ExpeER
Distributed Infrastructure for EXPERimentation
in Ecosystem Research

Grant Agreement Number: 262060

SEVENTH FRAMEWORK PROGRAMME

Capacities

Integrating activities: Networks of Research Infrastructures(RIs)

Theme: Environment and Earth Sciences

DELIVERABLE D4.1

Deliverable title: Overview and update of relevant networks

Abstract:

The report gives an overview of the strategic environment of ExpeERr categorizing networks and projects according to their basic intention and providing relevant information.

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[X]

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Glossary

HIES: Highly instrumented experimental site

HIOS: Highly instrumented observational site

1. Executive summary

This report is a database extract providing an overview of the strategic environment of EXPEER distinguishing between categories like infrastructures, networks, projects, stakeholders etc. and describing these elements via a range of parameters.

2. Introduction

A. Background

EXPEER is embedded in a research and funding environment at the national and European scale. EXPEER needs to capitalize on good connections between the communities represented within the project with this external strategic environment, both in the field of experimentation (e.g. ANAEE) and non-invasive long-term ecosystem research (e.g. LTER). The related structures need to be identified, compared and prioritised. Options for permanent funding structures for a distributed in-situ ecosystem research infrastructure are to be elaborated and analysed. One important aim is to network with relevant communities in order to identify overlaps and synergies and establish a sustainable network of highly instrumented sites

B. Objective

Based on available earlier collations (done by LTER-Europe) and input from EXPEER partners an overview of the strategic environment of EXPEER has been produced, considering elements such as

- in-situ networks (experimental, ecosystem research, monitoring)
- virtual infrastructures (e.g. LifeWatch)
- technology (e.g. information management)
- strategic processes
- stakeholders

Results have been fed into a digital mind map (fig. 1).

The profile of relevant in-situ networks and their infrastructures has been elaborated, using parameters for comparison like scale, spatial design, runtime, relevance of long-term trend data, level of organisation etc., in order to facilitate comparisons and identification of those most relevant for EXPEER (see table 1).

The entire exercise forms the bases for a continuous adaptation throughout the runtime of EXPEER.

C. Linking to other workpackages

The link with other workpackages has been achieved by means of

- A questionnaire sent to the entire EXPEER consortium
- A cross Workpackage discussion of the first results and joint prioritization exercise by Work Package leads at the Executive Committee meeting in June 2011
- Agreement on the parameters to describe the identified elements
- Use of the database as contribution to the mailing list of WP5 (first EXPEER folder)
- Continuous exchange with topically relevant projects by WP2 and WP3 (e.g. information management expertise of LTER-Europe and EnvEurope/LIFE+ and work on standard parameters in EnvEurope/LIFE+)

3. Method

D. Selection process and data gathering

The entire process chosen to elaborate the “strategic environment” of EXPEER targeted at a commonly accepted view of the EXPEER consortium. In face of the history the EXPEER consortium, representing a merge of the ANAEE core group and LTER-Europe, it seemed of utmost importance to bridge the gap by transparent structuring, selection and prioritisation. This was achieved through involving the entire EXPEER consortium and the Executive Committee of EXPEER in producing the versions v24 of the database and v12 of the EXPEER MindMap.

In the second round the entire consortium and – specifically – the Executive Committee were asked to report on networking activities and element-specific requirements for networking and representation in the future (2012/2013). For these activities key accounts for element will be established within the EXPEER consortium (agreements at the annual meeting in Leipzig).

At the EXPEER WP4 workshop in Fontainebleau thirty experts agreed on the categories of elements to be considered in the strategic environment of EXPEER (in-situ infrastructures, related projects etc.). A first brainstorming list was completed and infrastructures, networks, projects, stakeholders, processes of relevance for EXPEER assigned to these categories.

A. Query within EXPEER consortium: A structured summary list of the strategic environment sorted according to categories and elements was sent to the entire EXPEER community for further comments and amendments in April 2011. Partners were requested to contribute by completing this list aiming at identifying overlaps, synergies, potential co-operations and existing infrastructures/experiences on which EXPEER can build. This could be done by (a) correcting wrong assignments and (b) adding new elements. Furthermore people were asked to nominate contact points to related networks, projects etc.. Until the EC meeting in Brussels, June 2011, basic metadata on the proposed elements of the strategic environment were collected, all elements grouped and the first EXPEER MindMap of this strategic environment produced. Alongside this exercise a set of

parameters for comprehensively describing these elements was developed (scale, number of sites etc.).

B. Ranking of importance of related networks, projects etc. by the EXPEER executive committee: The EC in Brussels discussed and agreed on the general selection criteria focusing on (a) European elements, (b) the level of entire projects and networks (co-ordination) rather than individual countries/institutions, (c) infrastructure holding elements rather than mere infrastructure users, the categories/grouping and the descriptors. EC members did a ranking of all elements. Those beyond a certain threshold were left in the MindMap, which – based on the integrative and transparent process – represents the collective view of the EXPEER community. For these elements the inquiries carried out by UFZ were regularly checked and discussed. Iteratively the MindMap was finished in accordance with the results and clarifications with external experts.

C. Data gathering was done using the official web sites of the selected items, contacting people via email in case of missing information or by telephone interviews.

Parameter groups for classification:

- Scope of research (non-invasive research, monitoring, experiments, information management, modelling, funding)
- Key research questions (climate, nitrogen, carbon, biodiversity, pollutants, land use)
- Status (Starting, running)
- Duration
- Funding mechanism
- Funding period
- Website links
- Coordination (persons, institutions, countries)
- Contact data

Table 1: Descriptors of the data base and example data. Note that only few fields are applicable for each element (project, network etc.)

Descriptor	NitroEurope IP
Category	In-situ experimental research networks
Detailed description	<p>The NitroEurope IP – or NEU for short – addresses the major question: What is the effect of reactive nitrogen (Nr) supply on net greenhouse gas budgets for Europe? The objectives are to: establish robust datasets of N fluxes and net greenhouse-gas exchange (NGE) in relation to C-N cycling of representative European ecosystems, as a basis to investigate interactions and assess long-term change, quantify the effects of past and present global changes (climate, atmospheric composition, land-use/land-management) on CN cycling and NGE, simulate the observed fluxes of N and NGE, their interactions and responses to global change/land-management decisions, through refinement of plot-scale models, quantify multiple N and C fluxes for contrasting European landscapes, including interactions between farm-scale management, atmospheric and water dispersion, and consideration of the implications for net fluxes and strategies, scale up Nr and NGE fluxes for terrestrial ecosystems to regional and European levels, considering spatial variability and allowing assessment of past, present and future changes, assess uncertainties in the European model results and use these together with independent measurement/inverse modelling approaches for verification of European N₂O and CH₄ inventories and refinement of IPCC approaches. These objectives are met by a programme that integrates: an observing system for N fluxes and pools [Component 1] a network of manipulation experiments [Component 2] plot-scale C-N modelling [Component 3] landscape analysis [Component 4] European up-scaling [Component 5] and uncertainty and verification of European estimates [Component 6]. In addition to that, the project organisation comprises cross-cutting activities addressing management, databases, training and dissemination. NEU will advance the fundamental understanding of C-N interactions at different scales and deliver: process-based models, landscape-level assessments, European maps of C-N pools, Nr fluxes and NGE, and independent verification of GHG inventories, as required under the Kyoto Protocol.</p>
Scope: Non-invasive research	
Scope: Monitoring	Yes

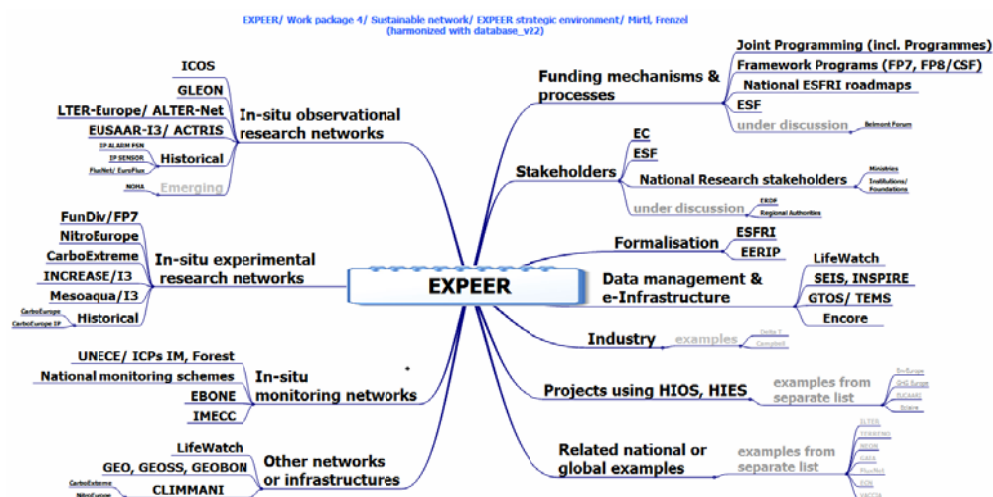
Scope: Experiments	Yes
Scope: Information management	
Scope: Modeling	Yes
Scope: Funding	
Scope: Miscell	
Key research questions: Climate	Yes
Key research questions: Nitrogen	Yes
Key research questions: Carbon cycle	Yes
Key research questions: Biodiversity & invasives	
Key research questions: Pollutants	
Key research questions: Land use	
Key research questions: Not applicable	
Status: starting	
Status: running/ongoing 2011 (1st July)	No
Status: finished	Yes
Status: permanent	
Status: unknown	
Starting year	2006
End year	2011
Duration: short-term (1-5 years)	Yes
Duration: mid-term (5-10 years)	
Duration: long-term (>10 years)	
Duration: unknown	
Funding mechanism: FP5	
Funding mechanism: FP6	Yes
Funding mechanism: FP7	

Funding mechanism: Life+	
Funding mechanism: ESF	
Funding mechanism: national	
Funding mechanism: distributed sources	
Funding mechanism: Not applicable	
Funding period: number of years	5
Funding period: indefinite	
Funding period: unknown	
Funding period: Not applicable	
Strategic framework	
Strategic framework: unknown	
Is in-situ infrastructure	Yes
Is in-situ infrastructure: unknown	
Number of sites (if element is a network of in-situ infrastructures)	72
Number of sites: Not applicable	
Number of sites: unknown	
Scale of the network: Global	
Scale of the network: European	Yes
Scale of the network: National	
Scale of the network: Local	
Scale of individual sites: 1-10.000 m2	Yes
Scale of individual sites: 1-100 ha	
Scale of individual sites: 1 - 10 km2	
Scale of individual sites: 10 -1000 km2	
Scale of individual sites: >1000 km2	
Scale of individual sites: unknown	

Scale of individual sites: Not applicable	
Number of institutions	65
Number of institutions: Not applicable	
Number of institutions: unknown	
Number of countries	24
Number of countries: Not applicable	
Number of countries: unknown	
Coordinating person: Name	Mark Sutton
Coordinating Person: email	ms@ceh.ac.uk
Coordinating institution	Centre for Ecology & Hydrology (CEH) - NERC
Coordinating institution: Not applicable	CEH
Coordinating country	UK
Coordinating country: Not applicable	
WEB-link	http://www.nitroeurope.eu/
Latest weblink update (NEWS, EVENTS)	Aug 11
Postal adress_ NAME of office or person	CEH, project lead: Prof. Mark Sutton
Postal adress_STREET	Bush Estate, Penicuik
Postal adress_ZIP code	EH26 0QB
Postal adress_CITY	Midlothian
Postal adress_COUNTRY	UK

E. Overview of the strategic environment of EXPEER in the “EXPEER MindMap”

The ExpeER consortium member, involved in multiple existing projects and infrastructures in the field of experimental (e.g. CLIMMANI or ANAEE) or observational research (e.g. LTER or ICOS) collected and prioritized elements of the strategic environment of ExpeER. The elements were grouped into main branches such as “In-situ observational research networks”, “In-situ experimental research networks” etc. and put into a MindMap :



The left side of the MindMap represents related research infrastructures, whereas the right side covers the strategic environment, services and users. For each element responsible contact points within ExpeER are identified in accordance with experts so far involvements and field of expertise.

F. Extraction from the data base

Note that the sequence of categories follows those of the main branches of the MindMap shown above.

1. ACTRIS

Category: In-situ observational research networks

Name of project or network: ACTRIS

Description: The main objectives of ACTRIS are:

- (1) To provide long-term observational data and to substantially increase the number of high-quality data relevant to climate and air quality research on the regional scale produced with standardized or comparable procedures throughout the network.
- (2) To provide a coordinated framework to support transnational access to European advanced infrastructures for atmospheric research strengthening high-quality collaboration in and outside the EU and access to high-quality information and services for the user communities (research, Environmental protection agencies, etc.).
- (3) To develop new integration tools to fully exploit the use of multiple atmospheric techniques at ground-based stations, in particular for the calibration/validation/integration of satellite sensors and for the improvement of the parameterizations used in global and regional scale climate and air quality models. ACTRIS aims at providing time series of climate and air quality related variables not directly measured which are presently not available through existing data centers.
- (4) To enhance training of new scientists and new users in particular students, young scientists, and scientists from eastern European and non-EU developing countries in the field of atmospheric observation.
- (5) To promote the development of new technologies for atmospheric observation of aerosols, clouds and trace gases through close partnership with EU companies. ACTRIS aims at contributing to more than 4 new operating standards for atmospheric monitoring by the end of the project.

Scope - Monitoring:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Carbon cycle:	Yes
Key researchquestion - Pollutants:	Yes
Status - Running at 1 July 2011:	Yes

Starting year:	2011
End year:	2015
Duration - short-term (1-5 years):	Yes
Funding mechanism - FP7:	Yes
Funding period - Number of years:	4
Strategic framework - unknown:	Yes
<i>In-situ</i> infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	>60
Scale of the network - European:	Yes
Scale of individual sites - Not applicable:	Yes
Number of institutions:	28
Number of countries:	19
Coordinating persons name:	Dr. Gelsomina Pappalardo
Coordinating persons email address:	pappalardo@imaa.cnr.it
Coordinating institution:	CNR
Coordinating country:	Italy
Link to website:	http://www.actris.net/Home/tabi
Latest update of website (News, Events sections):	2012

2. CarboEurope

Category: In-situ observational research networks

Name of project or network: CarboEurope

Description: The CarboEurope Cluster of FP5 was globally the first successful effort in action in which a coherent, comprehensive integration of terrestrial and atmospheric carbon sciences has been realized at continental scale. The cluster is now regarded as a “template” for world research on the Carbon Cycle. The USA , Japan and China are all launching similar initiatives. The CarboEurope Cluster has established the world’s leading, best integrated observing capacity built on flux networks, systematic ecological sampling and atmospheric long term observations collected in a co-ordinated manner, with in some cases real time data transmission and real time archiving on databases. The CarboEurope Cluster nested measurement strategy contains atmospheric and terrestrial observations from local, through regional and continental scale. It served as template for new initiatives and was adopted in the GTOS-TCO report. It will provide an important contribution to GTOS-TCO and IGCO through the lifetime of CarboEurope-IP.

The ecosystem observing network builds upon the scientific heritage of former European and nationally supported projects since the mid 1990s (FP3 and 4). More recently, as part of FP5, within projects Carboeuroflux, Carbo-Age, Greengrass and Forcast, we have set up a coordinated European ecosystem observing system capable to monitor CO₂, energy and water vapour exchange at 30 sites across Europe by harmonized eddy covariance measurements, and associated measurements of soil respiration and other important ecosystem carbon fluxes. There was a clear focus on forests, including seven chronosequences. More recently the observations expanded to grasslands, whilst croplands, wetlands and Central and Eastern European ecosystems were under-represented.

Scope - Monitoring:	Yes
Scope - Modeling:	Yes
Key researchquestion - Carbon cycle:	Yes
Status - Finished:	Yes
Starting year:	2001
End year:	2005
Duration - short-term (1-5 years):	Yes
Funding mechanism - FP5:	Yes
Funding period - Number of years:	4
Strategic framework - unknown:	Yes
Number of sites (if element is a network of infrastructures):	>30

Scale of the network - European:	Yes
Scale of individual sites - Unknown:	
Number of institutions:	69
Number of countries:	15
Coordinating persons name:	Riccardo Valentini
Coordinating persons email address:	rik@unitus.it
Coordinating country - not applicable:	Yes
Link to website: jena.mpg.de/bgc-processes/carboeur/	http://www.bgc-

3. Eusaar

Category: In-situ observational research networks

Name of project or network: Eusaar

Description: The objective of the project EUSAAR is the integration of measurements of atmospheric aerosol properties performed in a distributed network of 20 high quality European ground-based stations (Supersites). Although particulate matter has become a priority under the Convention in relation to the envisaged review and possible revision of the Gothenburg Protocol, it is only measured at comparably few regional background stations. The present situation is, therefore, clearly not sufficient in the context of an integrated atmospheric observing system for air quality and climate studies. The measurements of non-regulated aerosol properties of interest to air quality and global climate modelling are performed outside of coordinated protocols, access to this information is, at present, rather uneasy and not provided in a coherent manner. EUSAAR is particularly focussing on the following key parameters for which a clear lack of coordination exists: aerosol chemical properties (inorganic/organic composition); - aerosol physical properties (size distribution, mass); - aerosol optical properties (light scattering/absorption coefficient, optical depth); - aerosol 3D-distribution (vertical profile); These parameters are the basic information required to detect any long-term change in aerosol source emissions and assess possible climatic effects of aerosols that may result from these changes.

