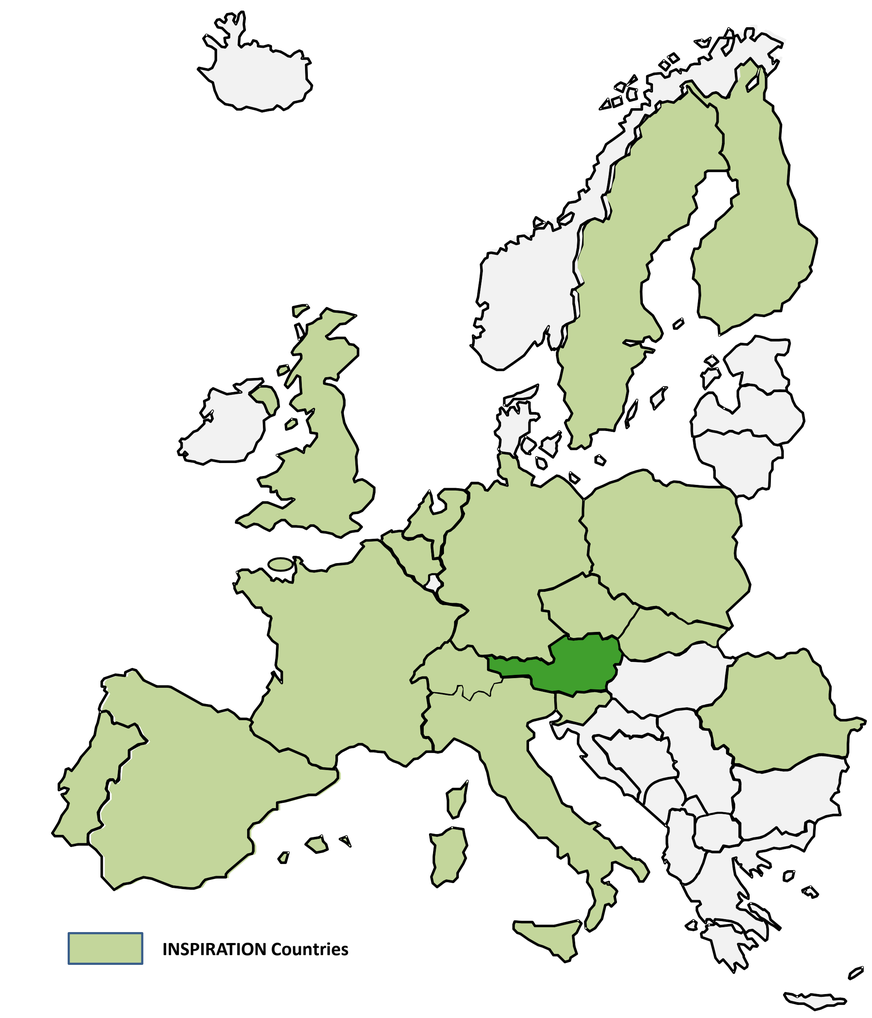
INtegrated Spatial PlannIng, land use and soil management Research AcTION:

National results: AUSTRIA

Coordination and Support Action

Societal challenges and needs

- According to the Austrian NKS the general protection of environment and the support of sustainability within the changing conditions is to be focused.
- Climate change is seen to be the number one threat as it is a very complex problem with a fast cascade effect, needing urgent solutions in mitigation and societal adaptation.
- Land consumption, land use and land availability are the most important topics.
- Food security will become more and more important and should be regarded from an international viewpoint.
- The reduction of raw material and resource consumption is key. Efficient use of natural resources must be ensured.
- Additionally, the protection of biodiversity remains a major challenge to the NKS.



Topics / research needs to be included in the SRA

- AT-1 Soil and land management contribution to food security
- AT-2 Improvement of management measures for the cultivation of agricultural land
- AT-3 Digitalisation and usage of existing/new technology
- AT-4 Dealing with natural hazards
- AT-5 Monitoring and evaluating land and soil use for settlements and infrastructure
- AT-6 Land use for infrastructure
- AT-7 Restoration and re-cultivation of land
- AT-8 Soil and landscape diversity
- AT-9 Decoupling of the economic impact
- AT-10 Demographic changes and urban land use
- AT-11 Participative research and communication
- AT-12 Impact of research projects
- AT-13 Political regulations and involvement
- AT-14 Is the ideal spatial utilisation possible?

Experiences regarding the connection of science to policy and practice

- To approach wide acceptance and secure best multiplication, it is critical to involve the civil society and all stakeholders (spatial planners, soil scientists, society, land owners, politicians…) throughout the whole project period.
- To improve linkages between policy needs and research programs and to enhance the accessibility of scientific knowledge to policy makers, the dialogue between scientific and policy-making communities needs to be strengthened.
- It is key to provide information for the non-science community in an understandable language and to foster open communication.
- There is a clear need for strengthened action and de-bureaucratisation. Financial benefits for resource-saving measures or restriction of intervention possibilities for municipalities (e.g. the fragmented spatial planning laws of the counties) would counteract re-zoning of greed land.

National and transnational funding schemes

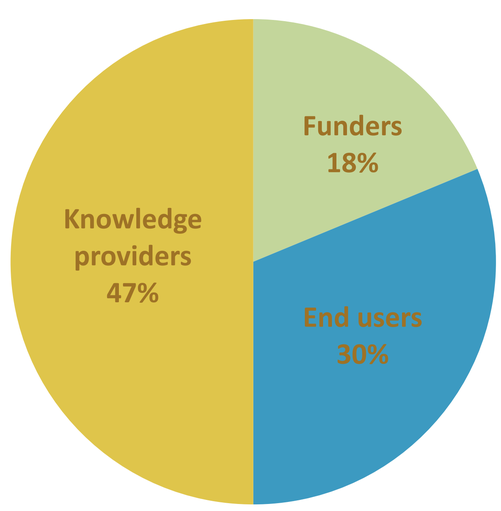
- In Austria, a distinct need for new structures of the call process and the implementation of new research projects and programs was identified. This should secure sustainable success, avoids parallel research and reduces implementation deficits.
- The establishment of a clear structured and transparent research platform for a wide range of topics about soil and spatial planning and for the whole range of stakeholders is recommended. Added value could be achieved from (1) inter-/trans-disciplinary approaches, (2) applied research as well as (3) the consideration of local issues, and even more from elimination of fragmentation.

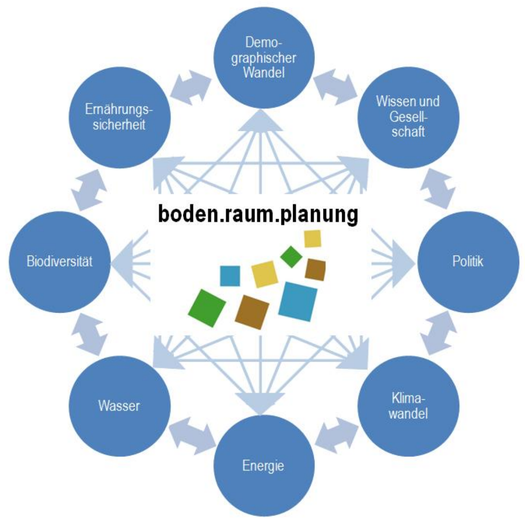
A key message from Austria:

- Politicians need valid knowledge to reduce the societal pressure on certain types of land use.
- Successful scientific research policies need political support.

Background of Austrian Key Stakeholders

- In total, 11 expert interviews were conducted.
- 139 experts participated in the national workshops in Vienna on 10th and 11th Nov. 2015.



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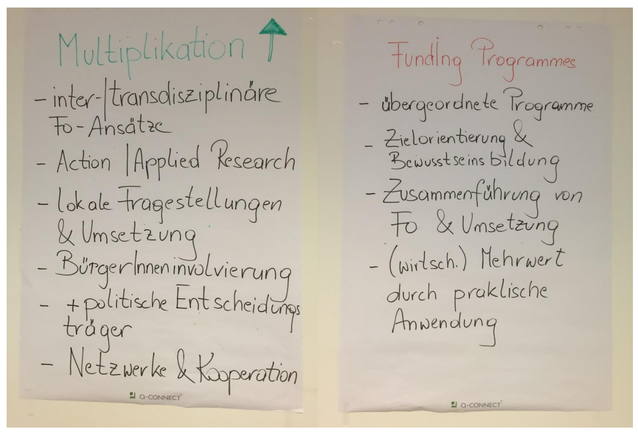


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National contact for Austria: Sophie Zechmeister-Boltenstern → sophie.zechmeister@boku.ac.at

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

INSPIRATION
INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

INtegrated Spatial PlannIng, land use and soil management Research AcTION:

National results: UNITED KINGDOM

Coordination and Support Action

Societal challenges and needs

- In the UK, sustainable development has been embedded into decision making for some years, for example by the Welsh constitution and the England's National Planning Policy Framework.
- THE key land use challenge is meeting the housing needs of a growing population
- Concern about long term food security is driving efforts to protect high quality agricultural and water supplies
- Competing pressures on land use require complex decisions in the face of considerable uncertainty to contain urban sprawl.
- Landscape and catchment scale approaches are increasingly seen as important for meaningful long term management strategies
- Public perceptions of soil are mixed and polarised – the residential gardener values soil the urban dweller sees it as a potential health hazard
- Previously developed land, euphemistically referred to as 'brownfield', is being seen by some as an under exploited reservoir of land for new homes

Topics / research needs to be included in the SRA

UK-1 Efficiency of primary producers. How does improving supply chain efficiency affect pressure on land use?
UK-2 Soil and groundwater remediation is difficult to achieve so best to preserve what we already have.
UK-3 Soil 'Regeneration' – how to increase to Soil Organic Matter in poorer soils, and what level is achievable, desirable, beneficial?
UK-4 Natural systems: A better understanding of how natural systems behave and what processes are operating is needed to understand better the effects of different courses of action.
UK-5 Demand for soil/land resources, imports and exports: Improved understanding of whole food life cycle of production, transport, consumption and waste to discern the balance between domestic, import and export.
UK-6 Competition between land-uses (land-use conflicts): How should land use conflicts be resolved?
UK-7 Targeting outputs: practical, pragmatic effort needs to be expended in targeting outputs to relevant end-users and in linking the fundamental science through to policy and (improving) regulation
UK-8 Competition between land uses (land-use conflicts) : The effects of loss of high quality agricultural land to other land uses, e.g. forestation and to development.
UK-9 Important areas of technical innovation. New techniques to understand soil microbiology to help assess biodiversity and so understanding impacts and optimisation of land management.
UK-10 Landscape scale solutions. Integration to manage landscape not media. Precision Agriculture to improve/ conserve soil quality. Catchment-scale management involving collaboration of individual farmers.
UK-11 Assessing the values of primary and secondary production: A high value secondary producer may rely on a relatively low value primary producer, e.g Scottish Barley for Scotch Whisky
UK-12 Farming practices create valued environments. Uplands and sheep grazing; lowlands patchwork of fields and river margins depend on how farmers perceive themselves as guardians of their environment.

Republic of Ireland (A representative from EPA, Ireland attended the UK workshop)

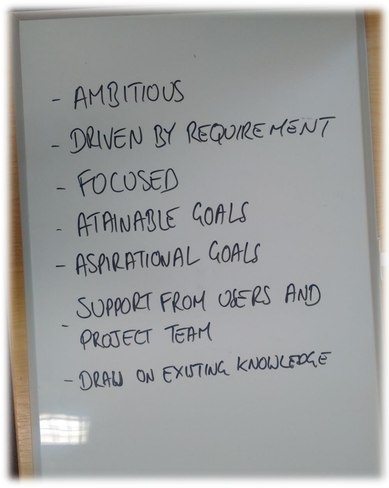
IR-1 (Generic) Risk Assessment of Contaminated Soils. Research is needed to transfer basic tools and processes into an Irish context, e.g. geology, population, demographics *etc*. from the UK and other EU countries.
IR-2 Pragmatic appraisal of environmental technologies in an Irish setting:

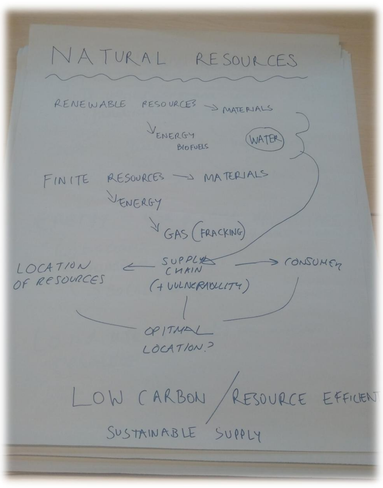
Background of UK Key Stakeholders

- Funders (Research councils, governmental)
- End users (Business, regulators, citizens, not for profits)
- Researchers

Connecting science, policy and practice

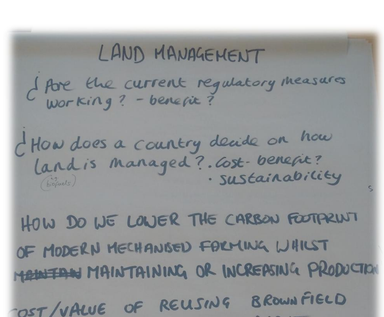
- The UK has a long track record of land use related research and survey that has informed planning and decision-making.
- A series of instruments (departmental chief scientist, parliamentary committees, briefing notes for non specialists) help policy makers and practitioners be up to speed on science
- Inherent uncertainty in environmental science is recognised but can also lead to cynicism
- Publically funded research expects impact

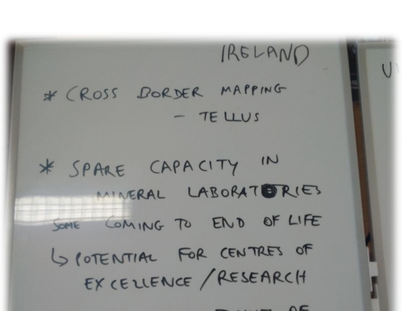




National and transnational funding schemes

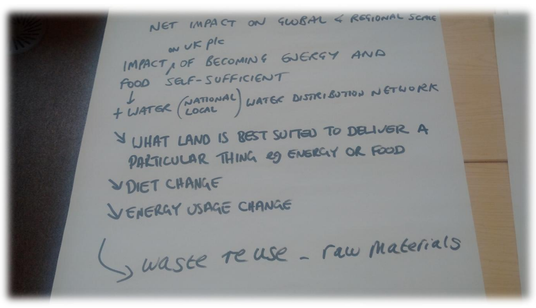
- The UK has a wide range of funding mechanisms to support research infra structure, basic & applied research and to transfer new research findings into practice.
- Funds can be accessed by researcher and end user applicants and consortia of both.
- Relevance to societal challenges and projects that will have an impact are prioritised

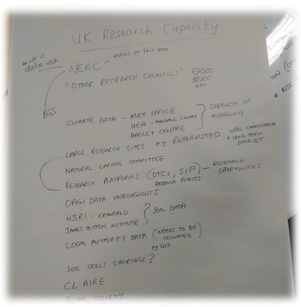


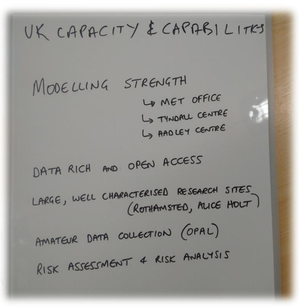


A key message from the UK:

- Land use management is complex, transcends disciplinary boundaries and involves unavoidable inherent epistemic and aleatory uncertainty.
- Integrated assessment at the right spatial and time scale is paramount.







