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Sustainable Land Management:
The need for research and innovation from a European perspective

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Content

- **Sustainable land management as a topic in current European research funding**
- **Needs for future research and innovation**
- **Outlook**

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Key EU Policy Areas

- **Lisbon Strategy**
- **EU Sustainable Development Strategy**
- **EU 6th Environmental Action Programme & 7 Thematic Strategies:**

1. Air
2. Waste prevention and recycling
3. Marine Environment
4. Soil
5. Pesticides
6. Natural resources
7. Urban Environment

Relevant policies: air, noise, waste, water, clean urban transport, energy efficiency in buildings, green public procurement, sustainable construction, urban regeneration (cohesion policy), energy policy for Europe, EIA & SEA, CAP, etc.

Others:

UN-HABITAT

Leipzig Charter on Sustainable European Cities

Aalborg Charter and Sustainable Cities & Towns Campaign

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Strategies for sustainable land management*

"Global Change and Ecosystems" Priority (FP6:2002-2006)

- **Rationale:** contribute to the design of the **Sustainable Development Strategy** and to the **Lisbon Agenda** through the ex-ante identification of policy impacts.

- **Objective:** contribute to the development of strategies and tools for **sustainable land management** , with emphasis on **urban areas, coastal zones, agricultural land and forests**, including integrated concepts for the multipurpose utilisation in order to ensure sustainable development at economic, social, and at environmental levels" - more specifically:

  - To understand and analyse the **multiple functions** associated with **land use**.
  - To **develop tools for impact assessment** of **alternative** land use policies.

* *Strategies for sustainable land management, including coastal zones, agricultural land and forests (priority 6.3/topic 5)*

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Why research at European level?

- **Pooling and leveraging resources**
  - Resources are pooled to achieve critical mass
  - Leverage effect on private investments
  - Interoperability and complementarity of big science
- **Fostering human capacity and excellence in S&T**
  - Stimulate training, mobility and career development of researchers
  - Improve S&T capabilities
  - Stimulate competition in research
- **Better integration of European R&D**
  - Create scientific base for pan-European policy challenges
  - Encourage coordination of national policies
  - Effective comparative research at EU-level
  - Efficient dissemination of research results

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Key Challenges

- Contribute to the development of tools of for the **Sustainability Impact Assessment** of land use-related policies from European to local levels:

  ➔ Strong methodological developments expected with focus on **integrated assessment frameworks** and quantitative assessment tools of generic nature;

  ➔ Case studies to be considered for **testing** and **validating** the methodologies developed;

  ➔ **Balanced** consideration for environment, economic and social dimensions to be ensured at the methodological level;

  ➔ Integration between different **spatial** and **time scales** to be addressed in the methodological development.

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Key Challenges (cont.)

- Ensure an effective Science-Policy interface by stimulating the **uptake of research results** by policy-makers at all relevant levels (from European to local levels)

- Contribution to **spatial data infrastructures and initiatives**:

  - ➔ Group on Earth Observation initiative and the Global Earth Observation System of Systems (GEOSS): interoperability and compatibility of data systems; data sharing;
  - ➔ GMES
  - ➔ INSPIRE Directive
  - ➔ MOLAND, CORINE Land cover, ESPON, etc.

- **International cooperation**

- **Collaborate with other EU projects**

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FP6 Projects

Sustainable Land Management (€70M)

FORESCENE SENSOR (IP) LUPIS e-LUP ATLAS MATISSE (IP)

I.Q. TOOLS THRESHOLDS (IP) COCONUT

Coastal Zones

ENCORA
CONSCIENCE
DESERTIFICATION
DESERTSTOP
DESIRE
DESURVEY
INDEX
LUCINDA
RECONDES

Urban Areas

PLUREL (IP)
SUSTA-INFO
URBAN-MATRIX
ACTOR
STATUS
TISSUE
RELAY
RAISE

Agriculture

SEAMLESS (IP)
KASSA
MULTIAGRI
AGRIDEMA

Forestry

EFORWOOD (IP)

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FP6 Projects on Sustainable Land Management (General)

FORESCENE	Development of a forecasting framework and scenarios to support the EU Sustainable Development Strategy
SENSOR	Sustainability impact assessment: Tools for environmental, social and economic effects of multifunctional land use in Europe
LUPIS	Land use policies and sustainable development in developing countries
e-LUP	Simulating land use processes – An interactive e-tool for sustainability impact assessment
ATLAS	Action for training in land use processes – An interactive e-tool for sustainability impact assessment
MATISSE	Methods and tools for Integrated Sustainability Assessment
I.Q. TOOLS	Indicators and quantitative tools for improving the process of sustainable impact assessment
COCONUT	Understanding effects of land use changes on ecosystems to halt the loss of biodiversity due to habitat destruction, fragmentation and degradation
THRESHOLDS	Thresholds of environmental sustainability