Scope - Monitoring:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Pollutants:	Yes
Status - Running at 1 July 2011:	No
Status - Finished:	Yes
Starting year:	2006
End year:	2011
Duration - short-term (1-5 years):	Yes
Funding mechanism - FP6:	1 (I3)
Funding period - Number of years:	5
Strategic framework - unknown:	Yes
Number of sites (if element is a network of infrastructures):	20 Supersites
Scale of the network - European:	Yes
Scale of individual sites - 1-10,000 m²:	Yes

Number of institutions:	21
Number of countries:	16
Coordinating persons name:	Andrea Flossmann
Coordinating persons email address: bpclermont.fr	flossman@opgc.univ-
Coordinating institution:	CNRS-LaMP / UBP
Coordinating country:	France
Link to website:	http://www.eusaar.net/
Latest update of website (News, Events sections):	May 2011??
Postal address - Name of office or person:	CNRS-LaMP / UBP
Postal address - Street:	24 ave des Landais
Postal address -ZIP code:	63177 Aubière cedex
Postal address - City:	Aubière

4. GLEON

Category: In-situ observational research networks

Name of project or network: GLEON

Description: The Significance of GLEON to Limnology and Global Water Resources: Lakes globally are under pressure from water extraction, modified catchments, eutrophication, fishing pressure and invasive species. These pressures are unlikely to diminish as human populations grow, demand for water resources increases and climate change modifies the drivers of lake ecosystems. The Global Lake Ecological Observatory Network (GLEON) combines an array of lake sensors deployed around the globe to address local issues for individual lake ecosystems but also to document changes in lake ecosystems that occur in response to different landuse, latitude and climate. Because many of the modifications to the landscape and climate will be expressed firstly in lake ecosystems, these systems offer a unique opportunity to monitor, analyse and predict future landscape and climate change. By understanding the implications of these changes at a global level the expected ecosystem change can be predicted and planned for. Planning for future lake management and adaptation to meet community needs and expectations will be compromised without knowledge of how lakes respond to natural and anthropogenic forcing. Planning for the future relies on prediction of the outcome of landscape modification, rain and mixing events, and climate change. Simulation of these events enables this prediction, but it is necessary to inform the development and calibration of models in a range of climatic zones to ensure predictions are broadly valid. GLEON offers an unequalled opportunity to develop and test lake models in a range of climates. The inventory of lakes in GLEON spans broad gradients in limnological characteristics, landscape and climate settings. As GLEON grows, this wealth of lake data will increase and provide opportunity for interpretation at broader space and time scales. Comparison of lakes across latitude will provide significant insight into how lake ecosystems are likely to be shaped by climate change. Lessons learnt on one lake can be applied globally to ensure sustainable lake ecosystems into the future. "Lakes are the canaries in the landscape." Lake Ecosystems are sensitive indicators of catchment modification and climatic conditions. Because lakes integrate across landscape, hydrology and climate, ecosystem change in aquatic systems is often observed more quickly than adjacent terrestrial ecosystems. Therefore changes to catchment or climate may be expressed in lake ecosystems before they are evident in other ecosystems. Early warning of significant ecosystem change and knowledge of the likely consequences enables communities to respond and adapt to the change. However, to detect changes in lake ecosystems it is necessary to monitor sensitive indicators at appropriate timescales. Events that drive lake ecosystem processes occur at a range of timescales from short-term such as rain event inflows to seasonal changes and longer term features such as El Niño and climate change. Real-time, high frequency measurement of local climate, water temperature, dissolved oxygen and phytoplankton chlorophyll fluorescence by stations deployed on lakes captures many of the important ecosystem drivers and responses at timescales necessary to resolve the features of interest. These measurements can then be used to inform risk assessment of pathogen fate and transport, cyanobacterial growth and the impact of catchment or lake derived carbon on lake metabolism and ecosystem health

Scope - Monitoring: Yes

Key researchquestion - Climate: Yes

Key researchquestion - Biodiversity: Yes

Key researchquestion - Land use:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2005
Duration - long-term (>10 years):	Yes
Funding mechanism - distributed sources:	Yes
Funding period - Unknown:	Yes
Strategic framework - unknown:	Yes
<i>In-situ</i> infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	60
Scale of the network - Global:	Yes
Scale of individual sites - 1-100 ha:	Yes
Scale of individual sites - 1-10 km²:	Yes
Scale of individual sites - 10-1,000 km²:	Yes
Number of institutions:	>100
Number of countries:	34
Coordinating persons name:	Grace Hong
Coordinating persons email address:	gshong@wisc.edu
Coordinating institution - Not applicable:	Yes
Coordinating country - not applicable:	Yes
Link to website:	http://www.gleon.org/
Latest update of website (News, Events sections):	2011
Postal address - Name of office or person:	Center for Limnology
Postal address - Street:	680 North Park Street
Postal address -ZIP code:	53706-1413
Postal address - City:	Madison WI

5. ICOS preparatory project

Category: In-situ observational research networks

Name of project or network: ICOS preparatory project

Description: ICOS is a new European Research Infrastructure for quantifying and understanding the greenhouse balance of the European continent and of adjacent regions. It was realized early that, high precision long-term carbon cycle observations form the essential basis of carbon cycle understanding and that these observations must be secured beyond the lifetime of a research project. ICOS aims to build a network of standardized, long-term, high precision integrated monitoring of: atmospheric greenhouse gas concentrations of CO₂, CH₄, CO and radiocarbon-CO₂ to quantify the fossil fuel component ecosystem fluxes of CO₂, H₂O, and heat together with ecosystem variables. The ICOS infrastructure will integrate terrestrial and atmospheric observations at various sites into a single, coherent, highly precise dataset. These data will allow a unique regional top-down assessment of fluxes from atmospheric data, and a bottom-up assessment from ecosystem measurements and fossil fuel inventories. Target is a daily mapping of sources and sinks at scales down to about 10 km, as a basis for understanding the exchange processes between the atmosphere, the terrestrial surface and the ocean.

Scope - Monitoring:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Carbon cycle:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2008
End year:	2012
Duration - short-term (1-5 years):	Yes
Funding mechanism - FP7:	Yes
Funding period - Number of years:	4 (Preparatory phase)
Strategic framework:	ESFRI
In-situ infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	60
Scale of the network - European:	Yes
Scale of individual sites - Unknown:	ESFRI
Number of institutions:	16

Number of countries:	12
Coordinating persons name:	Philippe Ciais
Coordinating persons email address:	cecilia.garrec@lsce.ipsl.fr
Coordinating institution: CEA-CNRS-UVSQ, France	Institut Pierre-Simon Laplace,
Coordinating country:	France
Link to website: infrastructure.eu/	http://www.icos-
Latest update of website (News, Events sections):	17 May 2011
Postal address - Name of office or person: Laboratoire des Sciences du Climat et de l'Environnement	CEA-CNRS: Philippe Ciais,
Postal address - Street: Merisiers - BAT 709	Centre d'Etudes de Orme des
Postal address -ZIP code:	91191
Postal address - City:	Gif sur Yvette

6. IP ALARM FSN

Category: In-situ observational research networks

Name of project or network: IP ALARM FSN

Description: Objectives: To develop an integrated large scale risk assessment for biodiversity as well as terrestrial and freshwater ecosystems as a part of environmental risk assessment. To focus on risks consequent on climate change, environmental chemicals, rates and extent of loss of pollinators and biological invasions. To establish socio-economic risk indicators related to the drivers of biodiversity pressures as a tool to support long-term oriented mitigating policies and to monitor their implementation. To develop, for the first time, a research network that is consistently thinking, interacting, and investigating on a continental scale across different environmental problems (impacts) and across different spatial and temporal scales of ecosystem diversity changes. To provide a contribution to objective based politics, to policy integration and to derive outcome-oriented policy measures in the field of biodiversity preservation by contributing to the integrated assessment of socio-economic drivers affecting biodiversity and integrated, long-term oriented means to mitigate them.

Scope - Monitoring:	Yes
Scope - Experiments:	Yes
Scope - Modeling:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Biodiversity:	Yes
Key researchquestion - Land use:	Yes
Status - Running at 1 July 2011:	No
Status - Finished:	Yes
Starting year:	2004
End year:	2009
Duration - short-term (1-5 years):	Yes
Funding mechanism - FP6:	Yes
Funding period - Number of years:	5
Strategic framework - unknown:	Yes
In-situ infrastructure:	No
Number of sites (if element is a network of infrastructures):	16

Scale of the network - European:	Yes
Scale of individual sites - 1-10 km²:	Yes
Number of institutions:	79
Number of countries:	36
Coordinating persons name:	Josef Settele
Coordinating persons email address:	josef.settele@ufz.de
Coordinating institution: Environmental Research	Helmholtz Centre for
Coordinating country:	Germany
Link to website: m/	http://www.alarmproject.net/alar
Latest update of website (News, Events sections):	2008??
Postal address - Name of office or person: Research, Department of Community Ecology	UFZ Centre for Environmental
Postal address - Street:	Theodor-Lieser-Str. 4
Postal address -ZIP code:	D-06120
Postal address - City:	Halle

7. IP SENSOR

Category: In-situ observational research networks

Name of project or network: IP SENSOR

Description: The aim of land use policies on the European level is to support regional rural development and social cohesion, and to decouple economic growth from environmental degradation. In order to do so, policy makers require tools that allow an assessment of potential impacts of land use policies on all sectors. Over the last five years the EU has invested substantial funding in the development of a suite of computer-based models to support policy-making for different sectors and at different strategic levels and spatial scales. One of the most innovative and ambitious of these initiatives is 'SENSOR' ('Tools for Environmental, Social and Economic Effects of Multifunctional Land Use in European Regions'), a four year project, which has brought together teams of researchers from 36 institutes in 15 European countries, as well as China, Brazil, Argentina and Uruguay. The aim is to develop 'Sustainability Impact Assessment Tools' ('SIAT') that support ex ante assessment of new policies on six land use sectors: agriculture, forestry, nature conservation, transport infrastructure, energy and tourism. By integrating cross-sector knowledge at a European level, the project will provide decision makers with scientifically sound information on regional impacts of land uses changes and policy effects on sustainable development. The project is based on three key assessment streams: European-wide, indicator-based driving force and impact analysis of land use policy scenarios, region specific problem, risk and threshold assessment making use of spatial reference systems, land use functions and participatory processes, case study based, exemplary sensitive area studies in mountains, islands, coastal zones, post-industrial areas using detailed information on specific sustainability issues, and engaging with stakeholders at the local level. For each policy area, the outputs of the tool are being validated with local stakeholders in six regions throughout Europe, and a methodology for future stakeholder engagement is being developed for use alongside the tool. As additional policy areas become modelled within SIAT, it will be of value to an increasing range of policymakers as a decision-support tool, but also as a 'discussion-support' tool by providing a common platform for critical engagement between policymakers and stakeholders. In doing so, SIAT may help to identify potential conflicts between interest groups, and resolve them at the policymaking stage rather than 10 years down the line. The SENSOR project is structured into seven interrelated modules. Each module consists of several work packages. To ensure full integration of research components particularly with regard to sectors and disciplines, the structure follows a procedural approach. The modules are: M1: Scientific co-ordination and project management; M2: European land use scenario assessment and forecasting; M3: Regional sustainability problems, risks and thresholds; M4: SIAT integration and end user tool; M5: Integrated data and indicator management; M6: Sustainability issues in sensitive regions; M7: Stakeholder participation and institutional analysis; M8: SENSOR TTC: Transferability test to China and MERCOSUR

Scope - Information_management:	Yes
Scope - Modeling:	Yes
Key researchquestion - Land use:	Yes
Status - Running at 1 July 2011:	No

Status - Finished:	Yes
Starting year:	2004
End year:	2009
Duration - short-term (1-5 years):	Yes
Funding mechanism - FP6:	Yes
Funding period - Number of years:	4,5
<i>In-situ</i> infrastructure - unknown:	Yes
Number of sites - unknown:	Yes
Scale of the network - European:	Yes
Scale of individual sites - Not applicable:	Yes
Number of institutions:	39
Number of countries:	15
Coordinating persons name:	Katharina Helming
Coordinating persons email address:	sensor@zalf.de
Coordinating institution: Landscape Research (ZALF)	Leibniz-Centre for Agricultural
Coordinating country:	Germany
Link to website:	http://www.sensor-ip.org/
Latest update of website (News, Events sections):	2009??
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Postal address - City:	Müncheberg

8. LTER-Europe

Category: In-situ observational research networks

Name of project or network: LTER-Europe

Description: LTER-Europe is: A knowledge factory ; A network of LTER sites ; A network of LTSEER platforms ; A network of national networks ; A network of institutions ; A network of scientists (a community) ; A network of disciplines ; A network of data and metadata ; Part of a network of European networks ; A network of site based research and research projects ; A process structuring and integrating all the above. The mission of LTER-Europe is to deliver to the scientific community, policy makers, and society in general, sound scientific information and predictive understanding of ecological and socio-economic processes and to inform solutions to current and future environmental problems at local, national, European and global scales. In 2007 the following overarching goals of LTER-Europe were constituted in the bylaws: to foster collaboration and coordination among long-term ecosystem researchers and research networks at local, regional, continental and global scales; to improve comparability of long-term ecological, social and economic data from sites around the world, and facilitate exchange and preservation of these data; to deliver scientific information to scientists, policymakers and the public to meet the needs of decision makers at multiple scales; to facilitate education of the next generation of long-term scientists. The work towards these overarching goals has been organized according to practical and operational criteria in fields of activities or structural goals.

Scope - Monitoring:	Yes
Scope - Experiments:	Yes
Scope - Information_management:	Yes
Scope - Modeling:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Nitrogen:	Yes
Key researchquestion - Pollutants:	Yes
Key researchquestion - Biodiversity:	Yes
Key researchquestion - Land use:	Yes
Status - Running at 1 July 2011:	Yes
Status - Permanent:	Yes
Starting year:	2007
Duration - long-term (>10 years):	Yes
Funding mechanism - distributed sources:	Yes

Funding period - Not applicable:	Yes
Strategic framework:	ESFRI
Number of sites (if element is a network of infrastructures):	about 400
ESFRI*	
Number of institutions:	about 50?
Number of countries:	21
Coordinating persons name:	Michael Mirtl
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mt.at	
Coordinating institution - Not applicable:	Yes
Coordinating country - not applicable:	Yes
Link to website:	http://www.lter-europe.net/
Latest update of website (News, Events sections):	October 2011
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Austria (EAA): Michael Mirtl	
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9. NOHA

Category: In-situ observational research networks

Name of project or network: NOHA

Description: Water in sufficient quantity and quality is an essential prerequisite for human development and sustainable ecological conditions. The earth's climate is significantly changing (e.g. IPCC, 2007) and thus directly affecting the hydrological systems. The number and intensity hydrological extremes, such as floods and droughts, are continually increasing, resulting in major economical and social impacts. Furthermore, the land cover in Europe has been modified fundamentally by conversions for agriculture, forest and for other purposes such as industrialisation and urbanisation. Additionally, water resources are more than ever used for human development, especially as a key resource for agricultural and industrial activities. The main goal of NOHA will be to create a network of hydrological observation platforms on the basis of an interdisciplinary and long-term research program with a close cooperation between several European institutions. NOHA will contribute to our understanding of Global Change impacts, e.g. on flood risk and water availability, by providing high quality data from different hydrometeorological regimes in Europe. NOHA will provide long-term statistical series of system variable measurements for the analysis and prognosis of Global Change consequences using integrated model systems. These data will be used to derive efficient prevention, mitigation and adaptation strategies and to support the implementation of the Water Framework Directive. Hydrological observatories will consist of a set of well-instrumented and monitored, hierarchically nested river basins. In order to cover the main climatic regimes in Europe a sufficient number of hydrological observatories have to be implemented in selected, and for Europe representative, regions by integrating existing research stations and activities. These will be located along two major transects across Europe; from north west (Scotland) to south (Italy) and from south west (Spain) to north east (the Scandinavian countries). A further transect of Hydrological observatories will stretch from central to eastern Europe. The observatories comprising the primary transects will represent the primary sites of the network. This primary network will be supplemented by additional river basins located in specific climate sensitive regions of Europe and not covered by the primary network. The hydrological observatories will monitor the major hydrological and atmospheric fluxes and the dynamics of the storage reservoirs (vegetation, soil, groundwater,

Scope - Monitoring:	Yes
Scope - Modeling:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Land use:	Yes
Status - Running at 1 July 2011:	No
Status - Unknown:	Yes
Duration - mid-term (5-10 years):	Yes
Funding mechanism - distributed sources:	Yes

Funding period - Unknown:	Yes
Strategic framework:	ESFRI
<i>In-situ</i> infrastructure - unknown:	Yes
Number of sites - unknown:	Yes
Scale of the network - European:	Yes
Scale of individual sites - Unknown:	ESFRI
Number of institutions - Unknown:	Yes
Number of countries:	9
Coordinating persons name:	Harry Vereecken
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Coordinating country:	Germany
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10. CarboEurope IP

Category: In-situ experimental research networks

Name of project or network: CarboEurope IP

Description: Integrated Project CarboEurope-IP: Assessment of the European Terrestrial Carbon Balance. Aim: CarboEurope-IP aims to understand and quantify the present terrestrial carbon balance of Europe and the associated uncertainty at local, regional and continental scale. This means to (a) determine the European carbon balance with its spatial and temporal patterns, (b) understand the controlling processes and mechanisms of carbon cycling in European ecosystems and how these are affected by climate change and variability and human management, (c) develop an observation system to detect changes in atmospheric CO₂ concentrations and ecosystem carbon stocks related to the European commitments under the Kyoto Protocol. Approach: In order to achieve these aims, CarboEurope-IP addresses the three major topics: (1) Determination of the carbon balance of the European continent, its geographical patterns, and changes over time. This is achieved by (1) executing a strategically focussed set of surface based ecological measurements of carbon pools and CO₂ exchange, (2) further enhancement of an atmospheric high precision observation system for CO₂ and other trace gases, (3) execution of a regional high spatial resolution experiment, and (4) integration of these components by means of innovative data assimilation systems, bottom-up process modelling and top-down inverse modelling. The key innovation of the CarboEurope-IP is in its conception as to apply single comprehensive experimental strategy, and its integration into a comprehensive carbon data assimilation framework. It is solving the scientific challenge of quantifying the terrestrial carbon balance at different scales and with known, acceptable uncertainties. The increase in spatial and temporal resolution of the observational and modelling program will allow for the first time a consistent application of a multiple constraint approach of bottom-up and top-down estimates to determine the terrestrial carbon balance of Europe with the geographical patterns and variability of sources and sinks. (2) Enhanced understanding of the controlling mechanisms of carbon cycling in European ecosystems, and the impact of climate change and variability, and changing land management on the European carbon balance. This is achieved by (1) the partitioning of carbon fluxes into their constituent parts (assimilation, respiration, fossil fuel burning), at local, regional and continental scales, (2) the quantification of the effects of management on net ecosystem carbon exchange based on data synthesis, and (3) the development, evaluation and optimisation of ecosystem process models. (3) Design and development of an observation system to detect changes of carbon stocks and carbon fluxes related to the European commitments under the Kyoto Protocol. This is achieved by (1) atmospheric measurements and a modelling framework to detect changes in atmospheric CO₂ concentrations during the time frame of a Kyoto commitment period, and (2) the outline of a carbon accounting system for the second Commitment period based on measuring carbon fluxes, stock changes by soil and biomass inventories, vegetation properties by remote sensing, and atmospheric concentrations. History: CarboEurope emerged as a cluster of European projects in 2000. Since then, it consolidated an interdisciplinary research community in the fields of different ecosystems, atmosphere, measurements and modelling. The CarboEurope-IP bundles and expands on these earlier projects and allows for the first time a harmonised and consistent gathering of data and integration of space and time scales. Partners: The consortium consists of 61 Contractor Institutes from 17 European countries, plus about 30 Associated Partners within Europe and further Collaborating Institutes outside Europe. The Max-Planck-Institute for Biogeochemistry, Germany, is project co-ordinator. CarboEurope-IP is open to associate further partners. Resources: The project is supported by the European Commission,

Directorate-General Research, Sixth Framework Programme, Priority 1.1.6.3 Global Change and Ecosystem, Contract No. GOCE-CT-2003-505572. The budget consists of 16.3 million Euro from the European Commission and about 30 million Euro from national funding.