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National contact for the United Kindom: Paul NATHANAIL (paul.nathanail@nottingham.ac.uk & @cpnathanail)

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

INSPIRATION
INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

INtegrated Spatial PlannIng, land use and soil management Research AcTION:

National results: Slovakia

Coordination and Support Action

Societal challenges and needs

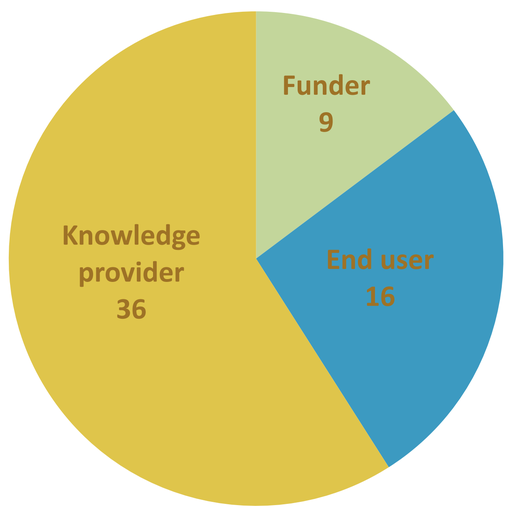
- Dominant challenges in regard to the land/soil management topic appointed by the reviewed national key stakeholders (NKSs) from Slovakia were to contribute to healthy living environment and to the food safety, to participate to climate change effects lowering and social adaptation, to safeguard safe delivery of drinking water, to decrease the consumption of natural resources and to contribute to the efficient use of natural resources.
- These challenges are in the harmony with the Research and Innovation Strategy for Intelligent Specialisation of the Slovak Republic (RIS3 SK) containing the research priorities for Slovak Republic up to 2020.
- As a common problem the needs systematic research within the topic "land-soil-water-sediments" (e.g. monitoring, long term effects assessment after the implementation of respective intervention) was appointed. The research is more reacting on pressing problems than preparing the background for systematic prevention oriented measures.

Topics / research needs to be included in the SRA

- SK-1 Sustainability and sustainable management of natural resources – optimization of soil functions
- SK-2 Improvement of the reflection of scientific knowledge into institutional instruments of land management incl. economic instruments
- SK-3 Sustainability of water resources and of quality of water management services
- SK-4 Approaches, methods and instruments of the lowering and elimination of natural hazards and risks (floods, forest calamites, forest fires, geodynamic hazards and erosion)
- SK-5 Risk assessment in regard to land use effects on the quality of natural resources
- SK-6 Mapping and assessment of natural capital, mapping, assessment and revitalization of degraded landscape ecosystems and the landscape ability to provide ecosystem services
- SK-7 Lowering of negative effects of urbanization, urban sprawl regulation, consequent monitoring of industrial production effects
- SK-8 Modeling of the global megatrends effects
- SK-9 Restoration of contaminated soils by heavy metals and organic pollutants as a consequence of anthropogenic activities

Background of Slovak Key Stakeholders

- In total, 50 expert interviews were conducted.
- 76 experts participated in 3 national workshops in Bratislava, Ružomberok and Zvolen in October 2015.



Experiences regarding the connection of science to policy and practice

- Positive experience regarding the interface between science and policies was identified in the case of environmental policy in 1990-2006 where the transfer from science toward the practice was rather successful (e.g. landscape planning in the building code, in the act of nature and landscape protection, territorial systems of ecologic stability as a part of land consolidation plans, methodologies for landscape planning documentations, new law on EIA/SEA and methodologies in this field, sustainable development strategies at national, regional and local levels, Strategy for biodiversity protection and its Action plan...).
- As the problem was appointed the implementation efficiency, many of measures based on newest knowledge has not been implemented in the practice.
- National strategies/agendas do not mirror specific needs of academic community in a proper way, in many cases their adoption is only formal with no practical effects, and the measures are moved from year to year, from document to document.
- Slovak Republic has got many of documents elaborated on high professional level, but their implementation is formal and stay only in the declarative position.

A key message from Slovakia:

- Slovakia - little country with broad cross-boarder impacts, facing problem of limited resources capacities (financial, personnel, institutional, etc.) = need of transnational cooperation across the whole scale of research topics.

National and transnational funding schemes

- There are different sources national and international used as the sources for financing the research in Slovakia. Most important financial resources are represented by:
  - ✓ Resources from local and regional authorities.
  - ✓ National resources KEGA, VEGA, APVV, sectoral ministries.
  - ✓ European, H2020, Interreg, Norway Fund, Swiss Fund, Life, URBACT, V4 Fund.
  - ✓ International Future Earth, MAB UNESCO, IPBES.

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National contact for Slovakia: prof. Maroš Finka→ maros.finka@stuba.sk
SPECTRA CE EU, Slovak University of Technology in Bratislava, www.spectra-perseus.org

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

INSPIRATION
INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

INtegrated Spatial PlannIng, land use and soil management Research AcTION:

National results: SLOVENIA

Coordination and Support Action

Societal challenges and needs

- In Slovenia, the majority of the NKS consider all societal challenges suggested from the European Commission as equally important. Many of the interviewees exposed, that healthy living environment is a cover topic and not in the same level with other challenges and therefor regarded as most important.
- When asked to choose just three, most of them decided for climate change mitigation, healthy living environment and efficient use and reduction of raw material and (natural) resource consumption
- NKS proposed additional important societal challenges for Slovenia, including "good water status" (EU Water Framework Directive); flood risk reduction, (Flood Directive); better land use and spatial planning governance; effective balance of the level of regulations; Protection of ecosystem service; Urban renewal, regeneration, rehabilitation; Concepts for the identification and evaluation of significant impacts; Disaster risks and risk prevention and Perception of the landscape and environmentally friendly tourism

Topics / research needs to be included in the SRA

- SI-1 Issues of (Post) Sustainable spatial development for better land management
- SI-2 Understanding Soil-Land-Water relationship and interdependence for better mitigation of climate change problems
- SI-3 Contributing to food security and safety
- SI-4 Efficiency of administrative procedures, information systems and accessibility of data

Experiences regarding the connection of science to policy and practice

- Majority of NKS indicated that is it very difficult to influence the setting of the scientific research policies/agendas in Slovenia.
- Good example of a policy that effectively used scientific research to prepare a policy (listed by several interviewees) are Development strategy of Slovenia and Spatial development strategy of Slovenia.
- Answers from the non-science sector indicated, that generally they are not involved in the formulation of the scientific research questions, some of them are involved in the scientific research (directly or indirectly),
- Most answers indicated that in Slovenia there is no document that would prescribe the process from Science to policy or vice versa transfer.
- However, Strategy for Smart specialization of Slovenia was pointed out as an example of such a document.

National and transnational funding schemes

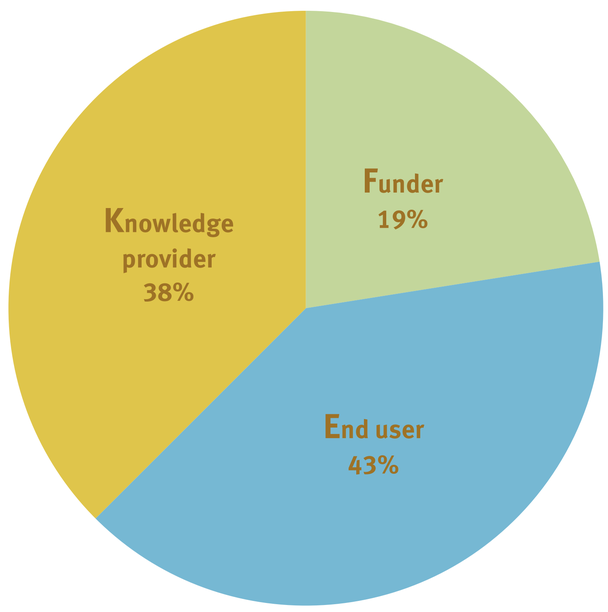
- The Slovenian Research Agency (Javna agencija za raziskovalno dejavnost Republike Slovenije – ARRS) as by far the main funder of the research projects in Slovenia has not defined any priority societal challenges to be addressed in the national research agenda. They fund topics that come almost entirely from the research institutions themselves (bottom-up approach)
- To increase the added value of financial sources, most of the respondents indicated the need for less administration and to speed-up the reimbursement process

A key message from Slovenia:

- Bottom-up approach of collecting research needs/topics from different stakeholders should become a non-stop process.
- Targeted research projects co-financed by the Slovenian Research Agency in cooperation with sectoral ministries are perfect to finance interdisciplianry and cross sectoral research needs and should be extended

Background of Slovenian Key Stakeholders

- In total, 19 expert interviews were conducted.
- 21 experts participated in the national workshop in Ljubljana on 10th of December 2015.



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National contact for Slovenia: Boštjan Cotič → bostjan.cotic@uirs.si

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | inspiration.uirs.si | Twitter: @inspiration4eu

INSPIRATION
INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

INtegrated Spatial PlannIng, land use and soil management Research AcTION:

National results: SWEDEN

Coordination and Support Action

Societal challenges and needs

In Sweden, the major societal challenges are largely related to attaining a sustainable, healthy and secure living environment, including a chemically and microbiologically safe environment relating strongly to production of food and drinking water.

- **The sustainability aspect is also highly related to sustainable production and consumption of food and other products, as well as to the challenges of sustainable construction in the face of rapid urbanisation.**
- **Climate change mitigation and adaptation are important challenges. Discussions in the Stakeholder Workshop concluded that this challenge ought to be considered an important "stand alone"-challenge, but also a component under most other challenges.**
- **Urbanisation/urban areas have significant impacts on soil/land resources due to soil sealing and as centres of consumption, generation of waste, flow of matter/chemicals and energy.**

These challenges are highly related to one another. Yet there is also the problem of conflicts of interests and goal conflicts between the different challenges and measures to address these. It was suggested that the goal conflicts in themselves are an important societal challenge, for which there is a need of research on how to deal with them.