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FP6 Projects on Urban Areas

PLURIEL	Peri-urban land use relationships - Strategies and Sustainability Assessment tools for urban-rural linkages
SUSTA-INFO	Information system for sustainable development for EU and UN-Habitat
URBAN MATRIX	Targeted knowledge exchange on urban sustainability
ACTOR	Aalborg commitments, tools and resources
STATUS	Sustainability tools and targets for the urban thematic strategy
TISSUE	Trends and indicators for monitoring the EU thematic strategy on sustainable developent of the urban environment
RELAY	Research for local action towards sustainable human settlements
RAISE	Raising citizens and stakeholders awareness, acceptance and use of new regional and urban sustainability approaches in Europe

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FP6 Projects on Agriculture

SEAMLESS Systems for environmental and agricultural modelling: linking European science and society

KASSA Knowledge assessment and sharing on sustainable agriculture

MULTIAGRI Capitalisation of research results on the multifunctionality of agriculture and rural areas

AGRIDEMA Introducing tools for agricultural decision-making under climate change conditions by connecting users and tool-providers

FP6 Projects on Forestry

EFORWOOD Tools for sustainability impact assessment of the forestry wood chain

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FP6 Projects on Desertification

DESERTSTOP	Remote sensing and GEO information processing for the assessment and monitoring of land degradation and desertification in support of UVCCD
DESIRE	Desertification mitigation and remediation of land
DESURVEY	Surveillance system for assessing and monitoring of desertification
INDEX	Indicators and thresholds for desrtification , soil quality and remediation
LUCINDA	Land care in desertification affected areas: from science towards application
RECONDES	Conditions for restoration and mitigation of desertified areas using vegetation

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FP6 Projects on Coastal Zones

SPICOSA	Science and policy integration for coastal system assessment
ENCORA	European Network on Coastal Research
CONSCIENCE	Concepts and science for coastal erosion management

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FP7 | Cooperation

bringing together our best talents from across Europe (researchers, industry and SMEs) to tackle the following areas:

- Health;
- Food, Agriculture and Biotechnology;
- Information and Communication Technologies;
- Nano-sciences, Nano-technologies, Materials and new Production Technologies;
- Energy;
- Environment (including Climate Change) 1860 million €;
- Transport (including Aeronautics);
- Socio-economic Sciences and Humanities;
- Space;
- Security.

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FP7 Cooperation Environment WP2011

Policy context

- **Europe 2020 - A strategy for smart, sustainable and inclusive growth:**
  - Innovation Union – climate change, resources efficiency…
  - Resource Efficient Europe – biodiversity…
- **Grand societal challenges** in the area of climate and environmental change, their consequences and links to sectors such as energy, transport, agriculture, health etc**.**
- **EU legislation and international conventions related to the environment**

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What are we looking for ?



- **Scientific excellence**
- **Impacts and innovation**
  - Long-term availability of results
  - Communication/dissemination activities
  - Stakeholder involvement
  - Research-policy interface

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FP7 Cooperation
Environment (including climate change)

Objective: Knowledge – Impact – Solutions

- **To promote sustainable management of the natural and human environment and its resources**
- **To address in an integrated way global environmental issues through:**
  - advancing knowledge on the interactions between the biosphere, ecosystems and human activities
  - developing new technologies, tools and services
  - with emphasis on:
    - predicting changes in climate, ecological, earth and ocean systems
    - monitoring, preventing and mitigating environmental pressures and risks

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FP7 Cooperation
Environment (including climate change)

Main research priorities

- **Climate change, pollution and risks**
  - Pressures on environment and climate
  - Environment and health
  - Natural hazards
- **Sustainable Management of Resources**
  - Conservation and sustainable management of natural and man-made resources and biodiversity
  - Management of marine environments

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FP7 Cooperation
Environment (including climate change)

- **Environmental Technologies**
  - Environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration of the natural and man-made environment
  - Protection, conservation and enhancement of cultural heritage including human habitat
  - Technology assessment, verification and testing
- **Earth observation and assessment tools for sustainable devt**
  - Earth and ocean observation systems and monitoring methods for the environment and sustainable development
  - Forecasting methods and assessment tools for sustainable development, taking into account differing scales of observation
- **Horizontal and Dissemination Activities**

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Sustainable land use research in FP7

The challenge

The objective of EU funded research on land management is to develop tools and strategies for sustainable land use. The research involves building databases and models for land management that integrate the multifunctional aspects of environmental protection, rural development, culture and tourism as well as the use of land for agricultural and forestry activities. Attention is also paid to identifying externalities and sustainability thresholds, and strongly involving all types of relevant stakeholders during the entire project duration. Research on sustainable land use also covers landscapes, particularly those in sensitive regions (e.g. mountain landscapes).