Scope - Monitoring:	Yes
Scope - Experiments:	Yes
Scope - Modeling:	Yes
Key researchquestion - Carbon cycle:	Yes
Status - Finished:	Yes
Starting year:	2004
End year:	2009
Duration - short-term (1-5 years):	Yes
Funding mechanism - FP6:	Yes
Funding period - Number of years:	5
Strategic framework - unknown:	Yes
<i>In-situ</i> infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	>100
Scale of the network - European:	Yes
Scale of individual sites - Unknown:	
Number of institutions:	61
Number of countries:	17
Coordinating persons name: ordinator)	Ernst-Detlef Schulze (Co-
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ordination)	Angelika Thuille (Scientific Co-
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Coordinating institution: Biogeochemistry	Max-Planck-Institute for
Coordinating country:	Germany
Link to website:	http://www.carboeurope.org/
Latest update of website (News, Events sections):	Sep.11
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Postal address -ZIP code:	D-07745
Postal address - City:	Jena

11. Carbo-Extreme

Category: In-situ experimental research networks

Name of project or network: Carbo-Extreme

Description: Concept and objectives CARBO-Extreme aims to improve our understanding of the terrestrial carbon cycle in response to climate variability and extreme events represent and apply this knowledge over Europe with predictive terrestrial carbon cycle modelling interpret the model predictions in terms of vulnerability of the terrestrial – in particular soil – carbon pools under different scenarios and give advice to the European Commission and other stakeholders to support the development and implementation of climate, soil and ecosystem protection policies. This overall objective is broken down into the following scientific, technical and policy related objectives: Main scientific objectives Obtain a better and more comprehensive predictive understanding of terrestrial carbon cycle responses to climate variability and extreme weather events for European forest, grass- and peat-land and arable ecosystems. Identify the most sensitive and vulnerable carbon pools and processes to climate variability and extreme events Map the most likely trajectory of carbon pools in Europe over the 21st century and associated uncertainties introduced by model assumptions and setup (i.e. model structure, parameters and input, e.g. scenarios) Specifically the following scientific questions will be addressed in the project: How do ecosystem carbon balances respond to changing climate variability in contrast to gradual climate change? How sensitive is the carbon balance of different European ecosystem types to climate extremes? Are there vegetation- and soil-specific thresholds? Which are the processes that dominate the ecosystem's carbon balance sensitivity and vulnerability under climate variability and extreme events? Is temperature the main determinant of changes in carbon balance and potential saturation of the carbon sink or is it overridden by water limitation or by interactions between temperature and water? Will destabilizing mechanisms of soil carbon be more affected than stabilizing mechanisms by climate extremes? Will this enhance the vulnerability of soil C to climate change? Which lagged responses and memory effects play an important role for long term terrestrial carbon balance? Which part of the growing season is most sensitive to climate extremes, with implications for cultivation practices? Main technical objectives Build a European network of Ecosystem Manipulation Experiments by harmonizing existing experiments and amending with cross-site process studies in-situ and in the laboratory. Build a consistent multi-source (ecosystem experiments, long-term monitoring of soils, trees and fluxes, remote sensing, riverine transport) database on the European carbon cycle components for use in studying climate variability and extreme events Perform a Bayesian model calibration and comparison that allows multiple observational constraints to be assimilated into process models across different time and spatial scales, leading to improved terrestrial carbon cycle predictions and a refined assessment of their uncertainties in scenario analyses Select and integrate the available and most suitable spatial data for predictive carbon cycle modelling (e.g. soil maps, land-use, regional climate scenarios) Main policy relevant objectives Provide an integrated analysis of critical vulnerabilities of the terrestrial carbon sink and carbon pools in Europe, in a spatially explicit way and aggregated by country and sectors/ecosystem types. Quantify the risk of not attaining targets in European emission reductions due to increased greenhouse gas losses from European terrestrial ecosystems Compare carbon pools trajectories in Europe for contrasted CO₂ emission scenarios and assess the additional mitigation efforts that might be needed to compensate for the decline in the European terrestrial carbon sinks. Give guidance on ecosystem-type and region-specific carbon and soil protection strategies for post-Kyoto policies, i.e. negotiations for a long-term agreement on emissions cuts ('Bali roadmap'). Strengthening the competitiveness of the European carbon cycle research by

bringing together different experimental, observational and modelling communities for an integrated assessment.

Scope - Monitoring:	Yes
Scope - Experiments:	Yes
Scope - Modeling:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Carbon cycle:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2009
End year:	2013
Duration - mid-term (5-10 years):	Yes
Funding mechanism - FP7:	Yes
Funding period - Number of years:	5
<i>In-situ</i> infrastructure:	Yes
Scale of the network - European:	Yes
Number of institutions:	25
Number of countries:	12
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Latest update of website (News, Events sections):	Sep.11
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Jena

12. FunDiv

Category: In-situ experimental research networks

Name of project or network: FunDiv

Description: Ongoing biodiversity loss has prompted concerns that the functioning of ecosystems and the services humans derive from the environment may be compromised. While there is ample evidence supporting a significant role of biodiversity for ecosystem functioning in simple model systems, this role is less clear for forests. FunDivEUROPE answers the need for a new generation of research that brings functional biodiversity research into the complex world of the forest realm and examines ecosystem processes that provide important goods and services to humanity. The overall scientific goal of FunDivEUROPE is to quantify the effects of forest biodiversity on ecosystem functions and services in major European forest types. A major aim is to understand and quantify how tree species diversity can be used to foster the provision of ecosystem services such as timber production, carbon sequestration and freshwater provisioning. Additionally, the implications of tree species diversity for the vulnerability of ecosystem services under climate change will be assessed by integrating field and modelling data on the performance of pure versus mixed species stands under different climates. The policy relevant objective is to strengthen the science-policy interface by delivering timely, relevant and understandable information to policymakers and stakeholders about the relationship of forest biodiversity and ecosystem services within the framework of multifunctional forestry. This will help forest owners and forestry organizations to adapt management strategies to better utilize benefits of mixed species forests and ecosystem services. Research platforms and Workpackages

Workpackages & Platforms In FunDivEUROPE there will be seven work packages operating on four platforms – three research platforms and one devoted to knowledge transfer processes (Figure 1). The research platforms can be seen as ‘physical’ or ‘digital’ entities from which novel or previously hidden information on the functional significance of forest diversity can be extracted with experimental, observational, statistical or simulation methods. There will be two physical platforms, the Experimental Platform consisting of the existing and independently funded network of tree diversity experiments (TreeDiv_Net) and the Exploratory Platform, a new observational platform consisting of six clusters each comprising about fifty forest stands that form a diversity gradient under otherwise comparable management and environmental conditions (see Figure 2 for the location of the sites in Europe). Map of Exploratory and Experimental Plots The digital Intentory Platform, a compilation of relevant information from national forest inventories and other observational networks (e.g. FutMon) as well as complementary information on environmental and management-related covariates complements the forest-related data base. These three research platforms complement each other with respect to representativeness, comprehensiveness and orthogonality of the related information on biodiversity – ecosystem functioning relationships (Figure 3). Orthogonality refers to the ability of a design to detect and quantify the effect of diversity per se against a background of various other influencing factors and covariates (species identity, environment, management, etc.). This is only possible if diversity is little correlated with these factors (i.e. orthogonal). Representativeness, comprehensiveness and orthogonality

Comprehensiveness refers to the spectrum of ecosystem functions and services quantified in a study. As forest ecosystems provide a multitude of functions and services it is desirable to simultaneously measure as many variables as possible (i.e. multifunctionality, e.g. carbon sequestration, water cycling, nutrient retention, habitat provision, timber production etc.).

Representativeness refers to the relevance of the findings for the existing forest ecosystems in the real landscape. The better the design reflects the existing forest types, soil types and

age structure, the easier it becomes to transfer the results to real world conditions. Basic philosophy for field data collection The basic philosophy of FunDivEUROPE with its focus on forest multifunctionality is the “all measurements on all plots”-approach. Only by adopting this approach, the statistical power to quantify species and/or functional diversity effects on ecosystem functioning against a background of confounding covariates is high enough. Temporally and spatially repeated sampling within a plot needs to be kept at a minimum and also the installation of permanent equipment in all plots is prohibitive. The ideal measurement is therefore one that integrates processes spatially and over longer time scales and involves little sampling effort in the field.

Scope - Monitoring:	Yes
Scope - Experiments:	Yes
Key researchquestion - Biodiversity:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2010
End year:	2014
Duration - short-term (1-5 years):	Yes
Funding mechanism - FP7:	Yes
Funding period - Number of years:	4
Strategic framework - unknown:	Yes
<i>In-situ</i> infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	11
Scale of the network - European:	Yes
Scale of individual sites - 1-10 km²:	Yes
Scale of individual sites - 10-1,000 km²:	Yes
Number of institutions:	24
Number of countries:	15
Coordinating persons name:	Michael Scherer-Lorenzen
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Coordinating institution: UNIVERSITAET FREIBURG	ALBERT-LUDWIGS-

Coordinating country: Germany

Link to website: <http://www.fundiveurope.eu/>

Latest update of website (News, Events sections): March 2011

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13. INCREASE (I3)

Category: In-situ experimental research networks

Name of project or network: INCREASE (I3)

Description: INCREASE is an EU-funded infrastructure of six large-scale climate change experiments and one phytotron designed to study climate change effects on shrublands. The experiments combine 2 different approaches to study climate effects on ecosystems, the "space for time" substitution by investigating ecosystems along a precipitation and temperature gradient in Europe and by ecosystem manipulations. The research is focused on non-intrusive technologies for realistic climate manipulations and for non-destructive sampling methodologies and by synthesis of long data records obtained from the same infrastructures during two previously EU-funded projects: CLIMOOR (1998-2000) and VULCAN (2001-2004). The aims: Improved technologies for large-scale climate change experiments with realistic manipulation of climate; Improved methodologies for studies of climate change effects on ecosystems; To provide access to large scale field-based climate change experiments to wider scientific community

Scope - Experiments:	Yes
Key research question - Climate:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2009
End year:	2013
Duration - short-term (1-5 years):	Yes
Funding mechanism - FP7:	Yes
Funding period - Number of years:	4
Strategic framework - unknown:	Yes
In-situ infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	7
Scale of the network - European:	Yes
Scale of individual sites - 1-10,000 m²:	Yes
Scale of individual sites - 1-100 ha:	Yes
Number of institutions:	9
Number of countries:	5

Coordinating persons name:	Inger Kappel Schmidt
Coordinating persons email address:	iks@life.ku.dk
Coordinating institution: of Copenhagen, Denmark	Forest & Landscape, University
Coordinating country:	Denmark
Link to website: infrastructure.eu/	http://www.increase-
Latest update of website (News, Events sections):	January 2011
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Postal address -ZIP code:	2970
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14. Mesoaquia (I3)

Category: In-situ experimental research networks

Name of project or network: Mesoaquia (I3)

Description: The objective of the FP7 EU project MESOAQUA is to construct a network of European marine mesocosm facilities to advance the studies of future aquatic ecosystems from the Arctic to the Mediterranean. MESOAQUA offers a number of activities in aquatic systems during the period from 2009 to 2012 including: Networking Transnational Access to mesocosm facilities Joint Research In marine ecology there is an urgent need to understand the functioning of the lower part of the pelagic food web, its response to and effect on climate change, its response to pollution and environmental toxins, and its role in producing food for commercially important species at higher trophic levels. To study these questions European scientists need access to tools allowing experimental approaches to near-natural pelagic systems. To meet this need, the MESOAQUA network of European marine mesocosm facilities will: Offer European researchers access to a range of mesocosm facilities in contrasting environments Develop and test new technologies that allow access to off-shore environments Improve the services of the facilities by facilitating the exchange of technology and experience Facilitate cross-disciplinary fertilisation and a better coordination of mesocosm research in Europe Promote the training of young scientists in the use of experimental ecosystem research MESOAQUA is necessary because: System level experimentation is required to understand and predict the responses of the pelagic ecosystem to changing aquatic conditions, because of increasing anthropogenic pressures. There is no present system for trans-national access to such experimental facilities, particularly not to facilities offering access to different water masses. There is no present technology permitting mesocosm experiments in open waters. One aim of the MESOAQUA project is to build up a Virtual Transnational Pelagic Mesocosm Centre (VTPMC) that involves mesocosm facilities from the Mediterranean to the Arctic. VTPMC is an open web-based centre serving as an information hub promoting transnational coordination and cooperation in pelagic mesocosm-based science facilities. VTPMC is a contact point for distribution of public information from and between MESOAQUA activities as well as promoting communication, networking and joint development of new research cooperation with and between external users. VTPMC provides smooth, effective communication within the MESOAQUA consortium with the public in order to: Attract and select users for transnational access (TA) Provide a platform for the dissemination of user results Coordinate research activities within the MESOAQUA project on European and International level Coordinate the transfer of technology and training Coordinate and disseminate the results of Joint Research Activities Disseminate all scientific and technical MESOAQUA results Disseminate information on new papers, meetings, funding opportunities, and press releases on mesocosm-based aquatic ecosystem science

Scope - Experiments: Yes

Key researchquestion - Climate: Yes

Key researchquestion - Pollutants: Yes

Key researchquestion - Biodiversity: Yes

Status - Running at 1 July 2011: Yes

Starting year:	2009
End year:	2012
Duration - short-term (1-5 years):	Yes
Funding mechanism - FP7:	Yes
Funding period - Number of years:	3
Strategic framework - unknown:	Yes
<i>In-situ</i> infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	6
Scale of the network - European:	Yes
Scale of individual sites - 1-10,000 m²:	Yes
Number of institutions:	6
Number of countries:	5
Coordinating persons name:	Anita Jacobsen
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Coordinating institution:	University of Bergen (UiB)
Coordinating country:	Norway
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Latest update of website (News, Events sections):	Apr.11
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Postal address - City:	Bergen

15. NitroEurope IP

Category: In-situ experimental research networks

Name of project or network: NitroEurope IP

Description: The NitroEurope IP – or NEU for short – addresses the major question: What is the effect of reactive nitrogen (Nr) supply on net greenhouse gas budgets for Europe? The objectives are to: establish robust datasets of N fluxes and net greenhouse-gas exchange (NGE) in relation to C-N cycling of representative European ecosystems, as a basis to investigate interactions and assess long-term change, quantify the effects of past and present global changes (climate, atmospheric composition, land-use/land-management) on CN cycling and NGE, simulate the observed fluxes of N and NGE, their interactions and responses to global change/land-management decisions, through refinement of plot-scale models, quantify multiple N and C fluxes for contrasting European landscapes, including interactions between farm-scale management, atmospheric and water dispersion, and consideration of the implications for net fluxes and strategies, scale up Nr and NGE fluxes for terrestrial ecosystems to regional and European levels, considering spatial variability and allowing assessment of past, present and future changes, assess uncertainties in the European model results and use these together with independent measurement/inverse modelling approaches for verification of European N₂O and CH₄ inventories and refinement of IPCC approaches. These objectives are met by a programme that integrates: an observing system for N fluxes and pools [Component 1] a network of manipulation experiments [Component 2] plot-scale C-N modelling [Component 3] landscape analysis [Component 4] European up-scaling [Component 5] and uncertainty and verification of European estimates [Component 6]. In addition to that, the project organisation comprises cross-cutting activities addressing management, databases, training and dissemination. NEU will advance the fundamental understanding of C-N interactions at different scales and deliver: process-based models, landscape-level assessments, European maps of C-N pools, Nr fluxes and NGE, and independent verification of GHG inventories, as required under the Kyoto Protocol.