Topics / research needs to be included in the SRA

- **SE-1** Climate change effects on surface and ground water and ground conditions (mitigation and adaptation)
- **SE-2** Safe and sustainable (drinking) water supply from water source to tap
- **SE-3** Ensure efficient use of natural resources
- **SE-4** How to reach sustainable urbanization?
- **SE-5** Sustainable agriculture and food production
- **SE-6** Sustainable forestry
- **SE-7** Management of contaminated land, groundwater and sediments
- **SE-8** Biodiversity and ecosystem services
- **SE-9** Communication and implementation: Societal reach and impact

Experiences regarding the connection of science to policy and practice

- **Efforts are ongoing in Sweden for addressing societal challenges in various research areas and R&I agendas. Swedish financiers are working to find ways to substantially increase the impacts and benefits of research to society.**
- **The science-policy-practice interface can also be facilitated if research programmes promote on-going collaboration between universities and institutions, but also between researchers and various societal stakeholders (governmental authorities at all levels, industry, SMEs, industry associations, etc.).**
- **Targeted calls based on societal reach and communication could be appropriate and important tools to ensure societal relevance.**
- **Providing "measurements" and indicators of societal relevance and impact is increasingly in demand by stakeholders. Societal "reach" may be a proxy for potential impact based on the extent to which research involves relevant stakeholders and communicates its results to end-users, the academic community and branch organizations.**

National and transnational funding schemes

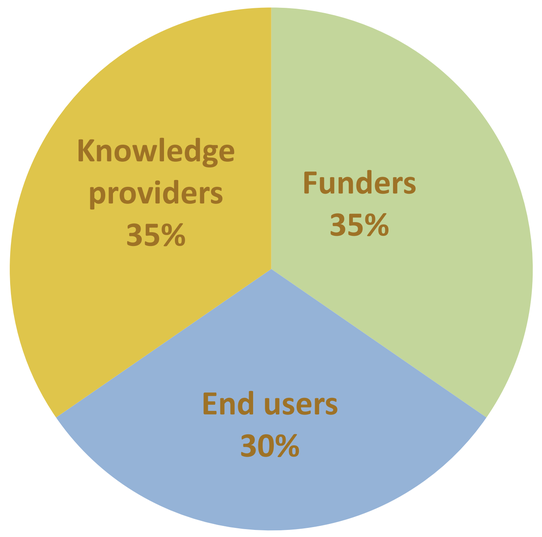
- **Swedish research funders agree that a trans-disciplinary approach and a good mix of stakeholders in research projects will continue to be important. Yet, additional platforms are needed for this. It is important that the different disciples understand one another and this may demand more time and effort in applying for funding.**
- **More research on the connections between knowledge and its use in planning and policy are needed. Steering and governance of these issues are important, as well as how processes can be made more efficient and stakeholders can be better mobilized in planning processes**

A key message from Sweden:

- **Trans-disciplinary and societally relevant research is important in Sweden. Also important is a focus on how R&I can help Sweden reach its national environmental goals and achieve a sustainable, healthy and secure human and natural environment.**

Background of Swedish Key Stakeholders

- **In total, 18 expert interviews were conducted.**
- **18 experts participated in the national workshop in Stockholm on 14th January 2016.**



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National contact for Sweden : Yvonne Ohlsson→ yvonne.ohlsson@swedgeo.se

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

INSPIRATION
INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

INtegrated Spatial PlannIng, land use and soil management Research AcTION:

National results: ROMANIA

Coordination and Support Action

Societal challenges and needs

- Most of the small and medium-sized farmers in Romania do not have the proper knowledge in the field of management methods, modern production technologies and food safety standards, nor about the environmental practices that bring benefits to biodiversity, soil and water. The research and innovation sector is not sufficiently adapted to the specific needs of farmers. The modest collaboration between farmers and stakeholders promoting innovation and research has led to a **limited research and innovation transfer from suppliers to farmers**.
- The natural environment of Romania is generally characterized by a good preservation of natural resources of soil and water, variety of traditional landscapes and a remarkable biological diversity. Romania has one of the richest resources of agricultural land that can be classified as having high nature value (ranked 5th in EU-27, with a surface of over 5 mil ha). **Opportunities regarding the existing resources are often overlooked**.
- The yields in the Romanian agriculture have a modest level, indicating a use of production factors far below the optimum values. The average cereal production per ha in Romania continues to be 30% below the EU level. Some reasons are related with the **low use of the inputs in agriculture or the insufficient/improper use of alternative input sources**. However, in Romania, the pressure exerted by fertilizers and pesticides on soil and water is low, but the use of chemical fertilizers in agriculture has a tendency to increase (by 13% in 2012 compared to 2007).
- Top societal challenges seen as important: (i) "Contribution to food security and food safety", (ii) "Reduce raw material and resource consumption, Ensure efficient use of natural resources" and "Contribute to a healthy living environment", (iii) "Contribute to climate change mitigation and societal adaptation".

Topics / research needs to be included in the SRA

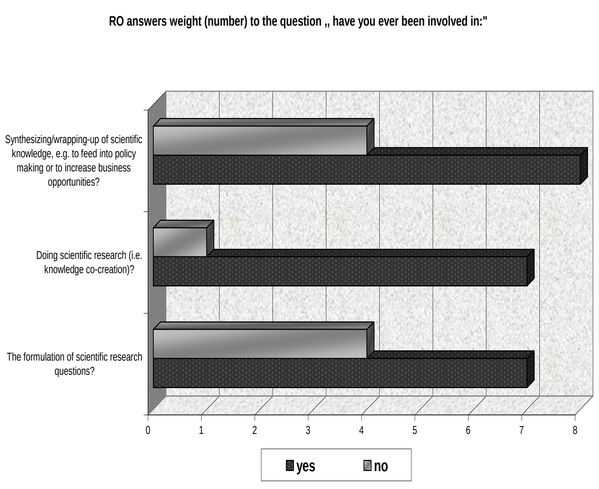
RO-1: Food security and food safety. Soil and water management environmentally oriented practices: a need for more practical tools for farmers;

RO-2: A healthy living environment. Organic farming fits the current state of the soil quality and land use in the country? Well, yes;

RO-3: Raw material and resource consumption. Nutrients: maintain and improve soil fertility under the increased demand of higher yields and increased rates of nutrients export.

Experiences regarding the connection of science to policy and practice

- Connecting the content of discussions held in the NKS Workshop held in September 2015 with the results of the questionnaire based study, the following top of the most important national Science-Policy-Interface documents came up:
  I. National Strategy for Research, Development and Innovation 2014-2020;
  II. National Rural Development Program 2014 – 2020;
  III. Strategy for the agri-food sector medium and long term development – horizon 2020/2030.
- Generally, the NKS capacity to influence the setting of scientific research policies/agendas in the country is low. Few NKS were involved in "doing scientific research".



National and transnational funding schemes

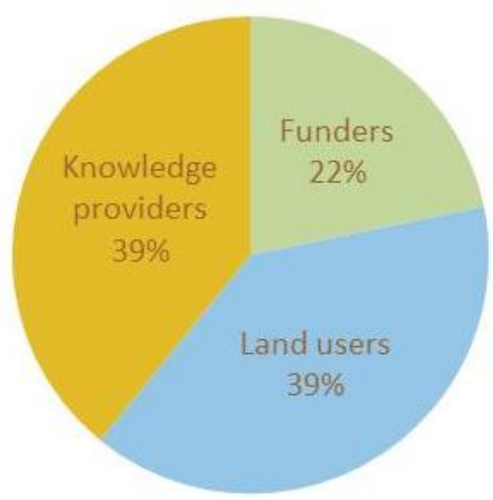
- Ministry of National Education and Research, National Authority for Research and Innovation- Core Programs
- UEFSCDI, Ministry of National Education and Research- National Plan for Research, Development and Innovation
- Ministry of Agriculture and Rural Development-Research Sectorial Plan
- Ministry of Agriculture and Rural Development- Rural Development National Plan 2014-2020, Measure 16, Cooperation (to be open)

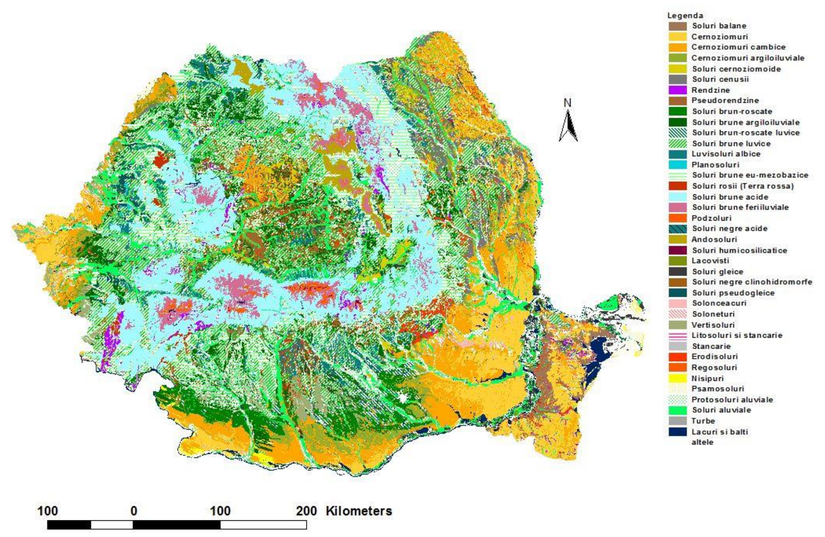
A key message from Romania:

- NKS quote: "(Within the national research programs), little attention in Romania is given to the soil issues, with particular emphasize to water and plant relationship. With regard to the sediment, there is no interest recorded at all. There are also some other topics overlooked, like conservation agriculture technologies, nutrients management, soil quality monitoring at large scale, GHG emissions or even the training of the soil scientists. The **inexistence of an EU Directive for Soil and Soil protection** hampers the funding for fundamental and applied research in soil science and the awareness and priority given to the soil importance is low. In Romania, the research thematic area regarding soil was dropped from the National Research Plan".

Background of Romanian Key Stakeholders

- **In total, 23 expert interviews were conducted.**
- **17 experts participated in the national workshop in Agigea - Constanta on 10th –13th Sept. 2015.**





This project received funding from the European Union under HORIZON 2020 Grant Agreement No. 642372.

National contact for Romania: Mihail Dumitru→ mihail.dumitru@icpa.ro

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

INSPIRATION
INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

INtegrated Spatial PlannIng, land use and soil management Research AcTION:

National results: Portugal

Coordination and Support Action

Societal challenges and needs

- In Portugal, sustainable agriculture is understood as a key challenge related to food security and food safety; ensure secure supplies of safe drinking water; reduce raw material and resource consumption; ensure efficient use of natural resources and sustainable use of ecosystem services, halting the loss of biodiversity. It is regarded as a cross-sectional topic, in which most of the relevant societal challenges are closely interrelated.
- Desertification and climate change mitigation and societal adaptation are very important challenges for the future and to contribute for a healthy living environment.
- It is recognized that the on-going intensification of land-use conflicts cannot be solved without transdisciplinary research.
- Urbanization and ongoing demographic challenges requires circular land management strategies to revitalize brownfields, regenerate city centers and reduce urban sprawl.
- A landscape approach is an integrated approach that considers and involves the perspectives, needs and interests of all stakeholders, including local communities, land users and land owners. Landscape approaches are increasingly seen as indispensable in developing sustainable land use strategies. .

Topics / research needs to be included in the SRA

PT-1. Soil Conservation - Sustainable land management, soil fertility, soil regeneration, carbon soil sequestration, social awareness.

PT-2. Sustainable agricultural technologies - Organic farming; sustainable practices; potential productivity of land; waste compost options; water use efficiency.

PT-3. Strategies for minimization and remediation of soil/water pollution

PT-4. Combating desertification - Climate change, soil erosion and land degradation

PT-5. Promoting urban green infrastructure - Grass management; urban agriculture; green-roofs.

PT-6. Urban planning and redevelopment - Brownfields redevelopment; multicultural cities; ageing; shrinking cities.

PT-7. Impact of agricultural policies - Environmental effects; socio-economic transformations; rural development.

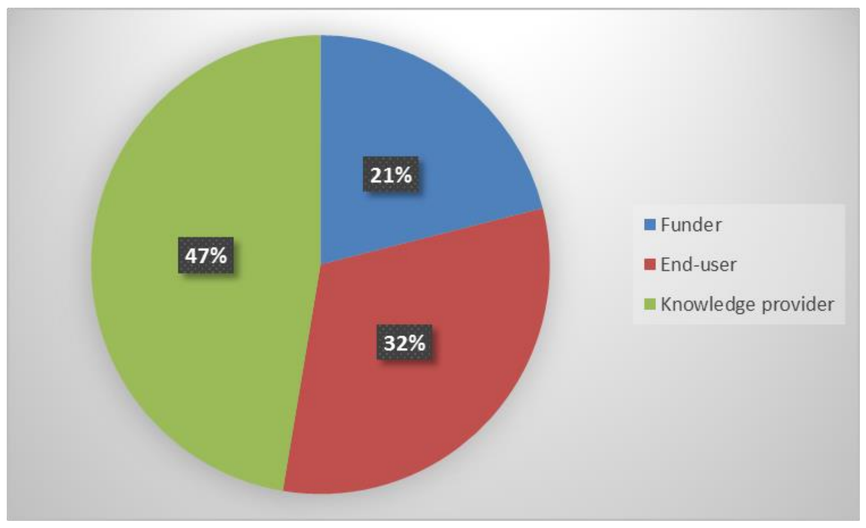
PT-8. Competition between land-uses - Land-use efficiency; bioenergy demand

PT-9. Soil system mapping and monitoring

PT-10. Resource Efficient Economy with a Sustainable Supply of Raw Materials - Multifunctional forest; Mediterranean landscape; non-wood forest products

Background of Portuguese Key Stakeholders

- In total, 20 expert interviews were conducted.
- 21 experts participated in the national workshop in Faro on 6th–7th Nov. 2015.



Experiences regarding the connection of science to policy and practice

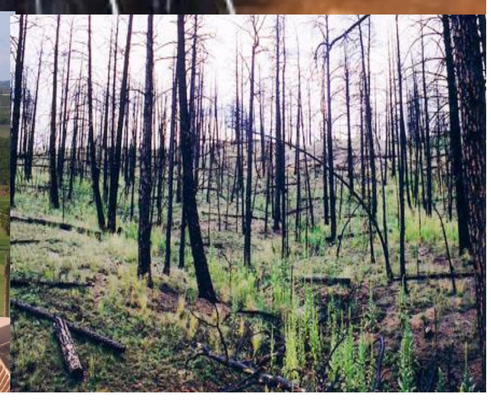
- Research for sustainable land development should involve all stakeholders as early as possible in all stages of research and development. In Portugal the concept of inter- and transdisciplinary research is just emerging in running research program and this should be strengthened was reiterated by the interview partners.
- Solutions range from facilitating the access to data bases of national research projects and scientific publications through online platforms, to monitoring the practical application of policies and actions.
- The co-designing of solutions with practice-oriented partners, the inclusion of a broad range of stakeholders and the involvement of the public are considered major challenges.

National and transnational funding schemes

- The majority of the interview partners evaluated the Portuguese research funding landscape for the research field of land use as being successful in its objectives, meanwhile it is required more inter- and transdisciplinary methods to be applied with more involvement of the private sector since the beginning.

