

ECO-INNOVATION

Environmental innovations have to take into account the full life cycle of products and services. Integrated assessment of technologies supports eco-design and helps to reduce environmental impacts.

SUSTAINING MULTIFUNCTIONAL LANDSCAPES

Landscapes provide a variety of services to society, e.g. food and fiber, the regulation of environmental quality, as well as cultural services through leisure and tourism. Maintaining and enhancing these functions sustainably requires research that supports the development of assessment and planning tools, participation from wider society, and understanding how science can influence policy making.

VISUALISING AND MODELLING ENVIRONMENTAL PROCESSES

Geoinformation can help us to understand and model environmental processes and support environmental policies. PEER centres are at the forefront of exploiting satellite data, e.g. from the Copernicus Sentinel satellites to develop products and services to understand the causes of environmental changes and to control impacts. Modelling and visualization support us in turning data into information and knowledge.

ASSESSING THE RISK OF POLLUTANTS

Environmental health needs knowledge of traditional and emerging pollutants, and on the impact of chemical mixtures. New assessment tools and approaches strengthen the scientific basis for risk managements.



ENVIRONMENTAL RESEARCH FOR A SUSTAINABLE SOCIETY AND ECONOMY

Environmental issues continue to demand attention on the political agenda. Global threats such as climate change and extreme events, biodiversity loss, water and food security, chemical pollution and unsustainable consumption of energy and goods, all endanger the stability and health of our economy and our society.

Detecting the signals of environmental change as early as possible and understanding their significance have become crucial for designing adequate response strategies. This requires fundamental knowledge of the functioning of our global life-support systems and the development of a wide range of tools to meet the rapidly changing needs of decision makers in public authorities as well as industry and in the media.

The challenge is to balance economic growth with sustainability principles. Environmental protection should not be an obstacle, but a prerequisite to European competitiveness. PEER members believe the environmental sector will drive economic growth and job-creation – fulfilling the spirit of the EU's ERA Action Plan and the **Innovation Union**, a **Europe 2020** flagship initiative aimed at securing Europe's global competitiveness. The environment and its ecosystem services are also a driving force for attracting investments by improving the quality of life in Europe.

The ambition of the **Partnership for European Environmental Research (PEER)** is to address these challenges. PEER is coordinating the resources of Europe's largest environmental research centres to create a unique European capacity in terms of scientific expertise and research infrastructures. PEER seeks to overcome fragmentation in European environmental research and to be a dynamic example of the benefits of the European Research Area.

PEER CENTRES

CEH
Centre for Ecology & Hydrology

CIENS
Oslo Centre for Interdisciplinary Environmental and Social Research

DCE
Danish Centre for Environment and Energy
Aarhus University

JRC
European Commission
- Joint Research Centre

SYKE
Finnish Environment Institute

UFZ
Helmholtz Centre for Environmental Research

Irstea
National Research Institute of Science and Technology for Environment and Agriculture

WENR
Wageningen Environmental Research (Alterra)

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ENVIRONMENTAL EXPERTISE FOR DECISION MAKING

With its combined capacity of 6,100 staff and annual budget of 630 Million €, PEER offers unique interdisciplinary expertise. Its members carry out basic and applied research combining different disciplines from natural and social sciences. Research covers all fields of the environment, particularly addressing the interaction between man and nature. Members cooperate in joint research projects with a large number of universities and research institutes, but also with industry and civil society at large.

PEER centres are mainly publicly funded national and European competence centres. They are used to working in a policy driven context and have a long tradition of collaboration with all levels of governance, from the local to the European and wider international.

DIVERSITY IN SKILLS

PEER members are actively involved in a large number of significant research projects generating an output of 6,000 publications per year. The institutes offer training of young scientists and encourage the exchange of scientific staff. Hundreds of PhD students benefit from the opportunities offered by the PEER centres to target their fundamental research on environmental issues with a high societal relevance. PEER runs excellent research infrastructures.

PEER is open to collaboration across Europe and wants to strengthen the co-operation with partners also outside the EU, with particular emphasis on capacity building. Access to reliable environmental evidence and expertise is at the heart of PEER. Its members advise both policy makers and the general public about critical environmental issues, and inform debates on sustainable ways forward.

OPEN RESEARCH

PEER strongly supports the aims of the European Commission for open European research and innovation: Open Innovation, Open Science, Open to the World. PEER has invested effort in open access and making its data available according to the FAIR principles (Findable, Accessible, Interoperable and Re-usable).

KEY RESEARCH THEMES

Environmental research and technology should serve society, both globally and locally. All PEER research is based on strong collaborations within and outside EU.

EVALUATING ENVIRONMENTAL POLICIES

Research on **environmental governance** and evaluations of policies supports public environmental debates. Innovative ways of managing our natural resources and solutions for pressing environmental issues, such as climate change, can emerge through critical analysis of current policies and policy instruments.

HALTING THE LOSS OF BIODIVERSITY

Biodiversity is a foundation for our life support system. The impact of biodiversity loss has far greater consequences to society than the disappearance of iconic species. Research at PEER centres builds the understanding of the status, trends and distribution of species and habitats. Our research extends the knowledge of the most significant pressures on biodiversity, and explores options for the prevention and mitigation of biodiversity loss. Improved research infrastructures in Europe support joint monitoring of biodiversity. PEER's PRESS project strengthened the scientific understanding of relations between biodiversity and ecosystem services and improved impact assessment tools.

SOLVING GLOBAL WATER PROBLEMS

Water security is a world-wide concern and sometimes a source of conflict. PEER aims to provide new knowledge on the relationships between the natural water resource, its dependent ecosystems and wider society, so that the impacts of pressures posed by humankind can be understood. New solutions are analyzed and implemented in order to achieve the objectives set by legislation such as the European Water Framework Directive.

ADAPTING TO CLIMATE CHANGE

Anthropogenic global climate change is already occurring, and continued change is unavoidable. Research on types of impacts and adaptation in natural and human systems is necessary to meet the challenge ahead. In climate change projects, PEER centres have developed models, integrated climate information into decision-making, studied climate policy integration, and compared adaptation strategies in various European countries.



Photography: André Künzelmann/UFZ