Scope - Monitoring:	Yes
Scope - Experiments:	Yes
Scope - Modeling:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Nitrogen:	Yes
Key researchquestion - Carbon cycle:	Yes
Status - Running at 1 July 2011:	No
Status - Finished:	Yes
Starting year:	2006
End year:	2011

Duration - short-term (1-5 years):	Yes
Funding mechanism - FP6:	Yes
Funding period - Number of years:	5
<i>In-situ</i> infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	72
Scale of the network - European:	Yes
Scale of individual sites - 1-10,000 m²:	Yes
Number of institutions:	65
Number of countries:	24
Coordinating persons name:	Mark Sutton
Coordinating persons email address:	ms@ceh.ac.uk
Coordinating institution: (CEH) - NERC	Centre for Ecology & Hydrology
Coordinating institution - Not applicable:	CEH
Coordinating country:	UK
Link to website:	http://www.nitroeuropa.eu/
Latest update of website (News, Events sections):	Aug.11
Postal address - Name of office or person: Sutton	CEH, project lead: Prof. Mark
Postal address - Street:	Bush Estate, Penicuik
Postal address -ZIP code:	EH26 0QB
Postal address - City:	Midlothian

16. EBONE

Category: In-situ monitoring networks

Name of project or network: EBONE

Description: The EBONE project intends to be the basis of a cost effective data collection system for biodiversity including extant data, both past and present, at national, regional and European levels. It will form the basis for the continued development of a European Biodiversity Observation System and in this way provide a common European basis or reporting on biodiversity, access to indicator data for CBD reporting against the 2010 target. The system is compatible with and contributes to the GEOSS 10 year implementation plan. EBONE will contribute to the GEOSS tasks EC-09-01 and BI-07-01. (GEOSS 2009-2011 Workplan). The project focuses on this topic and will deliver a European contribution to the development of a global biodiversity observation system that is spatially and topically prioritised. It will also build on existing information. Therefore a link will be made between the methods, data and observation sites available in different countries and regions. A link will be made with various ongoing projects and available databases as well as observation and monitoring systems. Tests will be carried out on the data from representative sites and Natura 2000 sites in relation to data from nation-wide habitat monitoring programmes. Power analysis of datasets at different levels (species, habitat, ecosystems) are carried out to test the representativeness and in this way the usefulness of sampling schemes and data sets. The European Monitoring approach builds on knowledge developed in recent European research projects and networks such as AlterNet, BioHab, BioPress and EuMon. It assesses representativeness of sites and integrates existing national monitoring systems. It aims to lead to a cost effective procedure for biodiversity monitoring. Products of EBONE are: 1) Selection of biodiversity indicators for EBONE 2) Relating extant data 3) Habitat mapping and recording using General Habitat Categories 4) Annex I key 5) The European Environmental Stratification (part of EC 06-01) 6) The Global Stratification 7) The Field computer programme for habitat and species monitoring 8) Field testing 9) Database management

Scope - Monitoring:	Yes
Key researchquestion - Biodiversity:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2008
End year:	2012
Duration - short-term (1-5 years):	Yes
Funding mechanism - FP7:	Yes
Funding period - Number of years:	4
Strategic framework - unknown:	Yes
In-situ infrastructure:	No

Number of sites - not applicable:	Yes
Scale of the network - European:	Yes
Scale of individual sites - Not applicable:	No
Number of institutions:	18
Number of countries:	16
Coordinating persons name:	Rob Jongman
Coordinating persons email address:	rob.jongman@wur.nl
Coordinating institution:	ALTERRA
Coordinating country:	The Netherlands
Link to website:	http://www.ebone.wur.nl/UK/
Postal address - Name of office or person:	Alterra
Postal address - Street:	Postbus 47
Postal address -ZIP code:	6700AA
Postal address - City:	Wageningen

17. IMECC (I3)

Category: In-situ monitoring networks

Name of project or network: IMECC (I3)

Description: The IMECC project aims to build the infrastructure for a coordinated, calibrated, integrated and accessible dataset for characterizing the carbon balance of Europe. It will achieve this by: Improving the comparability of atmospheric and ecosystem measurements of greenhouse gases and isotopic composition so that measurements made by diverse and widespread research programmes can be reliably combined. Coordinating optimal development of infrastructure via comprehensive experimental design studies. IMECC will provide a web-based tool to calculate the impact of proposed measurements on knowledge of the European carbon cycle . Improving access to existing and future atmospheric and ecosystem data for research and for other integrated projects via a coordinated data delivery centre. Improving access to data on ecosystem parameters and state-of-the-art facilities for ecosystem measurement and manipulation for the European research community . Tying European terrestrial data into emerging remotely-sensed datasets on atmospheric composition. IMECC will develop a transfer standard between European atmospheric measurements and satellite measurements using ground-based remote sensing. The quality of the transfer standard will be tested with routine aircraft profiling. .

Scope - Monitoring:	Yes
Scope - Modeling:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Carbon cycle:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2007
End year:	2011
Duration - short-term (1-5 years):	Yes
Funding mechanism - FP6:	Yes
Funding period - Number of years:	4,5
Strategic framework - unknown:	Yes
In-situ infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	15
Number of sites - unknown:	Yes
Scale of the network - European:	Yes

Scale of individual sites - 1-100 ha:	Yes
Scale of individual sites - 1-10 km²:	Yes
Scale of individual sites - Unknown:	
Number of institutions:	34
Number of countries:	16
Coordinating persons name:	Ernest Koffi
Coordinating persons email address:	ernest.koffi@lsce.ipsl.fr
Coordinating institution: CNRS-UVSQ	LSCE/IPSL, Laboratoire CEA-
Coordinating country:	France
Link to website:	http://imecc.ipsl.jussieu.fr/
Latest update of website (News, Events sections):	August 2011??
Postal address - Name of office or person: CNRS-UVSQ: Ernest Koffi	LSCE/IPSL, Laboratoire CEA-
Postal address - Street: Saclay	Bat. 701 LSCE - CEA de
Postal address -ZIP code:	91191
Postal address - City: Gif/Yvette	Orme des Merisiers, 91191

18. UNECE/ ICP Forest

Category: In-situ monitoring networks

Name of project or network: UNECE/ ICP Forest

Description: ICP Forests - the International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests operating under the UNECE Convention on Long-range Transboundary Air Pollution. ICP Forests is a programme tailored for comprehensive information on forest condition in Europe. It was launched in 1985 under the Convention on Long-range Transboundary Air Pollution of the United Nations Economic Commission for Europe (UNECE) due to the growing public awareness of possible adverse effects of air pollution on forests. ICP Forests monitors the forest condition in Europe, in cooperation with the European Union using two different monitoring intensity levels. The first grid (called Level I) is based on around 6000 observation plots on a systematic transnational grid of 16 x 16 km throughout Europe. The intensive monitoring level comprises around 500 Level II plots in selected forest ecosystems in Europe. Currently 41 countries participate in the ICP Forests.

Scope - Non-invasive research:	Yes
Scope - Monitoring:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Nitrogen:	Yes
Key researchquestion - Carbon cycle:	Yes
Key researchquestion - Pollutants:	Yes
Status - Running at 1 July 2011:	Yes
Status - Permanent:	Yes
Starting year:	1985
Duration - long-term (>10 years):	Yes
Funding mechanism - distributed sources:	Yes
Funding period - Unknown:	Yes
Strategic framework - unknown:	Yes
In-situ infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	6000
Scale of the network - European:	Yes

Scale of individual sites - 1-100 ha:	Yes
Scale of individual sites - 10-1,000 km²:	Yes
Number of institutions:	>50
Number of countries:	0
Coordinating persons name:	Michael Köhl
Coordinating persons email address: hamburg.de;m.koehl@holz.uni-hamburg.de	weltforst@holz.uni-
Link to website:	http://icp-forests.net/
Latest update of website (News, Events sections):	2011
Postal address - Name of office or person: Wood Science, Institute for World Forestry	Universität Hamburg, Centre of
Postal address - Street:	Leuschnerstr. 91
Postal address - ZIP code:	D-21031
Postal address - City:	Hamburg

19. UNECE/ ICP IM

Category: In-situ monitoring networks

Name of project or network: UNECE/ ICP IM

Description: The International Cooperative Programme (ICP) on Integrated Monitoring of Air Pollution Effects on Ecosystems. The integrated monitoring of ecosystems refers to the simultaneous measurement of physical, chemical and biological properties of an ecosystem over time and across compartments at the same location. In practice, monitoring is divided into a number of compartmental subprogrammes which are linked by the use of the same parameters (cross-media flux approach) and/or same/close stations (cause-effect approach). The multi-disciplinary Integrated Monitoring programme (ICP IM) is part of the effect-oriented activities under the 1979 Convention on Long-range Transboundary Air Pollution (LRTAP), which covers the region of the United Nations Economic Commission for Europe (UNECE). It belongs to a group of six specialist International Cooperative Programmes (ICPs) which have been set up under the LRTAP Convention's Working Group on Effects to look at relevant receptors and environmental issues. The ICP IM sites are catchments/plots located in natural or semi-natural areas.

Aims of ICP Integrated Monitoring: The overall aim of integrated monitoring was originally to determine and predict the state and change of terrestrial and freshwater ecosystems in a long-term perspective with respect to the impact of air pollutants, especially nitrogen and sulphur. This was to provide one basis for decisions on emission controls and assessment of the ecological impact of such controls within Convention on Long-range Transboundary Air Pollution of the UNECE. However the full implementation of the Integrated Monitoring Programme will allow the ecological effects of tropospheric ozone, heavy metals and persistent organic substances to be determined. Implementation of the Programme will provide a major contribution to the international data requirements for examining the ecosystem impacts of climatic change, changes in biodiversity and depletion of stratospheric ozone. A primary concern is the provision of scientific and statistically reliable data that can be used in modelling and decision making. The main emphasis is to establish consistent time series for environmental variables rather than establishing representative surveys across the UNECE region.

The aims are fulfilled by: (a) monitoring both biogeochemical trends and biological responses in small (10 - 1000 ha) clearly defined areas, (b) seeking to separate the noise of natural variation, including succession, from the signal of anthropogenic disturbance by monitoring natural or semi-natural ecosystems, (c) developing and applying tools, e.g. models, for regional assessment and prediction of long-term effects.

Scope - Non-invasive research:	Yes
Scope - Monitoring:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Nitrogen:	Yes
Key researchquestion - Carbon cycle:	Yes
Key researchquestion - Pollutants:	Yes

Status - Running at 1 July 2011:	Yes
Status - Permanent:	Yes
Starting year:	1979
Duration - long-term (>10 years):	Yes
Funding mechanism - distributed sources:	Yes
Funding period - Unknown:	Yes
Strategic framework - unknown:	Yes
<i>In-situ</i> infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	43
Scale of the network - European:	Yes
Scale of individual sites - 1-100 ha:	Yes
Scale of individual sites - 1-10 km²:	Yes
Number of institutions:	>20
Number of countries:	15
Coordinating persons name:	Lars Lundin
Coordinating persons email address:	Lars.Lundin@slu.se
Link to website:	http://www.ymparisto.fi/default.asp?node=6318&lan=en
Latest update of website (News, Events sections):	24.11.2011
Postal address - Name of office or person:	Swedish University of Agricultural Sciences, SLU, Department of Aquatic Sciences and Assessment
Postal address - Street:	P.O. Box 7050
Postal address -ZIP code:	SE-750 07
Postal address - City:	Uppsala

20. Climmani

Category: Other networks & infrastructures

Name of project or network: Climmani

Description: Aim and objectives: ClimMani aims to provide an umbrella for coordinated activities bringing together researchers, data and knowledge from past and ongoing European climate manipulation research projects in order to synthesise the knowledge and improve ecosystem models. The specific objectives of the programme are to: establish a comprehensive network of global change scientists in order to promote better communication and integration between researchers to assure and improve the benefit of the research activities for the society within global environmental problems. organise a series of workshops and working groups to present and discuss key ecosystem processes and the impacts and interactions by climate change factors and other important drivers and to supply better grounds for integrated work between experimentalists and modellers. generate a database on data from ecosystem manipulation studies for better comparisons, syntheses and modelling efforts. synthesise and assess the impact of climate change factors on key ecosystem processes and the interactions between the different climate change factors and with other drivers. provide a possibility for ecosystem researchers and modellers to work together in order to improve our mutual understanding of ecosystem processes and impacts of climate change drivers, to improve ecosystem models and to publish synthesis and review papers. facilitate European networking and coordination of research activities among Europe and US. identify important gaps in knowledge, research priorities and future research needs related to whole-ecosystem responses to key global change factors.

Scope - Experiments:	Yes
Scope - Information_management:	Yes
Scope - Modeling:	Yes
Key researchquestion - Climate:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2008
End year:	2013
Duration - short-term (1-5 years):	Yes
Funding mechanism - ESF:	Yes
Funding period - Number of years:	5
Strategic framework - unknown:	Yes
In-situ infrastructure:	No
Number of sites (if element is a network of infrastructures):	?

Number of sites - not applicable:	No
Scale of the network - European:	Yes
Scale of individual sites - Not applicable:	No
Number of institutions:	19
Number of countries:	14
Coordinating persons name:	Claus Beier
Coordinating persons email address:	clbe@kt.dtu.dk
Coordinating institution: Denmark	DTU Technical University of
Coordinating country:	Denmark
Link to website:	http://www.climmani.org/
http://www.esf.org/activities/research-networking-programmes/life-earth-and-environmental-sciences-lesc/current-esf-research-networking-programmes-in-life-earth-and-environmental-sciences/climate-change-manipulation-experiments-in	
Latest update of website (News, Events sections):	June 2011
Postal address - Name of office or person: Denmark, Center for Ecosystems and Environmental Sustainability, Department of Chemical and Biochemical Engineering	Technical University of
Postal address - Street:	Frederiksborgvej 399
Postal address - ZIP code:	DK-4000
Postal address - City:	Roskilde

21. GEO, GEOSS

Category: Other networks & infrastructures

Name of project or network: GEO, GEOSS

Description: GEO was launched in response to calls for action by the 2002 World Summit on Sustainable Development and by the G8 (Group of Eight) leading industrialized countries. These high-level meetings recognized that international collaboration is essential for exploiting the growing potential of Earth observations to support decision making in an increasingly complex and environmentally stressed world. GEO is a voluntary partnership of governments and international organizations. It provides a framework within which these partners can develop new projects and coordinate their strategies and investments. As of March 2011, GEO's Members include 86 Governments and the European Commission. In addition, 61 intergovernmental, international, and regional organizations with a mandate in Earth observation or related issues have been recognized as Participating Organizations. GEO is constructing GEOSS on the basis of a 10-Year Implementation Plan for the period 2005 to 2015. The Plan defines a vision statement for GEOSS, its purpose and scope, expected benefits, and the nine "Societal Benefit Areas" of disasters, health, energy, climate, water, weather, ecosystems, agriculture and biodiversity. The Group on Earth Observations is coordinating efforts to build a Global Earth Observation System of Systems, or GEOSS. (See also "Crafting geoinformation," the 2010 Progress Report, and the GEO brochure.) Societal Benefits GEOSS will yield a broad range of societal benefits, notably: Reducing loss of life and property from natural and human-induced disasters; Understanding environmental factors affecting human health and well-being, Improving the management of energy resources, Understanding, assessing, predicting, mitigating, and adapting to climate variability and change, Improving water resource management through better understanding of the water cycle, Improving weather information, forecasting and warning, Improving the management and protection of terrestrial, coastal and marine ecosystems, Supporting sustainable agriculture and combating desertification, and Understanding, monitoring and conserving biodiversity. Governance GEO is governed by a Plenary consisting of all Members and Participating Organizations. It meets in Plenary at least once a year at the level of senior officials and periodically at the ministerial level. The Plenary held its first meeting in May 2005 in Geneva, followed by GEO-II in December 2005 in Geneva, GEO-III in Bonn in November 2006, and GEO-IV (plus a Ministerial Summit) in Cape Town in November 2007. Members take decisions at the Plenary by consensus. An Executive Committee oversees GEO activities when the Plenary is not in session. The Committee consists of 13 representatives elected from the five GEO regions, including three each from the Americas and Europe, four from Asia, two from Africa, and one from the Commonwealth of Independent States. The Committee is also responsible for guiding the Secretariat. The GEO Members elect four Co-Chairs who preside over both the Plenary and the Executive Committee. GEO-I established four Committees and one Working Group to guide the implementation of the 10-Year Plan. The Committees are organized around the four Transverse Areas of user engagement, architecture, data management and capacity building, which cut across, and are relevant to, each of the issue-specific Social Benefit Areas. The four permanent bodies are the Architecture and Data, Science and Technology, User Interface, and Capacity Building Committees. The Plenary also established a Working Group on Tsunami Activities.

Scope - Information_management: Yes

Key researchquestion - Climate: Yes

Key researchquestion - Biodiversity:	Yes
Key researchquestion - Land use:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2005
End year:	0
Duration - long-term (>10 years):	Yes
Funding mechanism - distributed sources:	Yes
Number of sites - not applicable:	Yes
Scale of the network - Global:	Yes
Scale of individual sites - Not applicable:	Yes
Number of institutions:	61
Number of countries:	86
Coordinating persons name: Director)	José Achache (Secretariat
Coordinating persons email address:	secretariat@geosec.org
Coordinating institution - Not applicable:	Yes
Coordinating country - not applicable:	Yes
Link to website: g/	http://www.earthobservations.org
Latest update of website (News, Events sections):	October 2011
Postal address - Name of office or person:	GEO Secretariat
Postal address - Street: postale 2300	7 bis, avenue de la Paix, Case
Postal address -ZIP code:	CH-1211
Postal address - City:	Geneva 2

22. GEOBON

Category: Other networks & infrastructures

Name of project or network: GEOBON

Description:

http://www.earthobservations.org/documents/cop/bi_geobon/geobon_technical_summary_imp_plan.pdf

Monitoring the biosphere Decision-makers rely on science when designing effective policies and programs for conserving and managing the world's dwindling biological resources. The Earth's biosphere, however, is extraordinarily complex. Studying and monitoring this dynamic network of ecosystems, species and genetic varieties is a major challenge. Many excellent biodiversity observation systems and data bases have been established over the years, but these systems tend to be dispersed, unconnected and uncoordinated. Institutional and technical barriers can make it difficult to access the observations and data that have been collected. There are also gaps in coverage, and integrating biodiversity data with data from other disciplines, such as climate, weather and geology, remains difficult. The Group on Earth Observations (GEO) is responding to the need for better information on biological diversity by establishing the GEO Biodiversity Observation Network. GEO BON is starting to coordinate the provision of sustained, cross-cutting, integrated and accessible biodiversity data and information. Launched in 2005, GEO has been recognized by ministerial summits, the G8, and other leading forums. In addition to biodiversity it addresses eight other societal benefit areas: agriculture, climate, disasters, ecosystems, energy, health, water and weather. Over 80 governments and 50 international organizations are working through GEO to coordinate their observation strategies and establish the Global Earth Observation System of Systems, or GEOSS. The GEO BON partnership Because environmental monitoring and data management are expensive, the scientific community has a strong incentive to build partnerships, exploit synergies and share data. GEO BON facilitates this cooperation by providing a global, scientifically robust framework for long-term observations and the detection of biodiversity change. GEO BON consists of government agencies and intergovernmental and international organizations. Based on a regularly updated implementation plan, these partners work together on a voluntary basis to coordinate and connect their observation systems and develop information services and decision-support products. GEO BON is guided by a steering committee and reports regularly to the annual GEO Plenary and to GEO Ministerial Summits. All systems, products and services, whether contributed to GEO BON or initiated by it, remain under the full authority and ownership of the agencies that produce and manage them. GEO BON is taking the following steps to achieve its vision:

- Identify the providers of observations systems, data and data bases, information services and other resources and invite them to contribute to GEO BON.
- Build a network of people and organizations willing to collaborate and share ideas and information.
- Based on agreed technical standards for metadata and interoperability, work towards integrating various types of biodiversity data with other relevant data available through GEOSS.
- Identify gaps in coverage, assemble partnerships to address them, and advocate for strengthening and sustaining existing monitoring systems.
- Transform data and information into operational and user-driven decision-support products and end-to-end services.
- Promote full and open access to non-sensitive biodiversity data, as recommended by the GEOSS Data Sharing Principles.
- Disseminate data sets, decision-support tools and forecasting models through user-friendly web portals.
- Develop and contribute to programs for building the capacity of individuals and institutions, particularly in developing countries, to both use and contribute to GEO BON.