A key message from Portugal:

- The post Workshop field trip was an opportunity to see in practice the needs and gaps in research at the Portuguese context. It was visited the recently flooded city of Albufeira and coastal erosion problems due to climate change and inadequate land planning, land use conflicts, and soil management that is not according to the current societal challenges.



This project received funding from the European Union under HORIZON 2020 Grant Agreement No. 642372.

National contact for Portugal: Thomas Panagopoulos → tpanag@ualg.pt

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

INSPIRATION
INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

INtegrated Spatial PlannIng, land use and soil management Research AcTION:

National results: POLAND

Coordination and Support Action

Societal challenges and needs

- Safe environment is a serious social challenge in Poland. In some regions people area still exposed to environmental risk connected with polluted soil. There is food production on areas with increased level of pollution. There should be a system connected with financial analysis but also with education of producers and consumers.
- The problem of water protection against impact of agricultural activities on surface waters. Farmers should be educated how to limit this impact by using less fertilizers (especially nitrogen).
- There is also a serious threat to soils by using them for non-agricultural purposes. There is a loss of the best soil. 30% of soil in Poland is the best quality soil. It is connected with the food safety and effective use of soil resources.
- Education is necessary of general public. Especially concerning pro-ecological solutions in cities, long-term consequences of decisions, e.g. concerning new solutions of transport. Education should be conducted on all levels from small children to adults. People have to be convinced about advantages and threats of selected solutions, they should have this knowledge to be aware of the results of certain decisions they are participating in.

Topics / research needs to be included in the SRA

PL-1: Climate change mitigation and adaptation

PL-2: Threats to soil

PL-3: Soil in urban areas

PL-4: Planning in urban areas

PL-5: Platform for public policy to protect land and soil

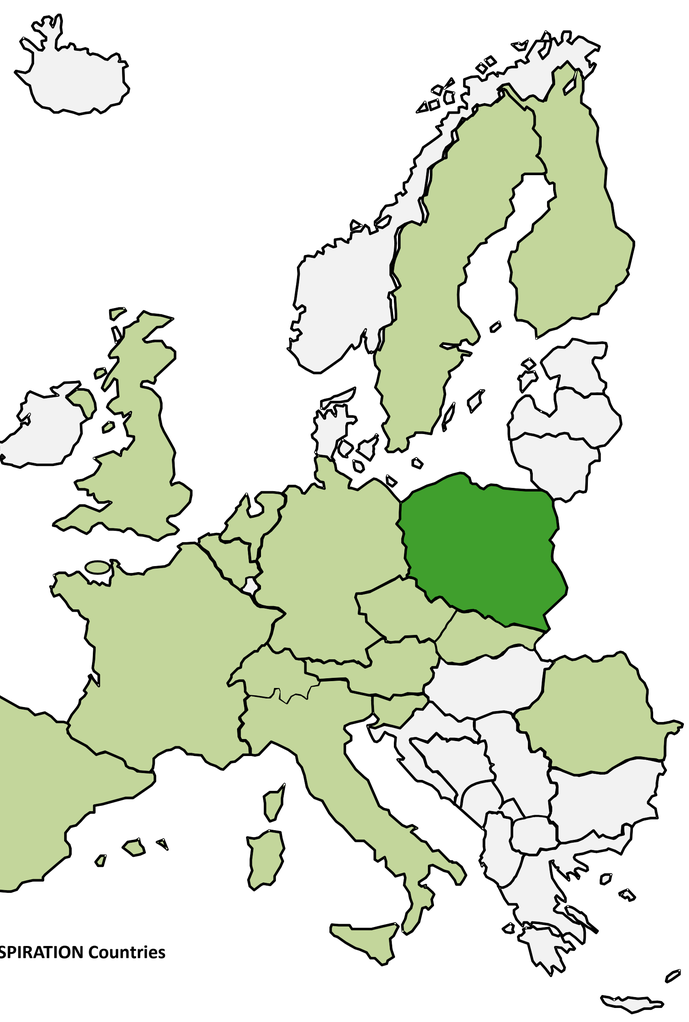
PL-6: Degraded land in urban areas

Experiences regarding the connection of science to policy and practice

- The problem is that research has an initiative, researchers identify the problem and search for solution. Then policy is using the results if they are coherent with the policy aims and objectives. These aims and objectives of the policy programs are answering to social challenges but the policy is using only these research results which are necessary to implement their programs. Therefore policy is not putting questions – it is only using ready solutions.
- The research projects are initiated by the researchers. They see the problem and undertake research to solve it. In most cases the results are not communicated in a right way to the policy makers. So there is lack of communication from both sides: policy makers do not express their needs for research and researchers do not present the results of their work. Unless policy makers find the project as useful for their policy objectives.
- It seems that new forms of organization of co-operation are needed in the relation science-policy. They should be focused on common searching innovative solutions and based on mutual benefits.

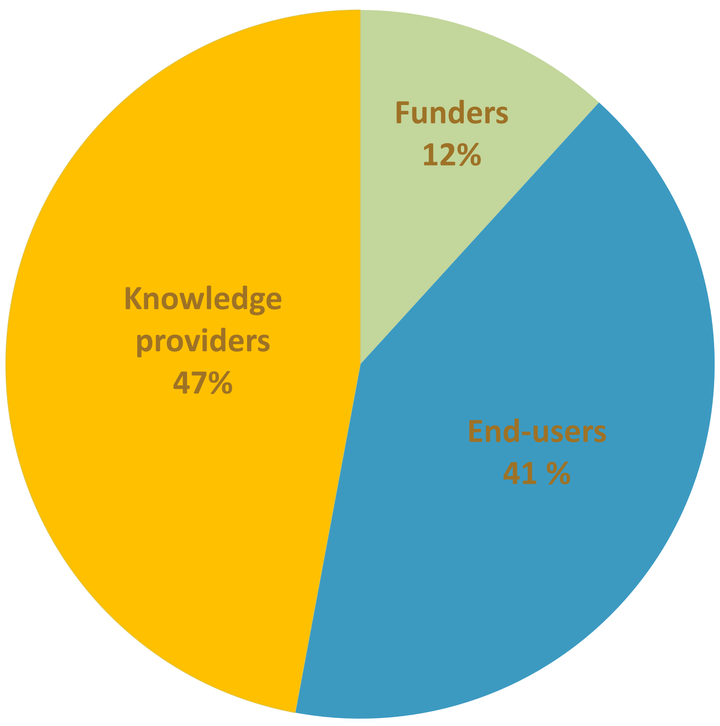
National and transnational funding schemes

- There used to be a system of national programs concerning selected thematic blocks most important for the national economy and development. It has been expressed that there is a need for continuation of such a system, but now it is difficult to indicate who could initiate it.
- National Fund for Environmental Protection and Water Management declares supporting various research initiatives. Now national meetings are organized devoted to selected fields of environmental research, which can be a kind of platform for exchanging ideas of further research agenda.



Background of Polish Key Stakeholders

- In total, 17 expert interviews were conducted.
- 17 experts participated in the national workshop in Katowice on 5th–6th Nov. 2015.



This project received funding from the European Union under HORIZON 2020 Grant Agreement No. 642372.

National contact for Poland: Anna Starzewska-Sikorska → sta@ietu.katowice.pl

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

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INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

INtegrated Spatial PlannIng, land use and soil management Research AcTION:

Coordination and Support Action

National results: THE NETHERLANDS

Societal challenges and needs

- The Netherlands are made of sediments and densely populated. Societal challenges are linked to a stay a resilient urbanized delta.
- In The Netherlands, policy around environment and the role of the soil-water-sediment system is being decentralized with the Environmental and Planning Act (to be implemented in 2018). This asks for more integrated manners of decision-making on a regional scale. Societal challenges are used as starting point within this area-based decision making.
- Land use and spatial planning with the SSW- system are important aspects when looking at challenges liveability of rural areas and smart and healthy cities and mobility and transport. The soil quality for a certain use is also an aspect here..
- Another challenge is to deal in a better way with natural resources: Agriculture and Food, energy and water supply and resource efficiency
- Climate change and water safety remain to be an important challenge in the low-lying Netherlands
- Next to the above, the following cross-sectorial topics are crucial for tackling societal challenges: governance, knowledge base of stakeholders, SSW-system knowledge., methods to value the SSW-system, data and information and land use strategies.

Topics / research needs to be included in the SRA

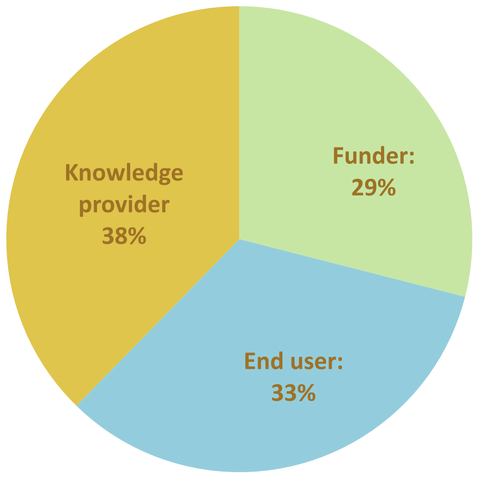
- NL-1 Agriculture and food
- NL-2 Liveability of rural areas
- NL-3 Climate change
- NL-4 Water
- NL-5 Smart and healthy cities
- NL-6 Mobility and transport
- NL-7 Soil quality
- NL-8 Energy supply
- NL-9 Resource efficiency
- NL-10 Governance
- NL-11 Knowledge base
- NL-12 Soil-sediment-water system knowledge
- NL-13 Valuation of the soil-sediment-water system (ecosystem services)
- NL-14 Data and information
- NL-15 Land-use

Experiences regarding the connection of science to policy and practice

- The research focus in the Netherlands is shifting towards applied research where fundamental research gets less attention. This is expressed as a concern by the Dutch NKS.
- The ability to influence research agendas varies among the stakeholders. However, many are involved in, or have the ability to join R&I agenda setting debates in the Netherlands.
- Attention can be raised by linking research questions to societal challenges. Good examples and a good story work also very well: “show & tell”.
- A research agenda should be coherent and well-designed and should integrate short as well as long-term research. However, unfortunately funding availability lags behind the availability of research agendas.

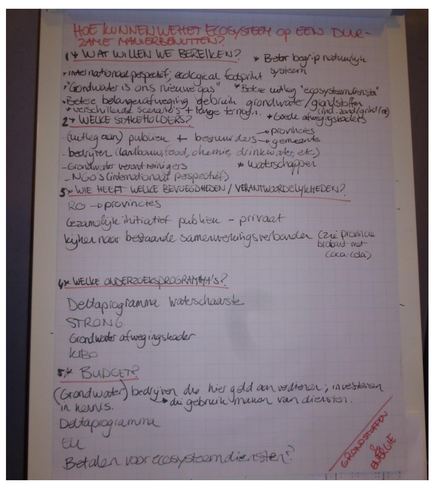
Background of Dutch Key Stakeholders

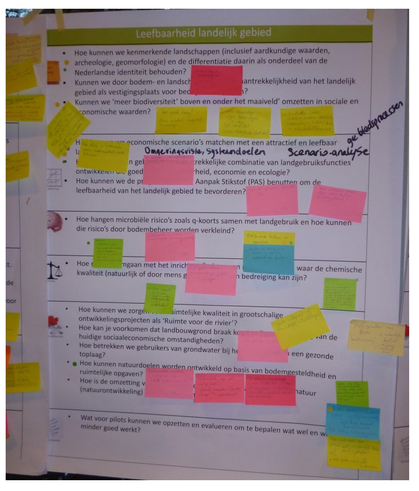
- In total, 19 NKS interviews were conducted.
- 47 experts participated in the national workshop in Lunteren on 11th–12th November 2015.



National and transnational funding schemes

- There is significantly more budget available for applied research (and “business cases”) in the Netherlands. However, designing and establishing of such cases is sometimes perceived cumbersome. There should remain attention for flexibility, innovation and seed money for good ideas.
- Topics that are not or insufficiently covered within research programs and by funding possibilities are often the topics that are not directly linked to the primary tasks or core businesses of organisations. If there is no direct ownership, topics remain unaddressed, even though some of these topics may give us interesting insights and impulses for innovations. Such topics need a better “branding” in order to get funding.
- Programming and financing of research and research policy in the Netherlands (and also in the EU) is often sectorial. This hampers integrated research and approaches. Active collaboration should be sought to break the silos.





A key message from The Netherlands:

- The SSW -system can contribute to this in a high extent . It is time to become aware of this potential and cash it in a sustainable way. Therefore, the Netherlands focus on research and a scientific basis for Resilient Urbanized Delta’s.

