

D2.4

National report on collated information following the template

Jos Brils et al.





Document information

Project acronym: INSPIRATION
Project full title: INtegrated Spatial PlannIng, land use and soil management Research ActTION
Project type: Coordination and Support Action (CSA)
EC Grant agreement no.: 642372
Project starting / end date: 1st March 2015 (month 1) / 28th February 2018 (month 36)
Website: www.inspiration-h2020.eu
Document status / date: Final version as of 01/12/2015
Deliverable No.: D2.4
Responsible participant: DELTARES (participant number 14)
Due date of deliverable: 01/12/2015
Actual submission date: 01/12/2015
Dissemination level: X PU - Public
PP - Restricted to other programme participants*
RE - Restricted to a group specified by the consortium*
CO - Confidential, only for members of the consortium*
(* = including the Commission Services)

Authors: Jos Brils, Pia Minixhofer, Sophie Zechmeister-Boltenstern, Rosemarie Stangl, Andreas Baumgarten, Martin Weigl, Peter Tramberend, Nele Bal, Bavo Peeters, Petr Klusáček, Stanislav Martinát, Bohumil Frantál, Antti Rehunen, Teija Haavisto, Marie-Christine Dictor, Samuel Coussy, Valérie Guerin, Corinne Merly, Uwe Ferber, Matteo Tabasso, Sarah Chiodi, Giulia Melis, Anna Starzewska-Sikorska, Thomas Panagopoulos, Vera Ferreira, Dulce Antunes, Mihail Dumitru, Sorin Liviu Stefanescu, Andrei Vrinceanu, Valentina Voicu, Nicoleta Vrinceanu, Maros Finka, Maria Kozova, Zita Izakovicova, Lubomir Jamecny, Vladimir Ondrejicka, Boštjan Cotič, Barbara Mušič, Ina Šuklje Erjavec, Matej Nikšič, Pierre Menger, Gemma Garcia-Blanco, Efren Feliu, Yvonne Ohlsson, Lisa van Well, Marco Pütz, Regula Brassel, Linda Maring, Sophie Moinier, Paul Nathanail, Matt Ashmore, Detlef Grimski, Stephan Bartke
Contact: INSPIRATION Coordinators Detlef Grimski (UBA): detlef.grimski@uba.de or Stephan Bartke (UBA): stephan.bartke@uba.de

To be cited as:
Brils, J. et al. (2015): National report on collated information following the template. Final version as of 01.12.2015 of deliverable 2.4 of the HORIZON 2020 project INSPIRATION. EC Grant agreement no: 642372, UBA: Dessau-Roßlau, Germany.

Disclaimer:

This document's contents are not intended to replace consultation of any applicable legal sources or the necessary advice of a legal expert, where appropriate. All information in this document is provided "as is" and no guarantee or warranty is given that the information is fit for any particular purpose. The user, therefore, uses the information at its sole risk and liability. For the avoidance of all doubts, the European Commission has no liability in respect of this document, which is merely representing the authors' view.

D2.4: National report on collated information following the template

List of abbreviations	8
1. Introduction.....	9
1.1 About INSPIRATION	9
1.2 This deliverable.....	10
2. Austria	12
2.1 Introduction	12
2.2.1. Societal challenges and needs.....	12
2.2 Research and Innovation (R&I) needs	12
2.2.1. Societal challenges and needs.....	12
2.2.2. Topics / research needs to include in the SRA	13
2.3 Experiences regarding connecting science to policy/practice.....	14
2.3.1. Use of knowledge	14
2.3.2. Possibilities to set the agenda	14
2.3.3. Science – policy – practice	15
2.4 National and transnational funding schemes	16
2.4.1. Funding schemes and possibilities for research funding	16
2.4.2. Gaps in financial resources for research	17
2.5 Other remarks made by interviewees.....	17
2.6 Annexes.....	18
3. Belgium.....	29
3.1 Introduction	29
3.2 Research and Innovation (R&I) needs	29
3.1.1. Societal challenges and needs.....	29
3.1.2. Topics / research needs to include in the SRA	30
3.3 Experiences regarding connecting science to policy/practice.....	43
3.2.1. Use of knowledge	43
3.2.2. Possibilities to set the agenda	43
3.2.3. Science – policy – practice	44
3.4 National and transnational funding schemes	46
3.3.1. Funding schemes and possibilities for research funding	46
3.3.2. Gaps in financial resources for resource	48
3.5 Other remarks made by interviewees.....	49
3.6 Annexes.....	49
4. Czech Republic.....	64
4.1 Introduction	64
4.2 Research and Innovation (R&I) needs	64
4.2.1. Societal challenges and needs.....	65
4.2.2. Topics / research needs to include in the SRA	69
4.3 Experiences regarding connecting science to policy/practice.....	74
4.3.1. Use of knowledge	74
4.3.2. Possibilities to set the agenda	75
4.3.3. Science – policy – practice	75
4.4 National and transnational funding schemes	76
4.4.1. Funding schemes and possibilities for research funding	76
4.4.2. Gaps in financial resources for resource	78
4.5 Annexes.....	79

5. Finland	89
5.1 Introduction	89
5.2 Research and Innovation (R&I) needs	89
5.2.1 Societal challenges and needs	89
5.2.2 Topics / research needs to include in the SRA	90
5.3 Experiences regarding connecting science to policy/practice	93
5.3.1 Use of knowledge	93
5.3.2 Possibilities to set the agenda	94
5.3.3 Science – policy – practice	95
5.4 National and transnational funding schemes	95
5.4.1 Funding schemes and possibilities for research funding	96
5.4.2 Gaps in financial resources for research	97
5.5 Annexes	98
6. France	110
6.1 Introduction	110
6.2 Research and Innovation (R&I) needs	110
6.2.1 Societal challenges and needs	110
6.2.2 Topics / research needs to include in the SRA	111
6.3 Experiences regarding connecting science to policy/practice	112
6.3.1 Use of knowledge	112
6.3.2 Possibilities to set the agenda	113
6.3.3 Science – policy – practice	114
6.4 National and transnational funding schemes	115
6.4.1 Funding schemes and possibilities for research funding	115
6.4.2 Gaps in financial resources for resource	116
6.5 Annexes	117
7. Germany	127
7.1 Introduction	127
7.2 Research and Innovation (R&I) needs	127
7.2.1 Societal challenges and needs	127
7.2.2 Topics / research needs to include in the SRA	127
7.3 Experiences regarding connection science to policy/practice	142
7.3.1 Use of knowledge	142
7.3.2 Possibilities to set the agenda	143
7.3.3 Science – policy – practice	144
7.4 National and transnational funding schemes	147
7.5 Annexes	149
8. Italy	152
8.1 Introduction	152
8.2 Research and Innovation (R&I) needs	152
8.2.1 Societal challenges and needs	152
8.2.2 Topics / research needs to include in the SRA	153
8.3 Experiences regarding connecting science to policy/practice	156
8.3.1 Use of knowledge	156
8.3.2 Possibilities to set the agenda	157
8.3.3 Science – policy – practice	158
8.4 National and transnational funding schemes	159
8.4.1 Funding schemes and possibilities for research funding	159
8.4.2 Gaps in financial resources for research	162
8.5 Other remarks made by interviewees	162
8.6 Annexes	163

9. Poland	262
9.1 Introduction	262
9.2 Research and Innovation (R&I) needs	262
9.2.1 Societal challenges and needs	262
9.2.2 Topics / research needs to include in the SRA	263
9.3 Experiences regarding connecting science to policy/practice	264
9.3.1 Use of knowledge	264
9.3.2 Possibilities to set the agenda	265
9.3.3 Science – policy – practice	265
9.4 National and transnational funding schemes	265
9.4.1 Funding schemes and possibilities for research funding	265
9.4.2 Gaps in financial resources for research	269
9.5 Other remarks made by interviewees	269
9.6 Annexes	270
10. Portugal	277
10.1 Introduction	277
10.2 Research and Innovation (R&I) needs	277
10.2.1 Societal challenges and needs	277
10.2.2 Topics / research needs to include in the SRA	277
10.3 Experiences regarding connecting science to policy/practice	282
10.3.1 Use of knowledge	282
10.3.2 Possibilities to set the agenda	282
10.3.3 Science – policy – practice	282
10.4 National and transnational funding schemes	283
10.4.1 Funding schemes and possibilities for research funding	284
10.4.2 Gaps in financial resources for resource	284
10.5 Other remarks made by interviewees	285
10.6 Annexes	287
11. Romania	297
11.1 Introduction	297
11.2 Research and Innovation (R&I) needs	297
11.2.1 Societal challenges and needs	297
11.2.2 Topics / research needs to include in the SRA	298
11.3 Experiences regarding connecting science to policy/practice	301
11.3.1 Use of knowledge	301
11.3.2 Possibilities to set the agenda	302
11.3.3 Science – policy – practice	303
11.4 National and transnational funding schemes	304
11.4.1 Funding schemes and possibilities for research funding	304
11.4.2 Gaps in financial resources for resource	305
11.5 Other remarks made by interviewees	305
11.6 Annexes	306
12. Slovakia	317
12.1 Introduction	317
12.2 Research and Innovation (R&I) needs	317
12.2.1 Societal challenges and needs	317
12.2.2 Topics / research needs to include in the SRA	319
12.3 Experiences regarding connecting science to policy/practice	324
12.3.1 Use of knowledge	324
12.3.2 Possibilities to set the agenda	325
12.3.3 Science – policy – practice	326
12.4 National and transnational funding schemes	327
12.4.1 Funding schemes and possibilities for research funding	328
12.4.2 Gaps in financial resources for resource	329
12.5 Other remarks made by interviewees	329
12.6 Annexes	331

13. Slovenia	356
13.1 Introduction	356
13.2 Research and Innovation (R&I) needs	356
13.2.1. Societal challenges and needs	356
13.2.2. Topics / research needs to include in the SRA	357
13.3 Experiences regarding connecting science to policy/practice	359
13.3.1. Use of knowledge	359
13.3.2. Possibilities to set the agenda	359
13.3.3. Science – policy – practice	359
13.4 National and transnational funding schemes	360
13.4.1. Funding schemes and possibilities for research funding	360
13.4.2. Gaps in financial resources for resource	361
13.5 Other remarks made by interviewees	361
13.6 Annexes	362
14. Spain	377
14.1 Introduction	377
14.2 Research and Innovation (R&I) needs	377
14.2.1. Societal challenges and needs	377
14.2.2. Topics / research needs to include in the SRA	378
14.3 Experiences regarding connecting science to policy/practice	381
14.3.1. Use of knowledge	381
14.3.2. Possibilities to set the agenda	381
14.3.3. Science – policy – practice	382
14.4 National and transnational funding schemes	382
14.4.1. Funding schemes and possibilities for research funding	382
14.4.2. Gaps in financial resources for resource	383
14.5 Other remarks made by interviewees	384
14.6 Annexes	385
15. Sweden	404
15.1 Introduction	404
15.2 Research and Innovation (R&I) needs	404
15.2.1. Societal challenges and needs	404
15.2.2. Topics / research needs to include in the SRA	405
15.3 Experiences regarding connecting science to policy/practice	407
15.3.1. Use of knowledge	407
15.3.2. Possibilities to set the agenda	408
15.3.3. Science – policy – practice	409
15.4 National and transnational funding schemes	410
15.4.1. Funding schemes and possibilities for research funding	410
15.4.2. Gaps in financial resources for research	412
15.5 Annexes	414
16. Switzerland	428
16.1 Introduction	428
16.2 Research and Innovation (R&I) needs	428
16.2.1. Societal challenges and needs	428
16.2.2. Topics / research needs to include in the SRA	429
16.3 Experiences regarding connecting science to policy/practice	442
16.3.1. Use of knowledge	442
16.3.2. Possibilities to set the agenda	443
16.3.3. Science – policy – practice	444
16.4 National and transnational funding schemes	445
16.4.1. Funding schemes and possibilities for research funding	445
16.4.2. Gaps in financial resources	447
16.5 Annexes	448

17. The Netherlands	461
17.1 Introduction	461
17.2 Research and Innovation (R&I) needs	461
17.2.1. Societal challenges and needs	461
17.2.2. Topics / research needs to include in the SRA	462
17.3 Experiences regarding connecting science to policy/practice	466
17.3.1. Use of scientific knowledge	466
17.3.2. Possibilities to set the agenda	466
17.3.3. Science – policy – practice	467
17.4 National and transnational funding schemes	468
17.4.1. Funding schemes and possibilities for research funding	468
17.4.2. Gaps in financial resources for resource	471
17.5 Other remarks made by interviewees	472
17.6 Annexes	473
18. The United Kingdom	485
18.1 Introduction	485
18.2 Research and Innovation (R&I) needs	485
18.2.1. Societal challenges and needs	485
18.2.2. Topics / research needs to include in the SRA	486
18.3 Experiences regarding connecting science to policy/practice	488
18.3.1. Use of knowledge	488
18.3.2. Possibilities to set the agenda	490
18.3.3. Science – policy – practice	490
18.4 National and transnational funding schemes	492
18.4.1. Funding schemes and possibilities for research funding	492
18.4.2. Gaps in financial resources for resource	493
18.5 Annexes	496

List of abbreviations

DoA	Description of Action
IAB	International Advisory Board
NFP	National Focal Point
NGO	Non-Governmental Organization
NKS	National Key Stakeholder
R&I	Research & Innovation
SPI	Science Policy Interface
SRA	Strategic Research Agenda
SSW(-system)	Soil-Sediment-Water(-system)
WP	Work Package



1. Introduction

1.1 About INSPIRATION

The aim of INSPIRATION is to establish and promote the adoption of a strategic research agenda for land use, land-use changes and soil management in the light of current and future societal challenges. Main objectives are:

- **Formulate, consult on and revise an end-user oriented strategic research agenda (SRA);**
- **Scope out models for implementing the SRA;**
- **Prepare a network of public and private funding institutions willing to commonly fund the SRA.**

The proposed methodology is based on a multi-stakeholder, multi-national and interdisciplinary approach that covers the variety of stakeholders (public bodies, business, scientific community citizens and society) and the variety of relevant funders. The vehicle to engage with relevant stakeholders across the Member States is a National Focal Point (NFP) in 17 countries¹. The NFP's will interview National Key Stakeholders (NKS), perform a desk study and organize workshops with national stakeholders of funders, end-users and researchers across the various soil and land management disciplines. The goal of these exercises is to gather information and support the main objectives as stated above.

The collated results will be structured along four integrative themes (1) resources demand and efficiency; 2) natural capital stewardship; 3) land management; 4) net impact on global, EU and local scale) and merging into thematic knowledge needs to satisfy the as yet unmet societal challenges and to ensure that knowledge contributes primarily to enable meeting these challenges.

Based on these results, a cross-border and cross-discipline dialogue will subsequently be organized among the relevant user communities, funding bodies and scientific communities in Europe in order to reach a trans-national, prioritized SRA as well as a model for execution of this SRA. Thus a SRA will be produced which will give national funders confidence that for each Euro they spend, they will get multiple Euros worth of knowledge in return in order to address their national societal challenges.

Learn more about the INSPIRATION coordination and support action on the project's website: www.inspiration-h2020.eu

¹ The Swedish Geotechnical Institute (SGI) with support of Formas is currently mirroring the INSPIRATION approach in Sweden. SGI has proposed to act as Swedish National Focal Point and to become a full member of the INSPIRATION consortium. This has been welcomed by the consortium. Currently formal negotiations are in place between SGI, the consortium and the EC to effectively implement this collaboration. Moreover, the INSPIRATION consortium looks for opportunities to obtain information from Denmark and Luxemburg. Thus INSPIRATION represents information from 19 European countries.



1.2 This deliverable

Deliverable 2.4 - National reports on collated information following the template - consist of 17 national reports for participating countries Austria, Belgium, Czech, Finland, France, Germany, Italy, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, the United Kingdom.

It describes the results of the NKS interviews and the desk exercise as performed in participating countries. This deliverable relates to INSPIRATION Work Package (WP) 2 “Demands of research from industry, end-users and funders (State-of-the-art at national levels)”, task 2.4 “**Collate information at national levels**”. In the WP2 description this task is described in the following way

“The NFPs will use the template developed under task 2.3² to:

- Interview NKSs of industry, end-users and funding agencies to identify their demands related to the scope of INSPIRATION. The template contains suggestions for whom to interview and for the questions to be posed (i.e. the questionnaire). Where needed, the questionnaire will be translated in national languages by the NFPs;*
- Subsequently, information that is publicly available at national levels regarding topic a-d³ as mentioned under the WP2 objectives will be via a desk exercise collated and reported (in English) and further tailored towards the ‘demand side’ based.*

The national reports (in English) resulting from the two steps above will be the start/background document for execution of task 2.5 - review and synthesise the collated information.” (INSPIRATION Grant Agreement - Description of Action - DoA)

The deliverable is structured as follows: Per country, a brief note on the methodology followed is given before subsequent chapters give a synthesis of the main results of the topics as mentioned under the WP2 objectives.

- **Subchapter 2 Research and Innovation (R&I) needs**

➤ **Topic a: Demand-driven*** suggestions for the Strategic Research Agenda (SRA), i.e. suggestions from the perspective of industry, end-users and funders.
*Related key question to be answered: **What (new) knowledge do these parties need to tackle societal challenges including the increase of job opportunities)?***

* **Demand-driven** in INSPIRATION means focusing on the demands of those who are responsible or feel committed to tackle the societal challenges related to the INSPIRATION scope and themes, i.e. industry, end-users and funders. These parties could improve their business opportunities and/or take better informed decisions on what measures to take and execute in order to tackle other societal challenges if they would (be enabled to) use the knowledge as resulting from execution of the INSPIRATION SRA.

- Societal challenges and needs
- Topics / research needs to include in the SRA

² Task 2.3.: Prepare a harmonized template for information collation

- **Subchapter 3 Experiences regarding connecting science to policy/practice**

➤ **Topic b:** *Experiences regarding the exploitation of scientific knowledge to improve business opportunities and/or tackle other societal challenges.*
*Related key question to be answered: **Where to improve the science-policy interface so that (new) knowledge can and will be more effectively exploited by the demand side?***

- Use of knowledge
- Possibilities to set the agenda
- Science – policy – practice

- **Subchapter 4 National and transnational funding schemes**

➤ **Topic c:** *Predominant, current as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination.*
*Related key question to be answered: **How to get with one Euro of national/regional funding a multitude of Euro's (from all sources) worth of knowledge in return contributing to EU and national demands? Or even how to get with one euro of EU funding a multitude of euro's (from national, regional, local, and private sector) worth of knowledge in return contributing to the R&I demands on Land and the Soil-Sediment-Water systems.***

➤ **Topic d:** *Experiences regarding the use of any trans-national, common budget for scientific knowledge production related to the scope of INSPIRATION.*
*Related key question to be answered: **How to set up/govern the appropriate funding option(s) resulting from INSPIRATION – based on previous learning experiences – so that: (1) the above demands will be fulfilled, (2) knowledge resulting from implementation of the SRA will be taken up and used and (3) funders experience that their invested, national Euros are indeed multiplied?"***

- National and transnational funding schemes
- Funding schemes and possibilities for research funding
- Gaps in financial resources for research

- **Subchapter 5 Other remarks made by interviewees**

- **Subchapter Annexes**

2. Austria

Report by Pia Minixhofer, Sophie Zechmeister-Boltenstern, Rosemarie Stangl, Andreas Baumgarten, Martin Weigl, Peter Tramberend

2.1 Introduction

2.2.1. Societal challenges and needs

This national report (i.e. INSPIRATION deliverable 2.4) reports the information collated for Austria. The information was collated in accordance with INSPIRATION D2.3 “Template for national information collation”. In Austria, 10 NKS were interviewed. Details on these NKS are provided in Annex I. The desk study was based on documents as suggested by NKS. These are listed in Annex II.

2.2 Research and Innovation (R&I) needs

Topic a: Demand-driven* suggestions for the Strategic Research Agenda (SRA), i.e. suggestions from the perspective of industry, end-users and funders.

Related key question to be answered: **What (new) knowledge do these parties need to tackle societal challenges including the increase of job opportunities)?**

****Demand-driven** in INSPIRATION means focusing on the demands of those who are responsible or feel committed to tackle the societal challenges related to the INSPIRATION scope and themes, i.e. industry, end-users and funders. These parties could improve their business opportunities and/or take better informed decisions on what measures to take and execute in order to tackle other societal challenges if they would (be enabled to) use the knowledge as resulting from execution of the INSPIRATION SRA.

2.2.1. Societal challenges and needs

In general, the EU societal challenges should not be seen as competing, but partly complementary and equally important. Tackling these systematic problems and challenges is necessary to secure life quality and long-term economic development.

Climate change should be regarded differently than the other societal challenges. The main focus should be on the protection of environment and the support of sustainability within the changing conditions and not climate change per se. Nevertheless, climate change is seen to be the number one threat as it is a very complex problem with a fast cascade effect, which therefore needs fast solutions. The compartments air, water and soil should be “at grip”, then research questions concerning climate change could be addressed.

Land consumption, land use and land availability are the most important topics. Food security will become more and more important due to increasing world population and progressing climate change. Food security should be regarded from an international viewpoint to secure a responsible exchange and compensation of raw material and products between all states. Food autarky is not an explicit topic!



The most important societal challenges for the interviewed NKS are

- (1) Contribute to food security and food safety
- (2) Contribute to climate change mitigation and societal adaptation
- (3) Reduce raw material and resource consumption; Ensure efficient use of natural resources

Additionally, the interviewed NKS insisted on (8) *Protection of biodiversity* as one of the most important societal challenges.

2.2.2. Topics / research needs to include in the SRA

AT-1: Soil and land management contribution to food security

Urbanization and migration are evidently pressing societal challenges worldwide. In light of climate change and adaptation to new climatic conditions, land consumption is an urgent topic as it directly impacts food production. Soil and production conditions have to be considered, when area is assigned to different purposes.

- How can new technologies and advanced digitalisation help farmers to adapt to climate change?
- How can sustainable intensification be managed and how can cultivation methods be improved to contribute to this goal?
- How can the diversity of and in soils be secured?
- Is the decoupling of economy and environmental effects a sustainable solution for the value assessment of soil?

AT-2: Restoration and re-allocation of land

Migration and demographic changes lead to conflicts of interest as to how land should be used. Decisions often are not reversible (e.g. power plants, urban sprawl) and not easy to handle. In Austria, the quality of soil is not a deciding factor in spatial planning. A distinct gap exists between the assessment of soil in spatial planning and in soil sciences. Adequate tools for the assessment of land and soil use have not been implemented yet. Furthermore, the Austrian law establishes a split of competencies on state and county level.

- How can land areas be useful in the context of climate change as a barrier to natural hazards and for higher resilience?
- How can sealed areas be re-cultivated to fulfil soil functions and improve land sparing elsewhere?
- How should an adequate tool for the assessment of soil quality look like for soil sciences and spatial planning?
- Which legislative requirements are necessary to protect soil nationwide?

AT-3: Participative research and communication

Austrian citizens are not informed sufficiently on topics concerning soil and land management. Appropriate (public) awareness would help to bring the topic further along on the political agenda. Scientific research should be more accessible to the public (i.e. communicated understandably).

- How can information and access to information be improved on all involved levels (from home-builders to mayors)?



- What requirements are necessary to increase participation on all levels within research projects?
- How can the impact of research projects be assessed regarding the improvement of public awareness?

2.3 Experiences regarding connecting science to policy/practice

Topic b: *Experiences regarding the exploitation of scientific knowledge to improve business opportunities and/or tackle other societal challenges.*

*Related key question to be answered: **Where to improve the science-policy interface so that (new) knowledge can and will be more effectively exploited by the demand side?***

2.3.1. Use of knowledge

Scientific knowledge is understood as secure knowledge established on the basis of theories and complementary methods, which are comprehensible and can withstand a certain methodology and verification (verifiable - comprehensible - methodological - new). Quality assurance and scientific consent is given in terms of peer reviews and discourse.

Scientific knowledge is used (1) for teaching and informing co-workers, (2) for producing scientific knowledge as an informative basis, (3) for (environmental impact) assessments and evaluations, (4) in context of consulting or submissions and (5) for publications. The sources of scientific knowledge are various: scientific sections in daily or weekly newspapers and journals, reports, scientific papers, websites (such as MOOCs), open access, proposals, conferences, consultants and through co-operations with universities. In some cases, the interviewees use more grey literature than published documents because it contains more relevant information.

2.3.2. Possibilities to set the agenda

Currently, a distinct gap between politics and science is perceived. Interviewees recommend to develop instruments and communication strategies to decrease this gap. Scientific research policies/agendas cannot be influenced easily without political support. The necessary political support could be secured by raising public awareness and therefore political pressure. Especially in the area of environment, it is important for researchers to communicate scientific findings in an appropriate and accessible way to policy-makers. The findings serve as fundamental basis for decision making towards environmental problems and sustainable solutions. The dialogue between the scientific and policy-making communities needs to be strengthened to improve linkages between policy needs and research programmes as well as to enhance the accessibility of scientific knowledge to policy makers. Political support is especially necessary for stakeholder processes, consultations of research policy (e.g. investments, prioritisation, and instruments) and state-county- co-operations.

The opportunities to influence political decision-making are scarce for researchers. Decision-makers are focussed on the implementation of scientific findings, whereas research experts are mostly oriented on analytical and methodological aspects. Research studies are mostly written for scientific communities and are consequently not easily comprehensible for decision makers. It is important to translate the scientific knowledge in "common" language to enhance public understanding.



The setting of scientific research policies/agendas can only be influenced to a very small extent. This is possible e.g. with the allocation of budget for certain research projects, in raising questions to the administration, within and via expert committees, and through co-operation with research institutions.

The state-of-the art in scientific research indirectly influences the existing policies. Comprehensive soil topics are rare. Research studies are manifold, but the access to results is restricted, as is a good overview. A coherent research portal is missing and a high potential for the alignment of existing knowledge is apparent. To improve business opportunities, gathered knowledge should be immediately used, as information is in most cases available. An essential criterion for the exploitation of scientific knowledge is the possibility to implement it.

A national agenda specific to the scope of INSPIRATION is not known for Austria. Awareness of soil protection and sustainable spatial planning is achieved on a satisfying level neither in politics, nor in the general public and society. The topics soil and land use do not have any financial support or lobby. The national policies/agendas do not reflect general needs, but specific ones. Many long-term projects were abandoned or have reduced financial support, which is seen by many scientists as the wrong decision. Societal challenges are only tackled short term, whereas they should be considered for the long term. The current financing and funding systems and the response to policy needs are adverse to innovation. It is necessary to put the focus on application-oriented research. Currently, research agendas are mostly disciplinary and not inter- or trans-disciplinary. However, a broad application of applied and inter-/trans-disciplinary research increases the potential for societal added-value.

2.3.3. Science – policy – practice

Most of the interviewed NKS were involved in the formulation of scientific research questions. NKS formulate their own research questions for project proposals, university theses, workshops on research programs and event series. If they were not involved in the formulation of research questions, the thematic programs of their institutions more often focused on the implementation or consultation and less on the development of projects.

Austrians traditional allocation of competences in land use agendas is a significant problem for policies. Land agendas are in the responsibility of the county, which inhibits the possibility to regulate access rights by state law. It is very difficult to protect soil and land nationwide with the current jurisdiction. This allocation of responsibilities hinders nationwide regulations. No overarching laws or directives exist for fostering nationwide research in the field of soil and spatial planning. As an example, the state does not allocate research (funding) to spatial planning because it is in the responsibility of the county. The principle of the separation of competences is very difficult to apply in practice, as co-operation is necessary over all levels. A further difficulty is that the factual competence of spatial planning lies with the municipalities. Financial support relies on registered residents of the municipality. Therefore, municipalities are interested to change the zoning to increase the immigration and availability of jobs. The goal to save resources is then less important and not a priority.

In Austria, the conference of spatial planning (ÖROK) is organising the agendas of spatial planning. ÖROK addresses recommendations and agendas for spatial planning on national level, which means agendas are often consent-oriented and not firm enough. An improvement in Austria can be achieved with two different approaches; 1) financial benefits for resource-saving measures or 2) restriction of intervention possibilities for municipalities, e.g. the spatial planning laws of the counties. An example for good-practice is the county Salzburg, where future zoning for building land is connected to the availability of public transport. The opposition in the municipalities, which resulted from these laws, shows the



difficulty for implementation. European countries with centralised intervention possibilities have an advantage.

Applied research should be an obligatory input for municipality regulations. As an example, Agenda 21 projects support the EU Strategic Environmental Assessment as a core project leader. The implementation of scientific research is very diverse and depends on the individual interest and problems of the various municipalities (and even on the specific mayor). Therefore, also the solutions have to be very individual.

Science-Policy-Interface documents

The following SPI documents were identified to contain essential information for this report:

- Research, technology and innovation strategy of the state (Bundeskanzleramt et. al, 2011)
- 14th Spatial Planning Report 2012 to 2014 (ÖROK, 2015)
- Action plan for a competitive research area (BMWFW, 2015)
- Energy Spatial Planning - Results paper of the experts (Stöglehner et al., 2011)
- Tools for Energy Spatial Planning (Stöglehner et al., 2014)
- Guidelines for appropriate soil re-cultivation (Fachbeirat für Bodenfruchtbarkeit und Bodenschutz, 2012)

2.4 National and transnational funding schemes

Topic c: *Predominant, current as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination.*

Related key question to be answered: *How to get with one Euro of national/regional funding a multitude of Euro's (from all sources) worth of knowledge in return contributing to EU and national demands? Or even how to get with one euro of EU funding a multitude of euro's (from national, regional, local, and private sector) worth of knowledge in return contributing to the R&I demands on Land and the Soil-Sediment-Water systems.*

Topic d: *Experiences regarding the use of any trans-national, common budget for scientific knowledge production related to the scope of INSPIRATION.*

Related key question to be answered: *How to set up/govern the appropriate funding option(s) resulting from INSPIRATION – based on previous learning experiences – so that: (1) the above demands will be fulfilled, (2) knowledge resulting from implementation of the SRA will be taken up and used and (3) funders experience that their invested, national Euros are indeed multiplied?"*

2.4.1. Funding schemes and possibilities for research funding

Funding options are best set up and funders will experience that their invested, national Euros are indeed multiplied, when (1) inter-/trans-disciplinary approaches, (2) action/applied research as well as (3) local issues (e.g. local implementation AND answering local questions) are considered.

To approach wide acceptance and secure best multiplication, it is critical to involve the civil society and all stakeholders (e.g. land owners, spatial planners, soil scientists, politicians) in funded projects. According to frequent experiences political decision makers should be consulted as early as possible and kept in the project throughout the project period. They can verify the feasibility of the project. Network building and the elimination of fragmentation increase the added value of financial resources.



Multiplication through communication

It is of key importance to formulate socio-political issues in a more understandable way, and to translate them into a user-friendly language. Summaries for the non-science community should be provided in an understandable language. The communication of open questions should address politics, society, land users and land owners. It seems to be key to raise awareness of decision makers towards research programmes and connected goals.

The establishment of national platforms additionally to the existing research institutions would be helpful for the coordination of such topics. More generally there is the problem that projects, which are not put into practice, are not economically assessed.

Priorities

The focus should not only be put on the realisation of profit but rather on raising of public awareness and the practice-orientation.

Program leaders should be sensitised for integrated topics, as the relevance for politics increases with the integration of the programmes. In order to reinforce the added value of different financial resources (for EU and national demands), researchers, funders and questioners should establish a clear structured research platform for a wide range of different articles and reports about the topics soil and spatial planning.

2.4.2. Gaps in financial resources for research

In particular with regard to soil topics and land management, long-term projects, monitoring programs and socio-political topics, there is a clear need for strengthened action and de-bureaucratisation. These topics should be made more publicly accessible and new funding schemes/infrastructures are necessary for:

- scientific communication
- involvement of the civil society
- programs for an interdisciplinary approach and translators between disciplines
- a transparent research platform for soil and spatial planning (an externally coordinated platform, where all important stakeholders can come together)
- merging of responsible competencies on county level

It is still a fact that it is not easy to connect implementing and research institutions. Overarching funding schemes are generally missing.

2.5 Other remarks made by interviewees

It was suggested that the European Soil Association for example could hold such a communication role at the regional implementation level for the topics soil and land use (e.g. newsletter, workshops). It could connect to municipalities, regional institutions and university institutes.

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



2.6 Annexes

1a: NKS interviews in Austria

Date of interview	Organisation	Interview	funder	end user	knowledge provider	Nat.reg.loc.a authority	Univ./research inst	SME /consultant	business &industry	NGO	network	other	soil	sediment	water	land use-management
17-07-15	National Government of Lower Austria	Ilse Wollansky	1			1										1
20-07-15	FFG - Austrian Research Promotion Agency		1									1	1			1
12-08-15	Institute of Spatial Planning and Rural Development, BOKU (personal opinion)	Gernot Stöglehner			1		1									1
20-08-15	Federal Ministry of Agriculture, Forestry, Environment and Water Mgmt.		1			1							1	1	1	1
28-07-15	Austrian Agricultural Chamber	Guenther Rohrer		1		1							1			1
24-08-15	European Soil Association				1						1		1			1
19-07-15	Federal Ministry of Traffic, Innovation and Technology		1			1										1
24-08-15	Government of Salzburg		1			1							1			
14-09-15	Federal Ministry of Science, Research and Economy		1			1							1	1	1	1
28-09-15	Technical University Vienna (personal opinion)	Arthur Kanonier			1		1									1
17-11-15	personal opinion	Winfried E.H. Blum			1		1						1			



Annex Ib: NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training on 22nd – 23rd June 2015.

[Note: this questionnaire template is meant to help National Focal Points (NFPs) to facilitate the interview/conversation with the National Key Stakeholders (NKS). Some questions are relevant to one NKS, other questions to another NKS. Hence, not all questions are relevant to each single NKS. The NFPs are required to adapt the template accordingly – keeping in it as many as possible of the issues to be addressed. If needed, the NFPs also translate the questionnaire into their national language.]

The questionnaire (see next pages) has the following outline:

- A. Interview information:
To be filled out by the interviewer
- B. Introduction:
That the interviewer can use to start the NKS interview
- C. Background information of the NKS interviewed:
Mostly 'tick-boxes'
- D. Strategic Research Agenda (SRA):
NKS preferred topics, overarching themes and scope for the SRA and national state-of-the-art on research agendas that the NKS is aware of
- E. Science-Policy-Interface:
NKS experiences regarding the exploitation of scientific knowledge to: improve business opportunities; tackle other societal challenges; assist policy-implementation and/or policy revision
- F. Funding:
Predominantly used as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination that the NKS is aware of
- G. Other:
At the end there is some time advised to let the NKS give us their advice, some nice quotes (that we can use anonymously in our communications), examples etc.
- H. Ending the interview:
Explain follow up and if/how NKSs will be involved in the next steps of INSPIRATION



Questionnaire template

A. Interview information
Country: Name of INSPIRATION Researcher: Date of Interview: How does the NKS wish to be referred to: <i>[Anonymous, personal opinions, company's opinion. Choose when it is a good time to discuss this. In the beginning or later on. SHOW the interviewed NKS the ENGAGEMENT CONSENT FORM and ask him/her to fill it out. Please introduce the engagement consent form (available in 'D2.1 MoU' and editable by yourself) and hand a copy to the interviewee to read and fill in – make sure that you take this away with you and keep for your own records]</i>
B. Introductions
<i>[Please introduce yourselves, the project and the purpose of the interview. You can use the handout as provided at the end of this template. This can also be sent beforehand to the NKS. Agree on a time span: approximately one and a half hour.]</i>
C. Background information on the interviewee
1. Name of NKS interviewed: 2. Institution: 3. Role:
4. Are you a (multiple answers possible): ☐ National-regional-local authority ☐ University/research institute ☐ Small or Medium sized Enterprise (SME, i.e. < 500 employees) / consultant ☐ Business and industry ☐ Non-Governmental Organisation (NGO) ☐ Network representative / leader ☐ Other, specify: ...
5. Fields of expertise (multiple answers possible): <i>[Ask to specify background regarding the selected item(s) in order to understand expertise background of interviewee]</i> ☐ Soil ☐ Water ☐ Sediment ☐ Urban / spatial planning ☐ Landscape design ☐ Land management ☐ Other, specify:



6. Does your organisation provide external research funding?

- Yes. Please specify: ...
[e.g. as programme holder, public, private, ...]
- No

D. SRA

7. Which societal challenges do you regard as important?

[If needed, you can use the European Commissions (EC) list of societal challenges here. These EC themes are:]

- Contribute to food security and food safety;
- Ensure secure supplies of safe drinking water;
- Secure energy supply and distribution;
- Reduce raw material and resource consumption, Ensure efficient use of natural resources;
- Contribute to climate change mitigation and societal adaptation;
- Contribute to a healthy living environment;
- Ensure secure infrastructure

[Explain that these challenges may be used as bases for defining of the overarching themes for aggregating the research topics of our SRA.]

a. If applicable, what additional, other or alternative challenges would you suggest/prefer?

[When needed, you can mention challenges as nature conservation, sustainable use of ecosystem services, halting the loss of biodiversity]

8. Starting with your own experience: which specific topics (research needs) should be included in the SRA?

[For each single topic mentioned by the NKS, use the following follow-up questions. The a, b and c sub-questions are mandatory. The other sub-questions are optional]:

a. Explain – elaborate the topic

- *Who will be affected?*
- *Who is responsible?*
- *Is it a topic of concern of your organisation / department*
- *Is it only a national topic, or a shared topic by multiple countries?*
- *Where are we now, where do we want to be in x years (point on the horizon)?*
- *How can the newly gained knowledge be effectively used?*

b. Priority:

1. *High priority*
2. *Some priority*
3. *Neutral priority*
4. *Low priority*
5. *No priority*

- *What is the urgency, i.e. what goes wrong if we do nothing?*

c. Who wants to/should fund this kind of research?

[Optionally: check the following WP3 key-words for relevance, i.e. if they raise any additional topics by the NKS. The key-words can be used as support / check list Be sensible as interviewer if this is needed.]

- *Assessment of land resources*
- *Potential productivity of land and soils*



- *Demand for soil/land resources, imports and exports*
- *Competition between land uses (land-use conflicts)*
- *Concepts to identify and quantify relevant impacts*
- *Instruments to avoid / minimise impacts (feedback to decision-making process)*
- *Opportunities of innovative land-use technologies*
- *Resource-oriented land management systems]*
- *Soil regeneration*
- *Soil and groundwater remediation*

9. Linked to topics mentioned by the NKS:

- a. What are the important / relevant documents, research agendas, research programmes underpinning these topics? (state-of-the-art)
- b. Related to these agendas and programmes: what are timelines of programming and windows-of-opportunities to influence agendas / programmes?