Based on these steps, GEO BON has already started

to coordinate the gathering of data and the delivery of information. Over the next few years, it will provide a growing number of innovative and policy-relevant information products and services. GEO BON will continue to engage the scientific, resource-management and policy communities to ensure a dramatic increase in the availability of high-quality biodiversity information. The GEO BON vision A coordinated, global network that gathers

Scope - Monitoring:	Yes
Key researchquestion - Biodiversity:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2008
Duration - long-term (>10 years):	Yes
Funding mechanism - distributed sources:	Yes
Funding period - Unknown:	Yes
Strategic framework - unknown:	Yes
<i>In-situ</i> infrastructure:	No
Number of sites - not applicable:	Yes
Scale of the network - Global:	Yes
Scale of individual sites - Not applicable:	Yes
Number of institutions:	11 (organizations)
Number of countries - Unknown:	Yes
Coordinating persons name: committee)	Bob Scholes (Chair steering
Coordinating persons email address:	geobon@geosec.org
Coordinating institution - Not applicable:	Yes
Coordinating country - not applicable:	Yes
Link to website: g/geobon.shtml	http://www.earthobservations.org
Latest update of website (News, Events sections):	2011
Postal address - Name of office or person: Industrial Research (CSIR) in South Africa	The Council for Scientific and

Postal address - Street:

PO Box 395

Postal address -ZIP code:

0001

Postal address - City:

Pretoria

23. Belmont Forum

Category: Funding mechanisms & processes

Name of project or network: Belmont Forum

Description: The challenges being presented to the Global Change Research (GCR) agenda are changing and intensifying. These include: evidence of accelerating rates of global change beyond the predictions in the IPCC 4th Assessment Report; changes in the funding landscape as a result of the economic downturn, with some communities facing public spending constraints and others receiving fiscal stimuli for science; and international organizations such as the International Council for Science (ICSU) and International Group of Funding Agencies for Global Change Research (IGFA) undertaking refocusing exercises. Further changes resulted from new political imperatives that emerged from the United Nations Framework Convention on Climate Change (UNFCCC) CoP/MoP. In recognition of this shifting landscape, in June 2009, the US National Science Foundation (NSF) and UK Natural Environment Research Council (NERC) hosted a small conference of principal officials of key environment and geosciences funding agencies, in the USA. The objectives of this 'Belmont Conference' were to identify GCR priorities that might benefit from better cooperation and how best to address these. Participants in the Belmont Conference agreed on the need for an improved forum for (1) strengthening engagement between the research funding agencies and the academic research community as represented by ICSU and (2) improving coordination of early phase engagement on GCR strategies and priorities in order to improve co-design, co-alignment, and co-funding of major research programs. They agreed that the Belmont Group, augmented by members from key emerging economies, would provide an ideal structure for this purpose, because its small and specific membership could promote frank discussion and rapid decision-making about the planning, support and implementation of GCR. To this end, the Group established the Belmont Forum and agreed that this Forum should meet at least annually and more frequently at the outset. In October of 2009, the Belmont Forum became the Council of Principals for IGFA, succeeding the IGFA Steering Committee. This group is co-Chaired by Dr. Tim Killeen, Assistant Director for Geosciences Sciences at the National Science Foundation, U.S.A., and Professor Alan Thorpe, Chief Executive of the Natural Environment Research Council, UK. Associated with this change, a new Working Group, composed of senior working level staff from Forum member countries has assumed the responsibilities of the IGFA Staff Group to support both the Council of Principals and the full IGFA. It is intended that IGFA, led by the Belmont Forum/IGFA Council of Principals, and guided by the charge embodied in the "Belmont Challenge," will work proactively and on an action-oriented basis to enhance cooperation and coordination of global environmental change research.

Scope - Funding: Yes

Scope - Miscellaneous: Yes

Key researchquestion - Climate: Yes

Status - Running at 1 July 2011: Yes

Starting year: 2009

Duration - unknown: Yes

Funding mechanism - distributed sources:	Yes
Strategic framework: Funding Agencies for Global Change Research (IGFA))	##Michl (International Group of
In-situ infrastructure:	No
Number of sites (if element is a network of infrastructures):	No
Scale of the network - Global:	Yes
##Michl (International Group of Funding Agencies for Global Change Research (IGFA))*	
Number of institutions: (http://www.igfagcr.org/index.php/bf-members)	18
Number of countries:	12
Coordinating persons name: (NERC)	Tim Killeen (NSF), Alan Thorpe
Coordinating persons email address:	hqpo@nerc.ac.uk
Link to website: p/belmont-forum	http://www.igfagcr.org/index.php/belmont-forum
Latest update of website (News, Events sections):	2011
Postal address - Name of office or person:	NERC, Prof. Alan Thorpe
Postal address - Street: Avenue	Polaris House, North Star
Postal address -ZIP code:	SN2 1EU
Postal address - City:	Swindon

24. ERDF

Category: Funding mechanisms & processes

Name of project or network: ERDF

Description: This regulation defines the scope of assistance from the European Regional Development Fund (ERDF) during the period 2000-06. The Fund aims to promote economic and social cohesion by correcting the main regional imbalances and participating in the development and conversion of regions, while ensuring synergy with assistance from the other Structural Funds.

Framework and tasks: Regulation (EC) No 1783/1999 comes under the overall framework established by Council Regulation (EC) No 1260/1999 laying down general provisions on the Structural Funds. It requires the ERDF to provide assistance under the new Objectives 1 and 2, the Community Initiatives for cross-border, transnational and interregional cooperation (Interreg III) and economic and social regeneration of cities and urban neighbourhoods in crisis (Urban II), and innovative measures and technical assistance measures under the general Regulation. In order to reduce the gap between the levels of development of the various regions and the extent to which the least-favoured regions and islands (including rural areas) are lagging behind, the ERDF contributes to the harmonious, balanced and sustainable development of economic activity, to a high degree of competitiveness, to high levels of employment and protection of the environment, and to equality between women and men. Scope: As part of its task to promote regional development, the ERDF contributes towards financing the following measures: Productive investment to create and safeguard sustainable jobs; Investment in infrastructure which contributes, in regions covered by Objective 1, to development, structural adjustment and creation and maintenance of sustainable jobs, or, in all eligible regions, to diversification, revitalisation, improved access and regeneration of economic sites and industrial areas suffering from decline, depressed urban areas, rural areas and areas dependent on fisheries. Such investment may also target the development of trans-European networks in the areas of transport, telecommunications and energy in the regions covered by Objective 1; Development of the endogenous potential by measures which support local development and employment initiatives and the activities of small and medium-sized enterprises; such assistance is aimed at services for enterprises, transfer of technology, development of financing instruments, direct aid to investment, provision of local infrastructure, and aid for structures providing neighbourhood services; Investment in education and health (only in the context of Objective 1). The areas in which these measures provide support include development of the productive environment, research and technological development, development of the information society, protection and improvement of the environment, equality between men and women in the field of employment, and cross-border transnational and inter-regional cooperation. Pursuant to the general Regulation, the Community's Interreg III Initiative and innovative measures (studies, pilot projects, exchanges of experience) in the field of regional or local development are financed exclusively by the ERDF. However, the scope of the ERDF may be extended to overlap with the other Structural Funds in order to cover the necessary measures for the implementation of the Initiative programmes or pilot projects concerned. Implementing rules: Implementing rules for the ERDF Regulation may be adopted on the basis of the opinion of the Committee on the Development and Conversion of Regions.

Scope - Funding: Yes

Key research question - Not applicable: Yes

Status - Running at 1 July 2011:	Yes
Starting year:	1975
Duration - long-term (>10 years):	Yes
Funding mechanism - distributed sources:	Yes
Funding period - Indefinite:	Yes
<i>In-situ</i> infrastructure:	No
Number of sites - not applicable:	Yes
Scale of the network - European:	Yes
Link to website:	http://europa.eu/legislation_summaries/employment_and_social_policy/job_creation_measures/l60015_en.htm
Latest update of website (News, Events sections):	14 June 2005
Postal address - Name of office or person:	Johannes Hahn
Postal address -ZIP code:	B-1049
Postal address - City:	Brussels

25. ESF

Category: Funding mechanisms & processes

Name of project or network: ESF

Description: The establishment of the European Science Foundation (ESF) in Strasbourg in 1974 was one of the earliest milestones on the road to achieving real cooperation in European research. The ESF began life with a membership of 42 academies and research councils in 15 countries; in 2011 it counts 78 Member Organisations (MOs), including research funding organisations, research performing organisations, academies and learned societies, in 30 countries. As an independent, non-governmental organisation dedicated to pan-European scientific networking and collaboration, the ESF has had a key role to play in mediating between a multitude of heterogeneous research cultures and agencies. The ESF hosts an array of instruments to accommodate various types and levels of international collaboration, within Europe and beyond. The ESF's unique characteristic in this area is its responsiveness to the scientific community, in contrast with the more targeted approaches taken by the European Commission. Many of the instruments operated by the ESF, e.g. Exploratory Workshops, EUROCORES (European Collaborative Research scheme), Research Networking Programmes (RNPs) and ESF Research Conferences, are designed to respond to needs articulated by the research community. Open calls for proposals are published on an annual basis, so that the themes for programmes, networks and workshops are gathered from the research community, in line with the ESF's bottom-up principles. This is particularly welcome in research areas which might not otherwise be prioritised for funding on an international level. In recent years, the ESF's profile has shifted from being mainly a facilitator of collaborative research and networking to also providing a platform for Member Organisations to develop joint strategic operations and synergy among themselves. By influencing the strategic agendas of MOs in this way, greater leverage over a much larger European budget and agenda is achieved. In other words, the ESF maximises the impact of its support to the research community by combining bottom-up and topdown approaches to scientific cooperation.

Scope - Funding:	Yes
Scope - Miscellaneous:	Yes
Status - Running at 1 July 2011:	Yes
Duration - long-term (>10 years):	Yes
Funding period - Not applicable:	Yes
<i>In-situ</i> infrastructure:	No
Number of sites - not applicable:	Yes
Scale of the network - European:	Yes
Scale of individual sites - Not applicable:	Yes
Number of institutions:	78

Number of countries - Unknown:	30
Link to website:	http://www.esf.org/
Latest update of website (News, Events sections):	Sep.11
Postal address - Name of office or person:	European Science Foundation
Postal address - Street:	1, quai Lezay Marnésia
Postal address -ZIP code:	BP 90015, F-67080
Postal address - City:	Strasbourg Cedex

26. Framework Programs (FPs 7, 8)

Category: Funding mechanisms & processes

Name of project or network: Framework Programs (FPs 7, 8)

Description: No specific description available.

Scope - Funding: Yes

Key research question - Not applicable: Yes

Status - Running at 1 July 2011: Yes

Funding period - Unknown: Yes

Number of sites - not applicable: Yes

Scale of individual sites - Not applicable: Yes

Number of institutions - Not applicable: Yes

Number of countries - Not applicable: Yes

Link to website:
e_en.html [http://cordis.europa.eu/fp7/home](http://cordis.europa.eu/fp7/home_en.html)

Latest update of website (News, Events sections): 17 October 2011

27. Joint Programming

Category: Funding mechanisms & processes

Name of project or network: Joint Programming

Description: The European Council of March 2008 called on the Commission and Member States to explore the potential of Joint Programming, asking for joint activities to be launched by 2010. The Commission made proposals to launch such a process in July 2008 in a Communication entitled Towards Joint Programming in Research: Working together to tackle common challenges more effectively. These proposals were based notably on the results of the public consultation following the Commission Green Paper of April 2007 and on the work of a dedicated expert group mandated by the Commission. The Council of Ministers endorsed these proposals and agreed to launch the process in December 2008. In March 2010, the European Commission launched its initiative Europe 2020 – A European strategy for smart, sustainable and inclusive growth and Europe 2020 paper. As part of the Flagship Initiative: "Innovation Union" the Commission will work towards completing the European Research Area, including seeking to enhance joint programming with Member States and regions. The overall aim of Joint Programming is to pool national research efforts in order to make better use of Europe's precious public R&D resources and to tackle common European challenges more effectively in a few key areas. It will follow a structured strategic process whereby Member States agree common visions and strategic research agendas to address major societal challenges.

Scope - Miscellaneous: Yes

Status - Running at 1 July 2011: Yes

Duration - long-term (>10 years): Yes

Funding period - Unknown: Yes

Link to website: http://ec.europa.eu/research/era/areas/programming/joint_programming_en.htm

Latest update of website (News, Events sections): 18 October 2011

28. Joint Programming FACCE

Category: Funding mechanisms & processes

Name of project or network: Joint Programming FACCE

Description: This proposal therefore focuses on the activities for joint action to address the combined challenges of food security against the continuous threat brought by various scenarios of climate change: - we need to act now to secure safe, nutritious and affordable food for the future; - we need to mobilise funding and coordination across the EU agri-food research sector now in order to have the science and skilled scientists to underpin sustainable food production for the future; - it takes 10 years to get plant science from lab bench to crop in field; - this is a preventable crisis – and research is going to be crucial in providing the answers; - EU research has a key role to play – drawing on world leading expertise and facilities in plant, animal and microbial sciences. Joint programming on adaptation to and mitigation of climate change in the agriculture, forestry and land use sector will integrate research on climatic trends with extreme events, natural sciences with social sciences, research with actual policy and management, ecosystems with products and services, production with health, food security and food quality issues.

Scope - Miscellaneous:	Yes
Status - Running at 1 July 2011:	Yes
Duration - long-term (>10 years):	Yes
Funding period - Unknown:	Yes
Coordinating persons email address:	SecretariatJPI@paris.inra.fr
Coordinating institution:	INRA
Coordinating country:	France
Link to website:	http://www.faccejpi.com/
Latest update of website (News, Events sections):	18 October 2011
Postal address - Name of office or person: McKhann	JPI Secretariat, Heather
Postal address - Street:	147 rue de l'Université
Postal address -ZIP code:	75338 Cedex 07
Postal address - City:	Paris

29. EC

Category: Stakeholders

Name of project or network: EC

Description:

Scope - Funding: Yes

Status - Running at 1 July 2011: Yes

Link to website: http://ec.europa.eu/index_en.htm

Latest update of website (News, Events sections): October 2011

30. National Research stakeholders

Category: Stakeholders

Name of project or network: National Research stakeholders

Description:

Scope - Miscellaneous: Yes

Key research question - Not applicable: Yes

Status - Running at 1 July 2011: Yes

31. Regional authorities

Category: Stakeholders

Name of project or network: Regional authorities

Description:

Scope - Miscellaneous: Yes

Key research question - Not applicable: Yes

Status - Running at 1 July 2011: Yes

32. EERIP

Category: Formalisation

Name of project or network: EERIP

Description: European Environmental Research Infrastructures Platform: A project initiated by ESFRI ICOS and LifeWatch and ESFRI candidates ANAEE and

NOHA and the LTER-Europe network

Coordinating persons name: contacts of networks

Coordinating persons email address: \$\$\$ coord.

Postal address - Name of office or person: although it is mentioned in 2 ppt presentations, it is formally absent, unless you being in the center of events know better

33. European ESFRI Roadmap

Category: Formalisation

Name of project or network: European ESFRI Roadmap

Description: ESFRI, the European Strategy Forum on Research Infrastructures, is a strategic instrument to develop the scientific integration of Europe and to strengthen its international outreach. The competitive and open access to high quality Research Infrastructures supports and benchmarks the quality of the activities of European scientists, and attracts the best researchers from around the world. The mission of ESFRI is to support a coherent and strategy-led approach to policy-making on research infrastructures in Europe, and to facilitate multilateral initiatives leading to the better use and development of research infrastructures, at EU and international level. ESFRI's delegates are nominated by the Research Ministers of the Member and Associate Countries, and include a representative of the Commission, working together to develop a joint vision and a common strategy. This strategy aims at overcoming the limits due to fragmentation of individual policies and provides Europe with the most up-to-date Research Infrastructures, responding to the rapidly evolving Science frontiers, advancing also the knowledge-based technologies and their extended use. Since it was formed in 2002 at the behest of the European Council, ESFRI has witnessed significant advances towards unity and international impact in the field of research infrastructures. The publication of the first Roadmap for pan-European research infrastructures in 2006, and its update in 2008 was a key contributing factor, and several projects are now entering the realization phase. The Forum is determined to sustain the momentum in the implementation of the projects on the Roadmap, to expand the outreach to those scientific fields which are still evolving their conceptual approach in this direction, and to increase the involvement of all Countries by developing ad-hoc Regional policies. A further update of the ESFRI Roadmap, focusing on Energy, Food and Biology, will be published at the end of 2010, to coincide with a Conference to be held under the Belgian Presidency of the EU. To keep Europe at the rapidly evolving forefront of science and technology, and to increase the capacity to meet the needs of the EU and World scientific community, much remains to be done: ESFRI looks forward to the challenging times ahead.