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National contact for the Netherlands: Linda Maring → Linda.Maring@deltares.nl

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

INSPIRATION
INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

INtegrated Spatial PlannIng, land use and soil management Research AcTION:

Coordination and Support Action

National results: ITALY

Societal challenges and needs

Most of the Italian National Key Stakeholders (NKS) consider all the societal challenges suggested from the European Commission very important and inclusive of many other minor challenges and topics. Anyway some specifications were recommended:

- **Considering water and soil system the idea of safeguard and its relation with ecosystems is missing. Furthermore water maintenance and hydrogeological risk prevention should be explicitly considered.**
- **Risk management was often named by NKS, but they considered it already part of the EC list, namely within "ensure secure infrastructure".**
- **The reduction of land take in some way can be a specification of other wider societal challenges, but someone suggested it should be added to the list ad a specific challenge.**
- **Social inclusion and sociological aspects in general should be also included. Involvement of people in decision making processes and improving the culture of environmental sustainability through public engagement were considered as crucial. Finally, societal adaptation to risk also emerged as a possible challenge.**

Topics / research needs to be included in the SRA

IT-1.1 Genetic selection practices and techniques
IT-1.2 Water purification technologies
IT-1.3 Recovery and treatment of rainwater
IT-1.4 Optimization of water use in agriculture
IT-1.5 Development of conservative agricultural techniques
IT-1.6 Integrated operating models for soil and sediment management and reuse
IT-1.7 Land subsidence monitoring and management

IT-2.1 Harmonized indicators for contaminated sites management
IT-2.2 Study of emerging contaminants
IT-2.3 Sustainable remediation technologies and procedures
IT-2.4 Improvement and harmonization of risk assessment and management tools
IT-3.1 Land management oriented to zero land take balance
IT-3.2 Soil ecosystem services protection and management
IT-3.3 Monitoring Information Systems and flood risk management techniques
IT-3.4 Erosion and runoff models and scenarios
IT-3.5 Urban regeneration models and tools to strengthen urban resilience
IT-3.6 Landscape quality indicators in spatial and urban planning
IT-3.7 Study of the relationship between built environment and health

IT-4.1 Improvement of the political-administrative system
IT-4.2 A new theory of value to associate with environmental issues
IT-4.3 Supporting tools and methods for decision making
IT-4.4 Risk Information and communication

Experiences regarding the connection of science to policy and practice

- **According to most of the NKS, policies and research belong to separate worlds which hardly communicate.**
- **For improving research quality and an efficient use of public funds, a shift towards societal challenges as research focus is needed**
- **NKS underlined an enormous lack in quality of dissemination. Research often can't reach final users, like citizens, instrumental bodies, technicians...**

National and transnational funding schemes

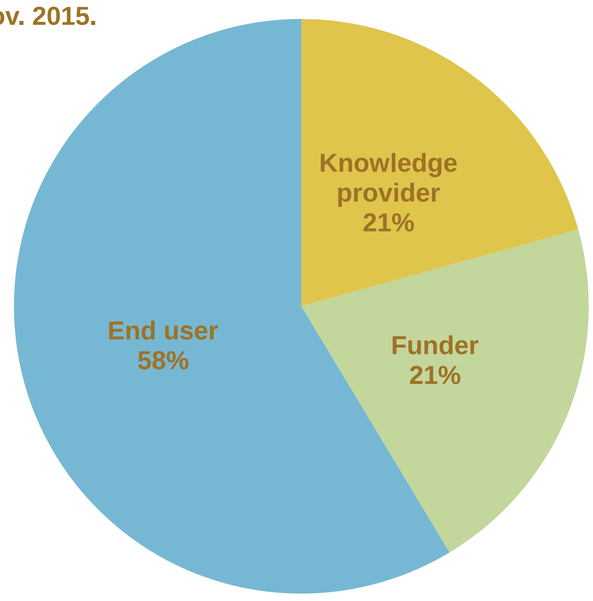
- **Generally in Italy there is a short supply of research funding: the total spending percentage of R&D on the national GDP is only 1,26% (in 2012). Little national funding for research are therefore available in Italy, but other opportunities came from European funds.**

A key message from Italy:

- **The influence of national stakeholders on research planning differs for everyone and is often related to the political interests of each specific organization/company in which the NKS works. Nevertheless, most of the speakers judged their own influencing capacity in defining the research questions quite limited.**

Background of Italian Key Stakeholders

- **In total, 31 expert interviews were conducted.**
- **26 experts participated in the national workshop in Torino on 26th–27th Nov. 2015.**



This project received funding from the European Union under HORIZON 2020 Grant Agreement No. 642372.

National contact for Germany: Uwe Ferber → uwe_ferber@projektstadt.de

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

INSPIRATION
INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

INtegrated Spatial PlannIng, land use and soil management Research AcTION:

Coordination and Support Action

National results: FRANCE

Societal challenges and needs

- For 60 to 70 % of the national actors interviewed, the priority is given to the 3 following societal challenges: Ensure secure supplies for safe drinking water, Contribute to food security and food safety and Ensure efficient use of natural resource.
- Societal challenges such as “contribute to climate change and societal adaptation”, “contribute to a healthy environment", “secure energy supply and distribution” and “reduce raw material and resource consumption” arrived in second importance. But prioritization of some societal challenges is different from a group of NKS to another one.
- The question of soils deserves to be more visible and is transverse in the other challenges. Furthermore, the question of compatibility between challenges was approached: for example, food production vs. water resource protection. The notion of ecosystemics services and critical zone need to appear more explicitly and to be more visible in the actual societal challenges. The objectives of the sustainable development of the United Nations could be used as a reference: such as “protect and restore soils” (obj 15) or “live healthy” (obj 3).
- In France, NKS state that it is more important to focus on soil functions than on soil services, with a need to sensitize civil society to theses soils functions and need of indicators / data depositories to evaluate soil functional type which can’t be generic due to soil diversity in France.

Topics / research needs to be included in the SRA

- FR-1 Allocation of land
- FR-2 Agricultural production and climate
- FR-3 Knowledge on the functions, distribution, and evolution of the soils
- FR-4 Monitoring on soil
- FR-5 Soil functions and services

Experiences regarding the connection of science to policy and practice

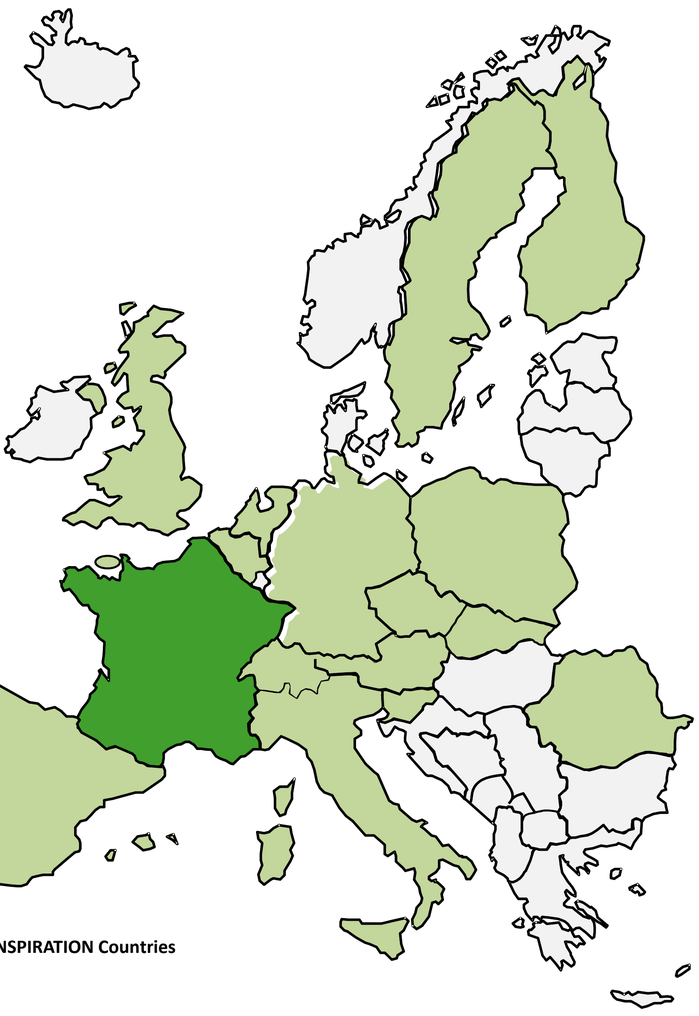
- The improvement of the use of knowledge could be done at 2 levels: (i) the project level by involving the stakeholders (including end-users) over the duration of the project (from the offer until the operational stages), by encouraging the building of multi-actors projects and by strongly associating the civil society, (ii) the level of a program, the creation of networks with multi-actors must be encouraged with the development of information and knowledge management tools in order to facilitate interface between the scientific knowledge, the policies and the civil society (specific tools/organizations).
- Innovative methodologies and funding mechanisms allowing an bottom-up approach must be developed. A particular point relates to the funding of the observation and demonstration sites monitoring on the long-term which must be secured. Places of meetings/debates between the various actors of a territory are necessary in order to lead to a common vision of the soil and to be in agreement with the territory development in the present and the future.

National and transnational funding schemes

- National funding as well as the main European funding schemes, in the opposite to the regional funding, are well-known by national stakeholders
- Among proposals to increase the added-value in R&I and an increased accessibility towards the end-users, the set-up of demonstrators to validate technologies was mainly quoted as well as immersions of researchers in the private companies for a better adequacy between the need in R&I for the companies (short-term) and the capacity of research to answer.
- Themes such as soil-sediment-water system in an integrated approach, interface health-environment, pedogenesis, urban development are not financed at the present time on high scales of technology readiness level.
- Funding of actions to the long-term (higher than 3 years) was stated in a recurring way in particular for the long-term observatories with multidisciplinary research teams.

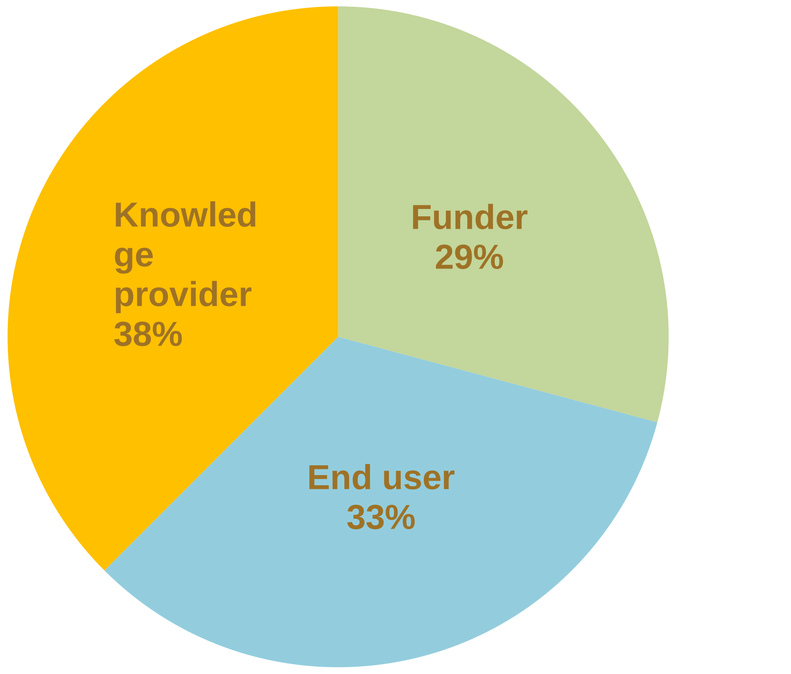
A key message from France:

- Need to create networks to sensibilize civil society to soil functions and establish strong indicators to evaluate theses functions involving all the actors. Imagine new funding scheme for long-term observatories and data collection on the soil-sediment-water system related to ecosystem services, demonstration sites to validate new technologies and facilitate their transfer to end-users.



Background of French Key Stakeholders

- In total, 25 expert interviews were conducted.
- 18 experts participated in the national workshop in Paris on 15th–16th Oct. 2015.



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National contact for Germany: Uwe Ferber → uwe_ferber@projektstadt.de

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

INSPIRATION
INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

INtegrated Spatial PlannIng, land use and soil management Research AcTION:

National results: FINLAND

Coordination and Support Action

Societal challenges and needs

In Finland, most often emphasized societal challenges requiring attention included:

- Resource efficiency and circular economy concerning both raw materials and land areas
- Climate change mitigation and adaptation to change
- Healthy living environment and secure and sustainable infrastructure
- Biodiversity, green infrastructure and ecosystem services

Topics / research needs to be included in the SRA

Theme A: Data gathering, analysis and assessment methods

- FI-1 Assessing the impacts of different land uses and climate change on the quality and quantity of surface waters and groundwaters
- FI-2 Development of reliable sampling and analysis methods
- FI-3 Gathering and synthesizing data on the state of soils and waters for policy formulation

Theme B: Soil and water ecosystem functions

- FI-4 Interactions, changes and resilience of biogeochemical cycles in soil-water-sediment system
- FI-5 Soil carbon dynamics
- FI-6 Changes and challenges in forests and mires
- FI-7 Soil-related preconditions for sustainable intensification of food production
- FI-8 Assessment of soil ecosystem services and biodiversity

Theme C: Circular economy and sustainable management of soils and waters

- FI-9 Innovative ways of recycling materials and re-using land areas
- FI-10 Risk management and sustainable remediation of soils and groundwater

Theme D: Sustainable urbanisation and infrastructure development

- FI-11 Sustainable urbanisation and healthy living environments
- FI-12 Sustainable infrastructure development and maintenance

Theme E: Integrative land use policies and planning

- FI-13 Integration of different land uses
- FI-14 Development of land use policies and planning methods
- FI-15 Social acceptance and environmental regulation