[Note: question 9b is input for work package 5]

E. Science-Policy-Interfacing (SPI)

10. How would you define 'scientific knowledge'?

11. For what do you use scientific knowledge in your job?

12. Which sources of (scientific) knowledge do you use for doing your job?

[Open question and you can mention some of the sources underneath as examples]

○ <i>scientific paper</i>	○ <i>newspapers</i>
○ <i>consultants</i>	○ <i>television</i>
○ <i>reports</i>	○ <i>conferences Involvement in research projects</i>
○ <i>colleagues</i>	○ <i>data (bases)</i>
○ <i>experiences /examples within my own country</i>	○ <i>websites, such as:</i>
○ <i>experiences /examples abroad</i>	○ <i>other, specify:</i>

13. To what extent do you use most recent/new scientific knowledge (i.e. state-of-the-art scientific insights/findings) for doing your job?

14. To what extent are you able to influence (and how) the setting of scientific research policies/agendas in our country?

15. To which extent do our national policies/agendas reflect your specific needs and priorities?

16. To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?



[Questions only for NKS from the non-science sector (business and policy):]

17. Have you ever been involved in:

- a. the formulation of scientific research questions?
- b. doing scientific research (i.e. knowledge co-creation)?
- c. synthesizing/wrapping-up of scientific knowledge, e.g. to feed into policy making or to increase business opportunities?

[When yes: Follow-up questions]

- How successful/satisfying was this, on a scale of 1-5?
 1. *Very successful/satisfying*
 2. *Successful /satisfying*
 3. *Neutral*
 4. *Unsuccessful/unsatisfying*
 5. *Very unsuccessful/unsatisfying*
- What went well
- What could be improved?
- What to avoid/not to do?
- Additional remarks?

[Question only to NKS who are likely to have insights here (e.g. research funders)]

18. (How) is the societal impact of scientific research related to the scope of INSPIRATION being assessed in our country?

[If they know: Follow-up questions:]

- How successful/satisfying is this, on a scale of 1-5?
 1. *Very successful/satisfying*
 2. *Successful/satisfying*
 3. *Neutral*
 4. *Unsuccessful/unsatisfying*
 5. *Very unsuccessful/unsatisfying*
- What indicators are used?
- What goes well?
- What can be improved?
- What to avoid/not to do?
- Additional remarks?

19. Which national Science-Policy-Interface documents do you know of / can you recommend?

F. Funding

20. Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems:

- Sub-nationally /regionally?
- Nationally?
- European? *[e.g. H2020, Interreg, multi-lateral such as the Joint Programming Initiatives]*
- International? *[e.g. Belmont Forum, Foundations.]*



[For all R&I questions aiming at achieving policy targets in the Land & SSW related system (like e.g. Sustainable Development Goals on soils -to be adopted at UN level in September 2015-, existing EU directives such as the Environmental Liability Directive, etc.) Consider all Public and Private funding sources. Please ask to provide details and give most important references (documents, website) that could be relevant for explaining the answer]

21. How to increase the added value of different financial resources (i.e. achieve a multiplier) for doing research that contributes to EU and national demands, in particular to the R&I demands on Land and the SSW-system?
[CONSTRUCTIONS that (could) work. PP, PPI, etc. Just ask for, as open as possible for suggestions, ideas, experiences, good examples]

22. Are there areas of research and innovation (R&I) that you are aware of that are not (yet) covered by current funding mechanisms and which would need new/different funding schemes / infrastructures?

23. Integrated approaches (necessary for addressing particular societal challenges related to the use and management of land and related impacts to SSW systems) are usually difficult to fund / get recognised by the research funding communities. What would be necessary to improve this?

24. Based on previous learning experiences that you are aware of: how to best set up / govern funding option(s), so that societal demands will be fulfilled, knowledge resulting from execution of the SRA will be taken up and used; and funders experience that their invested, national Euros are indeed multiplied?

[if they know: Follow-up questions]

- How successful/satisfying was this, on a scale of 1-5?
 1. *Very successful/satisfying*
 2. *Successful/satisfying*
 3. *Neutral*
 4. *Unsuccessful/unsatisfying*
 5. *Very unsuccessful/unsatisfying*
- What went well
- What could be improved?
- What to avoid/not to do?
- Additional remarks?

G. Other (remarks, suggestions, examples):



H. Ending the interview

Thank you for taking the time to participate in this interview:

- Would you like us to keep you updated about INSPIRATION progress?
- Would you suggest anyone else who we should be interviewed by us?
- Do you have further questions arising from this interview, or would you like to add anything else?
- What information are you interested in, and willing to give feedback on?
[Discuss the feedback mechanism and if they have expressed their opinions as a person or as a representative of their organisation/network. Checklist:]
 - a. Information to exchange / willingness to give feedback on:
 - (complete interview, not recommended)
 - summary of main conclusions
 - national report, national contribution to D2.4
 - complete D2.4, all countries
 - b. Preferred level of feedback:
 - no feedback
 - informal feedback
 - formal feedback (e.g. on behalf of represented organisation)

[Check: have you discussed consent form / how to refer to interviewee]

INSPIRATION acknowledges the received funding from the
European Community's HORIZON2020 Framework Programme
under grant agreement no 642372



Annex Ib: NKS hand-out: INSPIRATION interview at a glance

INSPIRATION interview at a glance

Aim of INSPIRATION:

The main purpose of the EC-funded INSPIRATION project is to formulate an end-user driven strategic research agenda (SRA) for land-use, land-use changes and the related, impacted compartments of the Soil-Sediment-Water (SSW) system in order to meet current and future societal challenges and needs. Next to that, the project aims to scope out models of implementing the SRA and to prepare a network of public and private funding institutions willing to commonly fund the execution of the SRA.

National Key Stakeholders (NKS):

In a series of NKS interviews across EU nations the “National Focal Points (NFP) gather for nations individually information related to the INSPIRATION scope (land and SSW-system use and management) on:

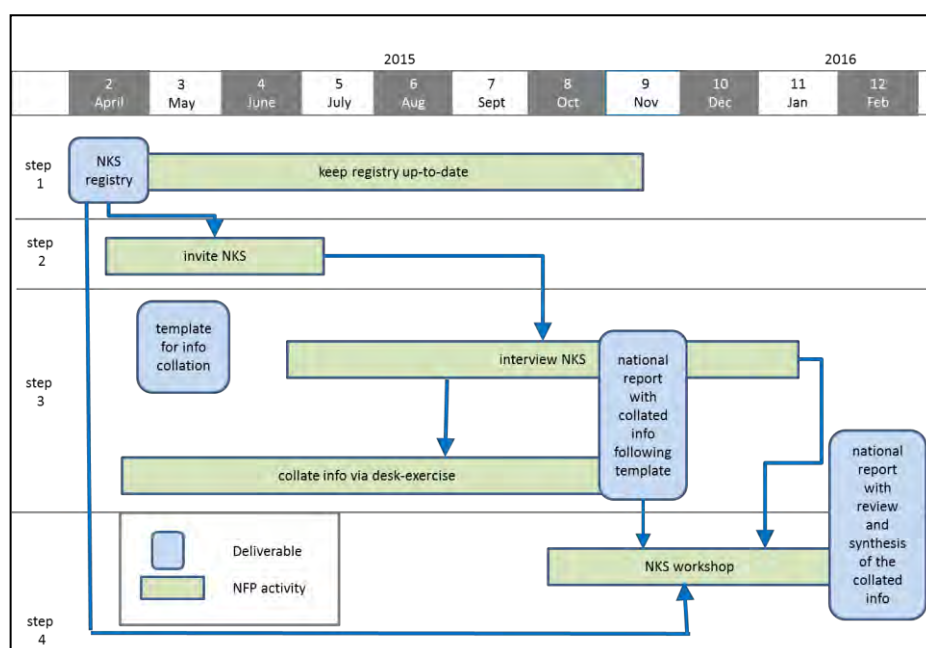
- Research and Innovation (R&I) needs
- Experiences regarding connecting science to policy/practice
- National and transnational funding schemes

In the interviews we focus at NKS – like you – positioned at a strategic level, i.e. leading persons in their field of profession; with a good overview on opportunities; a clear vision on, and insight in knowledge demands (short, middle and long-term). Furthermore, these NKS are well positioned and participate in relevant professional network(s) and may also have potential to become an ambassador for INSPIRATION. We selected NKS to represent different disciplines and institutional backgrounds including: land-use planners; managers; soil, sediment and water experts; researchers, funders and regulators/policy makers.

This interview:

Collecting input from you – an expert in your field – is crucial for the project in order to help us describing the state-of-the-art in our country as input into the European research agenda. In the interview we will go through a series of topics and questions: The interviews of NKS (ca. 20 per nation), together with a desk study on research needs and funding possibilities will be synthesized to a 'national report'. This synthesis will be reviewed in a national workshop, to prioritize the topics for the suggested Strategic Research Agenda (SRA) from our country's point of view. The national reports will finally be used as input for elaborating the European SRA and cross-nation matchmaking (matching research needs to possible funding).

Workflow in first year of INSPIRATION





Example questions:

Research and Innovation (R&I) needs

- Which societal challenges do you regard as important?
- Starting with your own experience: which specific topics (research needs) should be included in the SRA?

Experiences regarding connecting science to policy/practice

- How would you define 'scientific knowledge'?
- To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

National and transnational funding schemes

- Does your organisation provide external research funding?
- Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems

Your benefits from participating:

- A chance to influence the European SRA on land and SSW management in the light of societal challenges and needs;
- Being able to make use of the results of the project: overview of research need and of existing and promising funding schemes on different levels (sub-national, national, European, international) and opportunities for a better connection between science and policy/practice;
- Use the matchmaking opportunity to get in contact with other networks in- and outside our country, and countries learn which shared challenges can be taken up jointly.

Contact and further information:

For general information on the INSPIRATION project visit our website: www.inspiration-h2020.eu

Contact the National Focal Point: Sophie Zechmeister-Boltenstern National Focal Point Austria Institute of Soil Research, University of Natural Resources and Life Sciences, Vienna Peter-Jordan-Straße 82 1190 Vienna Austria sophie.zechmeister@boku.ac.at	Contact the general project coordination: Stephan Bartke FG I3.5 – Coordination INSPIRATION Federal Environment Agency Woerlitzer Platz 1 06844 Dessau-Rosslau Germany stephan.bartke@uba.de



Annex II: Documents used for the AUT desk study

BMFWF (2015). Aktionsplan für einen wettbewerbsfähigen Forschungsraum. Available from: <http://jahrderforschung.at/wp-content/uploads/2015/02/Forschungsaktionsplan-des-BMFWF-2015.pdf> [12-11-2015]

Bundeskanzleramt, Bundesministerium für Finanzen, Bundesministerium für Unterricht, Kunst und Kultur, Bundesministerium für Verkehr, Innovation und Technologie, Bundesministerium für Wirtschaft, Familie und Jugend und Bundesministerium für Wissenschaft und Forschung (2011). Strategie der Bundesregierung für Forschung, Technologie und Innovation. Available from: http://www.bmvit.gv.at/bmvit/service/publikationen/innovation/forschungspolitik/downloads/fti_strategie.pdf [12-11-2015].

Fachbeirat für Bodenfruchtbarkeit und Bodenschutz (2012). Richtlinien für sachgerechte Bodenrekultivierung land- und forstwirtschaftlich genutzter Flächen. Ed.: Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft.

ÖROK (2015). 14th Spatial Planning Report 2012 to 2014. Available from: <http://www.oerok.gv.at/raum-region/daten-und-grundlagen/raumordnungsbericht/14-raumordnungsbericht.html> [12-11-2015].

Stöglehner, G., Erker, S. and Neugebauer, G. (2011). ÖREK-Partnerschaft: Energieraumplanung. Available from: <http://www.bmlfuw.gv.at/umwelt/luft-laerm-verkehr/Energieraumplanung.html> [12-11-2015]

Stöglehner, G., Erker, S., Neugebauer, G. (2014). Tools für Energieraumplanung. Available from: <http://www.bmlfuw.gv.at/publikationen/umwelt/energie/toolsenergieraum14.html> [12-11-2015]



3. Belgium

Report by Nele Bal, Bavo Peeters

3.1 Introduction

This national report (i.e. INSPIRATION deliverable 2.4) reports the information collated for Belgium. The information was collated in accordance with INSPIRATION D2.3 “Template for national information collation”. In Belgium, 11 NKS were interviewed. OVAM interviewed also 2 NKS of Luxembourg. 1 NKS from Denmark filled in the questionnaire and sent it back. Details on these NKS are provided in Annex I. The desk study was based on documents as suggested by NKS. These are listed in Annex II.

***Remark:** The individual opinions of the interviewees differed on some issues. Underlying report tries to reconcile these different conceptions and ideas as well as possible, which is not always easy. This document describes all collected information with as little as possible interpretation by the NFP.*

Note: In this report, we used the following definition:

End users = knowledge end users = the stakeholders who use the knowledge on soil and land use in their jobs

3.2 Research and Innovation (R&I) needs

Topic a: Demand-driven* suggestions for the Strategic Research Agenda (SRA), i.e. suggestions from the perspective of industry, end-users and funders.
Related key question to be answered: **What (new) knowledge do these parties need to tackle societal challenges including the increase of job opportunities)?**

****Demand-driven** in INSPIRATION means focusing on the demands of those who are responsible or feel committed to tackle the societal challenges related to the INSPIRATION scope and themes, i.e. industry, end-users and funders. These parties could improve their business opportunities and/or take better informed decisions on what measures to take and execute in order to tackle other societal challenges if they would (be enabled to) use the knowledge as resulting from execution of the INSPIRATION SRA.

3.2.1. Societal challenges and needs

All interviewees affirmed the challenges listed by the European Commission for the H2020-program as rather complete and all mentioned challenges as important.

The following challenges were stressed by the interviewees as very important or reported as missing:

- How to **integrate** the different challenges into “**one global long term vision**”?
- Water (not only drinking water, but also irrigation and production water)!
- Climate adaptation
- Urbanisation and growing cities
- Wellbeing and life quality in the city



- Efficient infrastructure
- Reducing fragmentation and dealing with the scarcity of (suitable) land for different land uses
- Protect soil and land as a primary challenge (not only indirectly)
- Protection of ecosystem services
- Safeguarding biodiversity and nature (habitats) for future generations
- Jobs and job creation is not mentioned
- Mobility (as an activity, not only infrastructure) is not mentioned
- Changing demography as an important driver !
- It is important to take into account the “dynamic” megatrends who will influence all challenges (cfr. “Megatrends”, John Naisbitt). In the report 'Megatrends, far-reaching, but also out of reach? How do megatrends influence the environment in Flanders?' the Environment Report Flanders (MIRA) identifies the following six global megatrends:
 - changing demographic balances
 - accelerated technological developments
 - growing scarcity of raw materials and other resources
 - growing multipolarity in society
 - climate change

3.2.2. Topics / research needs to include in the SRA

EU-1: Long term monitoring of the soil system (soil as an important part of natural capital)

What en why:

Long term monitoring and data collection of the soil system (including soil, groundwater, sediment) is needed, e.g. to monitor the impact of climate change, land management practices, land use changes, ... on the soil system in order to take the appropriate (policy) decisions and measures. This monitoring includes:

- chemical, physical, biological soil parameters (e.g. organic carbon, pH, CEC, nutrients, moisture content, biodiversity, ...)
- contamination parameters (e.g. heavy metals, ...)
- large scale and long term
- using a harmonized and optimal methodology
- guaranteeing good quality data
- within all of Europe

Research questions:

Data mining: Which data are necessary and/or useful? How to collect them (cfr representativity, taking into account heterogeneity and variability)? How to interpret the collected data and draw conclusions resulting in measures?

Which are proper target values or threshold values for each of the parameters measured (for the different soil types and for the different land use and vegetation types)?

New reliable, validated, efficient, cheap and quick screening and detection methods for all monitoring parameters (e.g. using field test kits) need to be developed. How to set priorities?



EU-2: Further research on the survey and risk evaluation of contaminated soil, land, groundwater, sediment

What en why:

A lot of research related to the survey and risk evaluation of contaminated land is already available, but should be continuously updated, fine-tuned and disseminated in order to keep the implementation (including policymaking) appropriate, cost-effective and capable to tackle possible risks due to contamination.

Research questions:

New (cheap, efficient, quick, validated and reliable) innovative screening methods for sampling and analysis (additional to the “classic” methods) need to be developed. How to integrate the different detection methods to have a proper and “combined” view of the contamination? How to use statistics to determine the proper number and location of samples and analysis (cfr representativity, taking into account heterogeneity and variability)? Which methods for “passive” sampling (taking into account bioavailability)?

How to fingerprint (e.g. determination of age) sources of contamination in mixed plumes?

Sampling and analysis methods for detection of “new” contamination parameters, e.g. for tar, dioxins, other “new” emerging contaminants, ... need to be developed.

Updated and harmonized models for human and ecotoxicological risk evaluation for contaminated land, sediment: updated and refined toxicological and dispersion parameters (e.g. on bioavailability, vapor intrusion, natural attenuation, flux groundwater-surface water), updated exposure models, new chemicals, ...

Should methods and models for risk evaluation be harmonized within Europe? How?

Should threshold values be harmonized within Europe? How?

How to take into account combination toxicity (mixed contamination parameters)?

How to refine the modeling of interaction (e.g. chemical erosion) and dispersion in the groundwater-sediment-surface water interface? How to define the spreading and “in situ” risks and need for remediation?

How to raise awareness for the possible risks due to soil contamination (e.g. in vegetable gardens)?

How to survey (and remediate) groundwater contamination (e.g. VOC, pesticides) in limestone aquifers?

EU-3: Research on diffuse contamination (i.e. contamination not directly linked to a known source, e.g. dioxins)

What en why:

Diffuse inputs of contamination parameters to soil and groundwater can be of various nature. Typical (both historical and actual) inputs resulting in soil contamination are:

- Agricultural practices; i.e. direct input of nutrients (fertilizers) and pesticides, application of sewage sludge and manure.
- Atmospheric deposition of exhaust gases and particles from vehicles and industry.
- Sedimentation of diffuse particles from waste water discharges in surface waters
- Very local sources (use of material, uncontrolled excavations and refillment (e.g. using excavated soil and sediments), (carelessly) use of harmful products by citizens, professionals (e.g. pesticides, cosmetics, ...)



Major impacts of (both historical and actual) diffuse inputs to soil and groundwater are:

- Decrease of soil quality and possible risks for humans and environment
- Decrease of groundwater quality due to leaching processes of nutrients, organic matter, pesticides and other pollutants
- Eutrophication of surface waters due to sedimentation processes⁴.

Research questions:

How to prevent, map and monitor, evaluate risks, remediate or manage diffuse contamination in soil, groundwater and sediments?

How to set priorities in research and monitoring?

EU-4: “New”, non-common measured or Emerging contaminants in soil, groundwater, sediment

What en why:

Definition of Emerging contaminants by the United States Geological Survey: “Any synthetic or naturally occurring chemical that is not commonly monitored in the environment but has the potential to enter the environment and cause known or suspected adverse ecological and(or) human health effects”.

The major sources of environmentally relevant emerging contaminants are primarily wastewater treatment plants effluents, and secondarily terrestrial run-offs (roofs, pavement, roads, agricultural land) including atmospheric deposition. Characteristic of some contaminants is that they do not need to be persistent in the environment to cause negative effects since their high transformation/removal rates is compensated by their continuous introduction into the environment. For most of the occurring emerging contaminants, risk assessment and ecotoxicological data are not available and therefore it is difficult to predict which health effects they may have on humans, terrestrial and aquatic organisms, and ecosystems. Also the budgets (sources, entry routes, and fate) for environmental pollutants would be of importance⁵.

Research questions:

Knowledge on physicochemical properties and risks of “new” (emerging) contaminants (e.g. cosmetics, pharmaceuticals, pesticides, ...) is often not available and is needed: (eco)toxicology, bioavailability, combination toxicology, behavior, sources, pathways, impact, remediation technology, ...

Sampling methods and suitable analytical methods (low detection limit) are often not available and is needed

Collection monitoring data (in soil, groundwater, sediment) is needed to check the evidence.

How to set priorities in the research and monitoring for the most critical parameters?

How to set “threshold values” (if necessary)?

How to remediate these “new” (often persistent and mobile) parameters?

How to prevent and remediate contaminated soils, groundwater, sediments?

How to raise awareness at the users (e.g. appropriate use of products, ...)?

⁴ EUGRIS portal site

⁵ EUGRIS portal site



EU-5: Remediation technology for contaminated soil, groundwater, sediment

What en why:

A lot of research related to remediation technology of contaminated land is already available, but should be continuously updated, fine-tuned and disseminated in order to keep the implementation (including policymaking) sustainable, cost-effective and capable to tackle possible risks due to contamination.

Research questions:

How to optimize existing and innovative remediation technology for contaminated soil, groundwater, sediment (e.g. for big urban VOC-plumes, e.g. for low permeable geology, e.g. cleaning soil contaminated with multiple parameters,...)?

How to eliminate risks due to vapor intrusion into building with sensitive use?

How could phytoremediation/mycoremediation/bioremediation be used to remediate or manage contaminated soil, groundwater, sediment? How could naturebased solutions (inspired by nature e.g. soil biodiversity) be useful and how can they be incorporated in the remediation process?

How to make remediation of contaminated soil, groundwater, sediment more sustainable and cost-effective (e.g. lower energy consumption, cleaning of soil, ...)?

The combination of soil remediation with other activities (e.g. energy production) could give a positive imago to remediation actions which are usually only considered as a “cost”. It can also inspire and convince “less experienced” countries/regions/enterprises. What kind of research is needed to develop and test the win-win-situations and disseminate the knowledge and inspiring examples?

EU-6: Integrated approach remediation - spatial planning (e.g. brownfield development)

What en why:

Land is a limited natural resource. An integrated approach of the remediation of contaminated land can help create sustainable solutions (elaborated in co-creation with all stakeholders) by ensuring that economic, social and environmental issues are tackled through integrated strategies for renewal, regeneration and development in both urban and rural areas, e.g. brownfield development which can help protect the conservation of greenfields.

Research questions:

How to integrate and optimize the remediation of contaminated land in spatial planning processes? How could spatial planning take the contamination of the site into consideration, thus allowing for more optimal redevelopment?

What kind of knowledge is needed to stimulate the reactivation of brownfields rather than developing green field sites. How can we stimulate the protection of greenfields?

How can we involve all stakeholders (e.g. municipalities, real estate, ...)?

Could we grow “usable” energy crops on contaminated land? How?

EU-7: Integrated approach spatial planning soil and subsurface

What en why:

Facing a denser population and a more complex society, more and more activities will take place in the subsurface (e.g. infrastructure facilities, water supply, electricity, sewer system, ...). A sustainable use of the soil (and subsurface) contributing to tackle societal challenges without losing soil quality and the natural soil services is needed.



Research questions:

How to integrate and optimize subsurface activities (e.g. remediation, infrastructure facilities, subsurface buildings, sewer system, ...)?

EU-8: Innovative funding systems for remediation / brownfield development / ...

What en why:

In some cases the costs for the remediation or restoration of contaminated or degraded land are too high for a private owner or for public agents. This results in land or soil that is not remediated or not restored, even if this remediation or restoration would be very valuable for society.

Research questions:

Can we develop an innovative funding system allowing support for those remediation projects for which the costs are exuberant or exceed the initial expectations? Or for those projects where “economic” value is not the main driver (e.g. remediation in small nature areas)?

EU-9: Excavated soil/sediment

What en why:

Excavated soil or sediment can be used instead of primary raw materials. On the other hand can the unsafe reuse of contaminated excavated soil and sediment give birth to diffuse contamination.

Research questions:

How to use excavated soil/sediment as secondary raw material?

How to guarantee and monitor a safe reuse (regarding the current lack of traceability of excavated soil/sediments)?

EU-10: Organic carbon (OC) in soil

What en why:

Soil organic carbon plays an important role in soil fertility/soil health and plays also a key role in the carbon cycle, and thus it is important in global climate models.

Research questions:

What kind of measures do we need to, on the one hand keep organic carbon high enough (to preserve the soil health) and on the other reduce the impact on climate change? And this taking into account the different kinds of organic carbon and its different roles (storage C, soil fertility, ...).

Models calculate the C-evolution. How should this impact be monitored in the field allowing an evaluation of these models?

What is the impact of land use changes on (changes in) of OC (and on soil fertility, erosion)?

What is the impact of the manure policies and legislation (limitation of manure use on land) on OC?

How can soil help to reduce the impact of climate change?

LULUCF: mapping Land use, Land use Change and Forestry on European level:

- Data on land use and on land use change



- Data on the evolution of C in soil
- How to process and analyse these data? How to draw conclusions about measures we need?

A large quantity of biomass is used for the generation of "green" energy but due to that, biomass is not returning to soil, resulting in an impoverishment of the soil. In regard to the potential conflict between food supply and energy need, impact of the loss of biomass needs to be assessed. Which quantity of biomass can be exploited keeping the soil quality? Which practices to choose?

EU-11: Conservation soil fertility

What en why:

Soil fertility refers to the ability of a soil to sustain plant growth, i.e. to provide plant habitat and result in lasting constant yields of high quality. In lands used for agriculture and other human activities, soil fertility typically arises from the use of soil conservation practices and their impact on the long term.

Research questions:

How to conserve the fertility of soil in the long term?

EU-12: Erosion

What en why:

Due to erosion in Flanders, a lot of fertile soil is lost resulting in less fertile arable land on the longer term. The washed away soil and mud enters in the sewer systems and the residential areas resulting in high clean up costs.

Research questions:

A lot of erosion research has already been done or is ongoing:

- How to restore degraded soils? What are the actual knowledge gaps?
- How is the knowledge on measures to reduce erosion implemented (or not)? Which measures could be implemented by farmers or by other stakeholders?

How can research and research findings be translated into layman's terms in order to foster the implementation of results and suggestions for action? How can we stimulate the implementation of this?

EU-13: Soil sealing (covering of the ground by an impermeable material)

What en why:

The increased sealing of (former) fertile soil, especially in cities, causes a degradation of soil fertility and thus impedes food production. The ecological soil functions are severely impaired or even prevented (e.g. soil working as a buffer and filter system or as a carbon sink). In addition, surrounding soils may be influenced by change in water flow patterns or the fragmentation of habitats. Current studies suggest that soil sealing is nearly irreversible.

Research questions:

How can we develop a policy to prevent soil sealing? How can we integrate these policies in spatial planning processes?

How can we raise awareness around these issues?



Does a technological solution exist?

EU-14: Soil compaction

What en why:

Soil compaction is a form of physical degradation resulting in densification and distortion of the soil where biological activity, porosity and permeability are reduced, strength is increased and soil structure partly destroyed. Compaction can reduce water infiltration capacity and increase erosion risk by accelerating run-off. The compaction process can be initiated by wheels, tracks, rollers or by the passage of animals.

Research questions:

How can we develop a policy to prevent soil compaction or to restore soils after compaction?
How can we integrate these policies in spatial planning processes?

In order to change the behavior of farmers, foresters and policy developers we need to raise awareness on the issue of soil compaction. How can we do this efficiently?

Can we think of innovative ways to cultivate the land without having to use heavy machinery (e.g. the use of drones,...)

EU-15: Water retention capacity of soil

What en why:

Soil water retention is a major soil hydraulic property that governs soil functioning in ecosystems and greatly affects soil management. Soil moisture forms a major buffer against flooding, and water capacity in subsoil is a major steering factor for plant growth. The effects of changes in soil water retention depend on the proportions of the textural components and the amount of organic carbon present in the soil. Maintaining or even enhancing the water retention capacity of soils can play a positive role in mitigating the impacts of more extreme rainfall intensity and more frequent and severe droughts, e.g. due to climate change.

Research questions:

How to safeguard the sponge function of the soil?

How to foster/upgrade the water retention and water infiltration capacity of soil?

EU-16: Soil ecosystem services

What en why:

Soil as an important part of our natural capital is providing a lot of soil ecosystem services to society. These ecosystem services are relevant to grand challenge areas: e.g. climate change adaptation and mitigation, food and energy security, water protection, biodiversity and genetic pool for human health, ecological sustainability, cultural heritage. It is necessary to increase the awareness on the importance of the soil ecosystem and their services, showing their value for society, the need for protecting (and restoring) this values and make a more sustainable and efficient use of it, as part of the natural capital for the actual and future generations.

Research questions:

How to raise awareness on the importance of soil and its (ecosystem) services? How can we highlight its/their positive and fundamental role?

How to map and assess soil ecosystem services?



How to value soil ecosystem services? All stakeholders (including policymakers) need to take into account the value of the different soil ecosystem services in their processes and projects: how to do that?

EU-17: Recycling of soil nutrients

What en why:

Plant nutrients are chemical elements that are mostly absorbed by plant roots as inorganic chemicals dissolved in water. At the same time, plant nutrients are used by other forms of life and go through many biological transformations that determine when and how plants take them up. Biological materials like manure are major nutrient sources on many "conventional" farms, as well as organic farms, while inorganic minerals (chemical materials) like rock phosphate and lime are acceptable fertility amendments for certified organic production. Understanding soil nutrient recycling processes helps identify practical options that fit different farming systems. Understanding nutrient cycles helps all types of farmers maintain the fertility of their soils, while at the same time protecting our water resources. In Flanders most soil nutrient recycling challenges are focused on manure.

Research questions:

How to process manure to recycle nitrogen (N) and phosphorus (P)? Which techniques and methods can be used to remove P (and N) from manure?

What is the impact of the manure policies and legislation (limitation of manure use on land) on N and P?

Phosphorus saturation

Sandy soils in Flanders have a high content in phosphorus. What are the optimal P-levels in different soil types and for different land uses? What is the behavior of P in sandy, loamy and clayey soils? What is the effect of the saturation in the long term? We need more data about this topic.

Which analyses and extraction methods/protocols should be used to map the P-concentrations in soil in a harmonized and proper way, and this in function of pH and soil texture?

In other regions in Europe or on a mondial scale, there is a deficit in P. How can the P in Flemish soils be recycled? Which "remediation technology" is the most suitable to reduce the amount of P in soil?

Nitrogen saturation

What is the link between N-deposition and biodiversity? What are possible effects in both the short and long term? We need more data .

EU-18: Soil biology and soil biodiversity

What en why:

Soil biodiversity is the driving force behind the regulation of soil ecosystem services. Many of the functions performed by soil organisms can provide essential services to human society. Most of these services are supporting services, or services that are not directly used by humans but which underlie the provisioning of all other services. These include nutrient cycling, soil formation and primary production. In addition, soil biodiversity influences all the main regulatory services, namely the regulation of atmospheric composition and climate, water quantity and quality, pest and disease incidence in agricultural and natural ecosystems, and human diseases. Soil organisms may also control, or reduce environmental



pollution. Finally, soil organisms also contribute to provisioning services that directly benefit people, for example the genetic resources of soil microorganisms can be used for developing novel pharmaceuticals.

Soil biodiversity is threatened due to soil degradation, land use management, climate change, pollution by chemicals and GMO's and invasive species. This decline leads to high societal costs. For instance, the consequences of soil biodiversity mismanagement have been estimated to be in excess of 1 trillion dollars per year worldwide.

Research questions:

How to sample, analyse and evaluate (the status of) soil biodiversity? How to extrapolate field data?

How to protect/restore soil biodiversity?

What is the potential of soil biodiversity for the development of new pharmaceuticals?

What kind of soil biodiversity is important for the farmer? What is the role (and impact) of soil biodiversity on agricultural processes? And vice versa? What is the impact of agricultural practices on soil biodiversity?

How can we visualize and communicate the role of soil biodiversity to stakeholders in the agricultural sector in order to make its importance easily understood?

Is the bioavailability of soil nutrients (e.g. P) influenced by soil life / soil biodiversity? And vice versa. How is this different in manure or chemical fertilizers?

EU-19: Remediation of "agricultural" contamination (phosphorus, nitrogen, pesticides)

What en why:

Agricultural land with too high concentrations on N, P or other parameters should be remediated or managed in order to reduce risks and restore a good soil quality.

Research questions:

How to avoid too high N-levels in soil through N-deposition and manuring. How to remediate contamination linked to agricultural activities (P, pesticides, ...)?

Could naturebased solutions be used to remediate agricultural contamination?

EU-20: Integrated pest management – Use of pesticides, herbicides, ...

What en why:

Integrated pest management, or IPM, is a process that can be used to solve pest problems while minimizing risks to people and the environment. IPM can be used to manage all kinds of pests in urban, agricultural, and wildland or natural areas.

Research questions:

How to grow crops – vegetables making use of integrated pest management and reducing the use of harmful pesticides, herbicides? Especially for less cultivated crops (vegetables, fruits, ...).

How to raise awareness and lower the use of herbicides, pesticides at the citizen, allotment and public services level?



EU-21: Pressure on land and spatial planning, fragmentation of land, scarcity

What en why:

Land is a limited resource. The countryside is urbanizing. Farmers need more land to upscale their production. Land prices are rising.

Research questions:

How to reduce the pressure on land? How do we deal with the available area of land/soil, to what use will we give priority and which not? How to link spatial planning with environmental concerns and raise awareness? How to keep the resilience on and resistance to the use of land, which is e.g. important for climate change? Which policy tools are needed?

Which land is best/not suited for which agricultural use? A lot of knowledge is available, but is not disseminated or implemented to the relevant stakeholders. How to disseminate? How to exchange knowledge and data?

How to make efficient and effective use of the available land? E.g. making use of roofs for greenhouse farming? Which technologies are needed?

How to stop fragmentation of land?

EU-22: Conflicts on land use

What en why:

An increasing demand on land causes conflicts in land use resulting in pressure on land (use) in Belgium with possible impact outside Belgium.

Research questions:

How to avoid land conflicts? How to find an equilibrium between the different land use types? Need for sociological research (e.g. role of difference in cultures, role of wellbeing, relation green/wellbeing/area for recreation/criminality, ...). What kind of sociological research is needed?

How should we assess the environmental impact of the different kinds of land use and land management practices? How to take into account the results of these assessments?

Should we distribute certain high impact economical activities (e.g. cattle breeding) over Europe? If yes, how should this be done?

Can we think of decision making tools that allow us to determine which land should be used for specific functions, e.g. biomass production, food production,...? What are advantages and trade offs of the different choices in land use? How can we take into account the impact of a certain land use beyond the regional boundaries? How to make balanced decisions and how to set priorities? Should former farmhouses that are no longer active in the agricultural field be redeveloped (and house new functions, e.g. recreation, care (for the elderly),...) or do we pull them down?

EU-23: Agricultural practices and land management

What en why:

Land management systems and agricultural practices should take into account the actual situation of the soil and the impact of the practices or manangement systems on the soil and the environment (also on the long term). Knowledge is available but not always satisfactorily distributed and applied.

Research questions:



Can we integrate this knowledge in the educational practice of e.g. (urban) planners, agricultural sciences, etc...? How can this knowledge be translated into laymen terms that make them more accessible to the agriculture sector?

How to realise sustainable intensification in agriculture?

How to process manure in such a way that it is better absorbed by the soil with less "leaching"?

How to process compost or the recycling of bio waste in the most suitable, practical and cost effective way?

How to make horticulture (vegetables) more sustainable (e.g. less soil compaction due to intensive farming, less use of pesticides, less erosion)?

How to make irrigation and drainage more effective and sustainable (e.g. less impact on soil biodiversity, less leaching of nutrients)?

Land prices (e.g. for public nature, agriculture or public recreation areas) are rising due to private landowners buying big parcels of land. What is the impact of this process on private plots of natural land (private landowners)? Can we assess and calculate this impact?

EU-24: Spatial planning

What en why:

Flanders (and Brussels) is characterised by intensive soil sealing and fragmentation. Spatial policy in Flanders is facing a number of societal challenges. The population is expected to grow from 6 to 7 million, so the pressure on the space will not be reduced. It is necessary to think how a high-quality open space, good mobility and space for renewable energy production can be provided. How can we prevent floods, protect food production and offer investors and businesses the space that's needed to keep the Flemish region competitive?⁶

Research questions:

How to integrate the "dynamic" societal flows (e.g. temporary and/or multiple use of space or land, mobility, energy flows, waste flows, ...) into the more "static" natural system of soil and land use?:

- How to collect dynamic data on multiple and flexible land use, temporary land use (e.g. pop up activities in cities)?
- How to collect dynamic and accurate data on "flows" and "logistic networks": e.g. energy, transportation and mobility (people, goods), circular economy, resources, waste, ...? How to develop a dynamic model that visualizes and monitors changes? Based on this model policymakers can make better decisions.

These dynamic data are necessary to develop and follow up a good policy about spatial planning and land use.

Can we translate the fundamental knowledge about land use and land use planning into practical knowledge that can be easily and readily applied? What kind of tools can be used by stakeholders on different levels (e.g. policymakers, cities, ...)?

How to coach and support policymakers on different levels? They should be able to calculate/see the impact of their policy decisions. The research demands of those who need the support and coaching should be central.

⁶ Needs to be completed for the Brussels and Walloon Region (in final report)



How to develop decision supporting tools to optimize land use and spatial planning, taking into account different societal needs at system level (e.g. mobility, water management, agriculture, residential areas, industry, nature, recreation, ...)?

EU-25: High tech monitoring and data collection

What en why:

The need for technological development, e.g. in agriculture to achieve "sustainable intensification", is on the agenda of governments and international bodies. Innovation is also at the centre of the EU2020 strategy. New technologies and their adoption by e.g. EU farmers are key drivers in maintaining European agriculture competitive in a global world. While the potential of technological development for sustainability is acknowledged, there is a global trend towards increased regulation of new technologies, be it for concerns about their safety or ethical and societal concerns. The conception and development of policies governing technology needs strong scientific support.

Research questions:

The development en use of high tech monitoring and data collection: e.g. real time monitoring using satellites, precision farming, remote sensing and (geo-tele)detection, use of drones, ...=> what are its possibilities, what are priorities, what are unintended effects?

EU-26: Holistic approach

What en why:

Complex societal challenges, like (research on) land use and soil management, should be approached in an integrated and holistic view in which the interactive nature and interdependence of external and internal factors is stressed. In an integrated approach complex systems are viewed as a whole, with its own dynamics, and the individual components should "collaborate" to fulfill the main objective. This results in an integration of many different disparting functions and different disciplinary fields for a collective optimum performance at minimum cost to the objective in a sustainable manner and also result in long term benefit to the environment. Strong emergence of collective behavior of complex system should be the cornerstone of an integrated approach.