Scope - Miscellaneous:	Yes
Key researchquestion - Not applicable:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2002
Duration - long-term (>10 years):	Yes
Funding mechanism - distributed sources:	Yes
Funding period - Indefinite:	Yes
Strategic framework:	ESFRI
Number of sites - not applicable:	Yes

Scale of the network - European:

Yes

ESFRI*

Scale of individual sites - Not applicable:

Yes

Link to website:

rastructures/index_en.cfm?pg=esfri

<http://ec.europa.eu/research/inf>

Latest update of website (News, Events sections):

2010

Postal address - Name of office or person:

rastructures/pdf/esfri/membership/esfri_membership_march_2010_en.pdf#view=fit&pagemo
de=none

<http://ec.europa.eu/research/inf>

34. National ESFRI roadmaps

Category: Formalisation

Name of project or network: National ESFRI roadmaps

Description: The ESFRI Roadmap identifies new Research Infrastructure (RI) of pan-European interest corresponding to the long term needs of the European research communities, covering all scientific areas, regardless of possible location. Potential new RI (or major upgrade) identified are likely to be realized in the next 10 to 20 years. Therefore they may have different degrees of maturity but it should be noted that they are supported by a relevant European partnership or intergovernmental research organisation. A growing number of countries have prepared national roadmaps that establish the prioritisation of national and pan-European RIs, using the ESFRI Roadmap as a reference. This helps to define national budgets, facilitates political support and allows long-term financial commitment. Project descriptions highlight the manner in which they would impact on science and technology development at international level, how they would support new ways of doing science in Europe, and how they would contribute to the enhancement of the European Research Area. The ESFRI roadmap is an ongoing process. First published in 2006, with 35 projects, it was updated in 2008 bringing the number of RIs of pan-European relevance to 44. A further update is currently under preparation and will be published in December 2010. The update will focus on projects dealing with Energy, Food and Biology.

Scope - Funding:	Yes
Key researchquestion - Not applicable:	Yes
Status - Running at 1 July 2011:	Yes
Duration - unknown:	Yes
Funding mechanism - National sources:	Yes
Funding period - Unknown:	Yes
Strategic framework:	ESFRI
<i>In-situ</i> infrastructure - unknown:	Yes
Number of sites - not applicable:	Yes
ESFRI*	
Scale of individual sites - Not applicable:	Yes
Number of institutions - Unknown:	Yes
Number of countries - Unknown:	Yes
Coordinating institution - Not applicable:	Yes

Coordinating country - not applicable:	Yes
Link to website:	http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri-other-roadmaps
Latest update of website (News, Events sections):	2010

35. ENCORE (database development based on NitroEurope -collaboration with CLIMMANI)

Category: Data management & e-infrastructure

Name of project or network: ENCORE (database development based on NitroEurope - collaboration with CLIMMANI)

see notes

Description: Environment and Climate interactions — Observations and Responses in Ecosystems (ENCORE). ENCORE is a database portal aiming at coordination of access to high-quality climate-change related data throughout Europe, in which NitroEurope and other projects will be curated.

Status - Running at 1 July 2011:	Yes
Coordinating persons name:	see Climmani
Link to website:	http://www.ceh.ac.uk/products/publications/documents/Nitrobrochure_lowres.pdf
Postal address - Name of office or person: Sutton	CEH, project lead: Prof. Mark
Postal address - Street:	Bush Estate, Penicuik
Postal address -ZIP code:	EH26 0QB
Postal address - City:	Midlothian

36. GTOS/ TEMS

Category: Data management & e-infrastructure

Name of project or network: GTOS/ TEMS

Description: The Global Terrestrial Observing System fulfils its mission through a number of complementary activities. It facilitates communication and cooperation between existing initiatives and promotes the harmonization of measurement methods and data processing. The four main GTOS panels are the: Coastal GTOS (C-GTOS), the Terrestrial Observation Panel on Climate (TOPC), the Terrestrial Carbon Observation panel (TCO) and the Global Observation of Forest and Land Cover Dynamics panel (GOFC-GOLD). These expert groups are aimed at promoting regional and global datasets and facilitating the synthesis of globally consistent data. The panels have also contributed to the identification of key variables for the Terrestrial Ecosystem Monitoring Sites (TEMS) database and towards the establishment of regional networks. The Net Primary Productivity (NPP) demonstration project uses ground measurements for validating the Moderate Resolution Imaging Spectroradiometer (MODIS) remote sensing products that are related to ecosystem structure and carbon and water balance. The project shows the benefits of cooperation between different science communities. The Global Terrestrial Observing Network (GT-Net) link existing terrestrial research networks together that have similar efforts for a particular theme, habitat type or region. GT-Net serves as a framework for network managers to explore areas of common interest, harmonize research efforts, share data, information and experience and allow complete and coherent data sets to be generated. In addition GTOS undertakes and collaborates in a number of international activities, including: 1. the coordination of the development of the land theme (IGOL) of the Integrated Global Observing Strategy (IGOS); 2. the participation in the development of the Global Earth Observation System of Systems (GEOSS) including leading and contribution to the implementation of the identified tasks; 3. the development of an international biodiversity initiative (B-GTOS), and 4. the technical support achieving the objectives of numerous international Conventions and treaties.

Scope - Information_management:	Yes
Key researchquestion - Land use:	Yes
Status - Running at 1 July 2011:	Yes
Status - Permanent:	Yes
Starting year:	1996
Duration - long-term (>10 years):	Yes
Funding mechanism - distributed sources:	Yes
Funding period - Unknown:	Yes
In-situ infrastructure:	No
Scale of the network - Global:	Yes

Scale of individual sites - Not applicable:	Yes
Number of institutions - Not applicable:	Yes
Number of countries - Not applicable:	Yes
Coordinating persons name:	Riccardo VALENTINI
Coordinating persons email address:	rik@unitus.it
Coordinating institution - Not applicable:	Yes
Coordinating country - not applicable:	Yes
Link to website:	http://www.fao.org/gtos/activities.html ;
	http://gosic.org/
Latest update of website (News, Events sections):	27.Sep.11
Postal address - Name of office or person:	University of Tuscia,
	Department of Forest Science and Environment: Riccardo Valentini
Postal address - Street:	Via De Lellis
Postal address -ZIP code:	01100
Postal address - City:	Viterbo

37. INSPIRE

Category: Data management & e-infrastructure

Name of project or network: INSPIRE

Description: In Europe a major recent development has been the entering in force of the INSPIRE Directive in May 2007, establishing an infrastructure for spatial information in Europe to support Community environmental policies, and policies or activities which may have an impact on the environment. INSPIRE is based on the infrastructures for spatial information established and operated by the 27 Member States of the European Union. The Directive addresses 34 spatial data themes needed for environmental applications, with key components specified through technical implementing rules. This makes INSPIRE a unique example of a legislative “regional” approach. Legislation: Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) was published in the official Journal on the 25th April 2007. The INSPIRE Directive entered into force on the 15th May 2007. To ensure that the spatial data infrastructures of the Member States are compatible and usable in a Community and transboundary context, the Directive requires that common Implementing Rules (IR) are adopted in a number of specific areas (Metadata, Data Specifications, Network Services, Data and Service Sharing and Monitoring and Reporting). These IRs are adopted as Commission Decisions or Regulations, and are binding in their entirety. The Commission is assisted in the process of adopting such rules by a regulatory committee composed of representatives of the Member States and chaired by a representative of the Commission (this is known as the Comitology procedure).

Scope - Information_management:	Yes
Key researchquestion - Not applicable:	Yes
Status - Running at 1 July 2011:	Yes
Status - Permanent:	Yes
Starting year:	2007
Duration - long-term (>10 years):	Yes
Funding mechanism - not applicable:	Yes
Funding period - Not applicable:	Yes
<i>In-situ</i> infrastructure:	No
Number of sites - not applicable:	Yes
Scale of the network - European:	Yes
Scale of individual sites - Not applicable:	Yes
Number of institutions - Not applicable:	Yes

Number of countries - Not applicable: Yes

Coordinating persons email address: inspire-info@jrc.it

Link to website: <http://inspire.jrc.ec.europa.eu/>
http://inspire.jrc.ec.europa.eu/reports/dt/inspire_drafting_teams.pdf

Latest update of website (News, Events sections): 28.Sep.11

Postal address - Name of office or person: European Commission JRC:
Vanda Lima

Postal address - Street: TP262, CCR Ispra

Postal address -ZIP code: VA 21014

Postal address - City: Ispra

38. LifeWatch

Category: Data management & e-infrastructure

Name of project or network: LifeWatch

Description: e-Science and Technology Infrastructure for Biodiversity Data and Ecosystem Research. The research infrastructure: LifeWatch will construct and bring into operation the facilities, hardware, software and governance structures for all aspects of biodiversity research. It will consist of: facilities for data generation and processing; a network of observatories; facilities for data integration and interoperability; virtual laboratories offering a range of analytical and modelling tools; and a Service Centre providing special services for scientific and policy users, including training and research opportunities for young scientists. The infrastructure has the support of all major European biodiversity research networks.

Rationale: While we are exploring other planets, it is surprising how little we still know about our own planet Earth. This is certainly true for our understanding of the living world, the biological diversity of ecosystems, species and their genetic composition. We only know a fraction of the probably millions of species, and about their traits and ecology. The same holds for our poor understanding of ecosystem functions and of ecosystem services - for example air and water quality, food and health. It is urgent to accelerate scientific discovery, understanding and innovation by means of the LifeWatch research infrastructure capabilities. 2010 is the International Year of Biodiversity. The target of halting biodiversity loss will be redefined, and for this scientific knowledge is a prerequisite in order to be able to underpin policies and to assess effects. For the following decades, Europe calls for the integration of scientific knowledge into decision making processes. LifeWatch has the ambition to provide the research infrastructure to support advanced analysis and modeling of biodiversity data in an integrated system with virtual working environments for scientific and policy user groups.

Vision and ambition: The LifeWatch infrastructure for biodiversity research addresses the huge gaps we face in our understanding of life on Earth. Its innovative design supports scientists to enter new research areas with large-scale data resources, advanced analytical and modelling capabilities with computational power. LifeWatch will not only serve the scientific community, but will also be an essential tool for local and global policy makers in the understanding and the rational management of our ecosystems. The research infrastructure includes: facilities for data generation and processing; cooperative networks of terrestrial and marine observatories, and global facilities such as the Global Biodiversity Information Facility, facilities for data integration and interoperability, virtual laboratories offering a range of analytical and modelling tools, a Service Centre providing special services for scientific and policy users, including training and research opportunities for young scientists. The architecture allows for dynamic linkages to other resources and associated infrastructures. As such, LifeWatch is a central component in the new generation of interlinked research infrastructures that together establish a cooperative fabric of facilities in support of innovation.

Features and Benefits: A single portal for pure and applied researchers, policy makers, industries and the public at large, Discovery and visualisation of biodiversity data: habitats, species and DNA sequences, geographical, climatological and ecological data, natural history collections data; temporal and spatial distribution Modelling tools for the analysis and simulation of the relationships between, among others, species occurrence data and environmental factors; creation and integration of geographic information system (GIS) map layers, Biodiversity e-science to tackle system complexity at different levels and scales; decision support for research on ecosystem services and for science based management strategies, Virtual laboratories and services to foster collaboration in large-scale projects, Accelerating data capture for identified priorities and knowledge gaps with new enabling technologies, Close cooperation with existing

infrastructures and facilities. International cooperation: Successfully implementing LifeWatch is only possible through international cooperation. The sheer size of the infrastructure with respect to costs, functionalities and user communities requires large scale collaboration. The European Strategy Forum on Research Infrastructures (ESFRI) identified LifeWatch as an essential facility to be supported by European countries. The preparatory phase started in February 1st 2008 and is paving the way towards infrastructure construction in 2011. The project consortium brings together a group of interested EU member and associated states in order to prepare a cooperation agreement on the construction and long term maintenance of the LifeWatch infrastructure. A Policy and Science Board - composed of the representatives of more than 18 interested partner countries and 8 scientific networks, oversees process progress.

Scope - Information_management:	Yes
Key researchquestion - Not applicable:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2008
Duration - mid-term (5-10 years):	Yes
Funding mechanism - distributed sources:	Yes
Funding period - Unknown:	Yes
Strategic framework:	ESFRI
<i>In-situ</i> infrastructure:	No
Number of sites - not applicable:	Yes
Scale of the network - European:	Yes
ESFRI*	
Scale of individual sites - Not applicable:	Yes
Number of institutions:	about 20
Number of countries:	19
Coordinating persons name:	Wouter Los
Coordinating persons email address:	los@science.uva.nl
Coordinating country:	Netherlands
Link to website:	http://www.lifewatch.eu/
Latest update of website (News, Events sections):	16 February 2011

Postal address - Name of office or person:

Prof. Dr. Wouter Los

Postal address - Street:

POSTBUS 94216

Postal address -ZIP code:

1090 GE

Postal address - City:

Amsterdam

39. SEIS

Category: Data management & e-infrastructure

Name of project or network: SEIS

Description: The Shared Environmental Information System (SEIS) is a collaborative initiative of the European Commission and the European Environment Agency (EEA) to establish together with the Member States an integrated and shared EU-wide environmental information system. This system would tie in better all existing data gathering and information flows related to EU environmental policies and legislation. It will be based on technologies such as the internet and satellite systems and thus make environmental information more readily available and easier to understand to policy makers and the public. The underlying aim of SEIS is also to move away from paper-based reporting to a system where information is managed as close as possible to its source and made available to users in a open and transparent way. According to the SEIS concept, environmentally-related data and information will be stored in electronic databases throughout the European Union. These databases would be interconnected virtually and be compatible with each other. The proposed SEIS is a decentralised but integrated web-enabled information system based on a network of public information providers sharing environmental data and information. It will be built upon existing e-infrastructure, systems and services in Member States and EU institutions. A major challenge in Europe and globally is to organise the vast array of already collected environmental data and information and to integrate these, where desirable, with existing social and economic data. This data should be made available together with tools that allow experts to do their own analyses and to communicate their results in ways which policy makers and the public can readily understand and use as a basis for their own actions. At the same time, Member States and EU institutions need an efficient and modern reporting system to fulfil their legal obligations under European Union and international environmental policies and legislation, thus avoiding double, overlapping, and redundant reporting efforts. The Shared Environmental Information System for European aims to address these challenges.

Scope - Information_management:	Yes
Scope - Funding:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Nitrogen:	Yes
Key researchquestion - Pollutants:	Yes
Key researchquestion - Biodiversity:	Yes
Status - Running at 1 July 2011:	Yes
Status - Permanent:	Yes
Duration - unknown:	Yes
Funding mechanism - distributed sources:	Yes

Funding period - Unknown:	Yes
<i>In-situ</i> infrastructure:	No
Number of sites - not applicable:	Yes
Scale of the network - European:	Yes
Scale of individual sites - Not applicable:	Yes
Number of institutions - Not applicable:	Yes
Number of countries - Not applicable:	Yes
Coordinating persons email address:	ENV-SEIS@ec.europa.eu
Coordinating institution - Not applicable:	Yes
Coordinating country - not applicable:	Yes
Link to website:	http://ec.europa.eu/environment/seis/index.htm
Latest update of website (News, Events sections):	28 October 2011
Postal address - Name of office or person:	European Commission, Environment DG; Office for Chief Scientist, Research & Innovation: Nicholas Banfield
Postal address -ZIP code:	B - 1049
Postal address - City:	Brussels

40. Campbell**Category:** Industry**Name of project or network:** Campbell**Description:** Industrial supplier for infrastructures (e.g. Ecotrones)**Status - Running at 1 July 2011:** Yes**Coordinating persons name:** does this make sense?**Link to website:**
ucts.html <http://www.campbellsci.ca/Products.html>**Postal address - Name of office or person:** Campbell Scientific Ltd.**Postal address - Street:** 80 Hathern Road,**Postal address -ZIP code:** LE12 9RP**Postal address - City:** Shepshed, Leicestershire

41. Delta T**Category:** Industry**Name of project or network:** Delta T**Description:** Industrial supplier for infrastructures (e.g. Ecotrones)**Status - Running at 1 July 2011:** Yes**Coordinating persons name:** does this make sense?**Link to website:** <http://www.delta-t.co.uk/>**Postal address - Name of office or person:** Delta-T Devices Ltd**Postal address - Street:** 130 Low Road, Burwell**Postal address -ZIP code:** CB25 0EJ**Postal address - City:** Cambridge

42. Eclairé

Category: Projects using HIOS/HIES

Name of project or network: Eclairé

Description:

Scope - Monitoring: Yes

Scope - Experiments: Yes

Scope - Modeling: Yes

Key researchquestion - Climate: Yes

Key researchquestion - Pollutants: Yes

Status - Starting: Yes

Status - Running at 1 July 2011: Yes

Starting year: 2011

End year: 2015

Duration - short-term (1-5 years): Yes

Funding mechanism - FP7: Yes

Funding period - Number of years: 4

***In-situ* infrastructure:** Yes

Number of sites (if element is a network of infrastructures): ??

Number of sites - unknown: Yes

Scale of the network - European: Yes

Number of institutions: 39

Number of countries: 17

Coordinating persons name: Mark Sutton

Coordinating persons email address: ms@ceh.ac.uk

Coordinating institution: NERC

Coordinating country:

UK

Link to website:

[http://cordis.europa.eu/fetch?C=ALLER=FP7_PROJ_EN&ACTION=D&DOC=9&CAT=PROJ&QUERY=01323a84378a:ea35:2219ebf5&RCN=100135;](http://cordis.europa.eu/fetch?C=ALLER&FP7_PROJ_EN&ACTION=D&DOC=9&CAT=PROJ&QUERY=01323a84378a:ea35:2219ebf5&RCN=100135;)

<http://www.eclaire-fp7.eu/>

Latest update of website (News, Events sections):

26 October 2011

Postal address - Name of office or person:
Sutton

CEH, project lead: Prof. Mark

Postal address - Street:

Bush Estate, Penicuik

Postal address -ZIP code:

EH26 0QB

Postal address - City:

Midlothian

43. EnvEurope/LIFE+

Category: Projects using HIOS/HIES

Name of project or network: EnvEurope/LIFE+

Description: ENVEurope Project: Environmental quality and pressures assessment across Europe: the LTER network as an integrated and shared system for ecosystem monitoring. The ecological monitoring and long-term study of ecological systems need a shared scientifically-sound basis and a methodological harmonization, at European scale, to improve the environmental management and to support the development of environmental policies and preservation planning through integrated approaches of objectives, resources and disciplines. EnvEurope proposes a design for environmental high quality monitoring and long-term research sites and the exemplary establishment of common parameter sets to be collected across the largest site-based network of Long-Term Ecosystem Research in Europe (LTER-Europe), which was recently established (2006) under the auspices of the FP6 Network of Excellence ALTER-Net, building on existing infrastructures and thus a lot of valuable data series. It focuses on three types of ecosystems (terrestrial, freshwater and marine), and it aims at defining research and monitoring activities relevant to different levels/scales of investigation, with specific monitoring intensities and with methods adjusted to the respective assessment intensity, implementing a multi-level and multi-functional approach. The project has been conceived and planned in the conceptual and operative context of SEIS and will contribute to the development of the GMES initiative. The EnvEurope project aims to: (1) Select and provide data, information and ecological indicators concerning the long-term quality trends of terrestrial, marine, freshwater ecosystems at European scale, inside the monitoring network LTER-Europe (European Long Term Ecosystem Research network), (2) Select and collect data able to provide information on environmental quality and drivers in respect of indicators and methodologies shared and applied in the main European networks (LTER-Europe, EIONET, EU Forest Focus & ICPs of UNECE/CLRTAP/WGE, Natura2000, etc.), (3) Reorganise the LTER-Europe network on the basis of suitable sites, reflecting ecological, political and economic stratification of Europe. The reorganization will contribute to the development of SEIS and GMES initiatives.