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FP7 Projects on Sustainable Land Use

BRIDGE	Sustainable urban planning – Decision support accounting for urban metabolism
SUME	Sustainable urban metabolism for Europe
SECOA	Solutions for environmental contrasts in coastal areas
Mountain.TRIP	Mountain sustainability: Transforming research into practice
DevCoCAST	GEONETCast for and by Developing Countries

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FP7 Projects on Sustainable Land Use

BRIDGE focuses on incorporating sustainability aspects in urban planning processes, accounting for the relations between urban metabolism and urban structure. It will bridge the gap between the bio-physical sciences and urban planning and to illustrate the economic advantages of accounting for environmental issues in urban planning.

SUME intends to link the dynamic processes of urban development (arising f.ex. from demographic change, the individual performance of urban areas in economic competition, the speed and direction of applying technological innovations under differing societal and/or political conditions) to urban spatial development concepts to foster a more sustainable development path in the future.

mountain.TRIP integrates readily accessible research information on sustainable development in European mountain regions into understandable forms and transfers those integrated results to a wide variety of stakeholders, end-users and practitioners, such as policy- and decision makers at different hierarchical levels, stakeholders in economy and environment, planners and administrators, NGOs, members of groups representing the interests of citizens and industry, etc.

DevCoCAST envisages to provide developing countries with a reliable and continuous access to Earth Observation data through GEONETCast (a component of GEOSS), a technology to share data worldwide via satellites, focusing on the distribution of environmental data sets from various sources in Africa, but also on outreach, training and strong user support.

SECOA addresses the challenges of global change, human mobility and urban growth on the management and development of coastal areas. It emphasizes the effects of human mobility on urban settlements' growth and restructuring in those fragile environments, leading to an integrated ecosystem approach, incorporating social, economic and natural science disciplines.

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FP7 Projects on Forestry

MOTIVE (IP)	Models for Adaptive Forest Management
FunDivEUROPE (IP)	Functional significance of forest biodiversity in European Commission
INTEGRAL (IP)	Future-oriented integrated management of European forest landscapes

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FP7 Projects on Forestry (Ctd)

The MOTIVE project develops improved models for Adaptive Forest Management (AFM) of regional and local environmental and climate changes leading to combinations of their impacts on a large variety of forest ecosystems and management practices throughout Europe. A new concept for decision-making under uncertainty and risk will provide to forest planning and management a powerful toolbox to trigger the sustainable future of the forested land.

Although the overall goal of **FunDivEUROPE** is to quantify the effects of forest biodiversity on ecosystem functions and services in major representative European forest types, it intends also to assist forest owners and forestry organisations to adapt their management strategies towards the sustainable use of forest ecosystems in a changing environment by developing guidelines for the management of mixed species forests.

As part of the Topic on land-use and European forest ecosystems the new **INTEGRAL** project from the 2011 Call (to be started in November 2011) addresses the critical incoherencies within and between trans-national, national and local forest-related land use policies. As its central issue it intends to overcome the mismatches between those policies and their implementation at the landscape level.

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FP 7 Global Earth Observation (GEO) Projects of some relevance to the sustainable land use and/or land management theme

- **e-SOTER (started in 2007)** representing the EU contribution to global soil observations
- **AEGOS (started in 2007)** assessing the accessibility of African geological resources, such as water, raw materials and energy
- **ENVIROGRIDS (started in 2008)** on the integration of ecosystem observation in the Black sea area
- **EUROGEOSS (started in 2008)** on data exchange and interoperability, addressing drought, forests and biodiversity as pilot subjects
- **ENERGEO (started in 2008)** studying the impacts arising from the exploitation of energy resources
- **ImpactMIN (started in 2009)** studying the impacts arising from the exploitation of mineral resources
- **EOminers (started in 2009)** on the use of Earth Observation approaches for the monitoring and observation of environmental and societal impacts from the exploration and exploitation of mineral resources
- **AGRICAB (to start in 2011)** on the use of Earth Observation in support of agricultural and forestry planning and management in Africa
- **GEOCARBON (to start in 2011)** on the use of Earth Observation to investigate the carbon cycle, where a number of land cover parameters are involved (e.g. faPAR)

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FP7 Cooperation
Environment (including climate change)
WP2012 (1)

- **Challenge 6.1: Coping with climate change**
  (indicative budget: EUR 55 million)
- **Challenge 6.2: Sustainable use and management of land and seas**
  (indicative budget: EUR 45 million)
- **Challenge 6.3: Improving resource efficiency**
  (indicative budget: EUR 62 million)
- **Challenge 6.4: Protecting citizens from environmental hazards**
  (indicative budget: EUR 42 million)