Research questions:

How to set up an holistic and systemic approach in soil and land use (research), taking into account indirect and unexpected events? How to find the equilibrium between the 2 extremities: fragmentation of knowledge and the postmodern "talking about the whole without acting"?

How can system dynamical modeling help to understand the complexity so that new needed knowledge and/or measures can be developed?

How to promote an integrated approach and system thinking?

EU-27: Integrated risk/impact assessment on industrial sites⁷

What en why:

Industrial activities could have impact on different environmental compartments (e.g. air, water, soil). Policymakers need to use a more integrated risk evaluation for all impacted compartments, ensuring that the suggested measures to reduce the environmental impact are not conflictual, e.g. excavation of contaminated soil gives birth to landfills. These landfill

⁷ Needs to be completed for other sectors (in final report)



sites cannot be used for other developments. It is imperative to keep track of the whole and to understand the mutual impact of decisions made. Priorities need to be set and supporting actions taken. This can be a win-win for the industry and society.

Research questions:

But how can we make such integrated assessments? What kind of research is needed to provide knowledge to make optimal choices?

EU-28: Ecosystem approach

What en why:

Ecosystem services can contribute to economic development and research on the ecosystem approach can help to grow awareness. Economic models should take more into account certain ecosystem related parameters like e.g. soil fertility or the pollination of crops.

Research questions:

What kind of research is needed on the interface between biodiversity, ecosystem services, nature on the one hand and economic development on the other hand?

How to map the “trade off” between money or economic growth and ecosystem in a better way?

EU-29: Mind shift and change in behavior

What en why:

Having the “right” knowledge and practices is not enough to challenge the needed change. A mind shift and change in behavior are required.

Social sciences should unveil the triggers needed to provoke change. This, however, demands technical knowledge to be fully comprehensible. You must know the process in order to know how things must be changed. The importance of pioneers (actors who seek to own initiative for alternatives) is very clear and should not be ignored here. Based on their own new ideas or vision they take new (in the beginning) individual initiatives and could be new “leaders” who can share their ideas to colleagues.

Research questions:

How can we encourage the citizens/farmers/politicians/... to change/adjust his behavior so that something can change? For example: how to change the conventional agricultural methods into alternative methods (e.g. no tillage) ? E.g. by helping to change farmers’ perception on soil => soil is a partner that the farmer should treat as such.

How to support pioneers in transition behavior or mind shift?

Not all interviewees made use of an **existing knowledge agenda**. Some of the interviewees mentioned existing research agendas: e.g.

- Each Flemish administration has its own (limited) research agenda
- Witboek voor Landbouwonderzoek
- Onderzoeksagenda Ruimte Vlaanderen
- TWOL
- IWT (little attention for soil and land use)
- FWO (only linked with people, not topics)
- Innoviris (Brussels)
- Danish Soil Partnership



3.3 Experiences regarding connecting science to policy/practice

Topic b: *Experiences regarding the exploitation of scientific knowledge to improve business opportunities and/or tackle other societal challenges.*

*Related key question to be answered: **Where to improve the science-policy interface so that (new) knowledge can and will be more effectively exploited by the demand side?***

3.3.1. Use of knowledge

Scientific knowledge can be defined in various ways and can have various shapes (e.g. fundamental, applied, practical, ... scientific knowledge). An unequivocal answer to this question is not present. One example of a given answer by an stakeholder: “Scientific knowledge is information about the nature of a cause-effect, delivered with a high degree of certainty.”

Most knowledge end users **need to use up-to-date scientific knowledge in their jobs**, e.g. for solving practical or policy problems (e.g. monitoring, impact assessments, modeling, ...) in an appropriate way (with more certainty (e.g. about the impact of measures), more efficiency, more effectiveness, more sustainability, more cost efficiency, ...).

Dissemination and exchange of scientific knowledge happens mostly through the **classic pathways**: internet, papers and reports, Google Scholar, networks via projects, informal and personal contacts, conferences, newsletters, ... Policymakers have often more knowledge exchange with **consultants** than with universities or research institutes.

The “soil knowledge world” (experts, policymakers, different stakeholders) is a **small world** and knowledge is exchanged in an easy, mostly informal, way.

One of the met difficulties using and disseminating “scientific knowledge” is that scientists produce “**black-white, objective**” **knowledge**, whereas policymakers need also to consider the “**grey, mixed, subjective**” **opinion** of different stakeholders.

“Commercially” collected data on soil quality and on soil contamination are often private and most of the time not available. However they could provide good and useful information.

The interviewees indicated that is not in detail known to what extend has been made use of the **state-of-the-art in scientific research for the formulation of existing policies**. In general existing scientific information (provided by scientists) is/was used as a basis for policy decision, however, (now more and more) civilians (society) and/or other stakeholders (like lobby groups) also want to participate in policymaking and give their “non-scientific” input. This is a difficult equilibrium to manage. Policymakers should take their role in this process and steer/advise.

3.3.2. Possibilities to set the agenda

Possibilities to influence national or regional research agendas are for most knowledge end users **very limited**. Most priorities are determinated at a (higher) political level or at academic level. Regional administrations include innovation or new research in their own (limited) research agenda.

At **academic** level there is a high degree of academic freedom: scientific researchers develop their own research agendas. Universities can also provide research or consultancy on demand (e.g. for policymakers, industry, ...). **Structural consultation** (e.g. in periodic workshops, conferences) about research needs with policymakers or industry or between universities is not a common practice, but could be very useful and fruitful. End users learn to know which scientist could help them and scientists learn the end users research needs.



Policymakers and scientists should be keeping and watching their **independence** regarding the development of research agendas. But on the other hand they also should “synchronize” on needed “new” research, respecting their mutual objectives.

Policymaking used to be funded on knowledge provided by scientists, whereas now, citizens or other stakeholders also want to participate in policymaking and give their “non-scientific” input. This is a difficult equilibrium to manage. Policymakers should take their role in this process and steer/advise.

Policymakers should be more involved in setting the research agendas from e.g. IWT (Agentschap voor Innovatie door Wetenschap en Technologie: Government agency for Innovation by Science and Technology), FWO (*Fonds Wetenschappelijk Onderzoek*: The Research Foundation), etc.

3.3.3. Science – policy – practice

Most knowledge end users indicate that they are sometimes **involved in the formulation of scientific research questions, scientific research or the synthesizing of scientific knowledge** in function of their jobs. The translation of research needs into scientific research questions is not always easy because the knowledge end users aren't scientific institutes. Sometimes they need external partners to help them with the translation. **Good communication** between the knowledge end users and scientists is essential to define proper research questions and obtain proper research results, but this process takes often a lot of time. When the research questions are very applied, targeted and/or practical, it is easier to translate the research questions.

How to **improve to science-policy-practice**? Some **suggestions** or **questions** to answer, formulated by the interviewees:

- Scientists want to deepen research topics and find “new” knowledge ⇔ knowledge users (e.g. policymakers, industry, farmers) want to broaden and link topics and want more practical and robust knowledge to solve their problems. Policymakers should try to **connect** both parties to ensure more policy relevant research. Providing relevant knowledge for immediate application gives scientists opportunities to use/produce knowledge in a creative and innovative way.
- Also the dissemination of not successful research results could be helpful and can be very valuable as “**lessons learned**”
- **Stakeholder coaching** (not only involve sociological experts who are again academic experts, but process coaching) during the process of knowledge development could foster the formulation of more “demand driven” research needs and the implementation of the developed knowledge.
- Working **transnational** could offer scale opportunities, e.g. developing new technology that could be used in different countries whereas on the national level the field is too small to define a well-functioning market.
- There is need for a **common European vision** on soil and a framework to provide focus on common goals and targets. This will foster the collaboration in research related to soil and land use.
- The collaboration between scientists (working often on more fundamental research) and consultants (applying the knowledge) is not always easy. Policymakers could help to find a **mutual understanding and foster collaboration**. This process takes time.



- **Structural consultation** (e.g. in the form of a platform or network, periodic meetings, a framework contract with research institutes, ...) between knowledge end users and the different research institutes is very useful and can offer an added value because of the broad and transdisciplinary discussions, but is not easy e.g. taking into account intellectual rights. Collaboration in an informal or bilateral way is sometimes more easy.
- In **European projects** a large body of **knowledge and tools** are developed, but **not (optimally) used**. The projects should be **demand driven** according to the need of the end users so that developed knowledge and tools are effectively used.
- Disseminating high quality scientific information via “**open source**” is important.
- Stimulating innovation by **adapting rules for procurement** (e.g. more attention for sustainability and long term effects as selection criteria in proposals) is necessary to give a boost to the development and implementation of innovative solutions. Considering a broader range of issues when choosing contract award criteria should include setting standards for documentation, assessment and methodology
- A lot of knowledge is available but is **locked and not distributed to the end users** (cfr. The EPA⁸-website gives good scientific and policy information). **Key-people** can help with the distribution of knowledge: who is who within Europe in the different research domains? An **inventory of knowledge and public/shared databases** (e.g. on toxicological parameters, monitoring data, ...) could also be very useful. **Existing research results** should be used in further research and knowledge developments.
- Fundamental knowledge should be **translated** into applied practical knowledge resulting in suitable tools and concrete measures, tailor-made for the relevant end users (e.g. for municipalities, ...).
- **Raising awareness** and **tailor-made communication** (resulting in a mind shift and change in behavior) is as/more important than developing extra “new” knowledge. This will result in the effective implementation of the “appropriate” knowledge by the relevant stakeholders.
- How to take into account all aspects of soil and land use on a **systemic level** (can we see the **whole picture**)?
- How to find an **equilibrium** between academic freedom and independence and the synchronizing of developing “societal relevant” knowledge?
- Make challenges and topics as concrete and “**recognizable**” as possible and explain the “**why**” of the needed research and its implementation. Make it **visual**.
- **Scale** is very determinative to take measures: need for knowledge that is adaptable to the scales on which it will be deployed, data, measures (e.g. parcel, community, city, region, country)
- **Trans-disciplinarity** is important: e.g. involving social sciences who can e.g. link scientific land use information with sociocultural aspects

In most cases the **impact** of research is not explicitly monitored/checked, but is guaranteed as much as possible through the involvement and consultation of all the stakeholders before, during and after the process and by checking the quality of the work done. The quality of IWT (a Flemish funder) funded research, e.g. the impact of the research on society (who is reached, long term effects, ...), is monitored using indicators.

⁸ EPA: US Environmental Protection Agency



No national SPI documents are mentioned.

Some mentioned SPI initiatives in different sectors are added in Annex III.

3.4 National and transnational funding schemes

Topic c: *Predominant, current as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination.*
Related key question to be answered: How to get with one Euro of national/regional funding a multitude of Euro's (from all sources) worth of knowledge in return contributing to EU and national demands? Or even how to get with one euro of EU funding a multitude of euro's (from national, regional, local, and private sector) worth of knowledge in return contributing to the R&I demands on Land and the Soil-Sediment-Water systems.

Topic d: *Experiences regarding the use of any trans-national, common budget for scientific knowledge production related to the scope of INSPIRATION.*
Related key question to be answered: How to set up/govern the appropriate funding option(s) resulting from INSPIRATION – based on previous learning experiences – so that: (1) the above demands will be fulfilled, (2) knowledge resulting from implementation of the SRA will be taken up and used and (3) funders experience that their invested, national Euros are indeed multiplied?"

3.4.1. Funding schemes and possibilities for research funding

Regional, national, European and international funding schemes

Belgium is a complex federal state where the communities and regions are responsible for scientific research, although the federal government still has some smaller competencies on this matter as well. This leads to fragmentation of the budget. Most of the research funding comes from the regional and European level. A comprehensive listing of identified regional, national, European and international funding schemes is added in Appendix IV.

Policy research directly commissioned by regional authorities, is usually funded with their own financial resources. Regional government institutions are fully or partially financed by a grant from the regional government. The funding of policy research should be supervised or distributed by a single public body as much as possible. Obviously, this currently is not the case yet and leads to fragmentation because different institutions prefer to manage their own research budget. The Agency for Innovation by Science and Technology (IWT) or the Department of Economy, Science and Innovation (EWI) could take up such a central role in Flanders, and manage and distribute all regional funds for policy research.

Knowledge institutions have the impression that research on the environment in general, and soil or land use in particular is not high on the priority list of the IWT. Proposals submitted to the IWT are always formulated by scientists or research institutions, and are therefore largely influenced by the self-interest of the scientist. Integrating the needs of end users, industry or government could make the funded research more relevant, concrete and applied. Consultation of stakeholders prior to formulating research needs can allow for a more objective and independent formulation of the research questions.



Participating in and applying for European projects is very suitable to build an international network and to develop and exchange knowledge. On the other hand, the complex procedures and low success rates often discourage organisations to participate and submit a proposal. The whole of European funding opportunities is a complicated maze that urgently needs to become more accessible and transparent. In European funding programs and more specifically in Horizon 2020, little attention is paid to soil and land use related research. Moreover, Horizon 2020 is too susceptible for lobbying by the scientific community, which leads to wrong priority setting. There is excessive attention for temporary fashion trends that are of little scientific relevance.

More (financial) cooperation is necessary

Between public and private sector

Some public authorities or research institutions sign cooperation agreements with other national or international partners in order to share the cost of joint research efforts, or even carry out consultancy assignments for other authorities or companies and to generate additional funding on top of their grants.

There is general consensus that more financial cooperation between public authorities and private partners (PPP) can significantly increase the added value of research on soil and land use. Because of public budget cuts, less money is available for research funding. PPP will thus become increasingly important as an alternative. Moreover, the involvement of private partners could provide the guarantee that the research results will be relevant and effectively applied. Private partners pursue return on investment and can be a driving force. Other new financing models like crowdfunding will gain in importance in the future.

By using innovative procurement methods (e.g. pre-commercial procurement) the public sector can develop innovative solutions to respond to societal challenges together with private partners. This improves the international competitiveness of enterprises and increases the engagement of the private sector in the research. Early involvement of businesses and stakeholders will also increase the impact and relevance of the research. However, strict legislation on public procurement sometimes impedes the establishment of privileged partnerships between public organisations and research institutions, because the entire market must be consulted first.

Initiating and funding research is not always an exclusive responsibility of the public sector. The industry must fulfil its duty of care under all circumstances and proactively initiate research to guarantee that their products and services are not harmful to human health.

A more extensive collaboration between public and private sector should be an obligation and stimulated by the European funding programs. This could be explicitly mentioned in the call for projects.

Between public organisations

Belgium needs more horizontal cooperation and coordination between the various governments that fund environmental research. Because of the unique federal state structure there are a lot of governments and public agencies in Belgium, which leads to fragmentation of research. Conflicting interests or hidden political agendas often hamper cooperation between these public bodies. The creation of a new central coordinating body or the centralization of research funds with an existing organization could reduce fragmentation and avoid duplication of research. It would also increase the quality of the research and guarantee consistency with a vision in the long term. Specifically for research on soil and land use, a new expert counsel at national level in analogy to the Technical Committee on Soil Protection in the Netherlands, might prove beneficial.



The establishment of networks for knowledge exchange between policy makers like the Common Forum on Contaminated Land in Europe can also contribute to more intensive transnational collaboration between government institutions.

Between knowledge providers

Belgian research institutions often have similar specializations but different priorities. Cooperation between universities or between different scientific disciplines can be improved. There is still too much rivalry between research institutions or departments. Maybe an additional structure that operates on a supra level is needed to coordinate all interdisciplinary efforts. Finding a common language and a way of communicating between scientists is key in this process. Physical meetings, discussion and network events could also help.

Most knowledge institutions are fully or partly financed by government grants. Public authorities should use their influence to organize the research at the universities more efficiently. Certain disciplines, specializations or departments of various universities could be merged so that the research institutions evolve more towards the (extreme) model of the university of Wageningen where almost all agricultural research in the Netherlands is concentrated in one university.

Both at national and international level, repetition or duplication of research is a major issue. To avoid this, scientists should be required to first inventory and evaluate existing knowledge, before starting on new research. Accessibility and dissemination of research results and scientific reports is key.

3.4.2. Gaps in financial resources for resource

Because of its scale and the large budgets available for research, Europe should make additional efforts to promote large-scale, cross-border, integrated projects on the long run. E.g., setting up a very costly large-scale harmonized European monitoring network for certain soil parameters is currently not possible because there is no budget available. The collection of data for soil-related research purposes, is very time consuming because there is no harmonized European data set with soil parameters available. A European soil database fed by measurements of different member states should be the ultimate goal. In addition to public authorities and knowledge institutions, certain private companies might also dispose of valuable data, but they often ask financial compensation for the use of it. Besides supporting the establishment of a European soil database, the European Union should also promote and coordinate the harmonization of the different norm methods and risk assessments for soil contamination.

In Belgium and by extension in Europe, there is a lack of thorough interdisciplinary and holistic research. Researchers often operate in the narrow confines of their own specialisms. Scientific articles with a more holistic approach, often don't get published in peer-reviewed journals. That is why there is little scientific substantiation for a more holistic or integrated approach. In Belgium there is no university that has a discipline or department on system thinking. The University of Antwerp does offer a course on 'methods and techniques for interdisciplinary research'.

It is important that researchers take economic, social, legal and psychological aspects into account. Open communication with stakeholders and proper disclosure of the results and underlying data sets is absolutely necessary. Regional as well as national or European authorities need to stimulate holistic, trans-disciplinary, integrated approaches.

Society and politicians still don't fully recognize the importance of a healthy soil and sensible, thoughtful land use. Continuous communication and raising awareness could reverse this attitude and give a boost to the research on this subject.

In addition to a mind shift, a European Soil Framework Directive with binding quantitative targets (possible for other environmental compartments such as water and air, so why not for soil) will give a boost to research on soil and land use. In that case, the Joint Research Centre of the European Commission in cooperation with the EEA should first study the consequences of the legally binding document and then deduce the most urgent research needs from it (knowledge needed to achieve the targets) so that those needs can be integrated into the calls of the European funding programs.

3.5 Other remarks made by interviewees

Looking for “new” needed research or research questions is one thing, but a lot of **good knowledge already** exists and is not effectively used: to improve this is also very important, perhaps more important.

Important **boundary conditions** to support/ensure the development and implementation of the research agenda :

- A good **juridical framework** for all relevant topics is necessary to offer “legal certainty” for all stakeholders.
- **Political climate and stability**
- **Market** regulation

Mind shift and change in behavior as key drivers for change. Importance of **raising awareness** to, **co-creation** with and tailor-made **communication** to all related stakeholders.

3.6 Annexes

la: NKS interviews in Belgium

	Stakeholder organisation			Profile INSPIRATION													
	Name of the entity	Country	Contact person	fund er	end user	knowledge provider	national-regional	university/research	SME /consultant	business and industry	NGO	network	other	soil	sediment	water	land use-management
13/08/2015	Société publique d'aide à la qualité de l'environnement (SPAQuE)	Wa	Marie Jailler Pierre Dengis Claudia Neculau	1		1		1						1		1	
29/06/2015	Katholieke Universiteit Leuven	VI	Erik Smolders			1		1						1	1	1	1
7/07/2015	Vlaamse Instelling voor Technologisch onderzoek (VITO)	VI	Guy Engelen			1		1	1					1	1	1	1
15/07/2015	Service Public de Wallonie (SPW)	Wa	Ester Goidts	1	1		1							1	1	1	1
9/07/2015	Leefmilieu Brussel	Br	Saïd El Fadili	1	1		1							1	1	1	1
1/09/2015	Vlaamse LandMaatschappij (VLM)	VI	Carole Ampe	1	1		1										1
3/07/2015	Departement Leefmilieu, Natuur en Energie - Afdeling Land en Bodembescherming, Ondergrond, Natuurlijke Rijkdommen	VI	Joost Salomez	1	1		1							1		1	1
2/07/2015	Departement Landbouw en visserij	VI	Ellen Maertens	1	1		1										1
15/06/2015	OPENBARE VLAAMSE	VI	Johan Ceenaeme	1	1	1	1							1	1	1	
13/07/2015	AFVALSTOFFENMAATSCHAPPIJ (OVAM) - Afdeling bodembeheer		Griet Van Gestel														
11/08/2015	Umicore (netwerk NICOLE)	VI	Lucia Buvé		1					1		1		1	1	1	
5/10/2015	Ruimte Vlaanderen	VI	Peter Willems	1	1	1	1										
10/08/2015	Ministère du Développement durable et des Infrastructures de	Lux	Sophie Capus	1	1		1							1		1	1
10/08/2015	Luxembourg Institute of Science and Technology (LIST)	Lux	Benoît Othoniel			1		1						1			1
3/09/2015	Danish regions	DK	Christian Andersen		1		1							1			



Annex Ib: NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training on 22nd – 23rd June 2015.

[Note: this questionnaire template is meant to help National Focal Points (NFPs) to facilitate the interview/conversation with the National Key Stakeholders (NKS). Some questions are relevant to one NKS, other questions to another NKS. Hence, not all questions are relevant to each single NKS. The NFPs are required to adapt the template accordingly – keeping in it as many as possible of the issues to be addressed. If needed, the NFPs also translate the questionnaire into their national language.]

The questionnaire (see next pages) has the following outline:

- I. Interview information:
To be filled out by the interviewer
- J. Introduction:
That the interviewer can use to start the NKS interview
- K. Background information of the NKS interviewed:
Mostly 'tick-boxes'
- L. Strategic Research Agenda (SRA):
NKS preferred topics, overarching themes and scope for the SRA and national state-of-the-art on research agendas that the NKS is aware of
- M. Science-Policy-Interface:
NKS experiences regarding the exploitation of scientific knowledge to: improve business opportunities; tackle other societal challenges; assist policy-implementation and/or policy revision
- N. Funding:
Predominantly used as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination that the NKS is aware of
- O. Other:
At the end there is some time advised to let the NKS give us their advice, some nice quotes (that we can use anonymously in our communications), examples etc.
- P. Ending the interview:
Explain follow up and if/how NKSs will be involved in the next steps of INSPIRATION



Questionnaire template

A. Interview information
Country: Name of INSPIRATION Researcher: Date of Interview: How does the NKS wish to be referred to: <i>[Anonymous, personal opinions, company's opinion. Choose when it is a good time to discuss this. In the beginning or later on.</i> <i>SHOW the interviewed NKS the ENGAGEMENT CONSENT FORM and ask him/her to fill it out. Please introduce the engagement consent form (available in 'D2.1 MoU' and editable by yourself) and hand a copy to the interviewee to read and fill in – make sure that you take this away with you and keep for your own records]</i>
B. Introductions
<i>[Please introduce your selves, the project and the purpose of the interview. You can use the handout as provided at the end of this template. This can also be sent beforehand to the NKS. Agree on a time span: approximately one and a half hour.]</i>
C. Background information on the interviewee
25. Name of NKS interviewed: 26. Institution: 27. Role:
28. Are you a (multiple answers possible): ☐ National-regional-local authority ☐ University/research institute ☐ Small or Medium sized Enterprise (SME, i.e. < 500 employees) / consultant ☐ Business and industry ☐ Non-Governmental Organisation (NGO) ☐ Network representative / leader ☐ Other, specify: ...
29. Fields of expertise (multiple answers possible): <i>[Ask to specify background regarding the selected item(s) in order to understand expertise background of interviewee]</i> ☐ Soil ☐ Water ☐ Sediment ☐ Urban / spatial planning ☐ Landscape design ☐ Land management ☐ Other, specify:



30. Does your organisation provide external research funding?

- Yes. Please specify: ...
[e.g. as programme holder, public, private, ...]
- No

D. SRA

31. Which societal challenges do you regard as important?

[If needed, you can use the European Commissions (EC) list of societal challenges here. These EC themes are:]

- Contribute to food security and food safety;
- Ensure secure supplies of safe drinking water;
- Secure energy supply and distribution;
- Reduce raw material and resource consumption, Ensure efficient use of natural resources;
- Contribute to climate change mitigation and societal adaptation;
- Contribute to a healthy living environment;
- Ensure secure infrastructure

[Explain that these challenges may be used as bases for defining of the overarching themes for aggregating the research topics of our SRA.]

b. If applicable, what additional, other or alternative challenges would you suggest/prefer?

[When needed, you can mention challenges as nature conservation, sustainable use of ecosystem services, halting the loss of biodiversity]

32. Starting with your own experience: which specific topics (research needs) should be included in the SRA?

[For each single topic mentioned by the NKS, use the following follow-up questions. The a, b and c sub-questions are mandatory. The other sub-questions are optional]:

d. Explain – elaborate the topic

- *Who will be affected?*
- *Who is responsible?*
- *Is it a topic of concern of your organisation / department*
- *Is it only a national topic, or a shared topic by multiple countries?*
- *Where are we now, where do we want to be in x years (point on the horizon)?*
- *How can the newly gained knowledge be effectively used?*

e. Priority:

- 6. *High priority*
- 7. *Some priority*
- 8. *Neutral priority*
- 9. *Low priority*
- 10. *No priority*

- *What is the urgency, i.e. what goes wrong if we do nothing?*

f. Who wants to/should fund this kind of research?

[Optionally: check the following WP3 key-words for relevance, i.e. if they raise any additional topics by the NKS. The key-words can be used as support / check list Be sensible as interviewer if this is needed.]

- *Assessment of land resources*
- *Potential productivity of land and soils*



- *Demand for soil/land resources, imports and exports*
- *Competition between land uses (land-use conflicts)*
- *Concepts to identify and quantify relevant impacts*
- *Instruments to avoid / minimise impacts (feedback to decision-making process)*
- *Opportunities of innovative land-use technologies*
- *Resource-oriented land management systems]*
- *Soil regeneration*
- *Soil and groundwater remediation*

33. Linked to topics mentioned by the NKS:

- a. What are the important / relevant documents, research agendas, research programmes underpinning these topics? (state-of-the-art)
- b. Related to these agendas and programmes: what are timelines of programming and windows-of-opportunities to influence agendas / programmes?

[Note: question 9b is input for work package 5]

E. Science-Policy-Interfacing (SPI)

34. How would you define 'scientific knowledge'?

35. For what do you use scientific knowledge in your job?

36. Which sources of (scientific) knowledge do you use for doing your job?

[Open question and you can mention some of the sources underneath as examples]

○ <i>scientific paper</i>	○ <i>newspapers</i>
○ <i>consultants</i>	○ <i>television</i>
○ <i>reports</i>	○ <i>conferences Involvement in research projects</i>
○ <i>colleagues</i>	○ <i>data (bases)</i>
○ <i>experiences /examples within my own country</i>	○ <i>websites, such as:</i>
○ <i>experiences /examples abroad</i>	○ <i>other, specify:</i>

37. To what extent do you use most recent/new scientific knowledge (i.e. state-of-the-art scientific insights/findings) for doing your job?

38. To what extent are you able to influence (and how) the setting of scientific research policies/agendas in our country?

39. To which extent do our national policies/agendas reflect your specific needs and priorities?

40. To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?



[Questions only for NKS from the non-science sector (business and policy):]

41. Have you ever been involved in:
- d. the formulation of scientific research questions?
 - e. doing scientific research (i.e. knowledge co-creation)?
 - f. synthesizing/wrapping-up of scientific knowledge, e.g. to feed into policy making or to increase business opportunities?

[When yes: Follow-up questions]

- How successful/satisfying was this, on a scale of 1-5?
 - 6. *Very successful/satisfying*
 - 7. *Successful /satisfying*
 - 8. *Neutral*
 - 9. *Unsuccessful/unsatisfying*
 - 10. *Very unsuccessful/unsatisfying*
- What went well
- What could be improved?
- What to avoid/not to do?
- Additional remarks?
-

[Question only to NKS who are likely to have insights here (e.g. research funders)]

42. (How) is the societal impact of scientific research related to the scope of INSPIRATION being assessed in our country?

[If they know: Follow-up questions:]

- How successful/satisfying is this, on a scale of 1-5?
 - 6. *Very successful/satisfying*
 - 7. *Successful/satisfying*
 - 8. *Neutral*
 - 9. *Unsuccessful/unsatisfying*
 - 10. *Very unsuccessful/unsatisfying*
- What indicators are used?
- What goes well?
- What can be improved?
- What to avoid/not to do?
- Additional remarks?

43. Which national Science-Policy-Interface documents do you know of / can you recommend?

F. Funding

44. Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems:
- Sub-nationally /regionally?
 - Nationally?
 - European? *[e.g. H2020, Interreg, multi-lateral such as the Joint Programming Initiatives]*
 - International? *[e.g. Belmont Forum, Foundations-etc.]*



[For all R&I questions aiming at achieving policy targets in the Land & SSW related system (like e.g. Sustainable Development Goals on soils -to be adopted at UN level in September 2015-, existing EU directives such as the Environmental Liability Directive, etc.) Consider all Public and Private funding sources. Please ask to provide details and give most important references (documents, website) that could be relevant for explaining the answer]

45. How to increase the added value of different financial resources (i.e. achieve a multiplier) for doing research that contributes to EU and national demands, in particular to the R&I demands on Land and the SSW-system?
[CONSTRUCTIONS that (could) work. PP, PPI, etc. Just ask for, as open as possible for suggestions, ideas, experiences, good examples]

46. Are there areas of research and innovation (R&I) that you are aware of that are not (yet) covered by current funding mechanisms and which would need new/different funding schemes / infrastructures?

47. Integrated approaches (necessary for addressing particular societal challenges related to the use and management of land and related impacts to SSW systems) are usually difficult to fund / get recognised by the research funding communities. What would be necessary to improve this?

48. Based on previous learning experiences that you are aware of: how to best set up / govern funding option(s), so that societal demands will be fulfilled, knowledge resulting from execution of the SRA will be taken up and used; and funders experience that their invested, national Euros are indeed multiplied?

[if they know: Follow-up questions]

- How successful/satisfying was this, on a scale of 1-5?
 6. *Very successful/satisfying*
 7. *Successful/satisfying*
 8. *Neutral*
 9. *Unsuccessful/unsatisfying*
 10. *Very unsuccessful/unsatisfying*
- What went well
- What could be improved?
- What to avoid/not to do?
- Additional remarks?

G. Other (remarks, suggestions, examples):



H. Ending the interview

Thank you for taking the time to participate in this interview:

- Would you like us to keep you updated about INSPIRATION progress?
- Would you suggest anyone else who we should be interviewed by us?
- Do you have further questions arising from this interview, or would you like to add anything else?
- What information are you interested in, and willing to give feedback on?
[Discuss the feedback mechanism and if they have expressed their opinions as a person or as a representative of their organisation/network. Checklist:]
 - c. Information to exchange / willingness to give feedback on:
 - (complete interview, not recommended)
 - summary of main conclusions
 - national report, national contribution to D2.4
 - complete D2.4, all countries
 - d. Preferred level of feedback:
 - no feedback
 - informal feedback
 - formal feedback (e.g. on behalf of represented organisation)

[Check: have you discussed consent form / how to refer to interviewee]

INSPIRATION acknowledges the received funding from the
European Community's HORIZON2020 Framework Programme
under grant agreement no 642372



Annex Ib: NKS hand-out: INSPIRATION interview at a glance

INSPIRATION interview at a glance

Aim of INSPIRATION:

The main purpose of the EC-funded INSPIRATION project is to formulate an end-user driven strategic research agenda (SRA) for land-use, land-use changes and the related, impacted compartments of the Soil-Sediment-Water (SSW) system in order to meet current and future societal challenges and needs. Next to that, the project aims to scope out models of implementing the SRA and to prepare a network of public and private funding institutions willing to commonly fund the execution of the SRA.

National Key Stakeholders (NKS):

In a series of NKS interviews across EU nations the “National Focal Points (NFP) gather for nations individually information related to the INSPIRATION scope (land and SSW-system use and management) on:

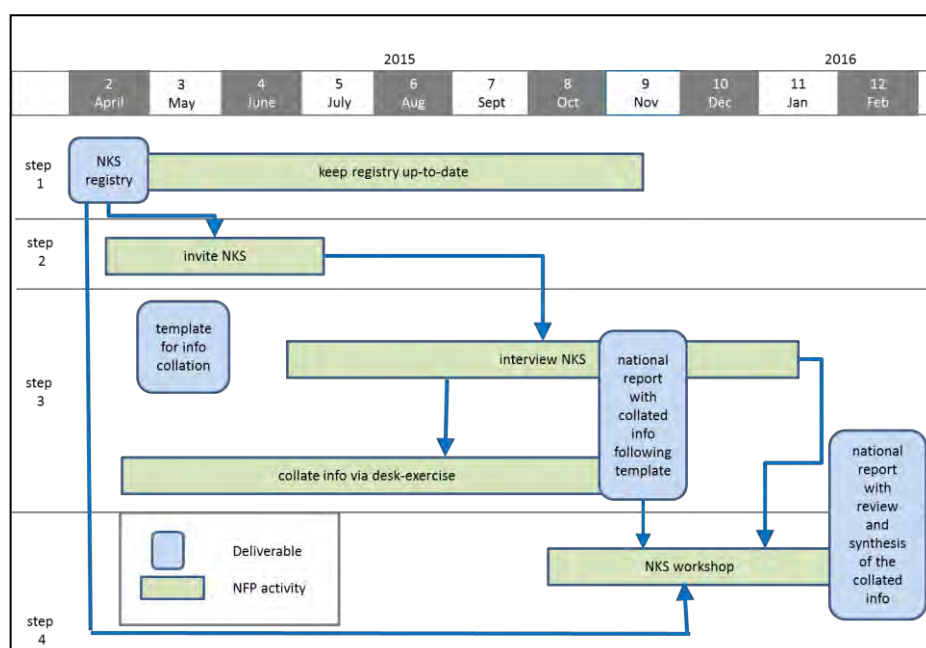
- Research and Innovation (R&I) needs
- Experiences regarding connecting science to policy/practice
- National and transnational funding schemes

In the interviews we focus at NKS – like you – positioned at a strategic level, i.e. leading persons in their field of profession; with a good overview on opportunities; a clear vision on, and insight in knowledge demands (short, middle and long-term). Furthermore, these NKS are well positioned and participate in relevant professional network(s) and may also have potential to become an ambassador for INSPIRATION. We selected NKS to represent different disciplines and institutional backgrounds including: land-use planners; managers; soil, sediment and water experts; researchers, funders and regulators/policy makers.

This interview:

Collecting input from you – an expert in your field – is crucial for the project in order to help us describing the state-of-the-art in our country as input into the European research agenda. In the interview we will go through a series of topics and questions: The interviews of NKS (ca. 20 per nation), together with a desk study on research needs and funding possibilities will be synthesized to a 'national report'. This synthesis will be reviewed in a national workshop, to prioritize the topics for the suggested Strategic Research Agenda (SRA) from our country's point of view. The national reports will finally be used as input for elaborating the European SRA and cross-nation matchmaking (matching research needs to possible funding).

Workflow in first year of INSPIRATION





Example questions:

Research and Innovation (R&I) needs

- Which societal challenges do you regard as important?
- Starting with your own experience: which specific topics (research needs) should be included in the SRA?

Experiences regarding connecting science to policy/practice

- How would you define 'scientific knowledge'?
- To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

National and transnational funding schemes

- Does your organisation provide external research funding?
- Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems

Your benefits from participating:

- A chance to influence the European SRA on land and SSW management in the light of societal challenges and needs;
- Being able to make use of the results of the project: overview of research need and of existing and promising funding schemes on different levels (sub-national, national, European, international) and opportunities for a better connection between science and policy/practice;
- Use the matchmaking opportunity to get in contact with other networks in- and outside our country, and countries learn which shared challenges can be taken up jointly.

Contact and further information:

For general information on the INSPIRATION project visit our website: www.inspiration-h2020.eu

Contact the National Focal Point: <i>[Name]</i> <i>[Address]</i> <i>Tel</i> <i>Email]</i>	Contact the general project coordination: Stephan Bartke FG I3.5 – Coordination INSPIRATION Federal Environment Agency Woerlitzer Platz 1 06844 Dessau-Rosslau Germany stephan.bartke@uba.de



Annex II: Documents used for the desk study

Witboek Landbouwonderzoek - Departement Landbouw en Visserij Afdeling Monitoring en Studie

*Van Gijseghe Dirk, Piessens Inge, Vuylsteke Anne,
Maertens Ellen, Vandenbroeck Philippe, Goossens Jo*

downloadbaar in pdf-formaat op www.vlaanderen.be/landbouw

<http://www.ruimtelijkeordening.be/NL/Diensten/Onderzoek/Onderzoeksagenda>

Onderzoeksagenda Platteland - uitgebreide versie - Platform voor plattelandsonderzoek,
opgemaakt door VLM – februari 2014

Onderzoeksprogramma ter ondersteuning van het Vlaamse milieubeleid - Opgemaakt door
het Departement Leefmilieu, Natuur en Energie i.s.m. de Vlaamse Landmaatschappij, de
Vlaamse Milieumaatschappij en de Openbare Vlaamse Afvalstoffenmaatschappij, mei 2015



Annex III: Mentioned SPI initiatives around soil and land use in Belgium

SPI in the Agricultural sector (some mentioned initiatives)

Agriculture Practice Centers translate results of fundamental research into applied practices

The Agriculture Education service brings policy measures to farmers, communicates with the practice centers and the farmers organisations, organizes seminars for farmers and captures the questions and worries of the farmers

The Platform Agrolink brings together the research institutes on agriculture research.

Policymakers try to foster cooperation between research institutes, farmers and authorities through the Platform for Agricultural Research (Flanders)

Platform on European level: Standing Committee on Agricultural Research (SCAR)

Vulgarization of the scientific research findings for farmers: via VILT and the “Countryside”-TV channel

The best way to convince people is to have personal contact and to show empathy.