Scope - Monitoring:	Yes
Scope - Information_management:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Biodiversity:	Yes
Key researchquestion - Land use:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2010
End year:	2014
Duration - short-term (1-5 years):	Yes

Funding mechanism - Life+:	Yes
Funding period - Number of years:	4
Strategic framework - unknown:	Yes
<i>In-situ</i> infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	67
Scale of the network - European:	Yes
Scale of individual sites - 1-10,000 m²:	Yes
Scale of individual sites - 1-100 ha:	Yes
Scale of individual sites - 1-10 km²:	Yes
Scale of individual sites - 10-1,000 km²:	Yes
Number of institutions:	16
Number of countries:	11
Coordinating persons name:	Alessandra Pugnetti
Coordinating persons email address:	alessandra.pugnetti@ve.ismar. cnr.it
Coordinating institution:	CNR
Coordinating country:	Italy
Link to website:	http://www.enveurope.eu/
Latest update of website (News, Events sections):	Sep.11

44. EUCAARI

Category: Projects using HIOS/HIES

Name of project or network: EUCAARI

Description:

Scope - Monitoring: Yes

Key researchquestion - Climate: Yes

Key researchquestion - Pollutants: Yes

Status - Running at 1 July 2011: No

Status - Finished: Yes

Starting year: 2007

End year: 2010

Duration - short-term (1-5 years): Yes

Funding mechanism - FP6: Yes

Funding period - Number of years: 3

Strategic framework - unknown: Yes

***In-situ* infrastructure:** Yes

***In-situ* infrastructure - unknown:** Yes

Number of sites (if element is a network of infrastructures): 24

Number of sites - unknown: Yes

Scale of the network - Global: Yes

Scale of individual sites - Unknown:

Number of institutions: 48

Number of countries: 25

Coordinating persons name: Markku Kulmala

Coordinating persons email address: eucaari-office@helsinki.fi

Coordinating institution: The University of Helsinki and Finnish Meteorological Institute jointly run the Project Office.

Coordinating country: Finland

Link to website: <http://www.atm.helsinki.fi/eucaa-ri/index.php>

Latest update of website (News, Events sections): June 2011

Postal address - Name of office or person: Division of Atmospheric Sciences, University of Helsinki

Postal address - Street: P.O. Box 64, Gustaf Hällströmin katu 2

Postal address -ZIP code: 00014

Postal address - City: Helsinki

45. GreenHouse Gas (GHG) Europe

Category: Projects using HIOS/HIES

Name of project or network: GreenHouse Gas (GHG) Europe

Description: More than 50 % of the European land surface is used for agricultural and forestry production. Land management directly impacts the terrestrial sources and sinks of greenhouse gases (GHGs). In the view of climate change it is crucial to know the amount of GHGs released into the atmosphere by anthropogenic activities. But also natural drivers such as climate variability influence the GHG balance of European ecosystems. The attribution of GHG emissions to anthropogenic and natural drivers is the ultimate challenge tackled in the GHG-Europe project and is the precondition to assess the potential for GHG reduction from agriculture and forestry in Europe. Which part of the terrestrial GHG emissions is anthropogenic? Which ecosystems are particularly susceptible to changes in climate? Which options are available in agriculture and forestry management to keep carbon (C) sinks and minimize GHG emissions? GHG-Europe aims to answer these questions by integrating the results from various national and international data sources in a comprehensive assessment. GHG-Europe will elucidate the contribution of different land use types to the emissions of the three most important GHGs carbon dioxide (CO₂), nitrous oxide (N₂O) and methane (CH₄). Measurements from more than one hundred continental stations distributed across all European climatic regions and ecosystems provide the basis for the integrated assessment. Scientists synthesize existing long-term data and initiate new measurements in regions which have been investigated only little so far - namely Eastern European forests and Mediterranean shrublands. The measurements from this network of stations will be used in computer models to project future GHG budgets under changing climate conditions. The models will also include socio-economic effects to address interactions between economic development, land use and GHG emissions. The GHG-Europe project is funded by the EU's 7th Framework Programme for Research and Technological Development for a period of 3.5 years (2010-2013). The project involves more than 40 research partners from all over Europe and is coordinated by the Johann Heinrich von Thuenen Institute for Agricultural Climate Research (vTI-AK) in Braunschweig, Germany.

Manipulation experiments – current research: Considerable progress has been made to better understand the response of terrestrial ecosystems to the global change factors using both field manipulation experiments, observations along gradients and modelling. Many EU projects have worked on different angles of ecosystem responses often concentrating on changes in atmospheric CO₂ concentrations, increased temperatures, changes in precipitation and manipulations in N input. For each specific driver, experimental technologies are well developed, and research often focuses on responses in ecosystem processes at various trophic levels such as species response (photosynthesis, water use, growth, microbial activity, soil fauna), community response (plant and microbial species composition and competition, reproductive success, plant phenology) and ecosystem functioning (biomass accumulation, litter decomposition, soil respiration and C exchange, CH₄ and N₂O exchange, N mineralisation, water use, C and N interactions and allocation, soil solution chemistry and leaching). Thus, a significant number of experiments, knowledge and data are generated on climate change within the European research community, but much of this is fragmented and has been generated in individual projects with little or no coordination with other similar projects. One task of ClimMani is to gather this fragmented knowledge in a common database. Topics and key research questions in ClimMani: ClimMani will focus on the different climatic drivers and their interactions as key topics in the work. Furthermore, ClimMani will improve the foundation for overall ecosystem modelling as

a tool to better understand the complex mechanisms of responses to changes in the ecological drivers in atmospheric change. For each of these topic areas, specific key research questions are asked. These questions are detailed described in the ESF brochure on the ClimMani project which you may download here. More than 50 % of the European land surface is used for agricultural and forestry production. Land management directly impacts the terrestrial sources and sinks of greenhouse gases (GHGs). In the view of climate change it is crucial to know the amount of GHGs released into the atmosphere by anthropogenic activities. But also natural drivers such as climate variability influence the GHG balance of European ecosystems. The attribution of GHG emissions to anthropogenic and natural drivers is the ultimate challenge tackled in the GHG-Europe project and is the precondition to assess the potential for GHG reduction from agriculture and forestry in Europe. Which part of the terrestrial GHG emissions is anthropogenic? Which ecosystems are particularly susceptible to changes in climate? Which options are available in agriculture and forestry management to keep carbon (C) sinks and minimize GHG emissions? GHG-Europe aims to answer these questions by integrating the results from various national and international data sources in a comprehensive assessment. GHG-Europe will elucidate the contribution of different land use types to the emissions of the three most important GHGs carbon dioxide (CO₂), nitrous oxide (N₂O) and methane (CH₄). Measurements from more than one hundred continental stations distributed across all European climatic regions and ecosystems provide the basis for the integrated assessment. Scientists synthesize existing long-term data and initiate new measurements in regions which have been investigated only little so far - namely Eastern European forests and Mediterranean shrublands. The measurements from this network of stations will be used in computer models to project future GHG budgets under changing climate conditions. The models will also include socio-economic effects to address interactions between economic development, land use and GHG emissions.

Scope - Monitoring:	Yes
Scope - Modeling:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Carbon cycle:	Yes
Key researchquestion - Pollutants:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2010
End year:	2013
Duration - short-term (1-5 years):	Yes
Funding mechanism - FP7:	Yes
Funding period - Number of years:	3,5
Strategic framework - unknown:	Yes
<i>In-situ</i> infrastructure:	No

Number of sites (if element is a network of infrastructures):	100 (stations)
Scale of the network - European:	Yes
Scale of individual sites - Not applicable:	Yes
Number of institutions:	41
Number of countries:	15
Coordinating persons name:	Annette Freibauer
Coordinating persons email address:	annette.freibauer@vti.bund.de
Coordinating institution: Institute for Agricultural Climate Research (vTI-AK)	Johann Heinrich von Thuenen
Coordinating country:	Germany
Link to website:	http://www.ghg-europe.eu/
Latest update of website (News, Events sections):	October 2011
Postal address - Name of office or person: Institute, Institute for Agricultural Climate Research	Johann Heinrich von Thünen-
Postal address - Street:	Bundesallee 50
Postal address -ZIP code:	38116
Postal address - City:	Braunschweig

46. Demonstration Test Catchments (DTC) project

Category: Related national or global examples

Name of project or network: Demonstration Test Catchments (DTC) project

Description: What will the programme do? Three locations were selected to be the demonstration test catchments: The Eden in Cumbria - <http://www.edendtc.org.uk> The Wensum in Norfolk - <http://www.wensumalliance.org.uk> and the Avon in Hampshire - <http://www.avondtc.org.uk> These catchments were selected in order to build on existing infrastructure, datasets, knowledge and farming contacts developed through previous and ongoing initiatives, which have not previously been well linked. These catchments are presently undergoing enhanced monitoring through the England Catchment Sensitive Farming Delivery Initiative. Collaboration within and between research groups, and links to key stakeholders, will be fostered and promoted. Research and mitigation actions in other catchments will also be drawn in and supported where relevant, to enhance the developing evidence base. Data collection In each Demonstration Test Catchment, a suite of experimental locations positioned on working farms have been established. The project will develop novel practices in water quality monitoring including the establishment of a sensor web to control and interrogate instruments. The sensor web is a number of automated samplers and sensors deployed throughout a catchment which can sample water quality remotely at regular times or on demand by a telemetry system. Thus more intensive/frequent sampling can be instigated remotely on the advent of changes in the weather. The data are sent back through the telemetry (at some sites, mobile phone networks are being used and at others where the signal is not good, meteor showers are used to bounce the radio signals back). The data from the more sophisticated bits of kit (remotely located Kiosks with a number of samplers and probes deployed) can be viewed in real time and data displayed as graphs. What tools will be available? The programme will provide open source data and models which will be available to researchers: the data are being stored in database which will be accessible to all who wish to work on the catchment. The database will also store extra information such as videos and photos and information from non-scientists involved in the work. The findings will be available to improve the management of river catchments across England and Wales. The programme will deliver improved national scale models and decision support tools to predict the outcomes of proposed policy instruments. It will provide the physical and cyber infrastructure to cost-effectively host future research on catchment science and freshwater ecology. Who will benefit from this activity? Policy makers The research will provide an improved evidence-base for Defra and the Welsh Government to deliver policies that contribute to meeting Water Framework Directive objectives. A policy group consisting of Defra, the Environment Agency and Welsh Government officials has been established to set the research agenda for the project. The Environment Agency will be able to design and test the new approaches on a large spatial scale and will help facilitate their future development and will be used to monitor progress against Water Framework Directive targets nationally. The river basin/ catchment scale models and decision support tools that will be developed will inform future delivery approaches by the Environment Agency and Natural England. Water industry The programme is already developing close relationships with UK Water Industry Research (a body which facilitates collaborative research for UK water operators) and regional water companies are starting to take an interest, such as Anglian Water, who are interested in pesticide reduction in the Wensum. The evidence provided by the project will help inform the water industry and OFWAT on the likely effectiveness of catchment scale schemes to protect drinking water sources. Farming industry Farmers will be made aware of methods to mitigate diffuse water pollution whilst maintaining productivity. The testing of measures will include a socio-economic analysis of

the cost effectiveness of measures and likely impact on farm business. The data generated by the project will be accessible to farmers and will help the sector improve their net environmental performance.

Scope - Monitoring:	Yes
Key research question - Pollutants:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2009
End year:	2014
Duration - short-term (1-5 years):	Yes
Funding mechanism - National sources:	Yes
Funding period - Number of years:	5
Strategic framework - unknown:	Yes
<i>In-situ</i> infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	3 (catchments)
Scale of the network - National:	Yes
Scale of individual sites - 1-10 km²:	Yes
Scale of individual sites - 10-1,000 km²:	Yes
Number of institutions:	3
Number of countries:	0
Coordinating persons name:	Robert Harris
Coordinating persons email address:	robert.harris@defra.gov.gsi.uk
Coordinating institution: Food and Rural Affairs	Department for Environment,
Coordinating country:	UK
Link to website: /demonstration-test-catchments	http://www.lwec.org.uk/activities

Latest update of website (News, Events sections):	2011
Postal address - Name of office or person: Demonstration Test Catchments Programme	DEFRA: Secretariat to the
Postal address - Street:	Nobel House, 17 Smith Square
Postal address -ZIP code:	SW1P 3JR
Postal address - City:	London

47. Environmental Change Network (ECN)

Category: Related national or global examples

Name of project or network: Environmental Change Network (ECN)

Description: The UK Environmental Change Network (ECN) is the UK's long-term, integrated environmental monitoring and research programme. ECN gathers information about the pressures on and responses to environmental change in physical, chemical and biological systems. It is supported by a consortium of fourteen sponsoring organisations and seven research organisations. ECN's objectives are: To establish and maintain a selected network of sites within the UK from which to obtain comparable long-term datasets through the monitoring of a range of variables identified as being of major environmental importance. To provide for the integration and analysis of these data, so as to identify natural and man-induced environmental changes and improve understanding of the causes of change. To distinguish short-term fluctuations from long-term trends, and predict future changes. To provide, for research purposes, a range of representative sites with good instrumentation and reliable environmental information.

Scope - Monitoring:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Nitrogen:	Yes
Key researchquestion - Pollutants:	Yes
Key researchquestion - Biodiversity:	Yes
Key researchquestion - Land use:	Yes
Status - Running at 1 July 2011:	Yes
Status - Permanent:	Yes
Starting year:	1992
Duration - long-term (>10 years):	Yes
Funding mechanism - National sources:	Yes
Funding mechanism - distributed sources:	Yes
Funding period - Indefinite:	Yes
<i>In-situ</i> infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	57
Scale of the network - National:	Yes

Scale of individual sites - 1-10 km²:	Yes
Scale of individual sites - 10-1,000 km²:	Yes
Number of institutions:	16 (steering committee)
Number of countries:	0
Coordinating persons name:	Don Monteith
Coordinating persons email address:	donm@ceh.ac.uk
Coordinating institution:	CEH
Coordinating country:	UK
Link to website:	http://www.ecn.ac.uk/
Latest update of website (News, Events sections):	October 2011
Postal address - Name of office or person:	ECN Central Coordination
Unit: Centre for Ecology & Hydrology, Lancaster Environment Centre	
Postal address - Street:	Library Avenue, Bailrigg
Postal address - ZIP code:	LA1 4AP
Postal address - City:	Lancaster

48. Fluxnet

Category: Related national or global examples

Name of project or network: Fluxnet

Description: FLUXNET, a "network of regional networks," coordinates regional and global analysis of observations from micrometeorological tower sites (Figure 1). The flux tower sites use eddy covariance methods to measure the exchanges of carbon dioxide (CO₂), water vapor, and energy between terrestrial ecosystems and the atmosphere. At present over 500 tower sites are operated on a long-term and continuous basis (Figure 2). Vegetation under study includes temperate conifer and broadleaved (deciduous and evergreen) forests, tropical and boreal forests, crops, grasslands, chaparral, wetlands and tundra. Sites can be associated with regional or domain networks or can be unaffiliated. Flux towers operate on five continents and their latitudinal distribution ranges from 70 degrees north to 30 degrees south. The FLUXNET database contains information about tower location and site characteristics as well as data availability (See FLUXNET Database). Eddy covariance data at 30-minute frequency are typically maintained, not by FLUXNET, but by individual towers or by networks to enable standardized data processing, gap-filling, and formats. FLUXNET, which is a component of NASA's ORNL DAAC (Distributed Active Archive Center), has several primary functions: provides infrastructure for a central database of site characteristic data (land cover, climate, meteorology, plant, and soil data); maintains information about the availability of flux data along with links to the flux data at individual towers or at networks; archives flux data associated with manuscripts (Chapin et al. 2002), workshops (Falge et al. 2005), as well as site characteristics and ancillary data about flux tower sites (Luyssaert et al. 2009); compiles, archives, and distributes carbon, water and energy flux measurements for unaffiliated sites and others, as requested; and provides information for evaluating remote sensing products, such as primary productivity, evaporation, albedo, and energy absorption. In a related effort, the ORNL DAAC provides subsets of remote sensing products (MODIS Land Products) for an area 7 x 7 km around each flux tower in the FLUXNET collection. This information can be used as background site characteristic data, to examine ecosystem dynamics, to scale up the findings at tower sites, or to parameterize ecosystem models.