Cross-cutting theme F: Climate change adaptation

- FI-16 Climate change adaptation – capabilities in Nordic conditions

Experiences regarding the connection of science to policy and practice

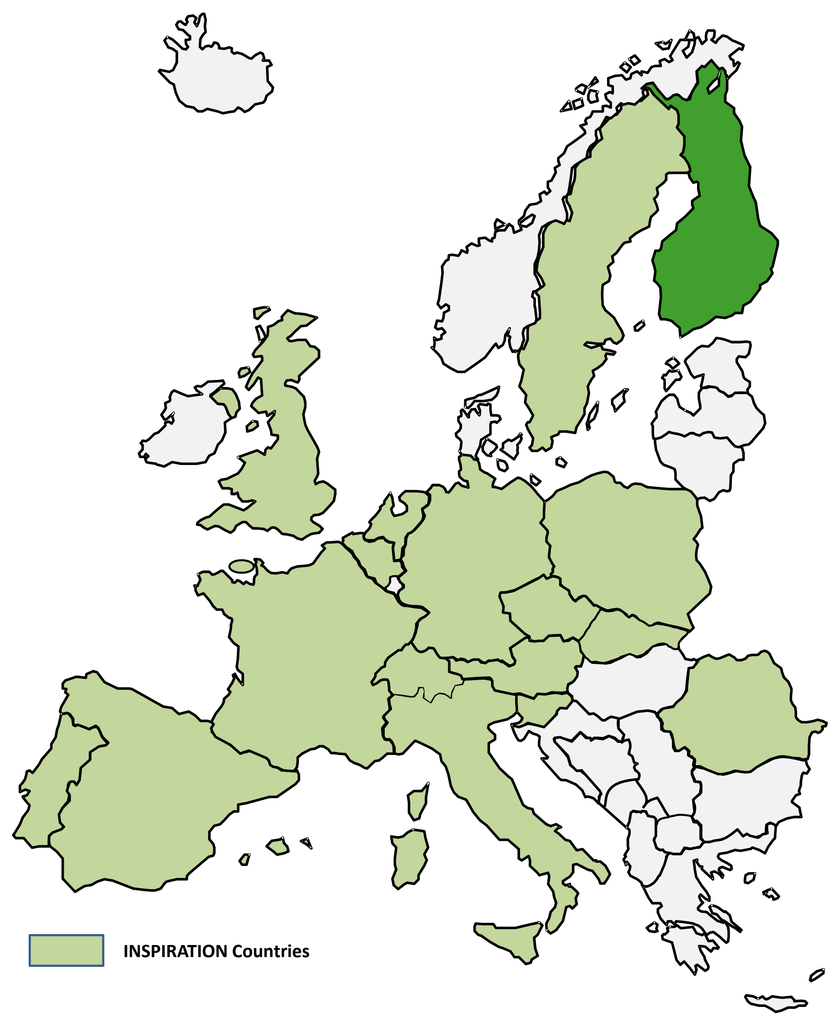
- Knowledge end users need to receive the essential knowledge in a concise and easily understandable form. They also need help in assessing the quality of the available information.
- Knowledge users hope that research findings and datasets would be gathered under a common web portal and new communication channels would be used more often.
- Illustrative examples of good practices, maps, graphs and other visual material are found useful in communicating results to decision-making in a compact form.
- Synthesising research findings for decision-making and communicating about the synthesis appeared as a key issue. Relevant and easily applicable knowledge like policy briefs and interpreted scientific data is needed.
- Researchers are hoped to communicate more actively about most recent and relevant research findings and consider the usability of the findings more extensively.

National and transnational funding schemes

- The alignment and interfaces of different funding systems should be considered carefully.
- There is a need for instruments through which it is possible to merge public and private funding and that could serve also the research needs of small and medium-sized enterprises.
- Soil and land as a resource was thought to be a partly neglected topic in large scale research agendas.
- Many experts expressed worries over the funding of basic research, monitoring and maintenance of data pools.
- Synthesis of existing data and integrated approaches combining different fields of expertise deserve more attention.

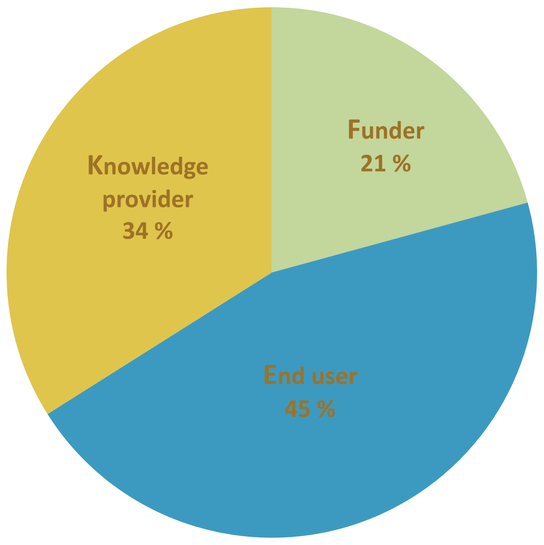
Key messages from Finland:

- Research activities should concentrate on increasing understanding of ecosystem functions and services, resource efficiency and urbanisation development in order to promote circular economy and minimise the impacts of natural resources use.
- Integrative and cross-disciplinary approaches are needed to tackle complex challenges and manage risks in the changing environment.
- Soils, waters and land uses differ greatly within Europe. Some research challenges concentrate only on certain parts of Europe, but in those areas they may have crucial importance, which needs to be considered in the SRA.



Background of Finnish Key Stakeholders

- In total, 26 experts were interviewed in 14 interviews.
- 32 experts participated in the national workshop in Helsinki on 19th–20th Nov. 2015.
- Distribution of participating experts:



This project received funding from the European Union under HORIZON 2020 Grant Agreement No. 642372.

National contact for Finland: Antti Rehunen → antti.rehunen@ymparisto.fi

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

INSPIRATION
INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

INtegrated Spatial PlannIng, land use and soil management Research AcTION:

Coordination and Support Action

National results: SPAIN

Societal challenges and needs

- **Sustainable territorial planning and management: Spatial planning as an inclusive discipline and cross-cutting public policy considered the most appropriate framework for most of the societal challenges (food security, secure water supply, efficient use of natural resources and climate change mitigation and adaptation), given its vocation to articulate an integrated land use and coordinated deployment of sectoral policies**
- **New culture of territory which would englobe, innovative governance structures and democracy models, global awareness, and participatory planning**
- **Protection of biodiversity and ecosystem services, to contribute to healthy environment and resilience**
- **Society empowerment and co-responsibility**
- **More balanced and equitable relation between rural and urban realities**
- **Prospective planning (anticipation) in a world with fragile balance and instability**
- **Applying the "polluter's pays" principle: importance of taking into account positive and negative externalities but also plan and design the procedures for assessment, evaluation and imputation to those who generate externalities.**

Topics / research needs to be included in the SRA

Two overarching issues to be added as backbones in the SRA: soil as a limited resource and The consideration of energy and its close link with water, soil and land management.

ES-1 Innovation in science communication and awareness

ES-2 New governance, instruments and management mechanisms

ES-3 Integrated analysis and management

ES3.1- Life cycle thinking applied to land use

ES3.2- Ecological footprint and its relationship to bio-capacity and especially its derivate

ES3.3- Integrated approach to water, energy, soil, ecosystem and territory

ES3.4- Mal-adaptation and its relation to the trinomial water-energy-territory

ES3.5- Better understanding the impacts of simultaneous stressors

ES3.6- New technologies and their impact on territorial development

ES3.7- Positive externalities of agroforestry areas

ES3.8- Innovative territorial models

ES3.9- Multifunctional approach to land uses and poli-functionality in the urban context

ES3.10- Strengthen the relation between spatial planning and urbanism

ES3.11- Adaptation to climate change

ES3.12- Relations between climate change and tourism

ES3.13- Soil quality in relation to health and quality of life

ES3.14- Green infrastructure

ES3.15- Innovative and alternative metrics

ES-4 Specific technologies: hybrid technologies and ICT knowledge: conservation tillage, land use under semi-arid conditions, water footprint impact, genetic adaptation of crops, reverted osmosis, aquaculture, early warning systems, distributed energy generation and consumption/use.

Experiences regarding the connection of science to policy and practice

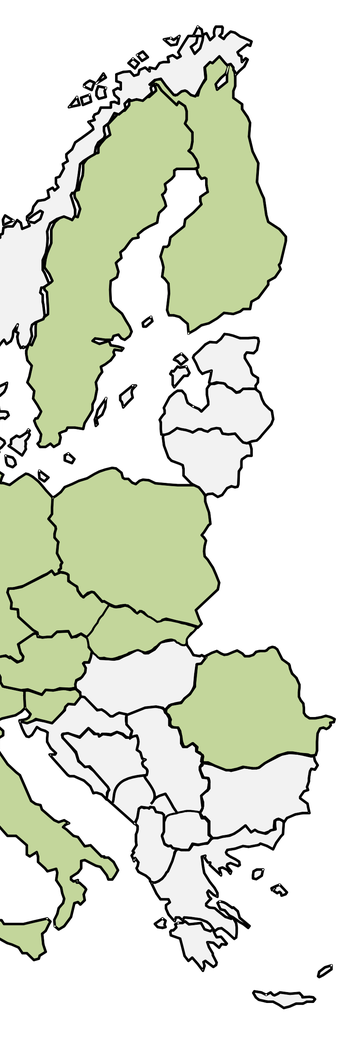
- **Interrelation between science and policy is rather weak in the Spanish context, i.e. poor transposition of science outcomes into policy making; non-alignment of R&I programs with researchers and end-users needs (i.e. industry, citizens, practitioners etc.)**
- **The interplay and communications means between all key actors, namely policy makers, universities, R&I / RTO centres, practitioners, private sector, NGOs and also citizens should be improved and incentivized at multiple levels.**
- **This would require the development of specific instruments for knowledge exchanging and communicating, setting priorities for R&I, evaluating R&I outcomes but also specific financial and human resources dedicated to develop solutions that would respond to the expectations of both communities.**

National and transnational funding schemes

- **Wide range of R&I funding mechanisms in the Spanish landscape – several levels**
- **The consulted stakeholders reported a shared view on the need for greater simplification of R&I funding procedures, especially in the European context and better visibility of funding opportunities**
- **Adequate instruments for monitoring the impact of R&I funding and for involving the private sector so the R&I could find the way to markets more efficiently**
- **All in all, independently of the development of new funding instruments, better governance systems based on improved integration of funding institutions and programs (horizontal integration) and organizational level (from EU to regional scale, i.e. vertical integration) are required.**

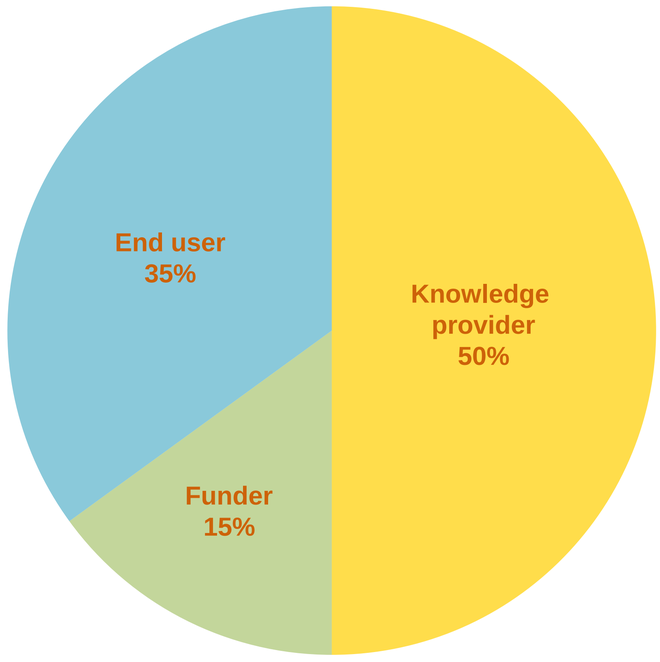
A key message from Spain:

- **Spain has competitive strengths in specific sectors (i.e. biosphere reserves, national parks, water management techniques in agricultural and market gardening sectors under semiarid conditions, renewal energy) due to its regional specificities and is willing to maintain its leadership as ground for generating wealth and resilience in Europe.**
- **So it is utterly important to strengthen efforts in RTD on these sectors in which Spain is already well positioned, also to value the advances in specific technologies and to exploit the regional specificities and assets in southern EU (Barcelona Convention), so Spain could contribute to the increase of the productivity and resilience of Europe as a whole.**



Background of Spanish Key Stakeholders

- **In total, 20 expert interviews were conducted.**
- **11 experts participated in the national workshop in Madrid on 26th–27th Jan. 2016**



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National contact for Spain: Gemma García-Blanco→ gemma.garcia@tecnalia.com

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

INSPIRATION
INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

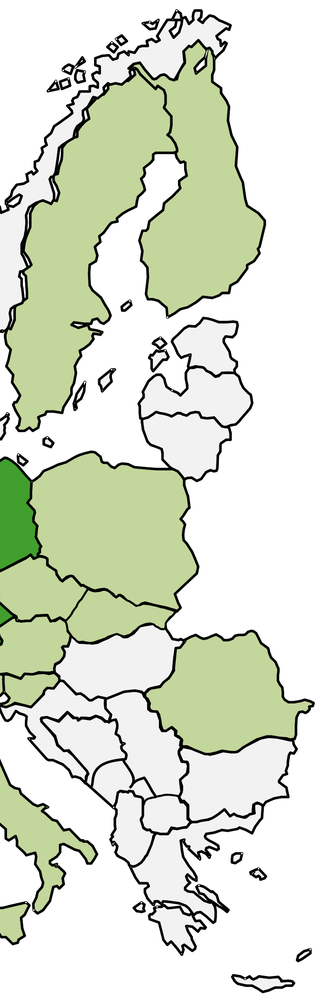
INtegrated Spatial PlannIng, land use and soil management Research AcTION:

National results: GERMANY

Coordination and Support Action

Societal challenges and needs

- In Germany, sustainable land use has been increasingly understood as a key challenge receiving attention, for example by the national Sustainable Development Strategy that aims at limiting land-take to 30ha/day by 2020. It is regarded as a cross-sectional topic, in which most of the relevant societal challenges are closely interrelated.
- It is recognized that the on-going intensification of land-use conflicts cannot be solved by improving discipline-oriented management alone.
- The scarcity of the resource land requires sufficiency strategies and circular land management to revitalise brownfields and reduce urban sprawl.
- Food security and secure water supply can only be achieved through a sustainable management of agriculture and ecosystems, being challenged by business-as-usual.
- Last not least, the underestimation of the importance of soils in the general public and policy making was noted as challenging towards a broad recognition of soil in its holistic meaning for ecosystems and the society.