SPI in Industrial sector (some mentioned initiatives)

NICOLE network: European network of industry and service providers on contaminated land

SPI in policy sector(some mentioned initiatives)

Common Forum: European network of policymakers on contaminated land

SPI in spatial planning sector (some mentioned initiatives)

Steunpunt “Ruimte” and “Ruimte en Wonen” brings together all stakeholders on these topics and discusses e.g. on research needs



Annex IV: List of regional, national, European and international funding schemes

Regional

<i>Prevention and Remediation Fund for Environment and Nature (MINA-fund)</i>	The MINA-fund is both fed by the Flemish revenues from environmental taxes, fines and fees (polluter pays principle) and by a grant from the Flemish government. A lot of research commissioned by the Flemish government within the environmental domain is financed through this fund.
Applied Scientific Research Program on Environment (TWOL)	This public research program is prepared annually by the Department of Environment, Nature and Energy of the Flemish government and includes all planned and strategically important policy studies on environmental issues. The TWOL program is approved by the Flemish Minister for Environment and funded by the various environmental agencies.
Innoviris	Innoviris is the Brussels institute for the encouragement of scientific research and innovation. The institute supports and stimulates research, development and innovation through the funding of innovative projects by companies, research organisations and the non-commercial sector.
Flemish Program for Rural Development (PDPO)	The 3rd PDPO for the period 2014-2020 focuses on young farmers, the future of farming, innovation, education, resilience and sustainability in the agricultural sector, and improving the viability of rural areas. The PDPO is a collaboration between the Flemish government and the European Union and financed by both.
Agency for Innovation by Science and Technology (IWT)	IWT stimulates knowledge development in companies, research institutions and government agencies by providing financial support, advice and coordination. The agency annually distributes 300 million euro in grants, partly through its own funding programs, partly as intermediary of the Flemish government to which it provides support, monitoring and financial management.
Special Research Fund (BOF)	The BOF is funded through a grant from the Flemish government and supports basic and strategic research conducted at Flemish universities and colleges. The distribution of the funds over the different research institutions depends on a formula that includes the number of master degrees, doctoral degrees, publications and citations. Every knowledge institution has to co-finance research funded by BOF with own resources.

National

Research Fund – Flanders (FWO), Fund for Scientific Research (FRS-FNRS)	Both federal research funds finance fundamental scientific research mainly by supporting individual researchers through fellowships. The FWO operates in Flanders, the FRS-FNRS in the Wallonia-Brussels Federation.
Belgian Science Policy Office (BELSPO)	BELSPO is the federal coordinating office for the Belgian science policy. By managing some major research programmes it provides the Belgian government reliable, validated data, allowing it to take decisions with full knowledge of the facts in areas such as sustainable development, climate change, biodiversity, energy, health, mobility and the information society.



VLIR-UOS	VLIR-UOS is financed by a grant from the Belgian development aid budget. It supports cooperation projects between professors, researchers and teachers. VLIR-UOS also awards scholarships to students and professionals in Flanders and the South. The fund also helps to strengthen higher education in the South and the globalisation of higher education in Flanders.
Luxembourg National Research Fund (FNR)	The Luxembourg National Research Fund (FNR) is the main funder of research activities in Luxembourg. The FNR invests public funds and private donations in research projects in various branches of science, with an emphasis on selected core strategic areas. Furthermore, the FNR supports and coordinates activities to strengthen the link between science and society and to raise awareness for research. It also advises the Luxembourg government on research policy and strategy.

European

Interreg	Interreg is a program for European regional development and promotes cross-border, transnational and interregional cooperation. The program aims to strengthen economic and social cohesion across the EU.
European Regional Development Fund (ERDF)	The ERDF is a structural fund that stimulates economic, social and territorial cohesion within the European Union. Funding priorities include modernising economic structures, creating sustainable jobs and economic growth, research and innovation, environmental protection and risk prevention. Investment in infrastructure also retains an important role, especially in the least-developed regions. All actions should contribute to the objectives of the Europe 2020 strategy for smart, sustainable and inclusive growth.
Joint Programming Initiatives (JPI)	The objective of these JPI's is to increase the value of relevant national and EU R&D funding by concerted and joint planning, implementation and evaluation of national research programmes. There are JPI's on themes like agriculture, food security, urban development, climate change or water.
Rural Development Programs (RDP)	The aim of the Rural Development Programme (RDP) which is financed by the European Agricultural Fund for Rural Development (EAFRD) and national or regional authorities, is to improve the quality of life in rural areas and to encourage diversification of the rural economy.
European Innovation Partnership (EIP)	The EIP's are a new approach to EU research and innovation. By bringing together actors from the entire research and innovation value chain they aim at streamlining efforts and accelerating market take-up of innovations that address key challenges for Europe on themes like water, raw materials or agricultural sustainability and productivity.
European Research Council (ERC)	The ERC's mission is to encourage the highest quality research in Europe through competitive funding and to support investigator-driven frontier research on the basis of scientific excellence. The ERC complements other funding activities in Europe such as those of the national research funding agencies, and is a flagship component of Horizon 2020.



European Science Foundation (ESF)	ESF helps its member organisations collaborate internationally on research programmes that it coordinates in almost every scientific domain. ESF provides services to the science community, including peer review, evaluation and conferences, as well as support career tracking.
Marie Skłodowska-Curie Actions (MSCA)	MSCA support research training and scientific career development focused on innovation skills. The programme encourages transnational, intersectoral and interdisciplinary mobility. The MSCA is the main EU programme for doctoral training and finances 25.000 PhDs.
SNOWMAN	SNOWMAN is a European network of research funding organisations that has launched four calls and funded 17 projects related to soil and land management.
LIFE+	LIFE+ is the EU's funding instrument for the environment and climate action. The general objective of LIFE+ is to contribute to the implementation, updating and development of EU environmental and climate policy and legislation by co-financing projects with European added value.
ERA-net	The ERA-net instrument under Horizon 2020 is designed to support public-public partnerships in their preparation, establishment of networking structures, design, implementation and coordination of joint activities as well as topping up of single joint calls and of actions of a transnational nature.
<i>European Observation Network Territorial Development and Cohesion (ESPON)</i>	The ESPON 2020 Programme aims at promoting and fostering a European territorial dimension in development and cooperation by providing evidence, knowledge transfer and policy learning to public authorities and other policy actors at all levels. ESPON 2020 has a total budget of 48,7 million EUR of which 41,4 is contributed by the EU.

International

Bill & Melinda Gates Foundation (BMGF)	With financial resources up to 42 billion dollar, the BMGF is the largest private foundation in the world. The foundation funds and promotes research on improving health and global development, and also has divisions dedicated to education and equal rights in the US, and global advocacy.
Organisation for Economic Co-operation and Development (OECD)	The OECD has a Co-operative Research Programme (CRP) for the funding of research fellowships and international conferences (workshops and symposia). The CRP supports work on the sustainable use of natural resources in agriculture, fisheries, food production, forestry, and research into new technologies in these areas.

4. Czech Republic

Report by Petr Klusáček, Stanislav Martinát, Bohumil Frantál

4.1 Introduction

This national report (i.e. INSPIRATION deliverable 2.4) reports the information collated for the Czech Republic. The information was collated in accordance with INSPIRATION D2.3 “Template for national information collation”. In the Czech Republic, 20 NKS were interviewed and NKS workshop was organized. Details on these NKS are provided in Annex I. The desk study was based on documents as suggested by NKS. These are listed in Annex II.

Methodological approach of this survey is primarily based on the procedure agreed during the INSPIRATION workshop, which was organized in Vienna during June 2015. As the first step, desk study on topics of INSPIRATION has been carried out. Documents of the Ministry of Agriculture, the Ministry of Environment, the Ministry of Trade and Industry and relevant results of previous studies were mainly taken into account. Next part of research consisted of evaluation of 20 interviews with National Key Stakeholders (NKS), which took part July through November 2015. Individual persons to be interviewed were selected i) on basis of their recent professional activities, ii) on basis of expected structure of interviewed persons identified during INSPIRATION workshop as for their position in the INSPIRATION scheme (knowledge providers – end users – funders), as for type of their affiliation (national, regional, local authority – university and research institutions – SME, consultants – business and industry – NGO – etc.), and as for their professional interests (soil – sediment – water – land use management). Gathering of contacts for potential respondents of the research enabled both personal contacts and usage of snow ball method (recommendations of individual interviewees). Within the third step NKS workshop was organized, where interviewed persons were also invited. Workshop took place in the conference room of the Institute of Geonics, Academy of Sciences of the Czech Republic (October 22, 2015). Altogether circa 60 persons took part in workshop, where one day was spent in work in individual sessions (strategic research agenda, science-policy interface and possibilities for funding). Whole agenda of the INSPIRATION has been discussed, un-clarities detected during interviews were clarified. Together with panel discussions short questionnaire was also distributed to get more clear (and statistically assessable) results (42 reasonably fulfilled questionnaires were gathered and evaluated).

4.2 Research and Innovation (R&I) needs

Topic a: Demand-driven* suggestions for the Strategic Research Agenda (SRA), i.e. suggestions from the perspective of industry, end-users and funders.

Related key question to be answered: ***What (new) knowledge do these parties need to tackle societal challenges including the increase of job opportunities?***

****Demand-driven** in INSPIRATION means focusing on the demands of those who are responsible or feel committed to tackle the societal challenges related to the INSPIRATION scope and themes, i.e. industry, end-users and funders. These parties could improve their business opportunities and/or take better informed decisions on what measures to take and execute in order to tackle other societal challenges if they would (be enabled to) use the knowledge as resulting from execution of the INSPIRATION SRA.



4.2.1. Societal challenges and needs

There are many issues, which have shown during interviews as important challenges for society. These can be divided into three main core research questions:

- a) How not to threaten (how to save) production functions of soils for future in conditions, when current agricultural and forestry activities are primarily oriented on achieving only short-term profits (e.g. generation of profit by means of subsidies for planting energy crops, which causes increased degradation of soils by erosion, decrease of organic materials in soils etc.)?
- b) How to achieve the optimal non-productive functions (for example environmental functions, recreational functions, esthetical functions)?
- c) How to regulate the consumption of soils and landscape for building activities or how to increase re-development on brownfields (previously developed lands) and decrease development on greenfields?

From long-term perspective, the above-mentioned issues are interconnected because for example ignorance of environmental functions (e.g. retention ability of soil and landscape – the ability to save water in cases of both floods and drought) can bring profits from short-term period but it can cause economic losses from long-term period view. Many stakeholders during interview emphasized that the problem is that society is oriented to short-term goals (objectives, profits) and does not care much about long-term goals. It can be exemplified on issue of brownfields redevelopment, where during one interview typical statement, which illustrates attitude of majority of society to resources, was mentioned: *“In our region the brownfields redevelopment has no support from politicians and voters, because there is high unemployed rate. Therefore there is support for development on greenfields because nobody does want to discourage the potential investors bringing job opportunities. Re-development on brownfields usually takes longer time than one election period and voters usually expect results within this one election period and politicians try to satisfy their expectations”*.

From thematic perspective, the stakeholders during interviews usually preferred issues that are related to their activities and more all-embracing perspective was missing quite frequently. For example if the focus was given to the water erosion, the issue was naturally emphasized during interview. On the other hand, plenty of interconnections to other topics of SSW system were not commented. This might be caused by separation of individual research disciplines and lack of mutual communication with researchers, who are focusing on given topic from different perspective (from the point of view of other discipline). During many interviews it was mentioned that societal challenges are changing dynamically and are influenced by actual situation and experiences. If the year is influenced by floods (or if the floods damaged Prague as capital city during floods 2002), the discussion is focused on floods preventions. In 2015, the Czech Republic was influenced by drought and the issue was also discussed among different groups of stakeholders. Czech government replied to risks of extreme climatic events by the Strategy of the adaptation to the climate changes in the condition of the Czech Republic (October 2015).

Generally, during interviews as the most urgent environmental issue in the Czech Republic threats linked to coverage of open landscape were referenced. This is undoubtedly caused by dynamics of land-use changes, which has been taking place in proximity of large cities



(due to suburbanisation processes) in last two decades. Unregulated growth of large cities at the expenses of open landscape is caused by changing opinion of public how modern housing should look like (big house with garden in the countryside), by attractiveness and availability of greenfields for investors for location of new industries, logistic and shopping centres. Gradual de-concentration of urban settlement systems drain urban population out of inner cities, which makes this part of cities less attractive. Lack of regulation concerning reduction of urban sprawl and coverage of open landscape (greenfields) in fact causes shortage of interest in regeneration of brownfields, which are occurring due to recent post-industrial tendencies in economy and society.

As has been summarized by the Search Study of Brownfields in the Czech Republic in 2007, around 2 400 of brownfield sites larger than 1 hectare existed within country eight years ago. The National Brownfields Regeneration Strategy estimated number of brownfields between 8,5-11,7 thousands on the areas of 27-38 thousands of hectares. These sites occur in the Czech Republic due to i) transition of the country from centrally planned economy to market economy in 1990s; ii) post-industrial tendencies in European economy, which depend more on sector of services (however Czech economy is still crucially dependent on industry). Existence of such amount of brownfields is perceived as important environmental issue, since plenty of such sites is located in not so attractive locations for potential investors (in the countryside). Plenty of new developments are built of greenfields. Some stronger brownfields regeneration policies and more significant support applied on efforts on regeneration on the regional and local level could help to given priority to regeneration of brownfields (instead of greenfields).

Since plenty of brownfield sites are contaminated, topic of soil and water contaminations was also shown between the most important environmental topics. A lot of effort and money has been recently invested to solve this destiny of communist regime, however plenty of sites still stay contaminated, which makes their re-use quite difficult. Development of new innovative technologies for cleaning of the sites, included alternative ways of cleaning, should be more supported to enable effective cleaning of contaminated sites.

Another environmental issue, which rises big attention in the Czech Republic, are environmental consequences of significant reduction of agriculture in the last two decades. With increasing of imports of food to the country local agricultural loses its inner markets and is reduced. Nowadays, agricultural sector gives job to just 100 thousand people; two decades ago it was almost five times more. For example more than half of pig heads disappeared from Czech agricultural in the last decade. Thus, function of agriculture as food producer has been significantly under pressure of its other functions (farming as renewable energy producer, provider of rural tourism, maintainer of landscape etc.). These non-food functions of agricultural are perceived as important (moreover if they were underestimated during communist era), but reduction of agricultural is perceived as risk for future development of the country (in the sense of food security). Period after 2004, when the Common Agricultural Policy (CAP) started to be applied in the Czech Republic, is typical by reduction of extent of agriculture in the Czech Republic and increase of its other than production functions. This is perceived by respondents of interviews as problematic due to consequent reduction of organic matters in soil (reduction of animal husbandry) or increasing danger of soil sealing (usage of heavy machinery in agriculture). Support for farmers as food producers is perceived as inadequate and thus they are not able to compete with cheap food



imports. Organic farming (circa 12 % of agricultural land and more than 4 thousands farms in the Czech Republic) is perceived as very positive phenomenon mainly in mountain and protected areas.

No so strongly, but still as an important topic relation of population to soil and landscape was usually mentioned. In context of nationalisation of land and properties in 1950s during Soviet style collectivisation in agriculture, majority of rural population stopped to be owners of the land and started to be employees within state-owned farm and agricultural cooperatives. After fall of the Iron Curtain (late 1980s), when agricultural land and linked properties returned back to private hands of local population, close relation of population to soil has been reduced to perception of land as solely factor/source for food production, whose amount is huge and there is no need for systematic protection. Perception of soils generally haven't changed so much in period after the return of free society.

Topic, which rises huge discussions between experts, was water scarcity, droughts and generally extreme climatic events as possible consequences of climate change. A lot of research has to be conducted within this topic. The Czech Republic is located in central parts of Europe, where important European rivers spring and generally majority of water is leaving area of country quite quickly. There is need to hold water in set of new built artificial lakes, which are planned in the Czech Republic as response to danger of droughts, to introduce measures for saving water, to improve quality of surface water and to protect sources of ground water better. Plans for building of new artificial lakes are perceived by researchers and NGO people as technocratic answer of government to danger of droughts. They propose to support more weak solution of this problem by means support of water retention in landscape (restoration of wetlands, application of proper agricultural techniques, constructions of dry polders, reduction of water contamination, renewal of natural watercourses, support for natural infiltration of water from solid surfaces, renewal of historical ponds, suitable vegetation around watercourses, small-scale reservoirs, limitations for industry in use of fresh and underground water etc.).

Table 1 below shows preliminary results from NKS workshop in the Czech Republic (Ostrava, October 2015), where participants (n=42) evaluated individual selected topics of the Inspiration as for their urgency being important societal challenge (1=high importance, 5=low importance). As for methodology it is necessary to state that participants were not representative sample of stakeholders for the Czech Republic, on the other hand, all important groups of stakeholders were present and these results might surely represent thinking of experts gathered for the NKS workshop. It showed that the highest urgency is seen in issue of coverage of open landscape, followed by problem of soil and water contamination and shortage of absorption capacity of soils. As visible in table 1, which also shows results recalculated according to length of experiences of experts, their professional and sectoral affiliation, indicated preferences as for Inspiration topics didn't changed so much with several exceptions (relative stronger perception of issue of food (in-) security was found in case of experts from public administration; soil and water contamination and shortage of absorption capacity of soils are strongly perceived as urgent topic by experts with shorter experiences, i.e. younger people).

Table 1: Importance of selected topics of INSPIRATION as evaluated by participants of NKS workshop in the Czech Republic (2015)

	Coverage of open landscape	Threat of soils by water erosion	Threat of soils by wind erosion	Soil and water contaminations	Soils sealing	Shortage of absorption capacity of soils	Shortage of organic matter in soils	Inappropriate crop rotation	Food (in-)security	Relation of population to soil
Average evaluation by all experts	1,26	2,55	3,05	2,0	3,17	1,98	2,81	2,67	2,26	2,95
Average evaluation by experts with experience < 7 years	1,25	2,68	3,11	1,79	3,29	2,25	2,79	2,79	2,18	3,04
Average evaluation of experts with experience 7 < years	1,29	2,29	2,93	2,43	2,93	1,43	2,86	2,43	2,43	2,79
Average evaluation by experts from public administration	1,57	2,43	2,93	1,79	3,07	2,07	2,79	2,71	1,79	3,00
Average evaluation by experts from research/academia	1,13	2,88	3,38	2,25	3,50	2,13	3,13	2,75	2,63	3,38
Average evaluation by experts from business/industry	1,10	2,50	3,00	2,05	3,10	1,85	2,70	2,60	2,45	2,75
Average evaluation by experts dealing with regional planning/management	1,24	2,48	2,90	1,97	3,10	1,86	2,83	2,59	2,10	2,93
Average evaluation by experts dealing with soil-sediment-water (SSW) systems	1,31	2,69	3,38	2,08	3,31	2,23	2,77	2,85	2,62	3,00

Source: survey conducted within NKS workshop, October 22, 2015, Ostrava; n=42

Note: Each respondent was asked to evaluate importance of topics by points (1=high importance, 5=low importance)

Fig. 1: Plenary session of NKS workshop in Ostrava (October 22, 2015)



Source: Stanislav Martinát



4.2.2. Topics / research needs to include in the SRA

Below listed topics / research needs were defined based on conducted interviews and verified during NKS workshop in Ostrava (October 2015).

CZ-1: Urban sprawl and consequent land-use changes in the hinterland of big cities

CZ-2: Contaminated sites as heritage of the 20th century and how to deal with them

CZ-3: Recent agricultural decay in the Czech Republic and possible food (in-)security

CZ-4: Adoption to climate change (extreme climatic events – droughts, floods etc.)

CZ-5: Improving quality of soil-sediment-water (SSW) system

CZ-6: Regeneration of urban space and current urban spatial risks

CZ-7: Renewable energy vs. fossil fuels in the Czech Republic

CZ-1: Development on greenfields and consequences for SSW system

Development on greenfields has many legislative obstacles but in reality it is very fast. Report about state of environment Czech Republic from 2013 (2014, p. 101) for example mentioned, that number of built-up areas increased in period 2000-2013 by 3,5 % (28,7 thousands hectares). The development on greenfields is the most intensive in the hinterlands of large cities (effect of both residential and commercial suburbanisation), but it is often common even in shrinking regions, where is decline of population. These shrinking regions (many of them with structural problems) have usually policy, which is oriented according needs of potential investors, who usually prefer development on the new industrial zones located in proximity of highways or main traffic roads. From short-term economic perspective, it is development on greenfields logical, because construction of new buildings on greenfields is usually cheaper and faster than construction the same building on brownfields or previously develop lands, where is necessary to pay additional costs (e.g. demolitions of previous structures, decontamination). From long-term perspective, this kind of development brings negative consequences as losses of agricultural fields and losses of future agricultural production or decrease retention ability of landscape (danger of floods).

Specific research questions:

- Improving the process understanding – and improvement of sharing of that understanding – of the development on greenfields

Why: The better we understand the functioning of the development on greenfields – and especially the role of decision-making processes – the more effective in spatial management nad role of public administration of this issue.

- Developing/testing/demonstrating new technical solutions for building activities on greenfields respecting needs of SSW systems – for example permeable concrete or asphalts, development of system catching and using rain-water from building as supply water, green roofs, buildings with low energetic and water consumptions or passive houses

Why: There are probably one of the most urgent challenges to address. If the development on greenfields is not possible to completely prohibited, how to do it in an intelligent way.



- Social costs and benefits of development on greenfields, identify the examples of “best practices” or demonstration project from other EU countries and from Czech Republic I

Why: The demonstration projects provides the arguments to see that long-term solutions are possible.

CZ-2: Redevelopment of contaminated sites and brownfields as challenge for 21st century?

In the Czech Republic, there is quite high occurrence of both contaminated sites and brownfields (neglected, abandoned and underdeveloped sites, where contamination is possible). The problem is that this issue is influenced by policies of different ministries. Ministry of Environment of the Czech Republic takes care about contaminated sites from environmental perspective, agency CzechInvest (under Ministry of Industry and Trade of the CZ) offers brownfields as investments opportunities and Ministry of regional development takes care about brownfields from perspective of regional and municipal development. Theoretically, these ministries should cooperate but in reality the cooperation is far, far from perfectly and it can be sometimes be perceived as competition. There were created databases of both contaminated sites and brownfields, but the number of redeveloped sites is still limited and issue is challenge for future decades.

Specific research questions:

- There is need of research developing holistic and transdisciplinary approaches including the perspective of different and stakeholders

Why: The current situation is to heterogeneous and it has negative impacts on effectiveness of solutions.

- Improving the process understanding – especially improvement of understanding of roles of the different public administration

Why: The better we understand the decision-making process related to the issue, the more effective and tailored recommendations it is possible to create.

- Improve research focused on best practises and demonstration projects related to both contaminated sites and brownfields. Use innovative solutions – for example developing of solar power plants on contaminated sites and brownfields (detail Klusáček et al., 2014)

Why: The demonstration projects provides the arguments for stakeholders from private sectors (e.g. owners) and public sectors (e.g. mayors) that long-term solutions are effective.

- Improve research focused on technical solutions – e.g. new types of deconstruction of material and recycling of materials from demolitions; new methods of decontamination

Why: The technical solution can cause the process more effective and they can decrease differences between contaminated sites and brownfields on the one side and greenfields on the other side.



CZ-3: Recent agricultural decay in the Czech Republic and possible food (in-)security

Agriculture in the Czech Republic has been experiencing huge structural changes in the last two decades. Primarily production functions of farming have been gradually replenished by social, cultural and mainly environmental functions, which significantly contributed to improvement of environment in protected and sub-mountain areas. On the other hand, especially under the influence of Common Agricultural Policy food production has been importantly reduced and structure of farming has been significantly changed (in favour of non-food activities).

Specific research questions:

- Agricultural production for food is significantly crowded out by other non-food production (energy crops), which significantly influences future food (in-)security of the country.
Why: We should know more explicitly, where, why and with which dynamics are these processes taking place and how farmers are adapting to these agricultural changes.
- Animal husbandry has been strongly reduced, which is one of the reason for lack of organic matter in soils.
Why: How such decrease of organic matter could be replaced to ensure suitable quality of soils?
- There was increase of efficiency by means of new modern vehicles (tractors), which caused increase of intensity of soil sealing and decrease of permeability of soils.
Why: The better we understand the functioning of problems related to the soil sealing, the more effective solutions it is possible to find.

CZ-4: Adoption of landscape to climate changes (extreme climatic events – droughts, floods etc.)

The retention capacity of landscape is decreasing, because of type of agriculture and forestry oriented on short-term profits (e.g. decrease of organic material in agricultural and forestry soils, mechanic compaction of agricultural soils, decrease of soil quality and permeability ability by water and wind erosion) and because of type of short-term development projects on greenfields. The Ministry of Agriculture of the CR supports research oriented on improvement of production function, while Ministry of Environment takes care about environmental functions. Naturally droughts and floods could be important both from productive and environmental perspective. Therefore the Czech government decided to prepare the Strategy for drought, which should be finished by end of 2016. There is problems of fragmentation of research – for example some research are focused on positive aspects of calcification of soils but the other experts mentions that these by massive calcification decrease share of organic materials in soils and increase the problems with drought.

Specific research questions:

- There is need of research integrating productive and environmental perspective of soil management
Why: The current situation is too heterogeneous and it has negative impacts on effectiveness of solutions.



- Improving the process understanding – especially improvement of understanding of roles of the different bodies of public administration (The ministry of Agriculture on the one side and ministry of Environment on the other side)

Why: The better we understand the decision-making process related to the issue, the more effective and tailored solutions it is possible to identify.

- Improve research focused on best practises and demonstration projects related to both floods and droughts - for example restored wetlands small ponds,

Why: The demonstration projects provides the arguments for different types stakeholders that long-term solutions could be both effective and environmentally friendly.

- Improve research focused on technical solutions – e.g. monitoring of amount of underground water, positives and negatives effects of new dams, monitoring of water consumption by water flowmeters and financial penalisation of end-users for overconsumption of water (e.g. using water for swimming pool)

Why: The technical solutions can also decrease impacts of floods and droughts.

CZ-5: Improving quality of soil-sediment-water (SSW) system

Improving quality of soil-sediment-water (SSW) system requires the holistic approach and collaboration of the different groups of stakeholders. There is problem that there is necessary the long-term cooperation. During one of the interview, one of expert on forestry lands mentioned – the changes in forest requires many years (for example replacement of monocultures forest, which are not very optimal from perspective of drought and floods) but majority politicians and voters expect fast and simply solutions – people wants to achieve their goals very fast and therefore they cause economic and environmental debts, which will be paid by next generations. Naturally this statement is rather sceptical and there are some solutions focused on improvement of soil-sediment water system as for example creations of new wetlands, small ponds, bio-centres and bio-corridors or windbreaks. There is also effort to change the agricultural and forestry production to avoid destroying the SSW system and to achieve the effectiveness – for example PREFarm system.

Specific research questions:

- Improving the process understanding – especially improvement of understanding of roles of the different bodies of public administration in SSW system

Why: The better we understand the decision-making process related to the issue, the more effective and tailored recommendations it is possible to create.

- Improve research focused on best practises and demonstration projects supporting both productive and environmental function of landscape as restoration of wetlands, ponds etc.

Why: The demonstration projects provides the arguments for stakeholders from private sectors (e.g. owners) and public sectors (e.g. mayors) that long-term solutions are effective.

- Improve research focused on technical solutions – e.g. new types of management of SSW system using information from monitoring of problems by remote sensing

Why: The technical solution can improve situation both from productive and environmental perspective.



CZ-6: Regeneration of urban space and current urban spatial risks

Contemporary cities are facing dynamic changes not only as for their widening to open landscape (see above), but also as for processes, which are occurring within their inner structures (e.g. gentrification, ghettoization, re-urbanisation etc.). While during communism one of effects of feigned egalitarianism was housing in housing estates of majority of population groups, after introduction of market economy in early 1990s inequalities are increasing. This tendency is in urban space expressed by suburbanisation, displacement and increased segregation of poor population within contemporary cities. As specific example shrinking cities might be mentioned as cities, which are significantly losing their population and are also decreasing as for their economy (e.g. cities in industrial regions, mining cities etc.). Pressure of investors causes decreasing of public space in favour of individual private ownership.

- Relations of population to public spaces in cities need to be more researched to learn more
Why: How to work with public spaces in times when individualism is one of leading motivations of urban people?
- Marketing of cities/urban regions is the topic, which needs more attention. This is mainly case of rather smaller cities.
Why: Cities need to communicate their attractiveness to potential tourists, but also problems to be solved to local population. Such communication flow, which enables participation of local population in public matters, is still quite underestimated.
- Alternative to the suburbanisation could be concept of the compact city, which can be achieved by several methods – by increase of average high of buildings (cities should grow up) or by new building development on the previously develop lands.
Why: The research activities focused on experiences with concept of compact city in the Czech Republic are missing.

CZ-7: Traditional, centralized sources of energy (nuclear, fossil) vs. decentralized, renewable sources of energy in the Czech Republic

Energy sector of the Czech Republic is strongly dependent on fossil fuels and nuclear energy. Recent support for renewable energies, which has been heavily supported by governmental money, caused many controversies and unintended environmental consequences (e.g. coverage of agricultural land by solar panels, huge planting of energy crops by farmers etc.). Due to many scandals renewable energy have a bad reputation between public instead of their environmental benefits.

- Decentralized projects for generation of renewable energy, where energy is locally both produced and consumed should be supported.
Why: How such support could be done and simultaneously negative environmental consequences could be avoided?
- Energy use of households and municipal wastes. Enormous energy potential of waste is nowadays overlooked.
Why: Support energy use of wastes and by means of suitable spatial targeting make this use as much as effective.
- Spatial distribution of individual types of renewable energies should be more researched and adopted to natural/social/environmental conditions to make whole system more effective as for amount of generated renewable energy and reasonable impact on its hinterland.



Why: How and to which extent current distribution of facilities for generation of renewable energies and consequent use of natural resource contribute to sustainability?

4.3 Experiences regarding connecting science to policy/practice

Topic b: *Experiences regarding the exploitation of scientific knowledge to improve business opportunities and/or tackle other societal challenges.*

*Related key question to be answered: **Where to improve the science-policy interface so that (new) knowledge can and will be more effectively exploited by the demand side?***

4.3.1. Use of knowledge

In the Czech Republic, there is classical differentiation between basic and applied research. Basic research is evaluated according to number of articles and quotation in the prestigious per-review journals with impact factors. The applied research creates scientific products, which are tailored according needs of stakeholders from non-scientific sectors. During interviews with stakeholders from non-scientific sectors, it was emphasized that the useful scientific knowledge is some in praxis applicable information published preferably in Czech language. Language barrier causes significant problems while adopting ideas published in English. Respondents of interview typically use information from internet pages of the special research institutes (e.g. Research Institute for Soil and water Conservation - see <http://www.vumop.cz/> or T. G. Masaryk Water Research Institute – see <http://www.vuv.cz/>), from internet pages focused on concrete issues (the portal Our Water – see <http://www.nase-voda.cz/>), from special maps (e.g. internet maps dealing with erosion of agricultural land – see <http://me.vumop.cz/mapserv/monitor/>), from special brochures (e.g. Brochure of protection against water erosion – see http://geoportal.vumop.cz/download/MZE_prirucka_vodni_eroze_2014.pdf), from National Strategies (e.g. Strategy of the adaptation to the climate changes in the condition of the Czech Republic, 2015).

One of the typical result of applied research are so called certificated methodologies, where the end-users participated at formulating of research question and on research activities, testing and on the following practical implementation of these methodologies. The problem of the system is that many of these methodologies are created by research institute and then certified by ministry, which is founder of this institute. In these cases there is clash of interests, because the certification process is not very strict and ministries find it as opportunity to find financial sources for their own institutes. Plenty of usable results of applied research don't reach their potential users due to lack of interconnections between governmentally funded research and people in decision making positions (no matter if from public or private sphere). Big potential is seen in support for cooperation of joint research of researchers and end users from different sectors. As very good attempt in this direction activities of the Technological Agency of the Czech Republic are perceived, which has been founded couple years ago (2009) to support applied research. On contrary, it is hard expect that transfer of knowledge from research to industry goes in similar paths in case of different scientific disciplines. Application of results of social sciences researches were frequently



mentioned as very specific, which success/failure in praxis is quite difficult for evaluation (on contrary to application of patents, softwares, new products etc.).

4.3.2. Possibilities to set the agenda

Some topics are influenced by previous development – for example the collectivisation of agricultural activities in period 1948 – 1989 created in former Czechoslovakia large agricultural fields, which are threatened by water and wind soil erosion more than for example relatively smaller agricultural fields in Austria or in Poland. Some issues are related to the Common Agricultural Policy of EU. There are joint European issues, which are especially related to effects of global climate change on landscape – the most important are drought and floods. The scientific research policies are influenced interests public administration. After floods in 2002 (when Prague was heavily damaged), there was support for research projects dealing with floods protection. After flash floods in Jeseník nad Odrou in 2009, there was supported research by Ministry of Interior focused on warning against this risk. After drought in 2015, there is attention given to the water sources for human activities (households, industrial, agricultural, recreation) etc. Cross-national experiences would be useful and transfer of knowledge (both cross sectoral and cross national) is desired.

4.3.3. Science – policy – practice

Respondents were in majority experienced in working on studies/surveys for needs of local/regional/national bodies of administration. Majority of experiences was quite sceptical concerning transfer of results of research to practice in sense of ignorance mainly on local administration level. It showed that respondents suppose that research conducted and funded by private money has much more better chances to be applied, since state support for research is ineffective. On the contrary, respondents based in public research institutes and universities were pointing to strong lobby of private companies to persons with decision making positions.

During many interview there was mentioned that new scientific methods and recommendation are public available on Internet (even in forms of dissemination brochures) but there is problem with implementation. The research activities related to the soil can be divided to two groups:

- Research activities which brings positive effects in short time perspective (and profit) – they usually do not have problems with implementation – for example projects for new fertilisers increasing of agricultural production or project using remote technologies to decrease consumption of fertilisers,
- Research activities which brings positive effects in long-term perspective – for example creation of wetland improving of situation of underground water in long-term perspective – this is not very attractive both for stakeholders from private sector (if there are no or small subsidies) and from public sectors (they think in one or two election periods and do not care what could happen in 20 or 25 years)

Contemporary research to be applied for societal needs was sometimes perceived as just formal way how to transfer money from state budget to budgets of research institutes. In reality, few results were applied in praxis (as good examples of projects with societal impact

were COBRAMAN or CircUse were mentioned; the first project which supported education of brownfields managers for administration, the second one as example of suitable application of analytical framework developed by scientists). Between beneficial projects, which helped, project with title Partnership for Czech Brownfields (<http://fast10.vsb.cz/brownfield/en/>) was also frequently mentioned. This project enabled regular meetings of experts on issue of brownfields, which significantly contributed to transfer of knowledge about benefits of brownfields regeneration in cities.

Respondents mentioned very frequently that problem with identification and formulation of research questions, which solution might be beneficial for whole society, is caused by short-term thinking of decision makers, who strongly rely on political decisions. If horizon of planning for decision makers is reduced just for four years (which is election period), quick results are expected. Such approach was evaluated as short-sighted due to needs of long-term strategy for research in the Czech Republic.

Another problem has been seen in limited visibility of results of research. It is quite usual that methodologies are developed and certified, but never used in reality. Some more clear communication of research results to public and administration bodies would be useful. It would be also useful to support so called pilot project, which could verify and more develop result of previous research without pressure to earn immediately money.

4.4 National and transnational funding schemes

Topic c: *Predominant, current as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination.*

Related key question to be answered: *How to get with one Euro of national/regional funding a multitude of Euro's (from all sources) worth of knowledge in return contributing to EU and national demands? Or even how to get with one euro of EU funding a multitude of euro's (from national, regional, local, and private sector) worth of knowledge in return contributing to the R&I demands on Land and the Soil-Sediment-Water systems.*

Topic d: *Experiences regarding the use of any trans-national, common budget for scientific knowledge production related to the scope of INSPIRATION.*

Related key question to be answered: *How to set up/govern the appropriate funding option(s) resulting from INSPIRATION – based on previous learning experiences – so that: (1) the above demands will be fulfilled, (2) knowledge resulting from implementation of the SRA will be taken up and used and (3) funders experience that their invested, national Euros are indeed multiplied?"*

4.4.1. Funding schemes and possibilities for research funding

As very frequent problem of research in the Czech Republic lack of financial sources in this sector was mentioned. Due to historical reasons research in the Czech Republic is developed in several clusters with sometimes mutual competing tendencies (universities, academy of sciences), which harms whole research sector. Nowadays chance for individual project to be supported is very low, which operates as demotivating factor for researchers. If



share of supported projects (on total number of applications) is below 30 %, it is not about competition, but more about some kind of lottery.

Administration burden connected to projects is enormous and should be reduced. This opinion was quite frequent, on the other hand, it was obvious, that this complain rises from situation at rather smaller research institutes and universities, where building of special department, which is primarily specialized on administration support for projects, is usually at beginnings.

It might be also beneficial, if projects are submitted in reduced versions, evaluated and then applicants addressed by administrators of grant agencies to further develop their ideas. A lot of researchers' energy would be saved to work on other tasks. This is caused by above mentioned quite low share of finally supported projects.

Fragmentation of funding of research has been also mentioned. Within the Czech Republic plenty of governmental funding agencies exist (e.g. within individual ministries), which makes funding system quite chaotic and confusing. As the result of reduction of funding for research plans of individual institutes, pressure on researchers to apply for external funding has been increased. Generally, funding of research in the Czech Republic has been gradually adopted to competitive environment, which is quite new situation incomparable to support for funding decade ago (share of external money from grant projects makes almost half of budgets of individual research institutes).

As great possibility inflow of money (after EU accession) from structural funds for support of research infrastructure was mentioned. On the other hand, not all projects were reasonably planned and money wasted (mainly in "soft" projects, which supported development of human resources in research). It would be better to support "hard" research activities by more money.

Money from private companies are crucially lacking in Czech research sphere. Problem with co-funding (quite small institutes are not able co-fund research projects – typically LIFE+ Programme, where co-funding is almost 60 %). As problem seems to be huge administration of projects, especially if coordinated. Huge administration burden thus causes lack of H2020 and FP7 projects coordinated from the Czech Republic.

As problematic is seen evaluation system of research results in the Czech Republic. Evaluation methodology is insufficient and doesn't take specifics of various research disciplines into account. Results of research, which find their use in praxis, should be more seriously taken into account. This fact causes disconnections between research and society. The Czech Republic is very small country, where research sector is quite small and people know each other very well. This might be beneficial for cooperation, but sometimes it works as research lock-in. Some fresh air from abroad would be more than useful. Cross-national cooperation on research project could help to make research on SSW system better.

Evaluation of grant projects is very long (usually more than 6 months), should be more quick and flexible. Social sciences are usually underestimated as for their relevance. Technocratic approach of officials is prevailing. The most usual way how to learn more about results of research are visits at conferences, fairs, reading of professional journals and contact with universities.

Generally as the main problems of financial system can be mention the following:

- Closeness of research, monopolisation of research and lobbying power of the experienced teams - the experienced research teams achieved the majority of grants



and there is not a lot of space for young research teams with innovative ideas – this closeness of scientific knowledge is visible at all hierarchical levels (regional, national, EU)

- Support of the same research activities from the different sources – it is common especially if the issue is solved by two or three Ministries, because each ministry tends to support their own research institute,
- Short-term orientation of research – the government decreases support for long-term research and researchers have to make changes of their research activities based on 2 or 3 years grants,
- Support of researchers according to issues in media – if there are floods, the research on floods is supported, if there is drought, the research on drought is supported etc.