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FP7 Cooperation
Environment (including climate change)
WP2012 (2)

- **Challenge 6.5: Mobilising environmental knowledge for policy, industry and society**
  (indicative budget: EUR 41 million)

- **6.6: Horizontal and cross-cutting activities**
  (indicative budget: EUR 20 million of which EUR 10 million for EU-India cooperation in water technology)

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WP 2012 Environment (including Climate Change)

- **Challenge 6.1: Coping with climate change**
  (Indicative budget for 5 Topics: EUR 55 million)

- **Topic ENV.2012.6.1-5 Explore opportunities, risks, feasibility and policy implications associated with key geo-engineering options**
  (FP7-ENV-2012-one stage, up to 1 proposal; up to EUR 1 million)

- **Challenge 6.2: Sustainable use and management of land and seas**
  (Indicative budget for 6 Topics: EUR 45 million)

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WP 2012 Environment (including Climate Change)

- **Topic ENV.2012.6.2-1: Exploration of the operational potential of the concepts of ecosystem services and natural capital to systematically inform sustainable land, water and urban management**
  (FP7-ENV-2012-two-stage, 1 or more proposals, up to EUR 9 million)
- **Topic ENV.2012.6.2-2: Assessing global biological resources: the European contribution to the Global Earth Observation Biodiversity Observation Network (GEO BON)**
  (FP7-ENV-2012-two stage; up to 1 proposal, up to EUR 9 million)
- **Topic ENV.2012.6.2-3 Innovative tools for understanding and integrated assessment of the good environmental status (GES) of marine waters ('The Ocean for Tomorrow')**
  (FP7-ENV-2012-two stage; up to 1 proposal; up to EUR 8 million)

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OUTLOOK

Towards a Common StrategicFramework(CSF) for Research and Innovation Funding (Green Paper)

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The context: Europe 2020 strategy

- Objectives of **smart, sustainable and inclusive growth**
- Headline targets, including **3% of GDP** invested in R&D
- Includes the **Innovation Union Flagship initiative**
  - A strategic and integrated approach to research and innovation
  - Putting in place the key conditions to make Europe attractive for research and innovation
  - Focus on major challenges and aiming at competitiveness and jobs
- **Endorsed by the February 2011 European Council (Heads of State) as key to future growth and jobs**

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Scope of the Common Strategic Framework

Covering current funding for:

- The **7th Framework Programme (FP7)** for research, technological development and demonstration
  - €53 billion (2007-13). 4 main programmes on Ideas, Cooperation, People and Capacities.
- The **Competitiveness and Innovation Framework Programme (CIP)**
  - €3.6 billion (2007-13). 3 programmes on enterprise & innovation, intelligent energy, and ICT policy support.
- The **European Institute for Innovation and Technology (EIT)**
  - Autonomous EU body bringing together higher education, research and business to stimulate innovation in Knowledge and Innovation Communities. EU budget contribution of €309 million (2007-13)

And strengthening complementarities with the **Structural Funds**

- €86 billion allocated (2007-13) to R&D and innovation, entrepreneurship, ICT and human capital development

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Why a Common Strategic Framework? Increasing IMPACT

- **FROM** different priorities in each programme and initiative
  - **TO common strategic priorities**, focusing on societal challenges, competitiveness and research excellence.
- **FROM** gaps between the stages (R&D, demonstration, market take up, etc)
  - **TO** coherent support for projects and organisations across the innovation cycle **from research to retail**
- **FROM** research results that are not widely used and focus on technologies
  - **TO stronger support for innovation,** including non-technological innovation and market take-up

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Why a Common Strategic Framework? SIMPLIFICATION

- **FROM** different rules in each programme and initiative
  - **TO more standardised rules** across all initiatives – which meet the different needs and with flexibility where needed (e.g. for the EIT)
- **FROM** a large variety of funding schemes within and between programmes
  - **TO a rationalised toolkit** of schemes across the Common Strategic Framework
- **FROM** multiple websites, guidance documents, applications
  - **TO common entry points**, one stop shops, common IT platforms

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Next steps

- **Follow up:**
  - Analysis of contributions by Commission
  - Major event to conclude consultation (10 June 2011)
  - Inputs to preparation of Commission proposals
- **Commission proposals**:
  - for post 2013 EU budget (June 2011)
  - for the Common Strategic Framework (by end of 2011)
- **Legislative decisions** on the Common Strategic Framework by the Council and European Parliament (2012-13)

=> Common Strategic Framework (from 2014)

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Thank you for your attention!

- EU Research:
  http://ec.europa.eu/research
- 7. Framework Programme:
  http://cordis.europa.eu/fp7/home_en.html
- Information on Funding, Projects etc:
  http://cordis.europa.eu/home_en.html



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