Topics / research needs to be included in the SRA

- DE-1 Actors in Land Use Transition / Cross Sectional Management and Communication
- DE-2 Settlement Area Management, Circular Land Management, Material Flows, and their Role related to Urban Climate Adaption
- DE-2 Rural Areas, Landscape Transition and Ecosystem Services
- DE-4 Field Soil Quality and System Understanding
- DE-5 Agricultural Ecological Systems
- DE-6 Sustainability and Land Use
- DE-7 Land Use in River Basins
- DE-8 Indicators, Information Bases and Monitoring
- DE-9 Global Perspective

Experiences regarding the connection of science to policy and practice

- Research for sustainable land development should provide better information, evaluation methods as well as planning and decision-making tools for future oriented actions. It should deliver innovative solutions for a sustainable society. In Germany the concept of inter- and transdisciplinary research is a central theme in research programmes.
- The improved diffusion of theoretical and conception aspects into transdisciplinary methods was reiterated by the interview partners.
- Solutions range from substituting individual research with a dialog oriented consulting process, the co-creation of knowledge or the co-designing of solutions with practice-oriented partners, the inclusion of a broad range of stakeholders and the development of new concepts for the involvement of the public.
- Carrying-out applied research programmes was seen by practice-oriented representatives as an active chance to influence research and the application of scientific knowledge. As a consequence, municipalities are key actors to be involved in sustainability research.

National and transnational funding schemes

- The majority of the interview partners evaluated the German research funding landscape for the research field of land use as being exemplary and innovative with regard to the inter- and transdisciplinary methods applied.

A key message from Germany:

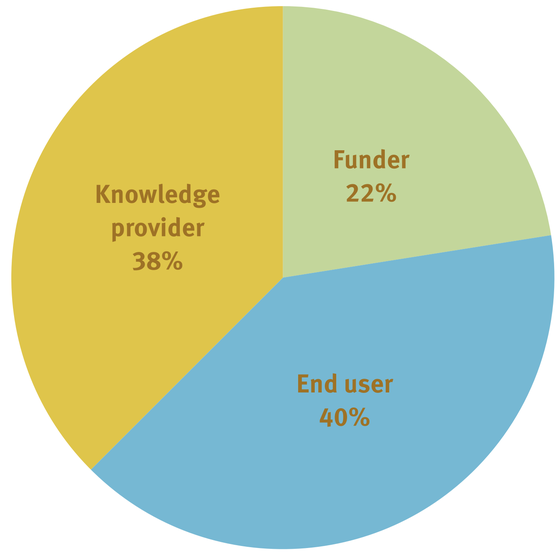
The experienced sectional research on land use and soil in Germany needs to be focused on the designated societal challenges.

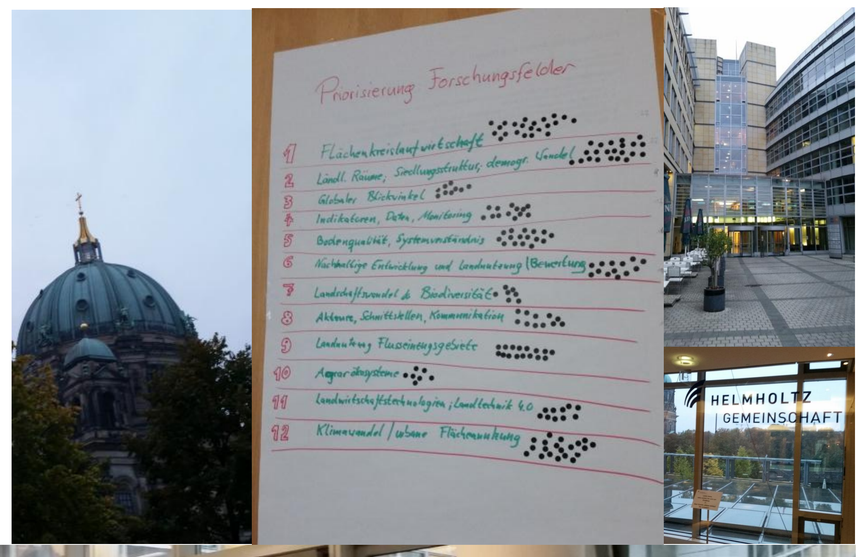
INSPIRATION should act as catalyst for

- cross sectional research concepts supporting sustainable land management
- trans-disciplinary multi-stakeholder research concept e.g. by introducing open laboratories in urban and rural areas.

Background of German Key Stakeholders

- In total, 32 expert interviews were conducted.
- 31 experts participated in the national workshop in Berlin on 6th–7th Oct. 2015.





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National contact for Germany: Uwe Ferber → uwe_ferber@projektstadt.de

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

INSPIRATION
INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

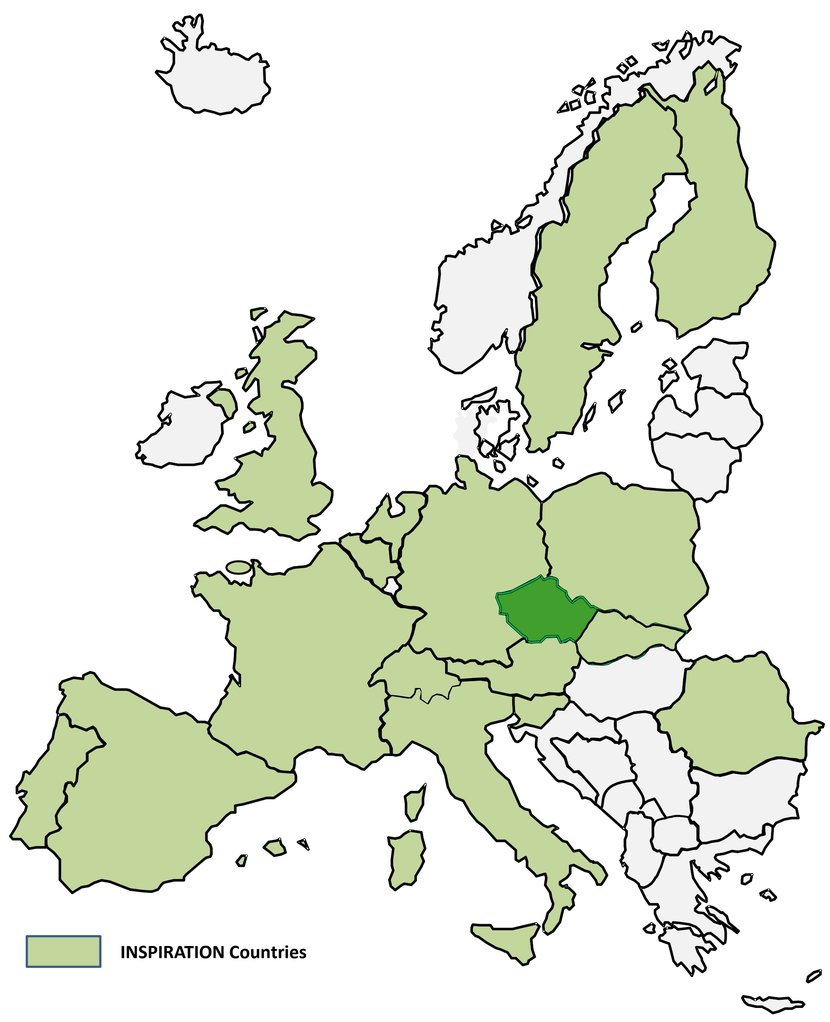
INtegrated Spatial PlannIng, land use and soil management Research AcTION:

National results: Czech Republic

Coordination and Support Action

Societal challenges and needs

- In the Czech Republic, the issues related to sustainable land use have been perceived as very important for future development. It was emphasized that issues have inter-disciplinary and trans-disciplinary character.
- It is recognized that the issues are interconnected because of ignorance of environmental functions (e.g., retention ability of soil and landscape – the ability to save water in cases of both the floods and drought) may bring economic profits from the short-term prospects but it can cause economic losses from a long-term point of view.
- Many interconnections were not commented upon, which may be due to a separation of individual research disciplines and the lack of mutual communication between researchers, who focus on the given topic from different perspectives.
- Societal challenges are changing dynamically and are influenced by actual situation and experiences. For example after the floods in 2002 (Prague city was strongly damaged), the discussion has been focusing on issues related to floods; while after the drought in 2015, the attention has shifted to issues related to water resources.



Topics / research needs to be included in the SRA

- CZ-1 Urban sprawl and consequent land-use changes in the hinterland of large cities
- CZ-2 Contaminated sites as a heritage of the 20th century and how to deal with them
- CZ-3 Recent decline of agriculture and possible food (in-)security
- CZ-4 Landscape adaptation to climate changes (extreme climatic events such as torrential rains and floods, drought, etc.)
- CZ-5 Improving the quality of soil-sediment-water (SSW) system
- CZ-6 Urban space regeneration and current urban environmental risks
- CZ-7 Low-carbon energy transition (renewable energy vs. fossil fuels)
- CZ-8 Sustainable land-use and restoration of people´s relationship to the landscape

Experiences regarding the connection of science to policy and practice

- New scientific methods and recommendations are freely available to the public on internet (even in the forms of dissemination brochures) but there are problems with its implementation. Most experts were quite skeptical as to the transfer of research results into practice in the sense of ignorance mainly on the level of public administration.
- The need to improve transfer of theoretical concepts into transdisciplinary methods was highlighted by the interview partners.
- Research activities which bring positive results in the short term (e.g., projects of new fertilizers to increase agricultural production) usually do not have problems with implementation.
- Research activities which bring positive effects from a long-term perspective (e.g., revitalization of drained areas and wetlands for water retention in the landscape) are not so attractive neither for stakeholders from a private sector (if no subsidies are provided) nor for the public sector (considering the perspective of a single election period they do not care what will happen in 20 years)

National and transnational funding schemes

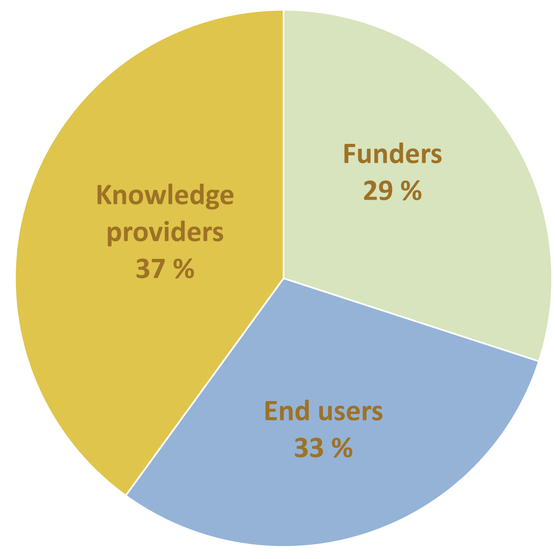
- Majority of the interview partners highlighted problems such as the ´closeness´ of the Research & Development system, monopolization of research projects and lobbying power of the experienced teams, a short-term orientation of the research being often affected by issues currently discussed in the media, etc.

A key message from the Czech Republic:

- There are still a barrier between research and practice, difficulties with the implementation of projects and their results due to ignorance of the public administration, and the mismatch between short-term results and long-term goals concerning sustainable land use and development.

Background of the Czech Key Stakeholders

- In total, 20 expert interviews were conducted.
- 42 experts participated in the national workshop in Ostrava city on October 22, 2015



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National contact for the Czech Republic: Petr Klusáček→ petr.klusacek@centrum.cz

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

INSPIRATION
INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

INtegrated Spatial PlannIng, land use and soil management Research AcTION:

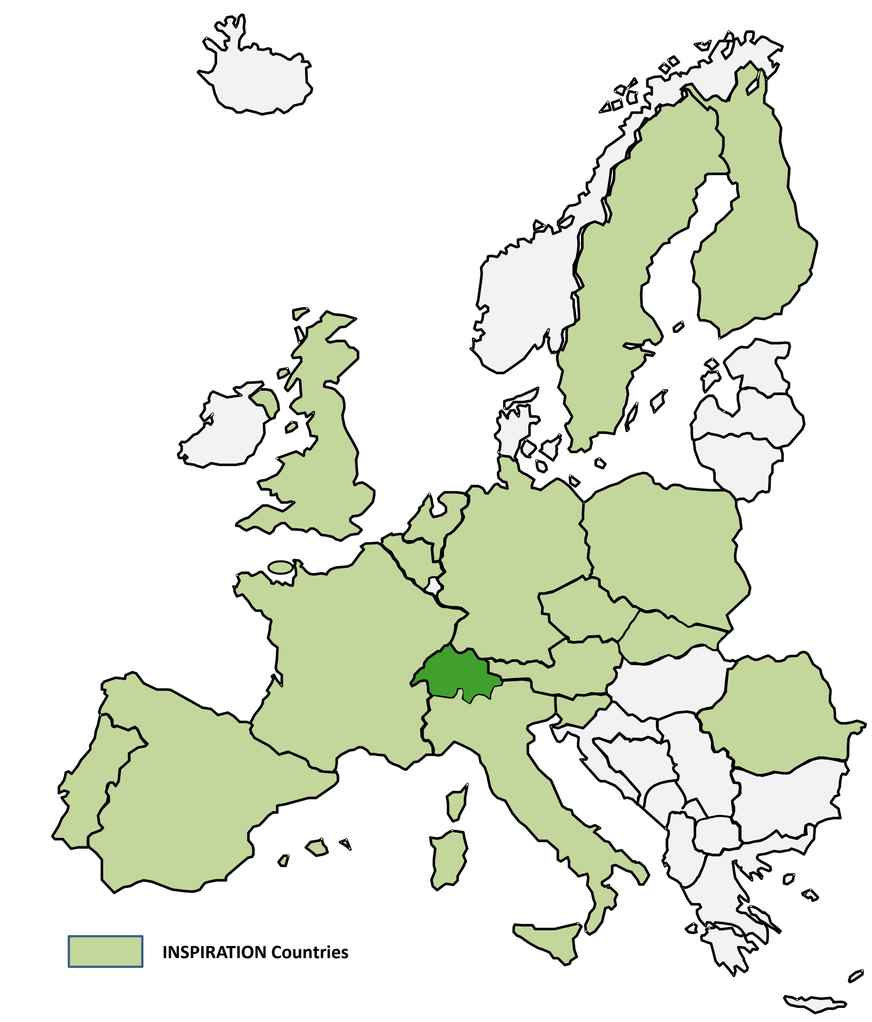
National results: Switzerland

Coordination and Support Action

Societal challenges and needs

In the Swiss interviews and workshop, nine topics have been discussed that identify societal challenges in the fields of spatial planning, land use and soil management. However, finding joint solutions and compromises has been singled out as a superordinate challenge, because of the great influence it has on the handling of the other societal challenges.