Applied research in the Czech Republic is funded by multiple sources on different levels – primarily were mentioned these sources:

- a) cross-national level – Horizon2020, Norway funds, Interreg IVc, ESPON programme, Central European Initiative
- b) national level – Technology Agency of the Czech Republic, National Agency for Agricultural Research (Ministry of Agriculture), Applied Research for National and Cultural Identity (Ministry of Culture), Safety Research Programme (Ministry of Interior), Research for needs of regions (Ministry for Regional Development), Operational Programme Environment (Ministry of Environment)
- c) regional level – grant schemes of regional administrations

4.4.2. Gaps in financial resources for research

There is a lack of support for integrative, holistic and multidisciplinary approaches. The SRA is an object of study of many disciplines and each discipline tends to defend its position – it is a question of power. The Czech Republic is a small country and scientists, who are often authors of grant proposals, are the evaluators of other grant proposals. From the perspective of applied research, the end-users emphasized the grants, which are prepared from the beginning in cooperation with end-users. They perceived as very successful the programs of the Technological agency of the Czech Republic and they mention that the number of financial sources for good applied research should be increased.

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



4.5 Annexes

Ia: NKS interviews in the Czech Republic

Date of interview	Organisation	Interview	funder	end user	knowledge provider	Nat.reg.loc. authority	Univ./ research inst	SME /consultant	business & industry	NGO	network	other	soil	sediment	water	land use-management
20-07-15	Regional Development Agency of the South Moravia	Jan Hladik		/		/										/
28-07-15	Statutory city of Ostrava - Department of Environment	Aleš Brázda		/		/							/		/	
21-10-15	Mendel University	Aleš Bajer			/		/						/	/		
17-10-15	CzechInvest	Patrik Reichl	/					/								/
03-08-15	Center for urban and regional management	Ondřej Slach			/				/							/
01-09-15	Czech Environmental Partnership Foundation	Miroslav Kundera		/						/				/		
27-08-15	Czech Partnership for Brownfields	Barbara Vojvodíková			/						/					/
15-08-15	VUKOZ Brno	Hana Skokanová			/		/								/	/
27-08-15	Center for Transport Research	Marek Havlíček			/			/						/	/	/
22-10-15	Regional Council of	Vladimír Gelnar	/			/										/

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



	NUTS2 Moravia-Silesia															
22-10-15	SOV Tranovice	anonymized		/		/										/
26-10-15	Ministry for Regional Development	František Kubeš	/			/										/
21-09-15	CEZ (energy company)	Stanislav Cetkovský	/						/					/		/
13-11-15	GISIT	Radek Petrželka			/			/								/
22-10-15	TGM Water Research Institute	Igor Konvit			/				/						/	
27-10-15	Institute for Spatial Development	Igor Kyselka	/			/							/			/
29-10-15	Brno University of Technology	Miroslav Dumbrovský			/		/								/	
14-06-15	Liberecký Region	Petra Vrzáčová	/			/										/
22-10-15	State Land Office	František Pavlík		/		/							/	/		/
23-10-15	Director of agricultural cooperative	anonymized		/				/					/			/

Persons, who didn't wish to be referenced, were anonymized. Full contacts to these persons are at NFP for the Czech Republic.



Annex Ib: NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training on 22nd – 23rd June 2015.

[Note: this questionnaire template is meant to help National Focal Points (NFPs) to facilitate the interview/conversation with the National Key Stakeholders (NKS). Some questions are relevant to one NKS, other questions to another NKS. Hence, not all questions are relevant to each single NKS. The NFPs are required to adapt the template accordingly – keeping in it as many as possible of the issues to be addressed. If needed, the NFPs also translate the questionnaire into their national language.]

The questionnaire (see next pages) has the following outline:

- Q. Interview information:
To be filled out by the interviewer
- R. Introduction:
That the interviewer can use to start the NKS interview
- S. Background information of the NKS interviewed:
Mostly 'tick-boxes'
- T. Strategic Research Agenda (SRA):
NKS preferred topics, overarching themes and scope for the SRA and national state-of-the-art on research agendas that the NKS is aware of
- U. Science-Policy-Interface:
NKS experiences regarding the exploitation of scientific knowledge to: improve business opportunities; tackle other societal challenges; assist policy-implementation and/or policy revision
- V. Funding:
Predominantly used as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination that the NKS is aware of
- W. Other:
At the end there is some time advised to let the NKS give us their advice, some nice quotes (that we can use anonymously in our communications), examples etc.
- X. Ending the interview:
Explain follow up and if/how NKSs will be involved in the next steps of INSPIRATION

Questionnaire template – in national language (Czech Republic)

Otázky pro rozhovory v členských zemích EU – upraveno pro ČR

Poznámka: tyto otázky byly vytvořeny jako vodítko pro výzkumníky, kteří provádí výzkum v různých členských zemích EU. To znamená, že některé otázky mohou být relevantní v jedné zemi EU a irelevantní v jiné členské zemi EU. Jedná se tedy o soubor podpůrných otázek sloužících k navození diskuze v rámci rozhovorů.

A. Základní údaje

Stát EU: Česká republika

Jméno dotazované osoby:

Instituce/ role:

Jakým způsobem má být ve vyhodnocení výsledků na osobu odkazováno:

Jméno výzkumníka projektu INSPIRATION:

Datum rozhovoru:

B. Úvod – představení projektu

Cílem projektu INSPIRATION, který je financován Evropskou komisí, je formulace **strategické výzkumné agendy** (strategic research agenda - SRA) **zaměřené na oblasti výzkumu využití země, jejich proměn včetně dalších částí systému tematických oblastí Půda – Sedimenty – Voda (Soil – Sediment – Water - SSW)**. Zmíněná agenda bude formulována s pomocí koncových uživatelů výzkumů tak, aby byly zohledněny současné i budoucí společenské výzvy a potřeby. Mezi cíle projektu také patří aktivity vyvíjející modely implementaci strategické výzkumné agendy a identifikace sítě veřejných a soukromých institucí, které se společně budou podílet na uvedení strategické výzkumné agendy do praxe.

Stěžejní aktivitou projektu je shromažďování relevantních informací od jednotlivých klíčových aktérů na národní úrovni, kteří jsou experty ve svém oboru a pomáhají při identifikaci stavu a úrovně výzkumů jednotlivých témat v České republice. Tyto informace slouží jako podklad pro budoucí Evropskou výzkumnou agendu.

C. Základní informace o sobě, se kterou byl rozhovor uskutečněn

1. Jaká je Vaše současná role v oblasti výzkumu zaměřeného na oblasti výzkumu využití země (Soil – Sediment – Water systems)?

Jste (je možné zvolit více odpovědí):

- orgán veřejné správy na národní, regionální, lokální úrovni
- univerzita/výzkumný ústav
- malý a střední podnik /konzultant
- obchod a průmysl
- nezisková organizace
- zástupce sítě subjektů
- v jiné pozici, uveďte konkrétně:

2. Jak dlouho působíte v této roli / pozici? <i>Pracujete sám/ v týmu – jaká je jeho velikost?</i>
3. Oblast Vaší specializace/ odbornosti (je možné zvolit více odpovědí): ☐ půda ☐ voda ☐ sedimenty ☐ městské plánování ☐ krajinné plánování ☐ územní management ☐ jiná - jaká:
4. Poskytuje vaše organizace financování výzkumu? ☐ Ano, prosím specifikujte (<i>jako správce programu, příležitostně, z veřejných zdrojů, ze soukromých zdrojů</i>)..... ☐ Ne
D. SVA = Strategická výzkumná agenda zaměřená na oblasti výzkumu využití země, jejich proměn včetně dalších částí systému tematických oblastí Půda – Sedimenty – Voda (Soil – Sediment – Water - SSW)
5. Vaše preference ohledně rozsahu Strategické výzkumné agendy? <i>[Myslete na časové rozpětí výzkumných potřeb, současný stav výzkumu, analýzu stakeholderů, témata typická pro ČR a témata pro více zemí EU, přehled národních agend, příležitosti financování výzkumu....]</i>
6. Vaše očekávání ohledně SVA? <i>[Na jaké strategické cíle by se měla zaměřit?]</i>
7. Vaše preferovaná témata spojená s SVA? <i>[typ oblastí, význam – váha oblastí, společenské výzvy, potřeby, ...]</i>
8. Existující výzkumné agendy/programy [Existují nějaké dostupné dokumenty či studie, které jsou spojené s SVA? Jaké konkrétně?]
9. Je nějakým způsobem měřen dopad výzkumů v oblasti SVA v České republice? Pokud ne, tak proč ne? Pokud ano – jakým způsobem? Byly například vytvořeny nějaké hodnotící studie, které měří kvalitu výzkumu zaměřeného na SVA? Jsou tyto studie dostupné a kde?
10. Jaká je v současnosti národní agenda zaměřená na SVA?

11. Jaké témata jsou prioritní? Např.

- *Potravinová bezpečnost a kvalita potravin;*
- *Zajištění dostatečných zdrojů pitné vody;*
- *Zajištění zdrojů energie a jejich distribuce;*
- *Redukce spotřeby surovinových zdrojů,*
- *Zajištění efektivního využití přírodních zdrojů;*
- *Příspěvek k adaptaci na klimatické změny;*
- *Příspěvek k zdravému životnímu prostředí;*
- *Zajištění spolehlivé infrastruktury*

Pro všechna výše uvedená témata zodpovězte následující podrobnější otázky

12. Jaká je naléhavost/ dopad tématu?

Jaké riziko hrozí, pokud nebude [tématu věnována pozornost?

13. Kdo bude zasažen?

14. Kdo je zodpovědný?

15. Je to téma, kterému se věnuje vaše organizace pouze národním tématem v rámci ČR nebo se jedná o téma důležité z hlediska více zemí EU? I

16. Jaká je největší výzkumná potřeba spojená s tématem?

Jaký je momentální stav tohoto tématu a čeho by mělo být dosaženo v budoucnu (jak odhadujete časový horizont – kolik času zabere dosažení tohoto cíle)

17. Jakým způsobem budou nové poznatky využity v praxi?

18. Kdo financuje tento výzkum? Kdo by ho měl financovat?

E. Propojení vědy a politiky (praxe)

19. Jaké jsou vaše zkušenosti týkající se využití vědeckých poznatků při:

- zlepšování příležitostí pro obchod a podnikání?
 - zvládání dalších sociálních výzev?
 - participaci na implementování politik a (nebo) jejich modifikacích?
- Co se daří dobře a jaké oblasti by bylo třeba zlepšit?

20. Jaké jsou zdroje (vědeckých) informací?

Kde hledáte informace, které potřebujete? Používáte například Wise-RTD <http://www.wise-rtd.info/en> ? Nebo jiné webové stránky?

21. Jakým způsobem jsou lidé ze sektoru mimo vědu (např. obchod, politika a další) zapojováni do formulace vědeckých výzkumných otázek?

Co se v této oblasti daří a co by bylo dobré zlepšit?

22. Jakým způsobem jsou lidé ze sektoru mimo vědu (např. obchod, politika a další) zapojeni do využití vědeckých výsledků?

Co se v této oblasti daří a co by bylo dobré zlepšit? *Spolupráce ve výzkumně inovačních konsorciích, participace na společném výzkumu atd.*

23. Můžete doporučit nějaké národní dokumenty zabývající se propojením vědy a politiky (praxe)?

F. Financování

24. S jakými zdroji financování tohoto výzkumu máte zkušenosti na úrovni:

- a) regionální?
- b) národní?

c) EU?

např. *H2020, multilaterální jako například Joint Programming Initiatives - https://ec.europa.eu/research/era/joint-programming_en.html*

- d) Světová? Např. *Belmont Forum* - <http://belmontforum.org/>
U všech otázek zaměřených na dosahování politických cílů spojených se Strategickou výzkumnou agendou, nás zajímají detaily – odkazy na dokumenty nebo webové stránky.

25. Jaký způsob vědeckých výzkumů je nejefektivnější z hlediska přínosu pro praxi a z hlediska zhodnocení finančních prostředků vložených do výzkumu?

26. Nebo jinak řečeno – jakým způsobem získat z výzkumných projektů financovaných EU na národní, regionální a lokální úrovni) nebo soukromým sektorem maximum užitečných poznatků souvisejících s tématy Strategické výzkumné agendy?

27. Znáte příklady dobrých projektů nebo programů financujících projekty, které se týkají témat Strategické výzkumné agendy?

28. Jsou zde témata, která nejsou podporována současnými mechanismy financování?
Která témata by potřebovala nové/jiné způsoby financování?

29. Integrované a komplexní přístupy (které jsou důležité z hlediska společenských výzev spojených s tématy Strategické výzkumné agendy) mají obvykle problém s financováním i s hodnocením vědeckou komunitou. Co je zapotřebí ke zlepšení v této oblasti?

30. Jakým způsobem by se měly nastavit vhodné možnosti financování tak, aby

- společenské potřeby byly zajištěny?,
- poznatky dosažené v budoucnu díky implementaci Strategické výzkumné agendy byly využívány?,
- a zdroje financování byly efektivně využívány a měly multiplikační efekt pro praxi?

G. Ostatní (poznámky, návrhy, příklady):

H. Závěrečná část rozhovoru

Děkujeme za Váš čas a ochotu!

- Chtěli byste být informováni o výsledcích projektu INSPIRATION?
- Můžete navrhnout někoho jiného, kdo by mohl zajímat o projekt INSPIRATION, případně by mohl být vhodným člověkem pro rozhovor?
- Máte nějaké další otázky k projektu nebo k tomuto rozhovoru?

INSPIRATION acknowledges the received funding from the
European Community's HORIZON2020 Framework Programme
under grant agreement no 642372



Annex Ib: NKS hand-out: INSPIRATION interview at a glance

INSPIRATION interview at a glance

Aim of INSPIRATION:

The main purpose of the EC-funded INSPIRATION project is to formulate an end-user driven strategic research agenda (SRA) for land-use, land-use changes and the related, impacted compartments of the Soil-Sediment-Water (SSW) system in order to meet current and future societal challenges and needs. Next to that, the project aims to scope out models of implementing the SRA and to prepare a network of public and private funding institutions willing to commonly fund the execution of the SRA.

National Key Stakeholders (NKS):

In a series of NKS interviews across EU nations the “National Focal Points (NFP) gather for nations individually information related to the INSPIRATION scope (land and SSW-system use and management) on:

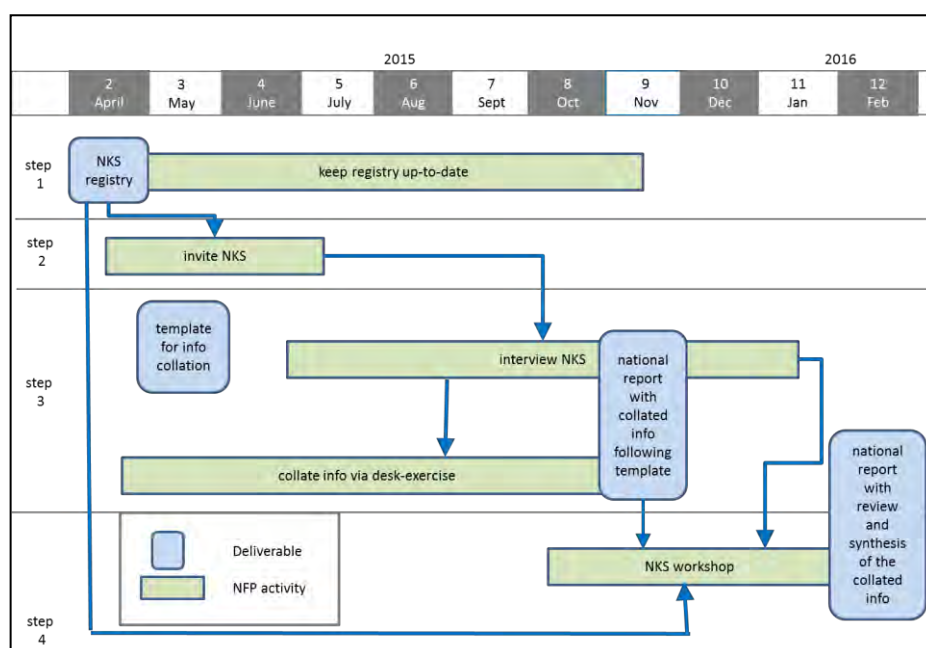
- Research and Innovation (R&I) needs
- Experiences regarding connecting science to policy/practice
- National and transnational funding schemes

In the interviews we focus at NKS – like you – positioned at a strategic level, i.e. leading persons in their field of profession; with a good overview on opportunities; a clear vision on, and insight in knowledge demands (short, middle and long-term). Furthermore, these NKS are well positioned and participate in relevant professional network(s) and may also have potential to become an ambassador for INSPIRATION. We selected NKS to represent different disciplines and institutional backgrounds including: land-use planners; managers; soil, sediment and water experts; researchers, funders and regulators/policy makers.

This interview:

Collecting input from you – an expert in your field – is crucial for the project in order to help us describing the state-of-the-art in our country as input into the European research agenda. In the interview we will go through a series of topics and questions: The interviews of NKS (ca. 20 per nation), together with a desk study on research needs and funding possibilities will be synthesized to a 'national report'. This synthesis will be reviewed in a national workshop, to prioritize the topics for the suggested Strategic Research Agenda (SRA) from our country's point of view. The national reports will finally be used as input for elaborating the European SRA and cross-nation matchmaking (matching research needs to possible funding).

Workflow in first year of INSPIRATION





Example questions:

Research and Innovation (R&I) needs

- Which societal challenges do you regard as important?
- Starting with your own experience: which specific topics (research needs) should be included in the SRA?

Experiences regarding connecting science to policy/practice

- How would you define 'scientific knowledge'?
- To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

National and transnational funding schemes

- Does your organisation provide external research funding?
- Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems

Your benefits from participating:

- A chance to influence the European SRA on land and SSW management in the light of societal challenges and needs;
- Being able to make use of the results of the project: overview of research need and of existing and promising funding schemes on different levels (sub-national, national, European, international) and opportunities for a better connection between science and policy/practice;
- Use the matchmaking opportunity to get in contact with other networks in- and outside our country, and countries learn which shared challenges can be taken up jointly.

Contact and further information:

For general information on the INSPIRATION project visit our website: www.inspiration-h2020.eu

Contact the National Focal Point: <i>Petr Klusáček</i> <i>Stanislav Martinát</i> <i>Bohumil Frantál</i> Institute of Geonics Academy of Sciences of the Czech Republic Studentska 1768j, 708 00 Ostrava Czech Republic klusacek@geonika.cz martinat@geonika.cz	Contact the general project coordination: Stephan Bartke FG I3.5 – Coordination INSPIRATION Federal Environment Agency Woerlitzer Platz 1 06844 Dessau-Rosslau Germany stephan.bartke@uba.de



Annex II: Documents used for the Czech Republic desk study

Bičík, I., Jeleček, L., & Štěpánek, V. (2001). Land-use changes and their social driving forces in Czechia in the 19th and 20th centuries. *Land use policy*, 18(1), 65-73.

Klusáček, P., Havlíček, M., Dvořák, P., Kunc, J., Martinát, S., Tonev, P. (2014a):. From Wasted Land to Megawatts: How to Convert Brownfields Into Solar Power Plants (the Case of the Czech Republic), *Acta Univ. Agric. Silvic. Mendelianae Brun.*, 62/3, 517-528.

Korbelová, D., Filip, P. et al. (2015) Analýza stavu výzkumu, vývoje a inovací v České republice a jejich srovnání se zahraničím v roce 2014 (Analysis of state of research, development and innovations in the Czech Republic and its comparison to foreign countries in 2014). Praha: Úřad vlády České republiky.

Krasa, J., Dostal, T., Vrana, K., & Plocek, J. (2010). Predicting spatial patterns of sediment delivery and impacts of land-use scenarios on sediment transport in Czech catchments. *Land Degradation & Development*, 21(4), 367-375.

Národní výzkumná a inovační strategie pro inteligentní specializaci České republiky (Národní RIS3 strategie) (2014) (National research and innovation strategy for intelligent specialisation of the Czech Republic – National RIS3 Strategy). Praha: Ministerstvo školství, mládeže a tělovýchovy České republiky.

OECD (2012), *Compact City Policies: A Comparative Assessment*, OECD Green Growth Studies, OECD Publishing. DOI: 10.1787/9789264167865-en

Sklenicka, P. (2006). Applying evaluation criteria for the land consolidation effect to three contrasting study areas in the Czech Republic. *Land Use Policy*, 23(4), 502-510.

Strategie přizpůsobení se změně klimatu v podmínkách ČR (2015) (Strategy for adaption to climate change in conditions of the Czech Republic). Praha: Ministerstvo životního prostředí České republiky.

Van Rompaey, A., Krasa, J., & Dostal, T. (2007). Modelling the impact of land cover changes in the Czech Republic on sediment delivery. *Land Use Policy*, 24(3), 576-583.

Zpráva o životním prostředí České republiky za rok 2013 (2014): MŽP, [online] available from:

http://www1.cenia.cz/www/sites/default/files/Zprava%20o%20zivotnim%20prostredi%20CR%202013_141112.pdf

5. Finland

Report by Antti Rehunen, Teija Haavisto

5.1 Introduction

This national report (i.e. INSPIRATION deliverable 2.4) reports the information collated for Finland. The information was collated in accordance with INSPIRATION D2.3 “Template for national information collation”. In Finland, totally 14 NKS interviews were accomplished. The number of people interviewed was 22. In several interviews, two or more representatives of the organisation participated in the interview. The interviewees represented altogether 11 different organisations. When several people were interviewed from one organisation, they were selected by the interviewer or by the organisation to represent different departments or areas of expertise. The interviewed experts represented quite equally three target groups: funders, end users of knowledge, and knowledge producers. The Details on these NKS are provided in Annex I. The desk study was based on documents as suggested by NKS and identified by the project researchers. These are listed in Annex II.

5.2 Research and Innovation (R&I) needs

Topic a: Demand-driven* suggestions for the Strategic Research Agenda (SRA), i.e. suggestions from the perspective of industry, end-users and funders.

Related key question to be answered: **What (new) knowledge do these parties need to tackle societal challenges including the increase of job opportunities)?**

****Demand-driven** in INSPIRATION means focusing on the demands of those who are responsible or feel committed to tackle the societal challenges related to the INSPIRATION scope and themes, i.e. industry, end-users and funders. These parties could improve their business opportunities and/or take better informed decisions on what measures to take and execute in order to tackle other societal challenges if they would (be enabled to) use the knowledge as resulting from execution of the INSPIRATION SRA.

5.2.1. Societal challenges and needs

Reduction of raw material and resource consumption, resource efficiency and circular economy was mentioned most often by the interviewed experts as the important societal challenge. Climate change mitigation and adaptation to change were also considered by many experts as a societal challenge that the future research activities should contribute to. Food and drinking water safety were regarded highly important, but risks related to them were thought to be only moderate at the national level, but critical globally. Healthy living environment was seen as a general goal of urban development requiring sufficient data and methods for integrated planning. Research needs related to biodiversity, green infrastructure and ecosystem services were also mentioned particularly in connection with fitting different land uses with each other. Security of infrastructure and energy distribution was considered as a less stressed issue from land use, soil and land management perspective, but the impacts of infrastructure development and energy production was mentioned as essential theme.

5.2.2. Topics / research needs to include in the SRA

The research needs mentioned in NKS interviews and literature review focusing on sectoral strategies and R&D programmes can be summarised under nine topics:

FI-1 Assessing the impacts of different land uses on the quality of water

The allocation of different land uses and vegetation on different kinds of soils has a crucial impact on the quality of runoff waters and groundwater. Certain uses of e.g. acid sulphate soils can lead to considerable leaching of metals. The nutrient runoff from fields depends on where the fields are located and the ways in which they are farmed. Vegetation can be used to infiltrate waters, but it may act as a source of natural runoff of nutrients. Most discharges of nutrients and impurities often originate from a rather small part of the total area. More knowledge is needed on what the exact effects of specific land uses are and through what means harmful effects can be minimised. Possible research questions may be:

- How to identify the impacts of certain land use changes on the quality of runoff waters within a river basin?
- How to detect the most effective ways to improve water quality e.g. through modelling and systemic approaches?
- How to develop sampling and analysis methods for different relevant substances?
- How do different land use policies, such as agricultural policy, contribute to the environmental impacts of land use?

FI-2 Gathering and synthesizing data on the state of soils for policy formulation

Policy formulation concerning land use and soils in both European and national levels calls for a holistic view on the current state of soils in different areas. The identification of biggest challenges should be based on a synthesis of research findings in different disciplines. Furthermore, the coverage and compatibility of basic datasets, such as geographic data on European soils, needs to be enhanced. Possible research questions may be:

- How to promote the harmonisation of classifications (e.g. organic soils) and gather comparable attribute data on soils in Europe?
- How to maintain and combine different time series data to detect long-term changes?
- How to develop new, handy methods to gather data on environmental conditions?
- How can diverse research findings be summarised in a comprehensive way?
- How is the knowledge base used in policy formation and what are the consequences?

FI-3 Biogeochemical cycles and soil ecosystem services

Biogeochemical cycles are the basis of the provision of ecosystem services and healthy living environment. Human activities have many impacts on biogeochemical cycles, and it is not sufficiently known how different impacts together change the cycles and their interconnections. Soil acts as a major carbon storage, but present methods to assess soil carbon changes are in many ways insufficient, for example in the case of agricultural soils. The resilience of soils is also becoming increasingly important as environmental conditions are changing because of climate change. Possible research questions may be:

- How do soil biogeochemical cycles operate as a whole and how does the human impact change them?
- What is the amount of soil carbon storage in areas of different land use and what is the precise role of soil carbon in climate change mitigation in those areas?

- How can the resilience of soils be determined and enhanced in changing circumstances, such as in warming climate?
- How can soil be studied as a resource for the production of ecosystem services considering i.a. efficient use of nutrients, soil biodiversity and harmful substances
- How can soil-related ecosystem services be mapped, assessed, valued, productised and commercialised?

FI-4 Innovative ways of recycling materials and re-using land areas

Depletion of many non-renewable natural resources, such as minerals and nutrients, is an increasing problem. Some resources, such as soil and rock resources, have become scarce close to their consumption in cities and have to be transported considerable distances. Promoting the recycling of materials can help to guarantee their availability and decrease environmental impacts, but methodology and procedures need to be further developed. As extraction activities are often only temporary, the re-use of land areas is an important issue and can provide new opportunities. Possible research questions may be:

- How to manage the supply and demand of soil and rock materials in local and regional level through in situ use, recycling and organisation of temporary storage for classified materials?
- How to advance the recycling of limited mineral and nutrient resources (e.g. through capturing phosphorous from wastewater or landfill mining)?
- How to realise new ways to re-use brownfields, mines and soil extraction areas, e.g. in urban development, recreation or as restored nature areas?
- How to introduce market mechanisms for compensating harms to nature areas e.g. through improvements in other areas or temporary “ecosystem hotels”?

FI-5 Integration of different land uses

Integration of different land use targets is the main purpose of land use planning. New and expanding ways of using natural resources together with sustainable development objectives have increased the need to integrate different targets in both rural and urban areas. Controversies are related e.g. to mining, energy production, and the extraction of aggregates. Possible research questions may be:

- How to learn from good practices of cross-sectoral integration of targets and creation of common understanding with the help of shared knowledge?
- In what ways to address the integration of land uses from a 3D or 4D perspective paying attention to competing uses of subterranean spaces?
- How to deal with different values in decision-making e.g. with the help of multiple-criteria decision analysis and reconcile conflicts?
- How to assess the cost-effectiveness and environmental impacts of alternative land use solutions?
- How to develop integration in all the phases of land use management – in land policy, planning, decision-making, plot assignment and implementation?

FI-6 Sustainable urbanisation and healthy living environments

The future success and welfare of the society is dependent on how the urbanisation process is carried out. To promote sustainable urbanisation, more knowledge is required on drivers and trends related to urbanisation, ways of integrated governance, suitability of locations for



different functions, opportunities to create healthy environments, and integration of built and green infrastructure. Possible research questions may be:

- How to better understand processes and interconnections related to urbanisation?
- How to assess the carbon footprint and material consumption of infrastructure developments and land use changes?
- How to define best locations for new developments and infrastructure paying attention e.g. to the location in the urban form and geotechnical properties of the site?
- How to enhance integrated governance of urban regions, policy coherence and co-operation of different administrative bodies?
- How to guarantee and improve the functioning of ecosystem services in urban areas and take advantage of nature-based solutions e.g. in stormwater management?

FI-7 Societal acceptance and regulation

Social acceptance of decisions affecting the environment is receiving increasing attention, as social sustainability and participation in planning are emphasised. New tools and methods, such as e-participation and the use of social media, are being introduced to deal with social acceptability. Environmental regulation and de-regulation are also related to social acceptance. Possible research questions may be:

- Which land use and soil management issues in what kind of contexts are difficult to accept by local residents and other stakeholders and what factors have an effect on the acceptance?
- How can different risks and solutions that leave impurities in the area be accepted?
- Through what kind of measures can social acceptance be addressed and achieved?
- How to define an acceptable level of environmental regulation taking business opportunities, public interest and environmental aspects into consideration?
- In what ways should regulation be carried out to avoid the loss of competitiveness in global markets and outsourcing of jobs and negative impacts elsewhere?

FI-8 Risk management and sustainable remediation of soils

Many risks are connected to different land uses, soil and water properties and emissions from different sources. To adopt sustainable risk management, new knowledge is needed on the recognition of risks, dealing with different types of risk areas, defining responsibilities, communication on risks, and the procedures and target levels of remediation. Possible research questions may be:

- How to identify, examine and remediate risks systematically considering different kinds of (ecological, technological and economic) risks?
- How can sensitive areas and functions be dealt with in risk management and land use planning?
- How to communicate about risks openly, transparently and interactively paying attention to the availability of data and privacy protection?
- How to organize remediation activities in a cost-efficient way minimising the use of natural resources and environmental impacts and learning from failed projects
- How to define sufficient level of purification for contaminated areas?



FI-9 Climate change adaptation in Northern Europe

Climate change mitigation and adaptation are related to all research topics. Some research questions rise from adaptation capabilities in Nordic conditions and they can include:

- What are the consequences of decreasing ground frost to soil quality and agriculture?
- How to take into account more frequent extreme weather events in the built environment?
- What are the impacts of increasing runoff waters during wintertime, more frequent and severe flood events and increased erosion?
- How does the warming climate affect the sufficiency of water in relatively shallow aquifers?

Research topics are considered in the strategies and particularly in R&D strategies of different ministries. Sectoral research institutes working under the ministries also specify their focus areas. Funding from ministries is channelled also through the Government working group for the coordination of research, foresight and assessment activities that funds analysis and research projects under specified themes.

The Academy of Finland is an important funder of academic research, and has general and thematic research calls. Newly introduced Strategic Research Council (SRC) at the Academy of Finland provides funding to long-term and programme-based research aimed at finding solutions to the major challenges facing Finnish society.

5.3 Experiences regarding connecting science to policy/practice

Topic b: *Experiences regarding the exploitation of scientific knowledge to improve business opportunities and/or tackle other societal challenges.*

*Related key question to be answered: **Where to improve the science-policy interface so that (new) knowledge can and will be more effectively exploited by the demand side?***

5.3.1. Use of knowledge

Scientific knowledge was seen by interviewed stakeholders as knowledge produced by universities and research institutes. End users seldom search scientific knowledge from peer-reviewed articles, but learn about scientific findings through other sources. Scientific knowledge is also the basis for guidelines, recommendations and standards that are used by public and private sector.

Scientific knowledge is usually gathered for a particular purpose and it is often used together with other data on the circumstances related to the issue that is under consideration. New case-specific data is collected and analysed according to the principles developed in scientific research.

The use of scientific knowledge takes place in a certain context. The ministries use research findings to support policy preparation. Many stakeholders need scientific knowledge for the impact assessment of planned activities. Entrepreneurs use research-based standards and guidelines when applying for permits and planning their activities.

Scientific articles are used, or overall accessible, mainly only in universities and research institutes. Researchers and other knowledge producers use many different kinds of data in



their work. International research literature is the backbone of the work, and researchers often seek research findings that are comparable to their own work.

For the interviewed end users of knowledge, main sources of knowledge were direct contacts and meetings with researchers, easily accessible reports, professional and popular publications and consultant works. Only few interviewed knowledge end users followed research publications even half-regularly e.g. by glancing through recent published dissertations. Some stakeholders, such as the ministries, had very good contacts to researchers and had no difficulties in finding the data they needed. Some stakeholders had researchers also taking part in the development projects in a bigger or smaller role. Consultant work was often commissioned by some stakeholders, but it was seen to be restricted only to the questions mentioned in the commissioning.

Several interviewed experts emphasised the need for policy briefs and interpreted scientific data. In their opinion, research institutes and universities should communicate more actively about most recent and relevant research findings that are done by themselves or discussed in international scientific journals and conferences. Some experts pointed out that researchers ought to consider the usability of their research findings more extensively during the research process. Clear messages were hoped from the research projects.

Many end users of knowledge reported that they would need support in assessing the quality of the data available. They regarded it important to distinguish, which research results are based on solid proof and can be generalised, which findings are more uncertain and context-specific and which results are produced in a survey without any particular scientific background or methodology. Interviewed experts also saw it essential to separate research pursuing objectivity from lobbying of different interest groups.

Interviewed knowledge users hoped that research findings and datasets would be gathered under a common web portal. Illustrative examples of good practices, maps, graphs and other visual material were found useful in communicating results to decision-making in a compact form. Data sharing and open data policies were also highlighted in the interviews.

Small and medium-sized enterprises were reported to have limited resources to find latest research results. Linking the supply of knowledge to the processes, such as permit applications, where the knowledge is required was seen as the most efficient method of conveying research results to this audience. The enterprises were also said to benefit from clear, research-based standards and guidelines.

5.3.2. Possibilities to set the agenda

Interviewed experts working in ministries saw that they have rather good opportunities to influence research agendas. Also experts in other organisations that provide considerable funding thought that they are able to influence their own organisation's research priorities. Funders' representatives are usually involved in specifying the topics of research & development project goals, and they also participate in the steering groups of the projects.

Interviewed experts from end user and knowledge provider organisations considered their opportunities to influence research agendas more limited and indirect.

Soil and land management were seen to be seldom in the centre of research programme agendas. According to the interviewed experts, there is a need to emphasise the significance of underlying soil and land as an issue in other research themes, such as urban development, resource efficiency etc. It was also noted that it is important to have several approaches to certain research problems so that decision-making is not relying only on single type of research methodology.

5.3.3. Science – policy – practice

The interviewed experts from funder organisations had experience on the formulation of scientific research topics and questions in the preparation of research calls and in steering groups of research projects. Some ministries are also steering the research institutes working under them. Other experts reported that they had occasionally been synthesising knowledge from research reports to policy making.

Science–policy/practice interaction should happen more in two ways according to several interviewed experts. Some pointed out that researchers should be more involved in the planning of research programmes and articulate their interpretations more explicitly. Furthermore, some experts saw that policy objectives should have an effect on what kind of research is funded, and some experts thought that research needs should come more from enterprises. Worries were also expressed over emphasising merely societal influence, which could restrict the research topics too much and prevent new innovative openings.

According to interviewed experts, research findings don't always end up in practical use, because funders and knowledge users are unaware of them, and similar research is carried out many times without researchers knowing from each other. This highlights the need for broad review studies on what is already known on basis of numerous studies that have previously been accomplished.

The interviewed experts found it very difficult to assess the societal impact of scientific research. They referred to the evaluations that ministries do on their own research and development activities and assessments that the Academy of Finland carries out on the state of scientific research in Finland.

5.4 National and transnational funding schemes

Topic c: *Predominant, current as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination.*

*Related key question to be answered: **How to get with one Euro of national/regional funding a multitude of Euro's (from all sources) worth of knowledge in return contributing to EU and national demands? Or even how to get with one euro of EU funding a multitude of euro's (from national, regional, local, and private sector) worth of knowledge in return contributing to the R&I demands on Land and the Soil-Sediment-Water systems.***

Topic d: *Experiences regarding the use of any trans-national, common budget for scientific knowledge production related to the scope of INSPIRATION.*

*Related key question to be answered: **How to set up/govern the appropriate funding option(s) resulting from INSPIRATION – based on previous learning experiences – so that: (1)the above demands will be fulfilled, (2) knowledge resulting from implementation of the SRA will be taken up and used and (3) funders experience that their invested, national Euros are indeed multiplied?"***



5.4.1. Funding schemes and possibilities for research funding

The interviewed experts saw funding opportunities in many presently used funding schemes for future research on the themes considered in the INSPIRATION project. They recognised the need for both national and European research funding, and in some cases also regional funding. National and European projects should deal also with global issues and challenges.

Possible sources of national funding that were mentioned included: the Academy of Finland, Finnish Technology Funder Tekes, Government working group for the coordination of research, foresight and assessment activities, sectoral funding from ministries and state administration as well as funding from cities, regional councils and regional centres for Economic Development, Transport and the Environment. In some projects, funding has been successfully gathered from many different funders, ranging from cities to ministries.

Horizon 2020, European Regional Development Fund (ERDF) and European Innovation Partnerships (EIP) were mentioned as European examples of funding. In addition, different sectors, such as the transport sector, have their own international funding networks. Also funding from programmes related to agriculture and rural areas were mentioned. Some experts hoped that regional development funds could be more than presently directed to research that is relevant in different regions.

The alignment and interfaces of different funding systems was raised by the experts as a matter to consider more carefully when preparing future funding agendas. Several aims were seen to be related to the setting of research targets. It was considered useful to start from societal challenges rather than from interests of a single industry or promotion of only business activities. In addition, action-based research carried out with stakeholders was seen increasingly important.

Competition for research funding was seen to be getting more intense. Preparing applications was regarded to consume resources considerably and turn out less efficient in the large scale. Worries were expressed over the accumulation of funding to a limited number of state-of-the-art projects and organisations leaving other actors that have important tasks in the education of experts without funding.

While many EU-funded projects are relatively large, the need for smaller projects and consortia was also expressed. Smaller projects could be easier to set up and could produce results more quickly.

Merging public and private funding was seen necessary. Private investments to research foundations could e.g. be favoured in taxation. The interviewed experts pointed out that small and medium-sized enterprises have limited resources for research and development. That is why combined funding models need to be preferred.

Some experts had the opinion that research calls shouldn't be too narrowly focused to allow space for new suggestions. Others thought that when research funding is getting more limited, research should be more focused. Focusing the topics could also help to get concrete results.