Scope - Monitoring:	Yes
Scope - Information_management:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Carbon cycle:	Yes
Status - Running at 1 July 2011:	Yes
Duration - unknown:	Yes
Funding mechanism - distributed sources:	Yes
Funding period - Unknown:	Yes
Strategic framework - unknown:	Yes

Number of sites (if element is a network of infrastructures): more than 500 (towers)

Scale of the network - Global: Yes

Scale of individual sites - Unknown:

Number of institutions - Unknown: Yes

Number of countries - Unknown: Yes

Coordinating persons email address: ornldaac@ornl.gov

Link to website: <http://www.fluxnet.ornl.gov/fluxnet/index.cfm>

Latest update of website (News, Events sections): June 2011

Postal address - Name of office or person: University of Tuscia,
Department of Forest Science and Environment: Riccardo Valentini

Postal address - Street: Via De Lellis

Postal address -ZIP code: 01100

Postal address - City: Viterbo

49. GAIA project

Category: Related national or global examples

Name of project or network: GAIA project

Description:

Scope - Miscellaneous: governance

Key research question - Not applicable: Yes

Status - Running at 1 July 2011: Yes

Starting year: 2010

End year: 2013

Duration - short-term (1-5 years): Yes

Funding mechanism - Life+: Yes

Funding period - Number of years: 2,5

Strategic framework - unknown: Yes

***In-situ* infrastructure:** No

Number of sites - not applicable: Yes

Scale of the network - National: Yes

Scale of individual sites - Not applicable: Yes

Number of institutions: 5

Number of countries: 0

Coordinating persons name: Raffaella Gueze

Coordinating persons email address:
ambientecomune@comune.bologna.it

Coordinating institution: Comune di Bologna

Coordinating country: Italy

Link to website:

html

<http://www.lifegaia.eu/IT/index.x>

Latest update of website (News, Events sections):

June 2011

Postal address - Name of office or person:
Gueze

Comune di Bologna: Raffaella

Postal address - Street:

Piazza Galileo, 4

Postal address -ZIP code:

I-40123

Postal address - City:

Bologna

50. ILTER

Category: Related national or global examples

Name of project or network: ILTER

Description: About ILTER The International Long Term Ecological Research (ILTER) consists of networks of scientists engaged in long-term, site-based ecological and socioeconomic research. Since ILTER's founding in 1993, global long-term ecological research programs have expanded rapidly, reflecting the increased appreciation of the importance of long-term research in assessing and resolving complex environmental issues. Forty member networks have established formal LTER programs and joined the ILTER network. In addition to these affiliated member networks, several other groups of scientists are actively pursuing the establishment of networks and many others have expressed interest in doing the same. The ILTER Coordinating Committee, the governing body of the ILTER Network, convenes annually at a meeting hosted by one of the Member Networks.

Mission ILTER's aims and objectives ILTER's Vision: ILTER's vision is a world in which science helps prevent and solve environmental and socioecological problems. ILTER's Mission: ILTER consists of networks of scientists engaged in long-term, site-based ecological and socioeconomic research. Our mission is to improve understanding of global ecosystems and inform solutions to current and future environmental problems. ILTER's ten-year goals are to: Foster and promote collaboration and coordination among ecological researchers and research networks at local, regional and global scales Improve comparability of long-term ecological data from sites around the world, and facilitate exchange and preservation of this data Deliver scientific information to scientists, policymakers, and the public and develop best ecosystem management practices to meet the needs of decision-makers at multiple levels Facilitate education of the next generation of long-term scientists. ILTER's history The International Long-term Ecological Research network (ILTER) was founded in 1993 during the United States' Long-term Ecological Research (U.S.-LTER) All Scientists Meeting at Estes Park, Colorado. ILTER was formed to meet the growing need for global communication and collaboration among long-term ecological researchers. Thirty-nine scientists and administrators representing sixteen countries participated in this meeting. ILTER grew out of a realization within the U.S.-LTER that it was not broad enough to effectively describe long-term ecological phenomena in the context of global change. If the scientific community was going to be able to provide the information necessary to implement Agenda 212, it would need long-term data from a diversity of ecosystems across the globe. With this realization emerged an interest on the part of the U.S. National Science Foundation (NSF) to help catalyze the development of long-term ecological research programs in other parts of the world. NSF funded U.S. scientists to reach out to colleagues throughout the world to help them establish long-term ecological research networks. Using its existing and new bilateral relationships, NSF throughout the 1990's funded efforts several dozen countries to support travel of U.S. scientists to help establish networks and joint research programs. Since ILTER's establishment in 1993, global long-term ecological research programs have expanded rapidly, reflecting the increased appreciation of the importance of long-term research in assessing and resolving complex environmental issues. As of February 2006, 32 countries have established formal LTER programs and joined the ILTER network. Several more are actively pursuing the establishment of national-level networks and many others have expressed interest. ILTER began grouping its national-level networks into regions in 1996, and now has five regional networks – East Asia/Pacific, Europe, Africa, North America, and Central/South America. The ILTER Network is now undergoing a 10-year strategic planning process.

Scope - Non-invasive research:	Yes
Scope - Monitoring:	Yes
Scope - Experiments:	Yes
Scope - Information_management:	Yes
Scope - Modeling:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Nitrogen:	Yes
Key researchquestion - Pollutants:	Yes
Key researchquestion - Biodiversity:	Yes
Key researchquestion - Land use:	Yes
Status - Running at 1 July 2011:	Yes
Status - Permanent:	Yes
Starting year:	1993
Duration - long-term (>10 years):	Yes
Funding mechanism - distributed sources:	Yes
Funding period - Unknown:	Yes
Strategic framework - unknown:	Yes
Number of sites (if element is a network of infrastructures):	about 1000??
Number of institutions - Unknown:	Yes
Number of countries:	35
Coordinating persons name:	Terry Parr
Coordinating persons email address:	twp@ceh.ac.uk
Coordinating institution - Not applicable:	Yes
Coordinating country - not applicable:	Yes
Link to website:	http://www.ilternet.edu/
Latest update of website (News, Events sections):	October 2011

Postal address - Name of office or person:

Centre: Terry Parr

CEH Lancaster Environment

Postal address - Street:

Library Avenue, Bailrigg

Postal address -ZIP code:

LA1 4AP

Postal address - City:

Lancaster

51. INTERFACE

Category: Related national or global examples

Name of project or network: INTERFACE

Description:

52. NEON

Category: Related national or global examples

Name of project or network: NEON

Description: NEON, Inc. is an independent 501(c)(3) corporation created to manage large-scale ecological observing systems and experiments on behalf of the scientific community. National Ecological Observatory Network (NEON) is a large facility project managed by NEON, Inc. and funded by the National Science Foundation. NEON, Inc. itself is not a funding agency. NEON's goal is to contribute to global understanding and decisions in a changing environment using scientific information about continental-scale ecology obtained through integrated observations and experiments. NEON will create a new national observatory network to collect ecological and climatic observations across the continental United States, including Alaska, Hawaii and Puerto Rico. The observatory network will be the first of its kind designed to detect and enable forecasting of ecological change at continental scales over multiple decades. NEON is currently in the planning and development stages, and expects to enter the construction phase in Summer 2011, when sites will be built and data will begin to come in. Constructing the entire NEON network will take approximately five years, so NEON expects to be in full operation by 2016. NEON is a Public Resource NEON has partitioned the U. S. into 20 ecoclimatic domains, each of which represents different regions of vegetation, landforms, climate, and ecosystem performance. Data will be collected from strategically selected sites within each domain and synthesized into information products that can be used to describe changes in the nation's ecosystem through space and time. The data NEON collects and provides will focus on how land use, climate change and invasive species affect biodiversity, disease ecology, and ecosystem services. Obtaining integrated data on these relationships over a long-term period is crucial to improving forecast models and resource management for environmental change. These data and information products will be readily available to scientists, educators, students, decision makers, and the public. This will allow a wide audience, including members of underserved communities, to use NEON tools to understand and address ecological questions and issues. The NEON infrastructure is a means of enabling transformational science and promoting broad ecological literacy. NEON's Mission is to: Enable understanding and forecasting of the impacts of climate change, land-use change and invasive species on continental-scale ecology -- by providing infrastructure and consistent methodologies to support research and education in these areas.

Scope - Monitoring:	Yes
Scope - Experiments:	Yes
Scope - Information_management:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Nitrogen:	Yes
Key researchquestion - Carbon cycle:	Yes
Key researchquestion - Pollutants:	Yes
Key researchquestion - Biodiversity:	Yes

Key researchquestion - Land use:	Yes
Status - Starting:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	0
End year:	2016
Duration - long-term (>10 years):	Yes
Funding mechanism - National sources:	1 (NSF, Universities)
Funding period - Indefinite:	Yes
Strategic framework - unknown:	Yes
<i>In-situ</i> infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	>60
Scale of the network - National:	Yes
Scale of individual sites - 1-100 ha:	Yes
Scale of individual sites - 1-10 km²:	Yes
Scale of individual sites - 10-1,000 km²:	Yes
Number of institutions:	59
Number of countries:	0
Coordinating persons name:	Larry Winter
Coordinating persons email address:	lwinter@neoninc.org
Coordinating institution:	NEON, Inc
Coordinating country:	USA
Link to website:	http://www.neoninc.org/
Latest update of website (News, Events sections):	October 2011
Postal address - Name of office or person:	NEON
Postal address - Street:	1685 38th St., Suite 100
Postal address -ZIP code:	CO 80301

Postal address - City:

Boulder

53. RAINFOR

Category: Related national or global examples

Name of project or network: RAINFOR

Description: RAINFOR was first established as part of CARBONSINK, the European contribution to the large-scale biosphere-atmosphere experiment in Amazonia (LBA). The European Union supported overall co-ordination 2000-2002, and some fieldwork, as well as training in 2004-2006 (Pan-Amazonia). The Max-Planck Institute for Biogeochemistry (Germany) also contributed to co-ordination and fieldwork (2002-2004). The National Geographic Society (US) and the Royal Society (UK) have also supporting fieldwork (Peru 2001, 2003). More recently the UK Natural Environment Research Council helped expand our network and support similar research activities in Africa (AfriTRON), Asia, and Australia. Since December 2007, RAINFOR has been supported by the Andes and Amazon Initiative of the Gordon and Betty Moore Foundation. Aims The tropical forests of Amazonia are one of the most important ecosystems on earth, accounting for 45% of the world's tropical forest and storing 40% of the carbon residing in terrestrial vegetation (Malhi and Grace 2000). Relatively small changes in the structure and/or function of these forests could therefore have global consequences for biodiversity, the carbon cycle and the rate of climate change. Apparently undisturbed tropical forests, remote from areas of deforestation or other significant human influences, have been undergoing unexpected changes. Long-term monitoring of tropical forest plots indicates that tree populations experienced increased rates of mortality and recruitment ("turnover") in the latter part of the last century (Phillips and Gentry 1994; Lewis et al. 2004, Phillips et al. 2004). These plots also show for the tropical Americas that the basal area and biomass of mature forests increased over the same period (Phillips et al. 1998, Baker et al. 2004), suggesting a sink for atmospheric CO₂ in Amazonia of 0.3 - 0.7 Pg C per year. RAINFOR was established to bring together researchers throughout Amazonia who maintain permanent forest sample plots. By compiling and comparing these studies on a regional scale a whole new level of information becomes available: information that provides vital insights into the mechanisms underlying the current responses of Amazonian ecosystems to climate and the possible future of Amazonia under global change scenarios. The aims of RAINFOR are to: Relate current and recent forest structure, biomass and dynamics to local climate and soil properties Understand the extent to which climate and soils will constrain future changes in forest dynamics and structure Understand the relationships between productivity, mortality, biomass, and biodiversity Explore how changes in climate may affect the biomass and productivity of the Amazon forest as a whole, and inform basin-scale carbon balance models Examine variability of tree biodiversity across Amazonia, and its relationship to soils and climate Train a set of young Amazonian scientists in methodologies for monitoring forest biomass, dynamics, and carbon processes

Scope - Monitoring: Yes

Key researchquestion - Climate: Yes

Key researchquestion - Biodiversity: Yes

Key researchquestion - Land use: Yes

Status - Running at 1 July 2011: Yes

Status - Permanent:	Yes
Starting year:	2000
Duration - long-term (>10 years):	Yes
Funding mechanism - distributed sources:	Yes
Funding period - Unknown:	Yes
Strategic framework - unknown:	Yes
<i>In-situ</i> infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	>200
Scale of the network - Global:	Yes
Scale of individual sites - 1-100 ha:	Yes
Scale of individual sites - 1-10 km²:	Yes
Scale of individual sites - 10-1,000 km²:	Yes
Number of institutions:	44
Number of countries:	13
Coordinating persons name:	Oliver Phillips
Coordinating persons email address:	o.phillips@leeds.ac.uk
Coordinating institution:	University of Leeds
Coordinating country:	UK
Link to website:	http://www.geog.leeds.ac.uk/projects/rainfor/
Latest update of website (News, Events sections):	October 2011
Postal address - Name of office or person:	University of Leeds, School of Geography
Postal address -ZIP code:	LS2 9JT
Postal address - City:	Leeds

54. TERENO

Category: Related national or global examples

Name of project or network: TERENO

Description: The main goal of the infrastructure measure TERENO will be to create observation platforms on the basis of an interdisciplinary and long-term aimed research program with a close cooperation between several facilities of the Helmholtz-Gemeinschaft for the investigation of consequences of Global Change for terrestrial ecosystems and the socioeconomic implications. TERENO will provide long-term statistical series of system variables for the analysis and prognosis of Global Change consequences using integrated model systems, which will be used to derive efficient prevention, mitigation and adaptation strategies. Important system variables are amongst others fluxes of water, matter and energy within the continuum of the groundwater-soil-vegetation-atmosphere system, long-term changes of the composition and functioning of micro-organisms, plants and fauna as well as socioeconomic conditions, which have to be determined with an adequate temporal and spatial resolution in dependence of the dynamics of the involved processes. The complex interrelations and feedbacks of the different parts of the terrestrial systems require an interdisciplinary approach. In this context important questions are: Which consequences have the expected climate changes on the terrestrial compartments (groundwater, soils, vegetation, surface waters)? In which way will the feedbacks of the exchange processes of terrestrial systems (e.g. feedbacks between land surface and atmosphere) affect the terrestrial fluxes of water and matter? Which direct influences have soil and land use changes (e.g. due to EU Cross Compliance Directive, promotion of energy crops) on water balance, soil fertility, biodiversity and regional climate? What are the consequences of large anthropogenic interferences (e.g. open mining, deforestation) on terrestrial systems? The homogeneous long-term data sets provided by TERENO will significantly foster the validation, advancement and integration of terrestrial models (e.g. groundwater and soil water balance models, regional climate and weather prognostic models, air quality models, runoff and forest/agronomic models as well as diversity and socioeconomic models). Integrated model systems will significantly support the management of agronomic and forest ecosystems (e.g. optimisation of irrigation systems as well as development of warning systems for extreme weather occurrences and flooding, integrated control systems of water management constructions, and monitoring systems for air, groundwater and surface water quality).

Scope - Monitoring:	11
Scope - Experiments:	Yes
Scope - Modeling:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Nitrogen:	Yes
Key researchquestion - Carbon cycle:	Yes
Key researchquestion - Biodiversity:	Yes
Key researchquestion - Land use:	Yes

Status - Running at 1 July 2011:	Yes
Status - Permanent:	Yes
Starting year:	2008
End year:	2011
Duration - long-term (>10 years):	Yes
Funding mechanism - distributed sources:	Yes
Funding period - Number of years:	3
Strategic framework - unknown:	Yes
<i>In-situ</i> infrastructure:	Yes
Number of sites (if element is a network of infrastructures):	4 Observatories
Scale of individual sites - 1-100 ha:	Yes
Scale of individual sites - 1-10 km²:	Yes
Scale of individual sites - 10-1,000 km²:	Yes
Scale of individual sites - >1000 km²:	Yes
Number of institutions:	4
Number of countries:	0
Coordinating persons name:	Heye Bogena
Coordinating persons email address:	h.bogena@fz-juelich.de
Coordinating institution:	Forschungszentrum Jülich
Coordinating country:	Germany
Link to website:	http://www.tereno.net
	http://teodoor.icg.kfa-juelich.de/overview-en?set_language=en
Latest update of website (News, Events sections):	October 2011
Postal address - Name of office or person:	Forschungszentrum Jülich
GmbH: Heye Bogena	
Postal address - Street:	ICG-4

Postal address -ZIP code:

52425

Postal address - City:

Jülich

55. TERN

Category: Related national or global examples

Name of project or network: TERN

Description:

Scale of the network - National: Yes

Link to website: <http://www.tern.org.au/>

Postal address - Name of office or person: Terrestrial Ecosystem
Research Network (TERN), The University of Queensland

Postal address - Street: Goddard Building (Bld #8)

Postal address -ZIP code: QLD 4072

Postal address - City: St. Lucia

56. VACCIA

Category: Related national or global examples

Name of project or network: VACCIA

Description: Objectives of the VACCIA-project: Climate change provides a major challenge for the sustainable management of key ecosystem goods and services (e.g. biodiversity, forest/agricultural production, water resources/quality). Despite increasing efforts to reduce the emission of greenhouse gases, results from global circulation models show that major changes in the current climate cannot be avoided and hence sector-specific adaptation measures are needed. These adaptation measures have to be based on the understanding of (i) the likelihood of change, (ii) vulnerability of the specific sectors to the predicted change, and (iii) knowledge about the local-scale possibilities for adaptation. There is thus the need for developing the methodology and tools for connecting the global/regional scale climate/global change scenarios to the local/regional scale where the realistic adaptation measures are planned and conducted. Authorities and stakeholders acting at the different scales need to have the information for understanding and planning the necessary adaptation measures provided in a format suitable for use and decision-making. The project is based on data from intensively studied sites/sub-regions of the FinLTSEr-network. The sites have a wealth of existing information, and are closely integrated into the local-scale economy and activities. This provides the link to the scale where realistic adaptation measures can be planned and assessed. The project will thus provide both detailed descriptions about the methodology and tools for making climate impacts and adaptation assessments, as well as an inventory of realistic adaptation measures for key ecosystem goods and services. This methodology and information can be used by stakeholders at local, regional, national and international scales. The project will also contribute directly to the development of existing/planned national and international policies and networks in this field.

Scope - Non-invasive research:	Yes
Scope - Information_management:	Yes
Scope - Modeling:	Yes
Key researchquestion - Climate:	Yes
Key researchquestion - Pollutants:	Yes
Key researchquestion - Biodiversity:	Yes
Status - Running at 1 July 2011:	Yes
Starting year:	2009
End year:	2011
Duration - short-term (1-5 years):	Yes
Funding mechanism - Life+:	Yes

Funding period - Number of years:	3
<i>In-situ</i> infrastructure:	No
Number of sites - not applicable:	Yes
Scale of the network - National:	Yes
Number of institutions:	5
Number of countries:	0
Coordinating persons name:	Martin Forsius
Coordinating persons email address:	martin.forsius@ymparisto.fi
Coordinating institution:	SYKE
Coordinating country:	Finland
Link to website:	http://www.environment.fi/default.asp?contentid=386292&lan=EN
Latest update of website (News, Events sections):	02.Nov.11
Postal address - Name of office or person:	SYKE: Martin Forsius
Postal address - Street:	Mechelininkatu 34a, P.O. Box 140
Postal address -ZIP code:	FI-00251
Postal address - City:	Helsinki

4. Reference

References are given in the parameter “Link to website” for each of the listed 56 elements.b in eacg web link of parameter