- **Finding joint solutions and compromises**
- **Finding sites for renewable energy**
- **Handling the impacts of climate change**
- **Finding solutions to the impacts of demographic change onto space and bridging gaps between population groups**
- **Finding ways to foster high-density housing and to prevent urban sprawl**
- **Protecting and enhancing the quantity and the quality of ecosystems, woods, the agricultural land and soils**
- **Protecting the landscape and enhancing its quality**
- **Creating a sustainable overall traffic**
- **Decoupling prosperity, economic growth and demand for land**



Topics / research needs to be included in the SRA

Research field 1: Legal framework

CH 1.1 – CH 1.3 focus on the revision of legal principles concerning land management.

Research field 2: Spatial planning and development

CH 2.1 – CH 2.12 focus on planning issues and on the land as a resource.

Research field 3: Soil, sediment and water

CH 3.1 – CH 3.4 focus on processes in the soil and in ecosystems and discuss agricultural land management.

Research field 4: Data and harmonisation

CH 4.1 – CH 4.4 focus on missing data and unharmonised data in the fields of soil, sediment and ecosystems.

Research field 5: Implementation and awareness-raising activities

CH 5.1 – CH 5.4 focus on project management and on dialogues, knowledge transfer and awareness-raising.

Background of Swiss Key Stakeholders

- **In total, 20 expert interviews have been conducted with 23 stakeholders.**
- **13 experts participated in the national workshop in Zurich on 13th Nov. 2015.**

Experiences regarding the connection of science to policy and practice

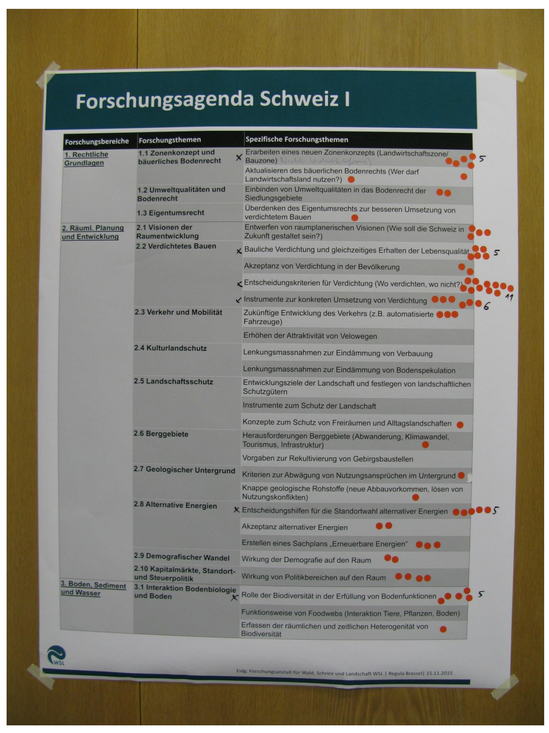
- **In several sectors, knowledge exchange between science and policy/practice is working well in Switzerland. However, in the fields of surface water, geological underground and spatial planning knowledge exchange is viewed as insufficient.**
- **To improve knowledge exchange, the interviewees stressed that scientific knowledge cannot just be disseminated, but has to be processed and brought down to an applicable level and transformed into an easily understandable language.**
- **A person particularly responsible for communication and knowledge exchange within research projects can help to improve this process.**
- **Public-private-partnerships as well as transdisciplinary approaches are also viewed as options to improve knowledge exchange.**

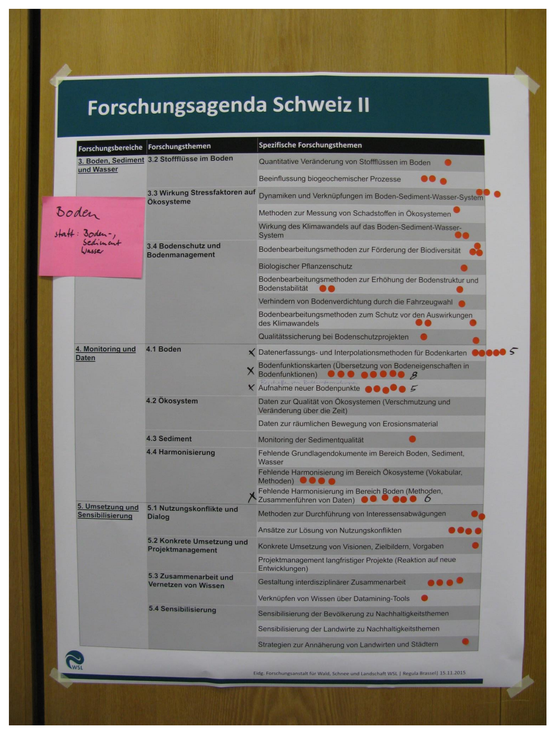
National and transnational funding schemes

- **In Switzerland a multitude of different institutions exist that fund scientific projects in the fields of spatial planning, land use and soil management. In the interviews and the workshop the Swiss National Science Foundation, diverse other foundations, networks, societies, NGOs and commercial companies have been named, but also Federal offices and cantonal administrations.**

A key message from Switzerland:

- **In the Swiss interviews, knowledge exchange has not only been discussed in the section regarding the connection of science and policy/practice, but also within the formulated research needs.**
- **Knowledge exchange between science and policy/practice therefore not only has to be stimulated during research, but it has to be also an object of research itself.**





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National contact for Switzerland: Marco Pütz → marco.puetz@wsl.ch

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

INSPIRATION
INTEGRATED SPATIAL PLANNING, LAND USE AND SOIL MANAGEMENT RESEARCH ACTION

INtegrated Spatial PlannIng, land use and soil management Research AcTION:

National results: BELGIUM

Coordination and Support Action

Societal challenges and needs

- Our planet is confronted with some global megatrends that influence the societal challenges and needs in Belgium: changing demographic balances, accelerated technological development, scarcity of raw materials and resources, growing multipolarity, climate change and the increasing vulnerability of systems.
- Belgium is a very densely populated and small country with a high urbanization and industrialisation rate, especially in the North, which makes land a scarce, and often fragmented, resource. Counter urban sprawl and preserving the quality of life in the cities and a high-quality open space remain key challenges, together with an adequate protection, restoration of soil and planing of land use.
- (Soil) Biodiversity is under pressure and should be safeguarded. Ecosystem services should be conserved and preserved for future generations. A healthy soil is fundamental.
- Climate change is affecting Belgium as well as the rest of the world and could threaten our infrastructure. There are serious issues concerning the supply of groundwater for drinking, irrigation and production purposes.

Topics / research needs to be included in the SRA

BE-1: Long term monitoring SSW-system
BE-2: Survey and risk evaluation of contaminated soil, land, groundwater, sediment
BE-3: Diffuse contamination
BE-4: "New", non-common measured or "Emerging Contaminants" in soil, groundwater, sediment
BE-5: Remediation technology for contaminated soil, groundwater, sediment
BE-6: Integrated approach remediation /restoration and spatial planning
BE-7: Integrated approach spatial planning in relation to soil and subsurface
BE-8: Innovative funding systems for remediation / restoration soil and land
BE-9: Excavated soil / sediment
BE-10: Organic carbon (OC) in soil
BE-11: Conservation soil fertility
BE-12: Erosion
BE-13: Soil sealing (covering of the ground by an impermeable material)
BE-14: Soil compaction
BE-15: Water retention capacity of soil
BE-16: Soil and sediment ecosystem services
BE-17: Recycling of soil nutrients
BE-18: Soil biology and soil biodiversity
BE-19: Remediation of "agricultural" contamination (phosphorus, nitrogen, pesticides, …)
BE-20: Integrated pest management – Use of pesticides, herbicides, …
BE-21: Pressure on land and spatial planning, fragmentation of land, scarcity of land
BE-22: Conflicts on land use
BE-23: Agricultural practices and land management
BE-24: Spatial planning
BE-25: High tech monitoring and data collection
BE-26: Holistic approach
BE-27: Integrated risk/impact assessment on industrial sites and for other activities
BE-28: Ecosystem approach
BE-29: Mind shift and change in behavior

Experiences regarding the connection of science to policy and practice

- From a fragmented research landscape to more transdisciplinar cooperation
- Need for linking the different themes into a global connecting system and vision
- Scientist and end-user co-creation is the key to well-balanced research (needs) and fosters the implementation and dissemination of the developed knowledge
- Knowledge brokers, interactive digital platforms and learning stakeholder networks foster the exchange of knowledge, data and experiences

National and transnational funding schemes

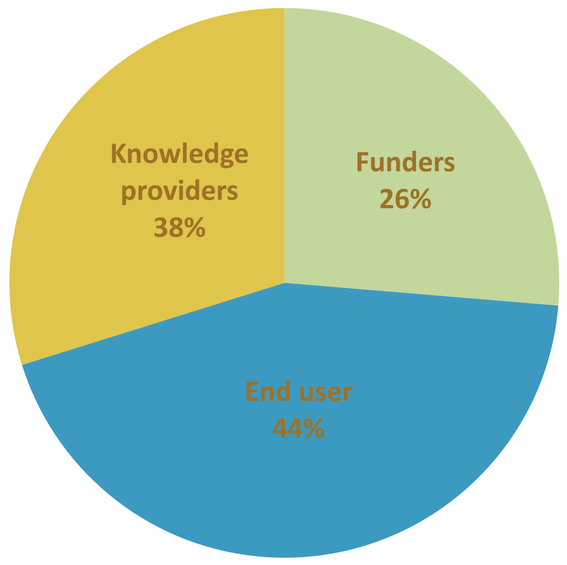
- Putting smaller budgets together to co-fund integrated long term research
- Show the added value ("tell the WHY") to convince funders: by assessing the societal costs and savings and by visualizing inspiring win-win examples

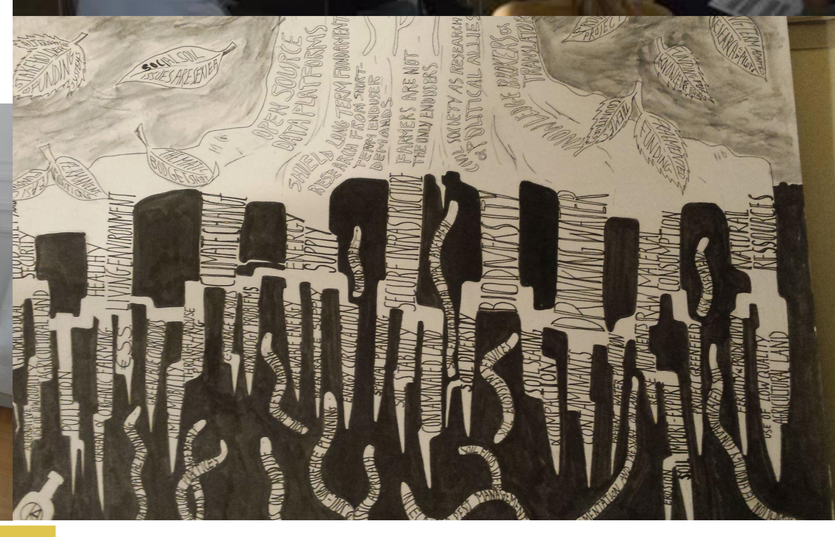
A key message from Belgium:

- A lot of knowledge is already available, but should be unlocked, connected, translated, implemented and disseminated into applicable knowledge, using e.g. tailor-made stakeholder coaching and communication
- A mind shift and change in behavior are the engine to the needed transition: raise awareness resulting in a "call to action" and support "best practice pioneers"

Background of Belgium's Key Stakeholders

- In total, 11 expert interviews were conducted.
- 36 experts participated in the national workshop in Brussels (Muntpunt) on 29th and 30th October 2015.





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National contact for Belgium: Nele Bal → nbal@ovam.be

Contact INSPIRATION coordination: Stephan Bartke → stephan.bartke@uba.de or Detlef Grimski → detlef.grimski@uba.de
Internet: www.inspiration-h2020.eu | Twitter: @inspiration4eu

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