5.4.2. Gaps in financial resources for research

Soil and land as a resource was thought by many interviewed experts to be partly neglected topic in large scale research agendas. Many experts expressed worries over the funding of basic research and monitoring, which was regarded as a publicly funded task. Applied research can be more often receive funding from the users of research results. However, it was noted that applied research is often based on basic research, monitoring and databases.

Meta-analysis based on already gathered results, such as synthesis of existing monitoring data, was noted to deserve more attention. Integrated approaches combining different fields of expertise e.g. in a river basin context were seen to be appreciated today, but they would require also cross-sectoral funding and co-operation.

Big financial values were seen to be related to the built environment and industries relying on land and soil. According to interviewed experts, the significance of land and soil issues for these values should be more explicitly argued to organise sufficient funding for relevant research questions.

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



5.5 Annexes

1a: NKS interviews in Finland

Date of interview	Organisation	Interview	funder	end user	knowledge provider	Nat.reg.loc. authority	Univ./research inst	SME /consultant	business & industry	NGO	network	other	soil	sediment	water	land use-management
17-06-15	City of Helsinki, City Planning Department	Kaarina Laakso	x	x		x										x
18-06-15	Association of Finnish Local and Regional Authorities	Miira Riipinen, Ulla Hurmeranta	x	x		x							x			x
29-10-15	Infra Contractors Association in Finland	Eija Ehrukainen		x					x				x			x
29-10-15	City of Helsinki, Public Works Department	Mikko Suominen	x	x		x							x	x		x
04-11-15	University of Helsinki, Department of Food and Environmental Sciences	Markku Yli-Halla			x		x						x			
06-11-15	Finnish Transport Agency	Arto Hovi, Soile Knuuti, Tuula Säämänen	x	x		x										x
06-11-15	University of Helsinki, Department of Geosciences and Geography	Kirsti Korkka-Niemi			x		x						x	x	x	
09-11-15	Finnish Water Utilities Association	Osma Seppälä		x							x				x	
13-11-15	Geological Survey of Finland	Ossi Ikävalko, Jaana Jarva			x		x						x	x	x	x
17-11-15	Ministry of Agriculture and	Maisa Tapio-Biström,	x	x		x							x	x	x	x

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



	Forestry	(agriculture), Niina Riissanen (forestry), Jaana Kaipainen (climate change adaptation, soils), Ville Keskisarja (waters), Elina Nikkola (research)													
19-11-15	Natural Resources Institute Finland	Kristiina Regina			x		x						x		x
23-11-15	Ministry of Employment and the Economy	Kirsti Loukola- Ruskeeniemi	x	x		x									x
25-11-15	Ministry of Environment	Anna-Maija Pajukallio	x	x		x							x	x	x
26-11-15	Natural Resources Institute Finland	Tiina M. Nieminen			x		x						x		

Annex Ib: NKS questionnaire template - Kansallisten sidosryhmähaastattelujen runko

[Huom: Kaikkia kysymyksiä ei ole välttämätöntä käydä läpi kaikkien haastateltavien kanssa läpi.]

Haastattelun runko on seuraava:

- Y. Haastattelun tiedot:
Haastattelija täyttää
- Z. Esittely:
Haastattelija esittelee itsensä ja hankkeen
- AA. Taustatietoja haastateltavasta keskeisen sidosryhmän edustajasta:
lähinnä rasti ruutuun
- BB. Strateginen tutkimusohjelma:
Haastateltavan tärkeinä pitämät aiheet, yhdistävät teemat ja strategisen tutkimusohjelman (STO) tarkoitus sekä tutkimusohjelmien nykytila
- CC. Tutkimus-politiikka rajapinta:
Haastateltavan kokemukset tieteellisen tiedon hyödyntämisestä liiketoimintamahdollisuuksien edistämiseksi tai muiden yhteiskunnallisten haasteiden ratkaisemisessa sekä apuna politiikan toimeenpanossa tai muotoilemisessa
- DD. Rahoitus:
Haastateltavan tuntemat käytössä olevat sekä lupaavat vaihtoehtoiset rahoitusjärjestelmät / mekanismit / ohjelmat tiedon tuottamiseen ja jakeluun
- EE. Muuta:
Lopuksi suositellaan, että jätetään aikaa sille, että haastateltava voi antaa neuvoja ja vinkkejä (joita voidaan käyttää nimettömänä), esimerkkejä yms.
- FF. Haastattelun lopettaminen:
Kerro miten työ jatkuu ja miten haastateltava voi halutessaan osallistua hankkeen seuraaviin vaiheisiin.

Questionnaire template in National Language

A. Tiedot haastattelusta
Maa ja paikka: Haastattelijan nimi: Haastattelun ajankohta: Miten haastateltava toivoo itseensä viitattavan: <i>[Anonyymisti / henkilökohtainen asiantuntijamielipide / yrityksen/organisaation kanta. Käydään läpi lomake, joka sisältää haastateltavan suostumuksen haastattelutiedon käyttöön]</i>
B. Esittelyt
<i>[Tutkijan esittely, projektin esittely ja haastattelun tarkoitus. Käytettävissä oleva aika]</i>
C. Haastateltavan taustatiedot
1. Haastateltavan nimi: 2. Instituutio / laitos: 3. Rooli / vastuualue / työtehtävät:
4. Oletko (useiden valintojen teko mahdollista): ☐ Kansallinen-alueellinen-paikallinen viranomainen ☐ Yliopisto/tutkimuslaitos ☐ Pieni tai keskikokoinen yritys (< 500 työntekijää) / konsultti ☐ Liike-elämä ja teollisuus ☐ Kansalaisjärjestö (NGO) ☐ Verkoston edustaja / johtaja ☐ Muu, täsmennä: ...
5. Asiantuntemuksen ala (voit valita useita vaihtoehtoja): ☐ maa-alueiden käyttö rakentamiseen ja elinkeinotoimintaan ☐ maankäytön suunnittelu ☐ maaperän laatu ja suojele ☐ maa- ja kiviaineshuolto ☐ maisemanhoito ☐ pilaantuneiden maa-alueiden käyttö ☐ pohjavesien suojele. ☐ muu, täsmennä: ...
6. Rahoittaako organisaatiosi ulkopuolista tutkimusta? ☐ Kyllä, täsmennä: ... ☐ Ei

D. Tutkimustarpeet strategiseen tutkimusohjelmaan

7. Mitä yhteiskunnallisia haasteita pidät tärkeinä?

[Tarvittaessa voidaan käsitellä EU-komission tunnistamia haasteita:]

- Ruuantuotannon varmuuden ja turvallisuuden edistäminen;
- Turvallisen juomaveden saatavuuden turvaaminen;
- Energian tuotannon ja jakelun turvaaminen;
- Raaka-aineiden ja resurssien käytön vähentäminen, luonnonvarojen tehokkaan käytön varmistaminen;
- Ilmaston muutoksen lieventämisen ja yhteiskunnan sopeutumisen edistäminen;
- Terveellisen elinympäristön edistäminen;
- Turvallisen infrastruktuurin varmistaminen

[Näiden haasteiden pohjalta voidaan määritellä yhdistäviä teemoja, joilla voidaan ryhmitellä tutkimusaiheita tutkimusohjelmassa.]

c. Onko jotain muita haasteita, joita voisit ehdottaa /pidät tärkeinä?

[esim. luontoon liittyvät haasteet]

8. Mitkä aihepiirit ja kysymykset (tutkimustarpeet) tulisi mielestäsi sisällyttää strategiseen tutkimusohjelmaan?

[Aiheiden kohdalla käydään läpi kohdat a, b ja c ja mahdollisuuksien mukaan vaihtoehtoiset kohdat]:

g. Aiheen kuvaus

- Mihin tutkimuksen vaikutus kohdistuisi?
- Kuka voisi olla vastuussa tutkimuksesta?
- Onko aihe organisaatiosi / osastosi keskeinen huolenaihe?
- Onko aihe vain kansallisesti tärkeä vai onko sillä merkitystä useille maille?
- Missä ollaan nyt ja mihin halutaan päästä x vuoden kuluttua?
- Miten tuotettua tietoa voitaisiin hyödyntää tehokkaasti?

h. Prioriteetti:

11. Erittäin tärkeä

12. Tärkeä

13. Kohtalaisen tärkeä

14. Vain vähän tärkeä

15. Ei mitään merkitystä

- Onko tutkimustarve kiireellinen? Mitä seuraa, jos aiheeseen ei tartuta?

i. Kuka haluaisi/ kenen tulisi rahoittaa tällaista tutkimusta?

[Vaihtoehtoisesti voidaan käsitellä seuraavien aiheiden merkitystä:]

- o Maaperään liittyvien resurssien arviointi
- o Maa-alueiden ja maaperän tuottavuus
- o Maaperän/maaresurssien kysyntä, tuonti ja vienti
- o Maankäyttömuotojen välinen kilpailu (konfliktit)
- o Vaikutusten tunnistaminen ja arviointi
- o Välineet, joilla voidaan välttää / pienentää vaikutuksia
- o Innovatiivisten maankäyttötieteiden mahdollisuudet
- o Resurssiorientoitunut maa-alueiden hallinta ja siihen liittyvät järjestelmät
- o Maaperän ennallistaminen
- o Maaperän ja pohjaveden kunnostaminen

9. Liittyy haastateltavan mainitsemaan aiheisiin:

- Mitkä ovat tärkeitä / merkityksellisiä asiakirjoja, kuten tutkimusohjelmia, jotka tukisivat mainittujen aiheiden tutkimista? (nykytila)
- Ohjelmiin liittyen: mitkä ovat ohjelmien suunnittelun aikarajat ja milloin niihin voi vaikuttaa?

E. Tiede-politiikka-rajapinta

10. Miten määrittäisit tieteellisen tiedon?

11. Mihin tarkoitukseen käytät tieteellistä tietoa työssäsi?

12. Mitä tiedonlähteitä (tieteellinen tieto) käytät työssäsi?

[alla esimerkkejä]

☐ <i>tieteellisiä artikkeleita</i>	☐ <i>sanomalehdet</i>
☐ <i>konsultteja</i>	☐ <i>televisio</i>
☐ <i>raportteja</i>	☐ <i>konferenssit</i>
☐ <i>kollegoja</i>	☐ <i>tutkimusprojekteihin osallistuminen</i>
☐ <i>kokemukset / esimerkit omassa maassa</i>	☐ <i>tietojärjestelmät</i>
☐ <i>kokemukset / esimerkit ulkomailta</i>	☐ <i>nettisivut, kuten:</i>
	☐ <i>muu, täsmennä:</i>

13. Missä määrin käytät viimeisintä / uusinta tieteellistä tietoa työssäsi?

14. Missä määrin pystyt vaikuttamaan tieteellisen tutkimuksen politiikkaan /ohjelmiin maassasi?

15. Missä määrin kansalliset politiikat / ohjelmat heijastavat erityisesti sinun tiedontarpeitasi ja prioriteettejasi?

16. Missä määrin ajantasaista tieteellistä tutkimusta käytetään maassasi olemassa olevien politiikkojen muotoiluun?

[Kysymyksiä vain haastateltavalle, joka on tiedesektorin ulkopuolelta (like-elämä ja politiikka):]

17. Oletko osallistunut:

- tieteellisten tutkimuskysymysten muotoiluun?
- tieteelliseen tutkimukseen?
- tieteellisen tiedon yhdistämiseen /muotoiluun käytettäväksi poliittisessa päätöksenteossa ja lisäämään liiketoimintamahdollisuuksia?

[Jos kyllä: jatkokysymykset]

- kuinka menestyksellistä / tyydyttävää se oli asteikolla 1-5?

11. *Erittäin onnistunutta*

12. Onnistunutta 13. Kohtalaisen onnistunutta 14. Epäonnistunutta 15. Erittäin epäonnistunutta - Mikä meni hyvin? - Mitä olisi voinut parantaa? - Mitä pitäisi välttää / jättää tekemättä? - Muita huomautuksia?
<i>[Kysymyksiä vain haastateltaville, joilla todennäköisesti on näkemyksiä asiasta (esim. rahoittajat)]</i> 18. Mitä tieteellisen tutkimuksen yhteiskunnallisia vaikutuksia arvioidaan Suomessa tässä käsiteltyjen aihepiirien osalta? <i>[jatkokysymyksiä asiaa tunteville:]</i> - kuinka arviointi on toiminut asteikolla 1-5? 11. Erittäin hyvin 12. Hyvin 13. Kohtalaisesti 14. Huonosti 15. Erittäin huonosti - Mitä indikaattoreita on käytetty? - Mikä on toiminut hyvin? - Mitä voidaan parantaa? - Mitä tulisi välttää / jättää tekemättä? - Muita huomautuksia?
19. Mitä kansallisia tiede-politiikka rajapintaan liittyviä asiakirjoja tiedät tai voit suositella?
F. Rahoitus
20. Millaiset julkiset tai yksityiset rahoitusjärjestelmät voisivat tarjota tulevaisuudessa mahdollisuuksia aiemmin käsiteltyjen aiheiden tutkimiselle? - Alueellisesti? - Kansallisesti? - Euroopan tasolla? - Kansainvälisesti? <i>[Kirjataan muistiin tiedot mainituista rahoitusmahdollisuuksista]</i>
21. Miten voidaan lisätä aihepiirin tutkimukseen käytettävien rahoitusresurssien tuottavuutta eli saada mahdollisimman paljon lisäarvoa <i>[ehdotuksia, ajatuksia, kokemuksia, hyviä esimerkkejä]</i>
22. Onko sellaisia tutkimuksen ja innovaatioiden aihepiirejä, joiden tiedät puuttuvat nykyisten rahoitusmekanismien piiristä ja jotka tarvitsisivat uutta/erilaista rahoitusjärjestelmää /ratkaisuja?

23. Integroituja lähestymistapoja tarvitaan usein maankäyttöön liittyvien kysymysten ratkaisemissa, mutta näille on vaikea saada riittävästä huomiota ja rahoitusta tutkimusrahoitusta jaettaessa. Mitä pitäisi tehdä tilanteen parantamiseksi?

24. Kuinka tutkimusrahoitusvälineitä pitäisi aiemman kokemuksesi perusteella käynnistää ja hallita, jotta yhteiskunnallisiin haasteisiin voidaan vastata, tutkimustieto päätyy hyötykäyttöön ja rahoittajat kokevat saavansa rahoille vastinetta?

[Jos tunnet tiettyjä tutkimusrahoitustapoja:]

- Miten hyvin rahoitus onnistui asteikolla 1-5?
 - 11. *Erittäin onnistunutta*
 - 12. *Onnistunutta*
 - 13. *Kohtalaisen onnistunutta*
 - 14. *Epäonnistunutta*
 - 15. *Hyvin epäonnistunutta*
 - Mikä meni hyvin?
 - Mitä olisi voinut parantaa?
 - Mitä pitäisi välttää / jättää tekemättä?
- Muita huomautuksia?

G. Muuta (huomioita, ehdotuksia, esimerkkejä):

H. Haastattelun lopettaminen

Kiitokset haastateltavalle ja kysymyksiä haastattelun päätteeksi

- Haluatko seurata jatkossa Inspiration-hanketta
- Haluatko ehdottaa jotakuta muuta henkilöä haastateltavaksi?
- Onko kysymyksiä tai lisättävää?
- Oletko kiinnostunut jatkossa
 - e. kommentoimaan:
 - haastattelusta nostettavia pääpointteja
 - kansallista raporttia tutkimustarpeista
 - kaikista Inspiration-hankkeeseen osallistuvista maista kootuista tutkimustarpeista laadittavaa raporttia
 - f. kommentointitapa:
 - ei kommentointia
 - epävirallinen palaute
 - virallinen palaute (organisaation puolesta)

[Tarkistetaan, että on käyty läpi lomake, joka sisältää haastateltavan suostumuksen haastattelutiedon käyttöön]

INSPIRATION acknowledges the received funding from the
European Community's HORIZON2020 Framework Programme
under grant agreement no 642372



Annex Ic: NKS hand-out: INSPIRATION interview at a glance – INSPIRATION hankkeesta ja haastatteluista tiivistetysti

INSPIRATION-hankkeen tavoite:

EU-rahoitteisessa INSPIRATION-hankkeessa kartoitetaan keskeisimpiä maankäyttöön ja maaperään liittyviä tutkimustarpeita eri Euroopan maissa. Työ toteutetaan yhteistyössä tiedon loppukäyttäjien, tutkimusrahoittajien ja tiedontuottajien kanssa. Kartoituksen perusteella on tavoitteena laatia strateginen tutkimusohjelma, joka vastaa aihepiiriin liittyviin nykyisiin ja tuleviin tarpeisiin yhteiskunnassa. Lisäksi hankkeessa selvitetään tutkimusohjelman toteuttamistapoja sekä kootaan julkisten ja yksityisten tahojen yhteistyöverkostoa ohjelman rahoittamiseksi.

Hankkeessa käsitellään laajasti maaperään ja maankäyttöön liittyviä kysymyksiä. Tarkastelun kohteina ovat esimerkiksi maa-alueiden käyttö rakentamiseen ja elinkeinotoimintaan, maankäytön suunnittelu, maaperän laatu ja suojelu, maa-aineshuolto, maisemanhoito, pilaantuneiden maa-alueiden käyttö ja pohjavesien suojelu. Tärkeitä näkökohtia ovat luonnonvarojen käytön kestävyys sekä eri maankäyttömuotojen yhteensovittaminen ja vaikutusten arviointi.

Hankkeessa arvioidaan, mitkä ovat tällä hetkellä pahimpia tiedon puutteita ja millaista uutta tutkimustietoa tarvitaan, jotta voidaan ratkaista yhteiskunnallisia haasteita ja tuottaa uusia innovaatioita ja liiketoimintamahdollisuuksia. Lisäksi hankkeessa selvitetään, miten tutkimustieto välittyy päätöksentekoon ja käytännön toimintaan sekä millaisia kansallisia ja kansainvälisiä rahoitusjärjestelmiä tarvitaan.

Kansallinen yhteistyötaho ja yhdyshenkilö:

INSPIRATION-hankkeeseen osallistuu yhteensä 16 maata. Kussakin maassa tietojen keruusta ja analysoinnista vastaa kansallinen yhteistyötaho, jollaisena Suomessa toimii Suomen ympäristökeskus SYKE. Yhteistyötaho kokoaa yhteen olemassa olevaa tietoa, haastattelee keskeisten sidosryhmien edustajia, järjestää kansallisen työpajan ja kokoaa tämän perusteella kansallisen raportin. Suomen kansallisena yhdyshenkilönä hankkeessa toimii SYKEN erikoistutkija Antti Rehunen.

Keskeisten kansallisten sidosryhmien haastattelut

SYKEN tutkijat haastattelevat keskeisten kansallisten sidosryhmien edustajia, joilla on oman erikoisalansa asiantuntijoina hyvä käsitys tulevaisuuden tietotarpeista ja tutkimuksen mahdollisuuksista. Haastateltavilta kysytään heidän näkemyksiään hankkeen aihepiireistä ja heidän toivotaan toimivan jatkossa INSPIRATION-hankkeen lähettiläinä.

Erilaisten sidosryhmien ja näkökulmien tavoittaminen on olennaista, jotta kansallisesti tärkeät asiat ovat esillä pohdittaessa eurooppalaisen tutkimuksen asialistaa. Haastateltavat asiantuntijat valitaan siten, että monenlaiset eri toimialat ja tieteenalat sekä organisaatiot ovat edustettuina. Haastateltaviksi pyydetään maankäytön suunnittelijoita, yritysten ja etujärjestöjen edustajia, maaperä- ja vesiasiantuntijoita, tutkijoita, rahoittajia, säädösvalmistelijoita ja poliittisia päättäjiä.

Raportointi Suomen osalta

Haastatteluaineiston ja tutkimustarpeita ja rahoitusmahdollisuuksia koskevan kirjallisuusselvityksen pohjalta valmistellaan kansallinen raportti, joka käydään läpi kansallisessa työpajassa. Ehdotetuista tutkimustarpeista valitaan työpajassa Suomen kannalta tärkeimmät ehdotettavaksi edelleen strategiseen tutkimusohjelmaan.

Kansallisia raportteja käytetään pohjana laadittaessa eurooppalaista strategista tutkimusohjelmaa ja tunnistettaessa ylikansallisia yhteistyömahdollisuuksia (silloin kun kohdistetaan rahoitusta tutkimustarpeisiin).



Kansallinen työpaja

Suomen kansalliseen työpajaan kutsutaan keskeisten sidosryhmien edustajia. Työpaja järjestetään 19.–20.11.2015 Helsingissä Suomen ympäristökeskuksen tiloissa (Mechelininkatu 34a, 00251 Helsinki).

Hyötysi osallistumisesta:

- Mahdollisuus vaikuttaa eurooppalaiseen strategiseen tutkimusohjelmaan, joka käsittelee maankäyttö- ja maaperäkysymyksiä sekä niihin liittyviä yhteiskunnallisia haasteita ja tarpeita.
- Projektin tuloksena käyttöön yleiskatsaus tutkimustarpeista ja olemassa olevista sekä mahdollisista rahoitusjärjestelmistä eri tasoilla (alueellinen, kansallinen, eurooppalainen, kansainvälinen)
- Tilaisuus edesauttaa parempaa tiedontuotannon, päätöksenteon ja käytännön toiminnan vuorovaikutusta
- Mahdollisuus solmia uusia kontakteja muiden verkostojen kanssa Suomessa ja Euroopassa.

Lisätietoja:

Inspiration-hankkeen Suomen yhdyshenkilö:

Antti Rehunen

sähköposti: [etunimi.sukunimi\(at\)ymparisto.fi](mailto:etunimi.sukunimi(at)ymparisto.fi)

puh. 0295 251 550



Annex II: Documents used for the NL desk study

Academy of Finland (2014). The State of Scientific Research in Finland 2014 – Summary.

Energy and Climate Roadmap 2050 (2014). Report of the Parliamentary Committee on Energy and Climate Issues on 16 October 2014. Publications of the Ministry of Employment and the Economy, Energy and the climate 50/2014.

Finland's Minerals Strategy (2010). mineraalistrategia.fi

The Finnish Bioeconomy Strategy: Sustainable growth from bioeconomy (2014).
<http://www.biotalous.fi/facts-and-contacts/finnish-bioeconomy-strategy/?lang=en>

Geological Survey of Finland (2011). GTK vision 2030. Geology as a basis for sustainable growth and welfare.

Lonka H & Loukola-Ruskeeniemi K (eds.) (2015). Kiviaines- ja luonnonkiviteollisuuden kehitysnäkymät [Development of aggregate and natural stone industries in Finland]. Ministry of Employment and the Economy Publications, Corporate 54/2015.

Ministry of Agriculture and Forestry (2011). Ehdotus soiden ja turvemaiden kestävän ja vastuullisen käytön ja suojelun kansalliseksi strategiaksi.

Ministry of Agriculture and Forestry (2014). Finland's National Climate Change Adaptation Plan 2022.

Ministry of Agriculture and Forestry (2015). National Forest Strategy 2025. Government Resolution of 12 February 2015.

Ministry of Agriculture and Forestry (2015). Research and development strategy of the Ministry of Agriculture and Forestry 2012–2017.”

Ministry of Education and Culture & Ministry of the Environment (2014). Cultural Environment Strategy 2014–2020.

Ministry of Employment and the Economy (2014). Mahdollisuuksien maaseutu – Maaseutupoliittinen kokonaisuohjelma 2014–2020 [A Countryside of Opportunities – National Rural Policy Programme for 2014 – 2020]. Ministry of Employment and the Economy, Regional Development 9/2014.

Ministry of Employment and the Economy (2014). Sustainable Growth through material efficiency. Working group proposal for National material efficiency programme. Publications of the Ministry of Employment and the Economy Concern 8/2014.

Ministry of the Environment (2015). Kansallinen pilaantuneiden maa-alueiden riskienhallintaohjelma. Luonnos. [National risk management programme for contaminated land areas. Draft.]

Ministry of the Environment (2013). Kansallinen vaarallisia kemikaaleja koskeva ohjelma. Väliarviointi ja tarkistus 2012 [National Programme on Dangerous Chemicals. The interim assessment and the revision 2012].

Ministry of the Environment (2012). R&D-Strategy 2020.

Ministry of the Environment (2015). Strategy. Building sustainable living environments and green growth.

National Energy and Climate Strategy (2013). Government Report to Parliament on 20 March 2013.



Ministry of the Environment (2009). The future of land use is being decided now. The Revised National Land Use Guidelines of Finland.

Natural Resource Strategy for Finland (2009). Using natural resources intelligently.
<http://www.sitra.fi/julkaisut/muut/A%20Natural%20Resource%20Strategy%20for%20Finland.pdf>

6. France

Report by Dictor Marie-Christine, Coussy, Samuel, Guerin Valérie, Merly Corinne

6.1 Introduction

This national report (i.e. INSPIRATION deliverable 2.4) reports the information collated for France. The information was collated in accordance with INSPIRATION D2.3 “Template for national information collation”. In France, 25 NKS were interviewed. Two workshops were done. The first one was done in collaboration with regional cluster “Axelera” during their workgroup on soils planned in September and focused on polluted soils topic. The second one was performed in October in collaboration with the research program “Pollusols” involving researchers, end-users on urban soils topic. Details on these NKS are provided in Annex I. The desk study was based on documents as suggested by NKS. These are listed in Annex II.

6.2 Research and Innovation (R&I) needs

Topic a: Demand-driven* suggestions for the Strategic Research Agenda (SRA), i.e. suggestions from the perspective of industry, end-users and funders.

Related key question to be answered: **What (new) knowledge do these parties need to tackle societal challenges including the increase of job opportunities)?**

****Demand-driven** in INSPIRATION means focusing on the demands of those who are responsible or feel committed to tackle the societal challenges related to the INSPIRATION scope and themes, i.e. industry, end-users and funders. These parties could improve their business opportunities and/or take better informed decisions on what measures to take and execute in order to tackle other societal challenges if they would (be enabled to) use the knowledge as resulting from execution of the INSPIRATION SRA.

6.2.1. Societal challenges and needs

For the majority of the national actors interviewed (60 to 70 %), 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. Then, 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 during the conversations. It appears as well as the prioritization of certain societal challenges is different from a group of NKS of another one.

The relevance of the societal challenges was discussed and some of them were proposed. 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 ecosystemic services and critical zone do not appear explicitly. The objectives of the sustainable development of the United Nations could be used as a reference: par exemple, “protect and restore soils” (obj 15), “live healthy” (obj 3).

6.2.2. Topics / research needs to include in the SRA

Soil is a natural and non-renewable resource that must be protected and managed and is one of pillars of sustainable and multifunctional ecosystem management. A proper land and land-use management is one of condition to maintain functioning ecosystem meeting various expectations on long term period.

FR-1: Allocation of Land

Specific research questions

- Management of contaminated sites with vulnerability soil map related to its use, re-functionalization of low contaminated sites, land use cartography at a relevant scale for local planners,
- Study and understand phenomena such as “land take” and “soil sealing” to order to prevent urbanisation (need for decision-making tools allowing to make judgements on the choices/actions)
- Develop an evaluation methodology for ecosystem services et soils functions, with values and suitable indicators, relationship between economy (services produced by the Earth and manufactured by the humans) and ecosystem functioning (agriculture and forest), indicators as a function of the future use of the treated soil
- Systemic approaches for agricultural and urban soils
- Develop evaluation methodology to compare the efficiency of treatment techniques, evaluate the real risk vs. potential risk of soil contaminated for the environment

FR-2: Agricultural production and climate

Specific research questions

- Soil mapping at the local scale
- New agricultural model, with an evaluation of alternatives cultural practices developed at a local scale to be translated at a national scale, taking into account territorial specificities for cultural practices implementation,
- Develop innovative technologies of soil treatment and evaluate the gain in terms of biodiversity preservation, efficiency, soil compaction,
- Requirement of decision making indicators to evaluate and adapt practices which could impact fertility of forest lands,
- Requirement of decision making tools to adapt forest to climate change : need to know soil capabilities and autecology of forest species in the aim to have a good adequation between environmental characteristics and selected species ecology to adapt to current impacts of a changing climate,
- Understand Soil Carbon dynamic, in particular soil carbon storage and its mechanisms

FR-3: Knowledge, functions, distribution and evolution of soils

Specific research questions

- Better knowledge of natural environment, kinetics of pollutants transfer in soils (in particular urban soils), development of models integrating all the critical zone compartments (biological, mineral, atmosphere, hydrosphere)



- Long-term observatories of the critical zone, allow the study of the spatial and temporal dynamics of the processes (ecosystem resilience, retroaction of the biological organisms on soil-sediment-water system and climate), facilitate interdisciplinary approaches and promote exchanges among local authorities,
- Demonstration sites to accelerate technological developments, verify the efficiency of treatment techniques and their validity in term of user's expectations; It could be also a communication channel to prove innovation reality to end-users,
- Need for metrology and measuring devices for both characterisation and restoration of contaminated soil-sediment-water system (geophysical techniques, -omics tools, geostatistical approaches ...), sensors for monitoring plant growth, soil need (carbon, nitrogen, phosphorus, ...), in-situ sensors to decrease soil heterogeneity, bioaccessibility of pollutants

Among the answers related with important/relevant documents, research agendas, research programmes underpinning these topics, the interviewed NKS cited also National Research Strategy, Generic Call of the French National Agency, White book on Soil from the French National of Scientific Research Centre, Sciences Academy on Soil prospective, thematic book from National Research Agency, pluri-annual intervention program of public land establishment (Nord pas de Calais territory), Chevassus-au-Louis report "economic approach of biodiversity and ecosystem services"

6.3 Experiences regarding connecting science to policy/practice

Topic b: *Experiences regarding the exploitation of scientific knowledge to improve business opportunities and/or tackle other societal challenges.*

*Related key question to be answered: **Where to improve the science-policy interface so that (new) knowledge can and will be more effectively exploited by the demand side?***

6.3.1. Use of knowledge

Only a third of the interviewees answered the question. The scientific knowledge arises of one community and validated by the peers. It is not absolute and is absolved. It is an interpretation of the reality and in constant evolution. Its role is to allow the emergence of subjects to study and is a support for the decision-making.

The scientific knowledge is used for the state of the art, the definition of the future research subjects, technical studies... It also allows to be strength of proposal for the emergence of innovative solutions.

The main sources of scientific knowledge for the NKS are conferences, scientific publications, reports, colleagues, databases, web site of research organisms. Funders and end-users read professional papers. And 38 % of the NKS interviewed were involved in research projects (Figure 1).

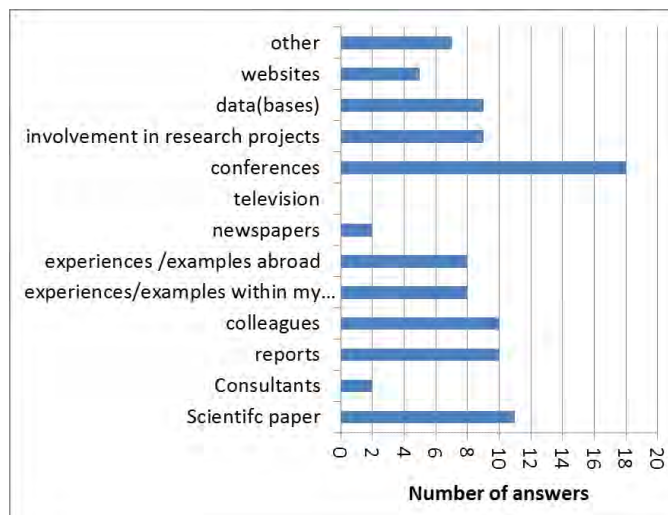


Figure 1 : Sources of scientific knowledge cited by NKS (FRANCE)

Research agendas reflect only partially the needs of stakeholders. In some cases specific structures were created. The need for a targeted and interdisciplinary research has been expressed.

6.3.2. Possibilities to set the agenda

71% of the NKS answered to this question and are issued from the business and policy sector. The majority of the NKS interviewed (58%) are involved in the formulation of scientific research question (Figure 2).

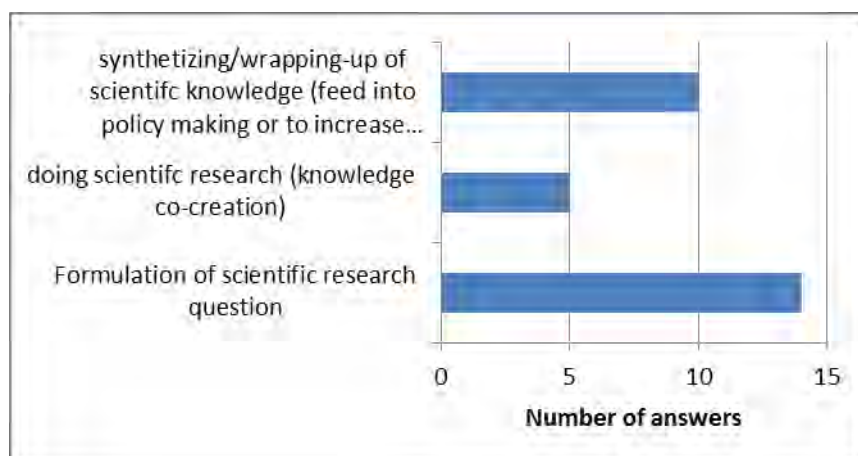


Figure 2 : Involvement of formulation, knowledge co-creation and synthetizing of scientific knowledge.

The NKS interviewed are involved in the formulation of research questions at national level (elaboration of the action plan of the National Research Agency and mainly for the societal challenge 1) and at European level (Water JPI).



The influence on the agendas and research policies is done at different levels:

- at the regional level by their presence in the working groups (Smart Specialization Strategy), in the committees in the implementation of regional patterns of ecological coherence, the CESER,
- at the national level through their presence in the research organizations boards and funding agencies, in the strategic steering committees of the National Research Agency, in the guardianship of certain bodies of research organisms,
- At the European level, their presence in the program committees of H2020, as members of Era-net programs, in groups of Joint Programming Initiative, as part of French delegations which are at the interface science and international policies (IPBES, global partnership soil).

Entries to the various strategic board and Work Groups allow better recognition of the state of the art in public policy especially concerning polluted sites and soils as well as for the law on biodiversity.

Synthesizing and wrapping-up of scientific knowledge could be done over the poles of competitiveness, the network of actors (researchers, end-users, policy-makers, ...) and making available some demonstration sites.

Nevertheless it goes back to a lack of political foresight on soils at both national and European level.

6.3.3. Science – policy – practice

The societal impact exists and is measurable by:

- Technical indicators such as scientific publications, patents, transfer of licenses, the establishment of technological platforms, environmental database available to the public, the elaboration of methodological guides of good practices, certification issued by the ministries and indicators issued from urban planning.
- Financial indicators such as number of start-up, numbers of jobs created.

For some of the NKS, the societal impact does not exist or is difficult to quantify. Nevertheless, a methodology has been published by The French National Agronomic Institute (INRA) called "impacts analysis of public agronomic research (ASIRPA) and appears to be a methodology to evaluate the economic, political, environmental and societal impact of research projects.

To the question of recommendation about national Science-Policy interface documents, 37 % of interviewed NKS gave an answer: National Research Strategy, Generic Call of French National Agency, Strategic Agenda of ADEME, Conferences synthesis, Soil state in France, GESSOL program, Annual report on agro-ecology.

6.4 National and transnational funding schemes

Topic c: *Predominant, current as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination.*

Related key question to be answered: *How to get with one Euro of national/regional funding a multitude of Euro's (from all sources) worth of knowledge in return contributing to EU and national demands? Or even how to get with one euro of EU funding a multitude of euro's (from national, regional, local, and private sector) worth of knowledge in return contributing to the R&I demands on Land and the Soil-Sediment-Water systems.*

Topic d: *Experiences regarding the use of any trans-national, common budget for scientific knowledge production related to the scope of INSPIRATION.*

Related key question to be answered: *How to set up/govern the appropriate funding option(s) resulting from INSPIRATION – based on previous learning experiences – so that: (1)the above demands will be fulfilled, (2) knowledge resulting from implementation of the SRA will be taken up and used and (3) funders experience that their invested, national Euros are indeed multiplied?"*

6.4.1. Funding schemes and possibilities for research funding

Regarding regional funding schemes the main funds identified are FUI, INNOVER, PhD fund, INRA department PhD funds.

Only 40% of interviewees NKS have responded to the question which denotes a certain ignorance of these regional funds. The interview analysis highlights the inequalities in the level of fund allocation in the different Regions. However it allows own research by companies. And a strong expectation is expressed by the NKS with regards to Poles of competitiveness to be a facilitator due to their good knowledge of regional calls for tenders and their ability to bring together companies and research laboratories.

100% of NKS interviewed have responded to the question about the national funding schemes. Calls to projects that were cited are those of the national funding agencies (ANR, ADEME, ONEMA), "investing for the Future". Most national funding windows are well known even if some are cited by a low number of NKS.

Several comments on these national funding have emerged from the interviews: a need for balance between basic research funding and applied research funding, a need for flexibility in the execution of projects. Currently the time dedicated to the design and monitoring of research projects is judged too large compared to the time search. The lower financing rates on some call those projects makes it eligible for certain actors.

Different types of European funding have been identified by the majority of the researchers group. H2020 (Era-Net, JPI, COST, LIFE, H2020...) et les funds INTEREG were cited by the great majority of NKS.

Regarding international financing schemes mainly those are known funders and researchers. Era-Net COFUND NORFACE, Belmont Forum, program 4 per thousand, UN, Hubert Curien Partnership were cited among the sources of financing of these actors.

Several tracks have been proposed to increase added value in research and innovation such as



- The allocation of supplementary financial resources (co-fund, cash in kind, a soil tax like the one set up on Water, the joint mobilization of public and private funding, support from professional federations).
- The establishment of demonstrators set visibility to the results of the research at a trans-European level. They would be seen as a lever for socio-economic world.
- To accelerate and increase the time to market, several ideas were introduced such as projects industrial-innovative SMEs partnership, need for a more flexible regulation to use the innovations, take into account the needs of end-users, research actions with SMEs should be with a shorter time frames than the PhD time frame and a researcher sharing between the world of business and research organizations.
- Adjustments on call modalities of projects calls were cited: need of calls on limited themes corresponding to priority themes, need to have financing possibilities along the year, in order to match with time scales of industrial needs (those are not necessarily in phase with tenders and topics), a need to lower European project size calls trans-national ANR projects, a need for small grants to initiate and foster interdisciplinary subjects encounters.

6.4.2. Gaps in financial resources for resource

Some areas of research and innovation are not covered by a scheme of funding as natural capital, soil-sediment-water component in an integrated approach, the health-environment link (interface between several challenges), observation of the critical zone, services provided by soils (basic knowledge, pedogenesis, ...).

During the course of the interviews, the need to fund long-term actions was a recurrent theme.

The decline in research funding, as well as the lack of teachers on soil in numerous educational courses, a sector-based approach via regulatory codes (environment, water, urban planning) will not favour integrated approaches.

Some modalities were discussed for an integrated research:

- the creation of long-term observatories that allow the meeting of different communities of researchers,
- the need to also recruit researchers who are in ability to respond to environmental issues rather than very sharp in their discipline,
- better integrate the humanities and social sciences in calls,
- need for a stronger involvement of civil society players in research projects.



6.5 Annexes

1a: NKS interviews in France

Date de l'entretien	Organisation	Entretien	Financier	Utilisateur	Chercheur	Autorité locale / régionale / nationale	Université / Organisme de Recherche	PME / Consultant	Industriels	ONG	Réseau	Autres	Sol	Sédiment	Eau	Gestion des sols / territoires
2-sept.-15	EPF-NDC	Marc KASZYNSKI & Guillaume LEMOINE		1		1										1
28-juil.-15	ALLENVI	Christian VALENTIN			1	1					1		1	1	1	1
14-sept.-15	DREAM	Anne-Gaëlle DELBOY	1	1	1			1	1		1		1	1	1	1
10-sept.-15	AXELERA	Laure HUGONET & Aurélie OHANNESSIAN	1	1		1			1		1		1	1	1	1
5-oct.-15	TEAM2	Tristan DEBUIGNE		1	1			1	1		1					1
8-juin-15	ANR	Christine KING	1			1							1			
18-sept.-15	MENESR	Christelle MARLIN	1			1										1
21-sept.-15	ADEME	Frédérique CADIERE	1			1							1	1	1	1
9-sept.-15	AFTRP	Emilie MAHEUT		1		1										1
16-sept.-15	COMU Lille	Ludovic DEMEYER		1		1										1
26-août-15	PEXE	Florence JASMIN		1				1			1		1	1	1	1
27-août-15	IRSTEA	Patrick FLAMMARION			1		1						1		1	1
25-sept.-15	INRA	Isabelle COUSIN & Catherine HENAUT			1		1						1			1
9-sept.-15	UPGE	Patrice VALANTIN		1	1			1	1		1					1
4-sept.-15	INNOVASOL	Jean-Louis CRABOS & Olivier ATTEIA		1	1		1		1				1		1	1
2-oct.-15	MEDDE	Jurgis SAPIJANSKAS	1			1							1			1
9-sept.-15	GESSOL	Claire CHENU			1		1				1		1		1	1
18-sept.-15	FNE	Solène DEMONET		1	1					1			1		1	1
5-oct.-15	POLLUSOL	POLLUSOLS														
2-oct.-15	RENAULT	Nathalie GUISEIX		1					1				1		1	1
30-sept.-15	Adjointe Maire	Raphaëlle LEGUEN		1		1								1	1	1
12-nov.-15	MAAF	Corinne BITAUD	1			1							1			1
2-nov.-15	IRD	Sébastien BAROT			1		1						1			1
9-nov.-15	ONF	Noémie POUSSE	1		1	1							1			1
12- nov. 15	CR RHA	GAFFIOT Frédéric	1			1										1
			9	13	11	13	5	4	6	1	7	0	17	7	12	23



Annex Ib: NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training on 22nd – 23rd June 2015.

[Note: this questionnaire template is meant to help National Focal Points (NFPs) to facilitate the interview/conversation with the National Key Stakeholders (NKS). Some questions are relevant to one NKS, other questions to another NKS. Hence, not all questions are relevant to each single NKS. The NFPs are required to adapt the template accordingly – keeping in it as many as possible of the issues to be addressed. If needed, the NFPs also translate the questionnaire into their national language.]

The questionnaire (see next pages) has the following outline:

- GG. Interview information:
To be filled out by the interviewer
- HH. Introduction:
That the interviewer can use to start the NKS interview
- II. Background information of the NKS interviewed:
Mostly 'tick-boxes'
- JJ. Strategic Research Agenda (SRA):
NKS preferred topics, overarching themes and scope for the SRA and national state-of-the-art on research agendas that the NKS is aware of
- KK. Science-Policy-Interface:
NKS experiences regarding the exploitation of scientific knowledge to: improve business opportunities; tackle other societal challenges; assist policy-implementation and/or policy revision
- LL. Funding:
Predominantly used as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination that the NKS is aware of
- MM. Other:
At the end there is some time advised to let the NKS give us their advice, some nice quotes (that we can use anonymously in our communications), examples etc.
- NN. Ending the interview:
Explain follow up and if/how NKSs will be involved in the next steps of INSPIRATION

Questionnaire template translate in French

A. Informations générales
25. Nom de la personne consultée : 26. Organisme : 27. Fonction :
28. Êtes-vous (plusieurs réponses possibles): ☐ Autorité nationale / régionale/ locale ☐ Université / Organisme de recherche ☐ Petites et Moyennes entreprises (SME, i.e. < 500 employés) / consultant ☐ Industriel ☐ Organisation non gouvernementale / Association ☐ Représentant / Coordinateur d'un réseau ☐ Autre, préciser : ...
29. Domaine de compétence (plusieurs réponses possibles): ☐ Sol ☐ Eau ☐ Sédiment ☐ Aménagement urbain ☐ Urbaniste ☐ Gestion des terres ☐ Autre, préciser : ...
30. Est-ce que votre organisation finance de la recherche? ☐ Oui. Préciser : ... ☐ Non
B. Agenda Stratégique de Recherche
- Quels sont les défis sociétaux importants à vos yeux? <i>[Liste des challenges sociétaux de l'Union Européenne] :</i> ☐ Contribuer à la Sécurité alimentaire et sûreté alimentaire, ☐ Sécuriser les ressources en eau potable, ☐ Sécuriser l'apport et l'alimentation en énergie ; ☐ Réduire la consommation en ressources primaires ☐ Assurer une utilisation efficiente des ressources naturelles ☐ Contribuer au développement de stratégie d'adaptation de la société, ☐ Contribuer à un environnement plus sain ☐ Sécuriser les infrastructures <i>[Ces défis peuvent être utilisés comme une base pour définir les thèmes permettant de constituer les sujets de recherche de l'Agenda Stratégique de Recherche.]</i> - Selon les cas, quel(s) défi(s) supplémentaire(s), alternatif pourriez-vous suggérer / préférer?

31. En partant de votre propre expérience : quels sont vos sujets principaux (besoins en recherche) qui pourraient être inclus dans l'agenda de recherche stratégique?

j. Expliquer – Développer le sujet

- *Qui sera concerné?*
- *Qui est responsable?*
- *Est un sujet d'intérêt pour votre organisme / département*
- *Est-ce un sujet d'intérêt national uniquement ou bien un sujet partagé par plusieurs pays?*
- *Où en est-on maintenant, où voulons nous être dans X années ?*
- *Comment l'acquisition de connaissances nouvelles pourrait-elle être utilisée de manière efficace?*

k. Priorité :

16. *Priorité haute*

17. *Priorité moyenne*

18. *Priorité*

19. *Priorité faible*

20. *Pas de priorité*

- *Quelle est l'urgence, i.e. qu'est qui tournerait mal si l'on ne faisait rien?*

l. Qui veut / devrait financer ce type de recherche?

32. En fonction des sujets soulevés :

- a. Quels sont les documents pertinents / important, les agendas stratégiques, les programmes de recherche qui couvrent les sujets? (état de l'art)
- b. En fonction des agendas et des programmes : quelles sont les dates de l'élaboration de la programmation et des opportunités pour influencer les agendas / programmes ?

C. Interface Science - Politique (SPI)

33. Comment définiriez-vous la « connaissance scientifique »?

34. Dans quel cadre utilisez-vous la connaissance scientifiques dans votre travail ?

35. Quelles sont les sources de connaissances (scientifiques) que vous utilisez dans le cadre de votre travail ?

○ <i>Publication scientifique</i>	○ <i>journaux</i>
○ <i>consultants</i>	○ <i>télévision</i>
○ <i>rapports</i>	○ <i>conférences</i>
○ <i>collègues</i>	○ <i>implication dans des projets de recherches</i>
○ <i>expériences / exemples dans votre pays</i>	○ <i>données (base de données))</i>
○ <i>expériences / exemples à l'extérieur</i>	○ <i>sites web, lesquels :</i>
	○ <i>autre, préciser :</i>

36. Jusqu'à quel point utilisez-vous la connaissance scientifique récente / nouvelle (état de l'art) pour votre travail ?

37. Jusqu'à quel point êtes-vous capable d'influencer (et comment) la mise en œuvre des agendas / politiques de recherche scientifique dans votre pays?

38. Jusqu'à quel point les agendas / politiques nationales reflètent vos besoins particuliers et vos priorités?

39. Jusqu'à quel point l'utilisation de l'état de l'art en matière de recherche a-t-elle été implémentée dans la formulation des politiques existantes de votre pays?

[Questions à destination de parties prenantes issues du domaine non-académique :]

- Avez-vous déjà été impliqué dans :
 - o la formulation de questions de recherche scientifique?
 - o la réalisation de recherche scientifique (co-crédation de connaissance)?
 - o La synthèse / regroupement de connaissance scientifique, e.g. pour nourrir les politiques publiques ou pour augmenter les opportunités de marché?

[Si oui:]

Jusqu'à quel point ceci a été satisfaisant / profitable sur une échelle de 1 à 5?

- 1-Très satisfaisant / Profitable
- 2-Satisfaisant / Profitable
- 3-Neutre
- 4-Non satisfaisant / profitable
- 5-Très insatisfaisant
- Cela a-t-il bien fonctionné ?
- Comment pourrait-il être amélioré ?
- Qu'est-ce qu'il doit être évité / à ne pas faire ?
- Remarques complémentaires?

[Question à destination des parties prenantes qui ont des commentaires à faire (financeurs de la recherche)]

40. Comment l'impact sociétal de la recherche scientifique en lien avec l'objectif d'INSPIRATION peut-il être mesuré dans votre pays?

[Si oui:]

Jusqu'à quel point ceci a été satisfaisant / profitable sur une échelle de 1 à 5?

- 1-Très satisfaisant / Profitable
- 2-Satisfaisant / Profitable
- 3-Neutre
- 4-Non satisfaisant / profitable
- 5-Très insatisfaisant
- Cela a-t-il bien fonctionné ?
- Comment pourrait-il être amélioré ?
- Qu'est-ce qu'il doit être évité / à ne pas faire ?
- Remarques complémentaires?

41. Quels sont les documents à l'interface Sciences –Politique que vous connaissez et que vous nous recommanderiez?

D. Financement

42. Quelles expériences et attentes dans les schémas de financement (public / privé) avez-vous dans votre propre domaine qui puisse offrir des opportunités de recherche dans la gestion et l'utilisation des sols et des impacts sur le système sol / eau / sédiment ?
- À l'échelle régionale?
 - À l'échelle nationale?
 - A l'échelle européenne?
 - A l'échelle internationale?

43. Comment augmenter, selon vous, la valeur ajoutée des différentes ressources financières pour mener des recherches qui vont répondre à des besoins nationaux et européens, en particulier sur les besoins en R&I sur les sols et le système sol/eau/sédiments ?

44. Avez-vous connaissance de domaines de recherche et innovation (R&I) qui ne se retrouvent dans aucun mécanisme de financement et qui nécessiteraient des schémas ou des infrastructures nouveaux/différents ?

45. Les approches intégrées (une nécessité pour le système sol-eau-sédiment) sont difficiles à financer et à évaluer par les communautés scientifiques. Quelles sont selon vous les améliorations à apporter dans ce domaine ?

Sur la base des expériences antérieures dont vous avez connaissance : comment mettre en œuvre les options de financements de manière optimale afin que : les besoins sociétaux soient remplis, qu'il y ait une appropriation et une utilisation des nouvelles connaissances produites à partir de l'agenda de recherche stratégique, qu'il y ait une multiplication des euros investis par les financeurs (retour sur investissement):

[Si oui:]

Jusqu'à quel point ceci a été satisfaisant / profitable sur une échelle de 1 à 5?

- 1-Très satisfaisant / Profitable
- 2-Satisfaisant / Profitable
- 3-Neutre
- 4-Non satisfaisant / profitable
- 5-Très insatisfaisant
- Cela a-t-il bien fonctionné ?
- Comment pourrait-il être amélioré ?
- Qu'est-ce qu'il doit être évité / à ne pas faire ?
- Remarques complémentaires?

E. Divers (Remarque, suggestions, exemples)

INSPIRATION acknowledges the received funding from the European Community's HORIZON2020 Framework Programme under grant agreement no 642372



Annex Ib: NKS hand-out: INSPIRATION interview at a glance

Entrevues menées dans le cadre d'INSPIRATION :

Inspiration en bref:

Le projet INSPIRATION (INtegrated Spatial Planning, land use and soil management Research AcTION) est l'un des projets retenus en 2014 dans le cadre de l'appel H2020 sur le challenge sociétal «Changement Climatique, Environnement et gestion efficace des ressources et matières premières).

Le projet "Inspiration" (programme "Horizon 2020"), qui regroupe 21 institutions de 16 pays, vise à développer un agenda stratégique de recherche (ASR/SRA) pour une gestion des sols et une utilisation du territoire respectueuse de l'environnement, socialement acceptable et économiquement abordable.

Quatre thèmes et 8 questions transversales ont été retenus, c'est à travers ces prismes que seront analysés les conclusions des ateliers nationaux et que sera formulé l'agenda de recherche.

L'agenda sera construit sur la base d'un inventaire de l'état de l'art et en consultant les chercheurs, les utilisateurs finaux et les organes de financement dans tous les pays partenaires, lors d'ateliers nationaux.

Le projet vise également à imaginer des modèles de mise en œuvre de l'ASR et d'identifier les institutions de financement publics et privés prêtes à financer l'exécution de ce dernier.

Plus d'information sur le site web du projet : www.inspiration-H2020.eu

Interlocuteurs nationaux clé (INC/NKS) :

Une série d'entrevues d'interlocuteurs clés sélectionnés sera menée dans chaque pays sous la direction de "Points focaux nationaux » (PFN). L'objectif de ces entrevues est de rassembler pour la France :

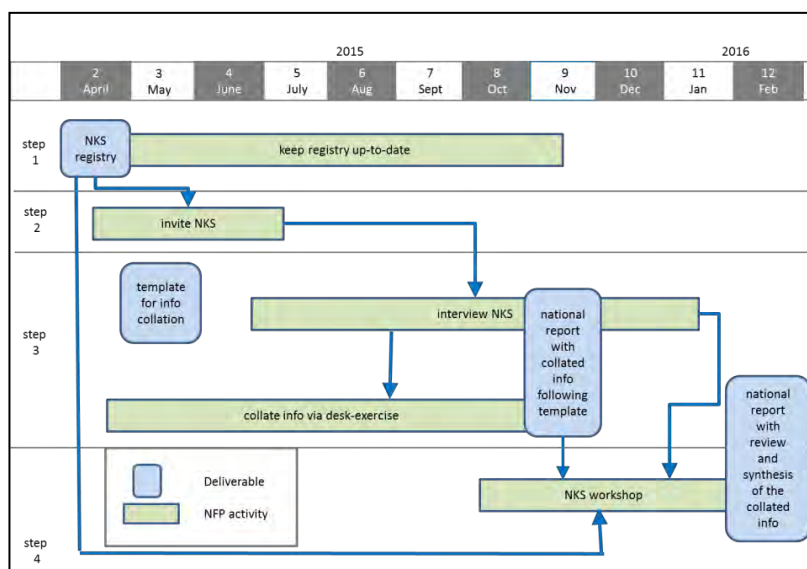
- les besoins de la recherche et de l'innovation (R & I)
- les retours d'expériences concernant la connexion entre la science d'une part et les politiques/société civile et économique d'autre part,
- les schémas de financement nationaux et transnationaux existants et à inventer.

Les interlocuteurs retenus possèdent une bonne vue d'ensemble et une vision claire des besoins de connaissances à court, moyen et long terme dans leur domaine professionnel. Ces interlocuteurs viennent de différentes disciplines et horizons. Ainsi on y retrouve : des gestionnaires ; des chercheurs/experts dans les domaines des sols, sédiments et d'eau ; des financeurs et des décideurs...

Les entrevues :

La collecte de vos retours / expériences est cruciale pour le projet afin de nous aider à décrire l'état de l'art dans notre pays (les programmes de recherche nationaux en cours, les lacunes de connaissance, les priorités de recherche) comme entrée du futur agenda européen de recherche. Lors de l'entrevue, nous allons passer en revue une série de sujets et de questions. Ces entrevues seront au nombre d'une vingtaine minimum par pays. L'ensemble des données collectées lors des entrevues seront synthétisées dans un «rapport national». Cette synthèse sera examinée lors d'un atelier national qui permettra de hiérarchiser les sujets que la France souhaitera pousser/porter dans l'agenda stratégique de recherche (ASR/SRA). L'ensemble des rapports nationaux produits seront finalement utilisés comme entrée pour l'élaboration d'un SRA européen et faire correspondre les besoins de recherche avec les financements possibles, notamment transnationaux.

Le déroulé de la première année du projet INSPIRATION est décrit ci-dessous



Exemple de questions :

Besoins en Recherche et Innovation (R & I)

- Quels sont les défis sociétaux important à vos yeux?
- A partir de votre propre expérience : quels sujets spécifiques (besoins de recherche) devraient être inclus dans le SRA?

Expériences en matière de connexion entre la science et les utilisateurs

- Comment définiriez-vous les «connaissances scientifiques»?
- Dans quelle mesure l'état de l'art de la recherche scientifique est/a été utilisée pour la formulation des politiques existantes dans notre pays?

Modalités de financements nationaux et transnationaux

- Est-ce que votre organisation financement de la recherche?
- Quelles sont vos expériences et vos attentes dans les modalités de financement (public / privé) votre propre domaine ? Quelles opportunités de financement/ modèle de financement pour de futures recherches identifier vous ?

L'intérêt de participer:

- Une chance d'influencer l'agenda stratégique de recherche européen sur la gestion des terres et du système sol/sédiment/eau à la lumière des défis et des besoins de la société;
- Disposer des résultats du projet: connaissance des besoins de recherche exprimés ; aperçu des modèles de financement prometteurs aux différentes échelles (sous-national, national, européen, international) et identification des opportunités pour une meilleure connexion entre la science et les utilisateurs des résultats de la recherche : société civile, politique, monde économique;
- Utilisez la possibilité d'entrer en contact avec d'autres réseaux dans et en dehors de notre pays, et identifier les pays partageant les mêmes défis que nous.

Example questions:

Research and Innovation (R&I) needs

- Which societal challenges do you regard as important?
- Starting with your own experience: which specific topics (research needs) should be included in the SRA?

Experiences regarding connecting science to policy/practice

- How would you define 'scientific knowledge'?
- To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

National and transnational funding schemes

- Does your organisation provide external research funding?
- Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems

Your benefits from participating:

- A chance to influence the European SRA on land and SSW management in the light of societal challenges and needs;
- Being able to make use of the results of the project: overview of research need and of existing and promising funding schemes on different levels (sub-national, national, European, international) and opportunities for a better connection between science and policy/practice;
- Use the matchmaking opportunity to get in contact with other networks in- and outside our country, and countries learn which shared challenges can be taken up jointly.

INSPIRATION acknowledges the received funding from the
European Community's HORIZON2020 Framework Programme
under grant agreement no 642372





Annex II: Documents used for the FR desk study

Stratégie Nationale de Recherche – rapport de propositions et avis du conseil stratégique de la recherche, 2015-2020.

Agriculture et Foncier (2014) – Concurrences entre usages des sols et entre usagers des sols agricoles : la question foncière renouvelée. Cahier Demeter.

Evaluer les écosystèmes et les services écosystémiques (2014) - Séminaire du 9 décembre 2014, EFSE (l'Evaluation française des écosystèmes et des services écosystémiques).

Fondation pour la recherche sur la biodiversité (2015) -Prospective scientifique pour la recherche française sur la biodiversité. Série FRB, Réflexions stratégiques et prospectives. Ed. Jean-François Silvain et Flora Pellegrin, 56 pp.

F. Jasmin et G. Aymé (2014) – Sites et sols pollués : Etude sur le panorama des financements disponibles en France pour la recherche et la mise en place de solutions innovantes – Rapport ADEME, 21 pages.

A. Rivière et H. Hervieu (2015) – Transition (s) vers une économie écologique. Collection « Etudes et documents » de la Délégation au développement durable (DDD) du Commissariat Général au Développement Durable (CGDD), N° 129, 45 pages.

ADEME (2015) – 3^{ème} Rencontres nationales de la recherche sur les sites & sols pollués. Synthèse et recommandations pour la recherche, 56 pages.

CNRS (2015) – Livre blanc « Les sols » 2013-2015 - Rapport du Réseau Thématique pluridisciplinaire « sols » juillet 2013 – juillet 2015, 67 pages.

ANR (2015 – Plan d'action 2016, 176 pages.

Ministère de l'Agriculture, de l'agroalimentaire et de la forêt (2014) – Agricultures produisons autrement, Rapport Annuel sur l'agro-écologie, 26 pages.

Water JPI (2014) – Strategic Research & innovation agenda, 69 pages.

Hooper, D. U., D. E. Bignell, V. K. Brown, L. Brussaard, J. M. Dangerfield, D. H. Wall, D. A. Wardle, D. C. Coleman, K. E. Giller, P. Lavelle, W. H. Van der Putten, P. C. De Ruiter, J. Rusek, W. L. Silver, J. M. Tiedje, and V. Wolters. 2000. Interactions between aboveground and belowground biodiversity in terrestrial ecosystems: patterns, mechanisms, and feedbacks. *BioScience* 50:1049-1061.

De Deyn, G. B. and W. H. Van der Putten. 2005. Linking aboveground and belowground diversity. *Trends in Ecology*.



7. Germany

Report by Uwe Ferber, Stephan Bartke, Detlef Grimski

7.1 Introduction

Additionally to the common methodology selected interview partners presented specific topic at the national workshop.

7.2 Research and Innovation (R&I) needs

7.2.1. Societal challenges and needs

The previously mentioned EU-relevant societal challenges were overwhelmingly agreed upon during the discussion with the interview partners. One positive result from the discussions were the consequent orientation to necessary priority areas, which cannot be approached using the existing disciplinary research structures. Individual topics were expressed, depending upon the type of involvement of the interview partner, such as for example in relation to food security from the representatives of the industry and agricultural sectors. (Bauer, DLR)

Also the current German research program FONA³ defines societal challenges are climate change, the loss of biodiversity, land degradation and a lack of resources securing social cohesion and our standard of living. (<http://www.fona.de/>)

According to the interview partners, sustainable land use is a cross sectional topic in which all the relevant challenges are closely interrelated. For example, food security and secure water supply are only to be achieved through a sustainable management of agricultural ecosystems. These are challenged by the increasing of agriculturally intensive uses. (Schmitz-Moeller) Also, seeing soil as a “service provider” is not currently applied. Soil is simply present and is not really appreciated by the majority of people. Investments in information and sensitivity training is required. (Frede)

The interview partners mentioned critique to the topic of „infrastructure“ when it was mentioned without any relation to the city and regional spheres. The creation of infrastructure is not a means in itself, but is dependent upon the design of the settlement structure. (Weith, Preuss) The aspects of livable cities and regions as a central society challenge was also touched upon. In connection to this, the consumption of land has to be watched more closely. (Hansjürgens)

Foundational critique was expressed in relation to the EU 2020 Strategy. In regards to sustainable land use, the strategy is leading to more intense land use conflicts, which cannot to be alone solved by improving discipline-oriented management. The scarcity of land resource requires dealing with sufficiency strategies, which are currently hardly mentioned in existing research. The question of sufficiency is continuously forgotten through the considerations made regarding the invention of new technological solutions. (Gustedt)

7.2.2. Topics / research needs to include in the SRA

The results of the research in demand as presented by the interviews and the national workshop held on the 13th-14th of October in Berlin were discussed in 12 topic blocks.

Research Field: „Actors in Land Use Transition / Cross Sectional Management and Communication

Sustainable land use can only be achieved through accepted frameworks and objectives related to sustainability, the active cooperation of the various stakeholders and an effective cross sectional management of the actors involved. Land use is mainly influenced by the decisions of private and public actors who weigh decisions according to individual decision patterns (Walsh, 2014). These are partially influenced by sectoral and planning and regulation strategies. Conflicting objectives exist in all types of spaces, on all scales and they reach beyond the set of instruments of spatial planning as “mutual spatial management process”. (Walsh, 2014) These conflicts exist because the scientific basis for the adequate balancing of decisions is missing and sectoral and spatial vision systems are not compatible enough with one another. Also the interdependency between the actors of land use decisions are only partially understood up until now and a strong demand exist for empirical research.

For this reason, research should clear up the following aspects:

- How do political sustainability goals (for example the SDGs) and regional/municipal spatial planning goals influence the practical land use decisions of actors and land use itself?
- Which actors are relevant to be considered and which interdependencies exist between them?
- What effects do sectoral expert planning (transportation, agricultural systems, nature protection...) have on land use decisions and how can they be integrated into spatial planning?
- What instruments have a transborder effect and how can these be incorporated into existing/new European initiatives and departmental politics?
- Which level of planning is the most effective for the strategic application of planning instruments for the purposes of steering land use? How do higher levels of planning affect this (such as state/regional planning)?

The public is not well enough informed when it comes to the environmental medium of soil. Associations related to the topics of nature, planning and engineering are rarely connected. Also, public communication, as currently being supported by the “international year of soil”, is not able to inform and mobilize actors on the topic of land use. In general it would be ideal, similar to the topic of climate protection, to touch upon measures and initiatives on the global level on the topic of soil protection. Through the explanation of the following questions, research should be able to contribute to this goal:

- How can new media and technology, for example social media and with a “soil function application”, be used to engage the interest of a broad audience?
- What new evaluation instruments can support awareness raising (example sustainable shopping cart, ecological footprint “land” for food production, etc.)
- Which existing and new instruments can be used to raise the understanding of land use decisions in the public realm and with which instruments and indicators/parameters can the transparency of the effects be measured and influence planning and permission granting decisions?
- How can science contribute to the dialog about the use interests of actors (for example between representatives of nature protection and agriculture), for example through the differentiated evaluation of large and small businesses as well as the regional context?

Research Field: “Settlement Area Management, Cyclic Land Management, Material Flows, Urban Climate Adaption”

Land use and the development of the settlement area influence the living quality found in urban areas. Both are in a state of constant transition in relation to expansion, density and use type and this has effects on soil and city climate. Conflicting goals are manifold, urban areas have to use brownfield sites for new constructions and at the same time become more resilient to climate change by increasing the amount of green areas. This raises a number of research questions, the answers to which can contribute to the creation of a solid foundation for land management, as well as considerations of knowledge transfer and the implementation of support of for what is currently regarded as insufficient execution standards. The regional framework conditions for these considerations are greatly different in Germany.

- Growing areas are faced with the duty of mobilizing land potentials despite strong competition for use
- Stagnant or shrinking regions have a surplus of land potentials which require concepts of deconstruction and the re-naturalisation of land.

In this context, the **cyclic management of land** (Ferber, Preuss: 2008) presents a comprehensive strategic approach for the steering of the development of the settlement structure. The aim of the approach is rooted in the implementation of the land-related policy of the sustainability strategy of the Federal Government with a double strategy of quality insurance through the maintenance of outer areas through the development of inner areas. Cyclic land management also offers a starting point for the achievement of the international goals related to a “no-net-land-degradation” on the level of the EU and the UN. Cyclic land management can also contribute to the implementation of strategies for climate adaption (reference?) and a “healthy city”. Research is required to understand the patterns of behavior and interdependencies of actors active in land-related policy areas. Example include:

- Which causes are responsible for the consumption of land (for example private investments, city development or investment-oriented assistance programs)?
- How can stakeholders, especially landowners, be included in the goals of a cyclic land management to support integrated action plans?

The actions such as inner development in gaps in the built-up areas, brownfields, densification as well as replacement constructions confronts municipalities with a number of challenges. These challenges include the establishment of new forms of cooperation between planning and environmental agencies, the adaption of planning and administrative processes to current demands and at the same time the development of management strategies in cooperation with private land owners. There are often conflicting goals in the revitalization of land regarding regulations related to nature and species protection and the potential presence of biotopes on degraded and abandoned land. The research questions resulting from these considerations are:

- How can the requirements of nature protection, especially species protection, be weighted and integrated in inner urban areas?
- How can the requirements of soil protection be integrated into the weighting of planning decisions, especially in sight of brownfield redevelopment with the aim of reducing the consumption of land in outer areas as well as soil-related compensation measures?



- What scales and standards are to be used in the evaluation/weighting of spatial decision processes and conflicts? (especially in relation to the environmental medium of soil)
- Development of uniform scales for compensation actions

Furthermore, through the new delineation of new settlement areas, an effect of „double compensation“ can be observed, which is characterized by the urban consumption of soil on the one hand and through the compensation measures undertaken on agricultural land on the other. Alternative mechanisms of compensation which do not create an effect of double soil consumption should be developed.

It is also important to better understand the integrated impacts of settlement reconstruction and land recycling and close existing research deficits in these areas. Research questions of interest here are:

- How can “settlement efficiency” be defined and quantitatively improved?
- What effects does demographic change have on the delineation of new single family housing districts and how can the current reconstruction of the settlement from the 1960s and 70s (west Germany/Europe) minimize the consumption of land?
- What risks and cost factors have to be considered in the preparation of land parcels for construction and what impact do these have on the cost factors and structures for land recycling? (deconstruction cost, planning safety and approach to restrictions, for example the long-term ground water treatment)
- What impacts can be achieved through instruments of loss prevention, such as in the regulation for the non liability of contaminations for new investors in the new federal states and what effects could be expected from the expansion of these instruments?

In recent years, the approach undertaken by land recycling for soil and waste material management has led to a problem for land recycling. Individual cases instead of larger systematic solutions raise the cost of land recycling. For this reason the issue of “land recycling” should be more closely connected to questions raised by energy and resource efficiency. Research is required for the following questions:

- What are the requirements of the material cycle management system for the use of construction materials and removed soil in relation to energy and resource efficiency?
- Can life cycle analyses be developed for construction materials and with this understanding new instruments be developed for, for example, the requirement of the reuse of construction materials?

The study of single plots and single cases is also not adequate in relation to the **mobilization** of land. Instruments are still missing for a comprehensive spatial and portfolio oriented analysis. The renovation of deficient properties beyond the borders of the land plots is encouraged along with the goal of minimizing development risks. It has to be considered how land planning can develop towards land development management for example through “Reallabore”. In this context the existing experience with soil funds, development agencies and land management agencies has to be evaluated and systematically considered through the work of research. The further development of the instruments of soil management is also required. The central and overarching research question is:

- How can an operative land management function?



A central topic for urban areas is the resilience of settlement structures in sight of **climate change** and the increase of extreme weather events (over heating, flooding, ...). Research dedicated to foundational natural sciences, soil function maps, as well as the related city structure frameworks and pilot applications are present in Germany and the subject of running research activities. However, current concepts are almost exclusively restricted to local specific impact factors and are burdened by conflicting goals and well as deficits in the weighting and implementation. Conflicting goals and weighting deficiencies exist in the quality of the density and compactness of the city. The interdependencies of city density (densification versus the maintenance of open spaces) is especially under-researched. The following research questions are of interest:

- How can city structure frameworks be adapted and communicated?
- What methodological approach and content is required for concepts of climate adaption?
- How can urban chains of reaction (thermal/hydro) be better understood?
- What planning tools are appropriate to display the interdependencies of city structural density?
- What basis does soil offer for a planning tool to address climate change? Soil function evaluation
- What would concepts of a “double inner development”, whose goal it would be to connect and qualitatively improve the actions of ensuring the maintenance of urban open spaces and their use on the one hand and the development of available inner city plots on the other, look like?
- Are there innovative ownership and maintenance concepts for (to be created) public green spaces?

Many of the mentioned topics cannot be exclusively worked upon by the municipal level and require the recognition of the city – rural context. The following related research questions are:

- How can the development of settlement areas in the context of various European planning systems be steered on the regional (city) level and the distortion of the competitive field through “land dumping” actions be reduced?
- What are the overall effects of the “catching up” sub-urbanisation in the new German federal state and eastern European countries on the development of settlement structures?
- How can growth and shrinkage be balanced?
- The development of instruments to disregard non-usable sites from the cycle of use.

In summary, it is important to combine the strategies and instruments of cyclic land management through applied research and pilot case studies and in the sense of modular “Toolboxes” to qualify a sustainable land management. Since many European standards are affected by this, this action should take place on the European level.



Research Field: „Rural areas, Landscape Transition and Ecosystem Services

Land use transition through agricultural production and the development of the rural settlement structure are closely related to one another. The results of the demographic change are especially noticeable in rural areas. It is leading to the loss of the cultural landscape in many rural areas, increasing the severity of the population decrease and over-ageing and has resulted in massive abandonment of residential, commercial and former agricultural structures. These developments will also have an economic affect. However, they also offer new chances and room for experimentation for new users and uses, which, through the engagement of various citizens are already being utilized.

There is an overall research deficit in the fields of planning, management and steering mechanisms in urban areas. New guidance frameworks are required which are decoupled from the agricultural economic perspective and can direct the creation of independent development perspectives for villages and small cities in rural regions. The spatial planning system of central places used for the securing of a common standard of life quality must be further examined in relation to this issue and be further developed in "Reallaboren", as seen in the International Construction Exhibition Thuringia or the Reallaboren in the Schwarzwald.

This especially concerns the research questions of

- Which good examples for the development of rural areas are existing on the national/international level and how do they operate? What is generalizable and can be carried-over from these examples?
- What concepts and tools are required for the adaption of existing and planned settlement areas in shrinking rural regions and which instruments are required for the support of decision-making in this regard? (example the further development of follow-up cost studies)
- How are rural spaces affected by the current migration movements (in the context of demographic change, but also refugees) and how do they affect land use? How can planning react to these aspects?
- Can research support contribute to the improvement of concepts of inter-communality and stability in rural spaces?

The development of the land/real estate market in rural spaces is critical for the socio-economic perspective – the decrease in prices for settlement structures on the one hand and the increase in price for rural land on the other. Land resources are becoming an object of speculation on the global scale. In Germany, high land prices are already discouraging agricultural operations, especially in cases of organic farming. Thus, the following aspects require consideration in research projects:

- Which new instruments for soil planning in rural areas are required (for example the overcoming of "Realerbteilung", continuation of the consolidation of land, relocation processes) in order to secure the interest of nature and landscape conservation as well as a locally socially responsible use of soil?
- How can sectoral and spatial assistance programs, especially the various directions and areas for agriculture, be better coordinated with one another?
- What would a monitoring concept with a focus on natural science and social evaluation and assessment of land use transition, which keeps the contexts of agricultural structural transition and demographic change on an equally footing to one another, look like?



- How can dynamic scenarios for land use transition be displayed as a contribution to expert and spatial planning?

Landscapes in Germany are influenced by a strong pressure towards change due to land use transition. Aspects such as consolidation of land, expansion of settlement areas, the concentration of agriculture all the way to the current effects of the energy transition all characterize this development. Traditional cultural landscapes are being lost and new landscape types are being developed. Land use competition, which is already present in the peri-urban areas of growth regions, is also increasing in rural areas. Wildlife networks which are spatially surrounded by similar areas valuable for protection, which are potentially within a close functional proximity with one another are especially endangered. Biodiversity is decreasing. The research question related to these aspects are:

- Which steering instruments are suitable for the influencing of the form of the landscape within the context of the “energy transition” in rural areas?
- How can land use be controlled for the purpose of energy use?
- How can the concept of “green and blue infrastructure” be sharpened on the conceptual level and be carried into a transboundary dimension?
- How can wildlife networks be seen as an important starting point for the future derivation of reconnections?
- What optimizations are possible in the development of tools for land use transition, impact studies and material flow models?
- What communication and legal instruments can support “cooperative nature protection”?

The arrangement of nature protection related compensation regulations also play an important role within the context of the German discussion and induces research demand. Instruments such as nature protection compensation measures are critically received due to the consumption of agricultural land.

- On which level would the impact/compensation process in transportation projects most efficiently take place (what role does spatial planning play)? Which effects can be expected from natural restoration as opposed to purely monetary compensation mechanisms? (exchange about European practice)
- How can biodiversity be raised through the bundling of sectoral compensation requirements from various EU framework directives (environmental liability directive, environmental impact assessment directive)
- Can compensation measures be aimed towards the revitalization and renaturalisation of brownfields?
- How can the various compensation practices in Germany be evaluated?

In sight of the overview of the problems present in rural areas and the resulting societal challenges that come from these, there is hope that a foundational paradigm change and strategic starting point from which to steer land use in rural areas can be created through the evaluation of ecosystem services. In particular, the functions and services of soil can be evaluated with ecosystem services and be understood as a foundation for knowledge diffusion and decision-making. For this to happen, ecosystem services must be evaluated in combination with, for example, regulation services (e.g. microclimate regulation), the importance of soil function (in line with the natural sciences) as well as socio-economic services. Research questions are:



- How can sectoral approaches of agricultural research and general research be connected to the topic of ecosystem services?
- What impact does agriculture have upon the landscape and how can the integration of production and ecosystem services be improved?
- What importance do ecosystem services have in their relations to one another? Ecosystem services should be considered together and standards and/or indicators should be developed. In order for this to happen, synergies and ecosystem services trade-offs must be understood.
- How can the “bundle” of ecosystem services be gathered and evaluated (overview of social, ecological and economic ecological services)? The combination of various types of ecosystem services is important to consider here, since the services they provide are widely different and can have a significant effect on soil quality.

In summary, research should consider and help change the transition taking place in rural areas as well as support the actors, especially the citizens, with integrated methods. Promising forms of research are offered in the form of transdisciplinary methods as well as the research of transformation (establishments of "Reallaboren")

Research Field: „Indicators, Information Basis and Monitoring“

The analysis and evaluation of land use and land use transition is hampered by the various existing definitions and missing and/or not openly available sources of information. The result of this is a deficiency in the quality and comparison of information related to site analysis, analysis and evaluation of land use transition and the trends which can be expected in the future. This is especially true of the goal set in the global sustainability strategy of a “land degradation neutral world” which requires further concrete and measureable indicators. (<https://sustainabledevelopment.un.org>)

The indicator used in Germany as a description for the development of the settlement area, „development of the settlement and transportation area“ is generally seen as to be appropriate as well as in need of updating. Research is still required for the the inner development potentials which must be analyzed and prognosed on the national level (Europe-wide) and should also be better integrated into the existing systems of spatial monitoring and cadastral system. (Internationalization of the German model for the classification of potentials, use changes as well as demographic changes as currently being developed by the BBSR)

However, further indicators are required in relation to climate change and soil quality. Research approaches for the following research questions are required:

- Which indicators can improve the evaluation of qualitative and quantitative aspects of the consumption of land and study land use transition in urban and rural areas?
- How can the quality and comparability of the information basis for site analysis, data analysis and evaluation of land use transitions and the related trends be secured along with establishing connections to structural changes in the agricultural landscape (example agriculture: integrated administrative and control system – InVeKoS), energy transition, use transition in existing settlement structures, and transportation planning-induced use changes.

Furthermore, new technological methods of remote sensing as well as mobile applications in the context of “citizen science” should be studied in terms of their relation to the topics of land consumption and soil quality. This requires scientific support for legal instruments to



support the collection of information through private means and to secure access of this information to allow for it to then be used by research.

Direct uses resulting from research can be gained from:

- The analysis of soil sealing via remote sensing
- Legal analysis in relation to the collection of data and granting of access to the data for diverse stakeholders
- Methods for the combination of land information with soil information.

Research Field Soil Quality and System Understanding

Soil quality equally affects the ecosystem cycle as well as the use functions of soil. As an integrated whole, it connects insights into specific scientific soil research and is suited for the development and implementation of new pragmatic solutions and realizable concepts within the context of land use strategies as well as soil and land management. In this regard, soil research in Germany already provides a sufficient foundation which recognises soil as a highly complex 3-phased (solid, fluid and gas phases) and a 4-dimensional (space and time) medium, and this understanding is the starting point for the definition of an improved system understanding. Soil, as a central foundation of life and non-renewable resource, serves a role in all of the seven societal challenges of Horizon 2020. The following central questions are of upmost importance:

- How can we maintain soil quality in Europe and worldwide (system understanding) and how can we secure the status (monitoring)? The maintenance of our soil as a foundation of life is a central aspect of all areas of current and future social challenges. This considers firstmost the sectors of health, nutrition and bioeconomics, energy and climate. Even the transportation sector, which uses soil as a carrier of its infrastructure, is connected to soil, as well as questions related to societal and personal freedom, security and quality of life. In order to use soil quality and its preservation as central measures for the evaluation of sustainable land use strategies, soil quality must be quantified and evaluated. This is possible with the current state of research and upon the foundation of European data structures and networks. The securing of the maintenance of soil quality can be achieved through the use of modern monitoring technologies, e.g. in the area of remote sensing.
- When will system boundaries of soil quality be exceeded, e.g. intensive uses (system understanding) and can we quantify these (tipping points)? System boundaries together with questions of soil quality can be put into relation to landscapes and regions whose natural capital is an important feature of the present soil quality. Administrative and functional areas also create specific system boundaries. These can include, among others, land use demands, operational framework conditions and relevant issues of nature protection. System boundaries in this case are the framework conditions for the maintenance of soil quality. Their study and qualitative analysis of the function of excessive use allow for the evaluation of system boundaries as an important steering mechanism for soil and land management.

Various research questions which could have an influence upon pragmatic and realizable concepts and new solutions in the context of land use strategies as well as soil and land management may be derived from this basis understanding. Important topics in relation to this are, among others, securing of soil and soil protection, sequestration of carbon dioxide in



the soil, the evaluation of material and energy flows and the consideration of the relation of users and migration patterns. The following research question are of importance:

- What effects do climate change and climate extremes (erosion events and the loss of humus, intrusion of materials beyond system boundaries) have upon the quality of soil and how can we quantify and foresee these effects? How can we connect soil quality goals such as erosion protection and carbon dioxide sequestration to each other and integrate them into land use concepts? What potentials exist to reach out to various societal groups for the securing of the soil quality and to integrate them into the evaluation process of soil quality?
- What quantitative threshold values exist for the securing of soil quality and how can we quantify and integrate these into a sustainable soil and land management? In this context, how can we better understand the ecological structures of soil organisms and the role they play in the maintenance of soil quality and in turn use this understanding?
- Which processes play a role for the soil and water quality in the soil-sediment-water system boundaries and can they be quantified? How far can soil sediments be used for the securing and improvement of the soil and water quality within the framework of land improvement measures?
- What potentials do cyclic-soil approaches have to offer for the maintenance of soil quality and can these approaches be implemented in new land use strategies, even beyond system boundaries in relation to the city-rural sphere? Can the deregulation of methods and the changing of assistance mechanisms offer new potentials for the securing of soil quality and for the sustainable intensification of land use?
- How can soil quality goals take into consideration the anthropological input of harmful soil material and create a transparent basis for the evaluation of soil pollution as well as create the respective pollution-related measures for the various sources of these elements? How can soil quality be renovated and degraded land areas be brought back to value again?
- What contributions to an improved system understanding can offer experimental approaches (Ecotron, FACE/FATE units, long-term study, experimental agricultural operations, Reallabore)?

Research Field: Agricultural Ecological Systems

Agricultural ecological systems are challenged by a raising demand for agricultural products, the limited availability of resources, the loss the biodiversity and climate change. Therefore, it is necessary to expand the field of agricultural research, in which spaces are seen as economic, evaluation, planning and research units and where ecosystem services are introduced as a measure for evaluation. Production strategies must be produced in connection with this which are directly related to landscapes in the region and that recognize the relevant socio-economic and agricultural political framework.

The duty of research is to compare the usefulness of older methods ("Methusalem") versus innovative methods to find solutions to current issues and to change the rules of "good agricultural practice" towards that of sustainable agricultural production. This requires an improved basis of information, in which research is required for:

- The evaluation of current soil conditions (potentials, degradation, eutrophication): new evaluation of area based soil information (maps, potential types). Soil information services as a duty of the national, European and international levels.



- Integrated analysis of production, functional structures, material and energy flows as an initial priority focus for sustainable agricultural production. Introduction of ecosystem services as a key indicator.
- Interregional evaluation of processes (material, energy, economy). Scientific and able to be communicated (footprints)

There are close interdependencies to the field of plant research. In this context the potential of cultivated plants to raise yield productions can be used in an environmentally friendly context in view of ecosystem conditions. In relation to the energy transition taking place in Germany and the related stronger use of renewable energy sources, the following research questions are to be posed, such as:

- What risks are associated with the creation of renewable energy sources in view of land use competition and a changing agricultural practice (example of consequences for the plant yield with a high corn content)?
- What steering parameters are suitable for a qualitative and quantitative production of biomass product? (protection of cultural landscapes? Maintenance of biodiversity?)
- How can unwanted effects to the quality of the soil and the neighboring environments be minimized?

Also, organic agricultural practices can support the development of sustainable agricultural ecological systems. In this case the following research questions need to be answered:

- What contribution can organic agriculture offer to the increasing of yields and granting food security?
- How can the non-uniform administrative practices within the various federal states (for example standards in the regulation on "Flower mix" be altered to support large scale and integrated analysis?
- Can goal conflicts be better understood (analyzed) and perhaps balanced through the implementation of Reallabore e.g. conventional agriculture and biodiversity?
- How can the pressure upon (organic) agriculture and/or the small scale agricultural production which is characteristic of certain landscapes be minimized (rental, sale, sharing deals?) What effects do price dynamics have (e.g. land as "slurry deposit")?
- How can areas with a slope be secured/renovated for a sustainable use?

On the other side one must consider practice. Demands of agricultural and forest production, goals of nature protection and the designing of the landscape are being handled in systems generally separate from each other, such as the systems for planning, administration and decision-making. Use conflicts, such as those of food security and nature protection are increasing. This begs the question as to how conventional agricultural production with high yield values is to be operated in the future under the consideration of biodiversity aspects as well as how the resources of water and soil can be better protected. **Greening** in the practical field is not connected to the integrated goals of land use (e.g. landscape, biodiversity, maintenance of the cultural landscape). Large operations dominate and follow internal optimization strategies. Research questions here are:

- How can the lack of useful land use steering instruments in the field of agricultural production be overcome?
- How can improved spatial information and planning foundations be made available and improved monitoring approaches be created?
- How can demands from the political level be based upon better scientific evidence and contribute to an improved level of planning security?



- Are new instruments for soil management of agricultural land required? (e.g. first to have the opportunity to buy during the transfer of ownership of agricultural land, minimization of speculation, prohibition of concentrations)
- What are the effects of regulation/deregulation? (for example financial compensation and agricultural policy of the EU and the ERDF funding) beyond individual sectors?
- What happens to the rural areas when one choses to withdraw from sectoral funding sources? Discussion on the public assistance. Large operational structures / units would be strengthened, small ones weakened. Analysis of the interdependencies important here.

Also, **modern technology** („precision farming“) can greatly contribute to the raising of efficiency of the processed nutritional and operation materials, while maintaining the high level of yields in connection with ecological points of reference. The long-term shortage of plant food requires a new thinking in the use of resources, especially in relation to phosphor and potassium. Research questions here are:

- What potentials are offered by remote sensing?
- What developments in the technology are required in agriculture? E.g. use of drones
- How can the shortage of plant food nutrients be addressed?
- What are the development perspectives for agricultural factories (hydroponic) and what effects do they have upon land use?
- How can organic farming contribute (reduction of fertilizer / raised ability of plants to take in nutrients) and how can organic farming accompany transdisciplinary research assistance?

Research Field: „Sustainable Development and Land Use“

Land use can serve various demands – however at the same time it is restricted in its ability to satisfy all demands at the same time. According to the understanding of sustainable development (WCED 1987 „Our common Future“ [Brundlandt Report]) land use has to be economically viable and ecologically compatible as well as socially acceptable to be able to be considered as sustainable. But how are these demands to be valued in the evaluation of concrete land use decisions? Which actors are deemed able to determine with which instruments, what it is which will be considered within the dimensions of an evaluation, how the results will be aggregated and what end results can be considered as a sustainable form of land use? Evaluation and objective-forming systems able to address conflicting goals of various spatial-time-contexts are missing. Research is required for the following questions:

- What conflicts arise from the various goals of sustainable development?
- What formal and informal institutions and what levels of governance are to be addressed (SDGs, grand challenges, national, regional, local goals)?
- How/with whom can an appropriate system of development goals be created?
- How can global goals (SDGs) in the national and regional level be broken down and established?
- What interdependencies exist with other regions/sectors?
- How can spill-over effects (interdependencies with other regions/sectors) be understood?

There is also a demand in the methods of sustainable evaluation for a continual and future-oriented dynamic of analysis and evaluation.



- How can analysis and evaluation methods be dynamically organized and monitoring systems and statistics be adapted to this to enable a continual process of sustainability evaluation? Keyword of follow-up monitoring.
- How can ecological, social (including cultural) and economic evaluation methods be integrated and what potentials are offered by the concept of ecosystem services and where are the gaps?
- How can concepts such as resiliency, sufficiency, vulnerability be integrated into the evaluation of sustainability?
- How can various timescales (long-term, short-term) be integrated into the sustainability effects of land use decisions?
- How can various spatial scales (landscape, region, nation, Europe...) be integrated into the sustainability effects of land use decisions?
- How can external development trends (politics, for example organic economic strategy, demography, demand and costs, technological development) be better anticipated for and their effect upon the small scale be analyzed? What interdependencies exist?
- What potentials are there to use the analysis of historical land use and development for improved future-oriented sustainability strategies?
- How can methods be designed so that the participation of the public is possible?

The **implementation** of an evidence-based, transparent evaluation of sustainability for the decision-making process require:

- Sustainability evaluation as a further development of the prognosis of the follow-up of technical systems (for example implementable for bioeconomy)
- Sustainability evaluation as an instrument for the development of policy (impact assessment); important connections to ex-ante, monitoring, ex-post and as an instrument of user information (certification and labeling of specific products)
- As an instrument of regional development
- As an instrument for foresight and the prognosis of follow-up effects

Research Field „Land Use in River Basins“

Integrated research on land use in river basins are currently being developed. This includes quantitative (e.g. Diked Land) as well as qualitative aspects (diffused pollution input) of land use as well as the effects of regulation demands, such as the EU Water Framework Directive. Example: Intrusion of surface waters through point-based or area-based study, especially in relation to land related anthropological burdens. Research questions include:

- Which land uses can take place in diked land, use and agricultural use in diked land areas (area pollution inputs/soil quality/saline content)
- What are sustainable strategies for (existing) settlement structures in areas subject to flood hazard?
- Develop incentives for users/economic compensation models for agricultural use of dike areas
- How does the transportation of sediment material take place (erosion, sediment transfer, depositing and remobilization), quantification and dynamic of the rainwater run-off

Outlook Inspiration WP3: „Global Perspective“

Even the public is increasingly recognizing global themes of land use as a societal challenge and strategies and concepts are in demand. Consideration for the presented research areas must be ongoing in the European and international context. In this context, Germany - with the support of the already developed competence areas in the research field of land use - is in an advantageous position to take an international leadership role. This includes especially for example,

- Land sharing/land sparing strategies: how can a division of functions between natural conservation and agricultural production be considered on the global level? (relevant to the level of ethical consideration and to also be included)
- Research field “Land Grabbing”: What are the aims of the effects of the globalization of the local good of land? Which strategies are required on which levels? (ref. the topic of climate change)
- How can a systematic consideration, including aspects of ethical, economic and social nature, be undertaken?
- In relation to water deficiency: up until today, this issue has not been solved through technological solutions such as conventional desalinization plants, which are unaffordable.
- Can an intensification of agricultural production help to close the gap?
- Development of a "Soil Stewardship council" for the development of suitable methods of sustainable development in agricultural production.



Figure 7.1: Prioritization of Research fields Germany.

Sources

acatech (Ed.): „Soil – A Geological Resource, Economic Driver and Ecosystem Service Provider: recommendations for pooling scientific expertise in soil and land management (acatech POSITION PAPER)“, Heidelberg et al.: Springer Verlag 2012. Project lead: Prof. Franz Makeschin (Dresden University of Technology) The original version of this publication is available at www.springer.com or www.acatech.de

Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit. (2013). „Dritter Bodenschutzbericht der Bundesregierung: Beschluss des Bundeskabinetts von 12. Juni 2013“

Bundesministerium für Bildung und Forschung (BMBF). (2015). „Zukunftsstadt: Strategische Forschungs- und Innovationsagenda“

Bundesministerium für Bildung und Forschung (BMBF). (2010). „Forschung für nachhaltige Entwicklungen: Rahmenprogramm des BMBF im Überblick“

Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung. (2012). „Investitionen in Land und das Phänomen des „Land Grabbing“: Herausforderungen für die Entwicklungspolitik“

Deutsche Gesellschaft für Internationale Zusammenarbeit. (2015). „Boden. Grund zum Leben: Gemeinsam für den Boden.“

DFG Senatskommission für Agrarökosystemforschung. (2014). „Nachhaltige Ressourceneffiziente Erhöhung der Flächenproduktivität: Zukunftsoptionen der deutschen Agrarökosystemforschung“.

Federal Ministry of Education and Research. (2010). „Research for Sustainable Development: Framework Programme of the German Federal Ministry of Education and Research (BMBF)“.

Federal Ministry of Education and Research. (2014). „Sustainable Land Management: A Challenge for Everybody“.

Ollig, Reinhold, Metz, Birgit. (2012). „Transdisziplinäre Innovationsgruppen für ein Nachhaltiges Landmanagement – Ein neuer Förderansatz“. Informationsveranstaltung des Bundesministeriums für Bildung und Forschung am 13. Juni 2012, Bonn.

Rat für nachhaltige Entwicklung: Bodenschutz: Für einen neuen politischen Anlauf zum Nachhaltigkeitsgebot für die Bodennutzung in Europa, Stellungnahme des Rates für Nachhaltige Entwicklung vom 03.04.2014

Schneidewind, Uwe. (2014). „Urbane Reallabore – ein Blick in die aktuelle Forschungswerkstatt“ as found in pnd online, Is III.

Walsh, C., Knieling, J. (2014). „Planungswissenschaftliche Ansätze für ein Nachhaltiges Landmanagement: internationale Beispiele – innovative Lösungsansätze“

Zscheischler, Jana, Rogga, Sebastian. (2014). „Transdisciplinarity in land use science – A review of concepts, empirical findings and current practices“, as found in „Futures“, Is. 65 (2015) 28-44



7.3 Experiences regarding connection science to policy/practice

7.3.1. Use of knowledge

Scientific knowledge on land use science has transitioned from fact or phenomenon based observation to searching for an integrative understanding of land use dynamics that goes beyond the limits of disciplinary knowledge and sectorial viewpoints. (Zeischler, 2014) The INSPIRATION interview partners largely agreed with this point of view. Research for sustainable development should provide better information, evaluation methods as well as planning and decision-making tools for future oriented actions and should deliver innovative solutions for a sustainable society to support sustainability research in Germany. (Gross, Weith, Makeschin). "Research for sustainable development should develop innovative solutions for these challenges and deliver decision-making tools for future oriented action. The spectrum covers everything from basic research to the development of application ready solutions." (<http://www.fona.de/en/framework>) For example, the REFINA programme 2004 - 2008 "Research for the Reduction of Land Consumption and for Sustainable Land Management" funded by the Federal Ministry of Education and Research (BMBF) was part of the German National Strategy for Sustainable Development. REFINA supported the development and testing of innovative concepts for the reduction of land consumption in order to provide a scientifically reliable basis for decisions and measures. Current research on land use is exploring integrated strategies for land use and soil. (www.refina-info.de)

In the application of existing and wide-ranging scientific knowledge, largely developed by research institutions in the previous years, there is still a recognition of existing gaps in the field of knowledge-transfer. In relation to this, the interview partners were critical about the following aspects:

- New scientific results are often separated from questions of practical application and even new legislation is not able to compensate for the discrepancies in practical application. (König)
- Integrated research approaches do produce valuable new products for the practical sphere, however these are then often used by sectoral organisations in the public sector and in this manner the "end user" cannot be properly addressed, (Gerts)
- Scientific literature is commonly not available in public and administrative organisations and is rarely used by practice-oriented partners,
- Congress and educational events in Germany are overwhelmingly catered towards specific disciplinary communities. In this manner, presentations from INSPIRATION are presented at various types of conventions, which leads to the result that the topic is not reflected upon in an integrated manner but instead in relation to a specific sectoral perspective,
- The participation in European/international research congresses is largely not possible for representatives responsible for implementation, especially those of the public administration due to financial reasons.

In this context, the application of scientific knowledge should be improved in the practical arena. The BMBF aims to strengthen the initiative and involvement of municipalities in research and innovation in the framework of transdisciplinary research approaches with the "Innovative Municipality" program (Kommunen innovative). (Gross) "In this manner the municipalities and municipal departments are the first actors involved in sustainability research. The chances for the long-term application are greatly increased when new ideas and solutions are initiated with the cooperation of the municipalities and the scientific community. Creative and innovation friendly actors in the public arena should be granted the



opportunity to realize new ideas in cooperation with the scientific community”
<https://www.bmbf.de/foerderungen/bekanntmachung.php?B=959>

The improved diffusion of theoretical and conception aspects into the transdisciplinary methods was reiterated by the interview partners. (Weith) Solutions range from the substitution of 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. These aspects are being heavily discussed in US American research communities. (Weith) For this to take place, a new understanding of the “integration” of all disciplines related to land use is required. (Schloten, Mackeschin)

The INSPIRATION project aims to supply such an exemplary method through the application of the chosen bottom-up process.

7.3.2. Possibilities to set the agenda

The majority of the interview partners, as well as a few practice-oriented partners along with the research institution representatives, were involved in the preparation of research programs. This includes work made by the DFG Board and the advisory boards of private foundations all the way to the direct role in the preparation of research programs and the evaluation of projects undertaken within the framework of the BMBF research funding program. Many participants were directly involved in the political supervision, for example as a representative of an association, and were thus able to use research results. In this respect, a deficit in the German research arena was especially noticed for the topic of land management.

The carrying-out of applied research programs was seen by practice-oriented representatives as an active chance to influence research and the application of scientific knowledge. (Siemer, Kirchholtes, Bosold) The early involvement of municipal partners is of central importance for the active cooperation of practice-oriented partners and the application of research results. In general the “German research and administrative culture” was seen as to be “technical oriented”. Integrated problem solving and nature friendly methods were critically received and seen as difficult-to-implement projects by scientific decision advisory boards. Despite the positive methods of challenge-addressing and implementation-oriented research programs of the BMBF and BMUB, the majority of research funding is oriented towards sectoral programs, for example conventional agriculture or the sectoral funding of transportation. (Herbert) Societal challenges are not properly addressed.

One imminent research problem is presented by the discontinuity of projects which commonly only run for 2-3 years. Long-term perspectives and the necessary structural changes are near-to-impossible to achieve within these timeframes. The process of application submission and research project selection require a high level of predetermined agreements. Processes which do not coincide with these agreements are unrealizable, innovation that could be gained from new insights are hindered from the start (Kirchholtes)

Representatives from the private research arena mention the dominance of internal business networks, which is difficult to overcome for the purposes of inter-business cooperation. Undefined future research topics are hardly addressed, low reaction of the industrial research in relation to societal challenges (Germany/world-wide), for example the topic of food security is hardly discussed in Germany and also receives little attention in the debates about land use conflicts. (Bauer, DLG) Private businesses mention a successful method of knowledge transfer from research into practice can be found in the form of demonstration projects with those responsible for application, for example model operations of agriculture supported by scientific input.



7.3.3. Science – policy – practice

As already mentioned, the majority of the interview partners are already involved in the formulation of scientific research questions and/or are involved in research themselves. The use of research projects in the practical application and guidance of political decision-making is especially important in Germany. For example, political strategies and funding programs related to the reduction of land consumption have been supported and guided since the 1990s (Federal Environmental Agency / Environmental research plan, BBSR (ExWoSt "Fläche im Kreis", Federal Ministry of Education and Research / Refina, Innovation Groups

The development of market-ready products was not a main focus of any of the interview partners, with the exception of the representatives from private institutions. This is a recognized deficit. (Gustedt)

The concept of inter- and transdisciplinary research is currently a central theme in the running research programs in Germany. As a consequence of this funding philosophy, private actors are becoming active in the evaluation and selection of research projects and are important practice-oriented partners.

Innovative methods to “science – policy – practice”

BMBF “Sustainable Land Management” innovation groups

The Federal Ministry for Education and Research (BMBF) is funding nine scientific-practice-teams that have combined into Innovation Groups. Until 2019, they will be developing future-focused and applicable solutions for handling land as a vitally important resource.
<http://innovationsgruppen-landmanagement.de/en/>

Reallabore

“Reallabore” with a thematic connection to land use were implemented within the context of the International Construction Exhibition Thuringia (IBA) as well as in Baden-Württemberg. In “reallaboren”, scientific community members become involved in real transformation processes. They support activities such as for example the renovation of city districts or the introduction of new mobility and energy systems. Practice-oriented actors from municipalities, social and environmental organizations or businesses are included in research processes from the beginning in “reallaboren”. Research questions coming from an environmental association, an energy association, a bicycle club or even a technology business can therefore be considered. Open-ended knowledge, which is to have a direct impact in the field of implementation is a type of result to be achieved through the process.
<https://mwk.baden-wuerttemberg.de/de/forschung/forschungspolitik/wissenschaft-fuer-nachhaltigkeit/reallabore/>

BFN-Research-Practice Project

Testing and development processes can be initiated and applied by practice-oriented partner within the context of the BFN research funding program. A preliminary study is undertaken by the BFN to determine the decision criteria to be implemented by a practice-oriented partner and supported through scientific input by the BFN. For example, compensation measures/ecological credit account with the State of Brandenburg.

Science Policy Interface documents

FONA³

Recent Science Policy Interface documents in Germany have been developed under the responsibility of the Federal Ministry of Education and Research (BMBF) under the key program "Research for Sustainable Development **FONA³**" (Quelle) <http://www.fona.de/en/17833> Collaborating in the fields of science, economics, politics and civil society, an agenda process refined the programme and identified new research priorities. The core of the programme will consist of three flagship initiatives: Green Economy, the City of the Future and the Energy Transition in Germany. BMBF will be working on these core elements together with other federal and state departments, allowing the results to have a direct effect on their decision-making processes. The flagships are also designed to be application-oriented, and will involve the inclusion of stakeholders such as businesses and local communities in the research process at defined points. The overall aim is to support implementation processes and, by doing so, to stimulate sustainable development.

The FONA-Framework Programme represents the implementation of the German National Sustainability Strategy and the Federal Governments High-Tech Strategy. Under the sustainability strategy, the federal government has pledged to reduce CO₂ emissions by 40 per cent as compared to 1990 emission levels by 2020. In addition, the share of renewable energy is set to reach 20 per cent as well as a doubling of energy productivity by 2020 as compared to 1990. This applies to resource productivity as well, e.g. land consumption will be reduced from 130ha to 30ha per day.

Zukunftsstadt

As part of FONA3 the National Platform Zukunftswerkstadt: Strategic Research and Innovation Agenda the CO₂ neutral, energy/resource efficient and climate adapted city 2015. Developing upon the vision of a CO₂ neutral, energy and resource efficient and climate adapted, adaptable and livable city of the future, the Federal Government, in cooperation with the Federal Ministry of Education and Research (BMBF), for the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), for Federal Ministry for Economic Affairs and Energy (BMWi) and for the Federal Ministry of Transport and Digital Infrastructure (BMVI) called into life the „National Platform Zukunftsstadt“ (NPZ). The goal of the NPZ is for the common development of an interdepartmental strategic FINA, with the goal to improve the coordination of running and future research programs with each other, to connect them better with one another, and to identify new research demands in the context of the named challenges.

Thematic connections to land use are:

- The recognition of the key role of land in a city/region as a non-renewable resource and the complex user interactions between city and region, such as for example for the regional production of food and energy sources, or the urban water cycle.
- Climate friendly city redevelopment: development of strategies of city redevelopment in growing and shrinking regions and inner development potentials, securing of green area quality, improvement of central urban spaces and of city historical preservation P.410
- Integrated and sectoral vulnerability and risk analysis, which in coordination with various environmental media
- And spatial uses, for example through the further development of simulation tools



- Urban green infrastructure(UGI) are the foundation for a strategic planning application for the development of multifunctional green and blue infrastructures. 54
- Cross sectoral management in city planning in respect to the creation and improvement of ventilation routes, green zones, waterways and flood areas as well as new operation models and forms of finance
- Open data: collection and organisation of municipal experiences.

Council for sustainable development: Soil protection

The Council for Sustainable Development has formulated the requirements for soil protection in the “A New Political Approach to Sustainability Requirements for Land Use in Europe” position paper from 2014 and has also recommended the creation of a world-wide “soil stewardship council”. This should collect the efforts for the development of select methods of a sustainable development in the agriculture and develop methods and indicators. The methodological approaches should be further developed within the framework of a soil stewardship and be used for operational sustainability management.

Acatech 2013

The German Academy for Technical Science (acatech) in 2013 published the “Recommendations for a Collection of the Scientific Component in Soil and Land Management” document. The document includes an overall analysis of the resource “soil” and its role as an ecosystem service and economic factor. Societal challenges, such as climate change, food provision and energy supply were presented. Acatech demands “interdisciplinary research”. It is important for research in the field of soil and land management to address these land use challenges. As a result of their historical development, the scientific disciplines in this area are extremely wide-ranging and this is reflected in the structural diversity of the relevant research institutions in Germany. The result of this is that this subject area receives different degrees of attention from different research institutions. However, the new circumstances facing us today require strategic coordination of research topics and comprehensive, interdisciplinary responses – something that Germany’s fragmented research community is currently in no position to provide. It is therefore imperative for German soil scientists to undertake interdisciplinary cooperation on the key research topics.

- More should be done to highlight the economic and social importance of soil as a finite geological resource at a national, European and global level
- Land productivity should be increased without impairing ecosystem services
- Land management practice should be adjusted to ensure a rapid response to the effects of climate change and innovative approaches should be developed for managing competition between different soil and land uses
- A consensus should be built regarding key research priorities
- Technical expertise should be pooled and interdisciplinary institutional cooperation between the relevant actors and stakeholders in Germany should be promoted
- Measures should be taken to ensure knowledge and technology transfer from the scientific community to businesses and

DFG Senate Commission on Agroecosystem Research

The Senate Commission on Agroecosystem Research has developed a foundational paper for the research agenda titled “Sustainable and resource-efficient intensification of



crop production: perspectives of agroecosystem research."(DFG, 2014) With this foundational paper, the Senate Commission presented the perspectives for the foundational research of sustainable intensification of cultivated plant production. The main call to action by the Senate Commission is for the extension of the agricultural scientific perspective. The evaluation of the relation between input and yield, which is mostly focused upon single crop types, must be expanded to include considerations for the potentials offered by the spatial and temporal diversification of production systems in relation to the local context, the context of the landscape as well as aspects of climate change. Production strategies adapted to entire landscapes and regions as well as in respect to relevant socio-economic and agricultural political contexts must be developed in order to tie in ecosystem services. In this context, the Senate Commission recommends three interdisciplinary research priority topics for the intensification of resource efficiency of land productivity:

- Full use of the potentials of crop cultures for the environmentally friendly yield increase in the context of ecosystem requirements.
- Sustainable intensification of the plant production in the context of the landscape
- Economic, societal and political dimension of yield increases of crop cultures.

7.4 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 in view of the inter- and transdisciplinary methods applied. European research assistance has only been used by a few of the interview partners and is generally seen as relatively resource intensive and associated with higher levels of risk, especially during the phase of application submission.

The interview partners did not mention thematic gaps in the research funding programs. The reason for this is the possibility to address the topics discussed in Chapter 2 within the context of running programs and/or program consultations. The short project timespans as well as the inadequate possibilities to finance empirical studies of land use were seen as a deficit.

Within the context of the interviews, the representatives of public and private research funding organizations stated questions related to the topic of research assistance. An overview of the results are gathered in the following table.

Table 7.1: Funding in Germany

Organisation	Engagement in "land related issues"	EU experiences	Interests/restrictions
German Research Foundation (DFG)	Cross cutting topic of different departments and decision-making commissions (Life science/Engineering)	Yes, but reluctant concerning on target/content agreements with other funders	Interest in fundamental research on "agro-ecosystems" with interdisciplinary involvement of soil and agriculture science and landscape architecture
Federal Ministry of Education and Research (BMBF)	FONA2 and FONA ³ with initiatives on land innovation groups and Innovative Cities • Green Economy • Zukunftsstadt (Priority!) • Energy transition	Yes Examples: https://www.ruragri-era.net/	Interests in networks and future research initiatives / reluctance regarding high administrative burdens European actions must have a strong connection to individual research priority areas
German Environmental Agency	Environmental research plan	Yes	Open on ideas, focus land management
BBSR	ExWoSt, departmental research	No	European exchange for infill development, standards and instruments
BFN	Environmental research plan, Naturschutzgroßprojekte	No	Open to ideas
Volkswagen foundation	Sustainable land use	no	Open to ideas
GIZ	Internal research program	no	Open to ideas
Wüstenrot Foundation	Internal research program	no	No interest
BASF	Internal research program	no	Interest e.g. RealLabs on Agro-ecosystems

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



7.5 Annexes

1a: NKS interviews in Germany

Date of Interview	Organisation	Interview	funder	end user	knowledge provider	Nat.reg.loc. authority	Univ./ research inst	SME /consultant	business & industry	NGO	network	other	soil	sediment	water	land use-managemen t
03.06	Institut für Sozioökonomie Leibniz-Zentrum für Agrarlandschaftsforschung e. V.	Thomas Weith														1
04.06	Deutsches Institut für Urbanistik (DIFU)	Thomas Preuss			1				1							1
24.06	BASF SE	Folkert Bauer	1	1	1								1			
20.07	Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit	Rolf Bräuer	1	1		1									1	1
20.07	Rat für Nachhaltige Entwicklung (RNE)	Isolde Magin-Konietzka		1		1							1		1	1
23.07	Akademie für Raumforschung und Landesplanung (ARL®) 5 R Competence Network	Barbara Warner, Evelyn Gustedt			1		1									1
27.07	Sächsisches Landesamt für Umwelt, Landwirtschaft und Geologie (LfULG)	Bernd Siemer	1	1		1							1	1	1	1
31.07	Landeshauptstadt Stuttgart, Amt für Umweltschutz	Hermann Josef Kirchholtes		1		1							1		1	1
06.08	Bundesamt für Naturschutz	Mathias Herbert	1	1		1							1		1	
26.08	Helmholtz-Zentrum für Umweltforschung – UFZ	Bernd Hansjürgens			1		1						1		1	1
27.08	Universität Tübingen	Thomas			1		1						1	1		

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



		Scholten														
04.09	Ministerium für Klimaschutz, Umwelt, Landwirtschaft, Natur- und Verbraucherschutz (MKULNV)	Wilhelm König		1		1							1			1
04.09	Dresden International University	Franz Makeschin			1		1						1		1	
04.09	Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit	Andreas Bieber	1	1		1							1			
07.09	Bundesinstitut für Bau- und Stadtforschung	Fabian Dosch, Giesela Beckmann, Janna Hoymann	1	1			1								1	1
07.09	Bundesamt für Geowissenschaften und Rohstoffe	Eberhard Einen			1		1						1	1		
07.09	Bundesverband Boden	Maike Bosold			1						1		1			
08.09	Deutsche Forschungsgemeinschaft (DFG)	Patricia Schmitz-Möller	1								1		1	1	1	1
09.09	Universität Gießen	Hans Georg Frede			1		1						1			
11.09	HAW Hamburg	Susanne Heise			1		1							1		
21.09	Forschungszentrum Jülich GmbH	Kristina Gross	1									1				1
21.09	NABU - Naturschutzbund Deutschland e.V.	Steffi Ober		1							1		1		1	1
22.09	Institut für Landnutzungssysteme, Leibniz-Zentrum für Agrarlandschaftsforschung e. V.	Katharina Helming			1		1						1			
24.09	Umweltbundesamt	Detlef Grimski,	1	1			1						1			1

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



		Stephan Bartke, (Frank Glante)														
30.09	European Land and Soil Alliance	Detlef Gerdts		1							1		1			
09.10	Bundesverband der Landesentwicklungsgesellschaften	Anna Strattmann		1							1					1
09.10	Bundesverband gemeinnütziger Landesgesellschaften (BLG)	Karl-Heinz Goetz		1							1					1

8. Italy

Report by Matteo Tabasso, Sarah Chiodi, Giulia Melis

8.1 Introduction

This document (i.e. INSPIRATION deliverable 2.4) reports the information collated for Italy. The information was gathered according to the INSPIRATION document D2.3 “Template for national information collation” following this procedure:

- stakeholder analysis and selection of about 20 actors;
- National Key stakeholders interviews
- according to the suggestions of the first group of stakeholders interviewed the number of National stakeholder increased to 31 representing 29 organizations. (details on NKS are provided in Annex I);
- desk-exercise based on documents review from indirect sources and from NKS suggestions (these are listed in Annex II);
- identification of fund-raising models and scheme for research, as taken from indirect sources and NKS interviews;
- organization of a 2-days national workshop reviewing and synthetizing the collected information as above (about 28 on 31 invited NKS will take part to the workshop).

8.2 Research and Innovation (R&I) needs

8.2.1. Societal challenges and needs

The majority of the NKSs consider all the societal challenges suggested from the European Commission equally important. Someone suggested to reorganize and group them into families: a group is associated with quality of soil, another with food supply, another with urban regeneration and so on. The general perception is that the societal challenges indicated are wide enough to include many other minor challenges and topics. Anyway some specifications were suggested.

One is on water and soil system. The challenges from EC related to this topic are “ensure secure supplies of safe drinking water” and “ensure efficient use of natural resources”, but it’s missed the idea of safeguard and its relation with ecosystems, which means something more than ensuring supply. The connection with water and soil is not clarified and the challenge to prevent the hydrogeological risk is missing. Beside water supply then, also water maintenance should be considered.

Risk management is often named, mainly with the meaning of hydrogeological risk, but it’s considered as implicit within the EC challenges, namely in “ensure secure infrastructure”.

Another societal challenge regarded as important is the reduction of land take, which some NKSs considered somehow already included in the EC challenges (and in that case they think it should be highlighted) but others said it should be added to the list. Related to this challenge are the themes of urban renewal and brownfields reuse.

Some NKSs argue that social inclusion and sociological aspects in general should also be included. For someone it means to involve people in decision making processes on environment and land use, while for others it means to improve the culture of environmental sustainability through public engagement, organizing citizens trainings to increase



awareness on the topic, or even to overcome the technical aspects of land use, taking into account the societal impacts. Societal adaptation to risk also emerged as a challenge.

8.2.2. Topics / research needs to include in the SRA

IT-1: Land take: so what?

Despite the peculiar fragility of its lands, Italy is one of the highest soil consumers in Europe. The mitigation of land take, together with land safety, urban renewal and regeneration, as well as the reuse of contaminated areas, should represent a strategic objective in our country (Ispra, 2015). Within this framework, NKSs move in two directions. Accordingly to Inspiration glossary, one is closer to the key-word of *soil sealing* and moves together with the loss of fertile soil and biodiversity. The other dimension instead entails the reuse of abandoned areas and buildings, and it's linked with brownfield remediation. This last is definitely the most cited topic, asking for new effective strategies (new policies, new laws, new procedures). The priority of this topic is very high.

Specific research questions:

- Promote strategies and urban policies focused on **urban renewal and regeneration**, looking to the 'zero soil take' target and considering cities as development drivers;
Why: in addition to environmental benefits, these processes could lead to economic benefits for the community
- Increase **protection of fertile soils** and enhance protected areas, by limiting transformative pressures of natural sites (following the Natura 2000 strategy).
Why: If we do nothing on it, the risk is to reduce the fertile soils and the chance of subsistence of population.
- **Prevent illegal building**, above all in fragile lands (hydro-geologically);
Why: There are evidences of the correlation between uncontrolled land development and emergencies due to hydro-geological catastrophic events. Tools are needed to change behaviour and make administration more powerful in control and planning.
- Incentivize **brownfield remediation** in order to promote their reuse, meeting the economic needs within the economic crisis;
Why: If we do nothing about it, the risk is to have lot of polluted and unusable plots inside the cities, with effects on public health and quality of life.

IT-2: Remediation process and procedure: so what?

Afterwards the massive industries' disposal, wide soils (which during the industrial age were outside the city, but currently are within) need to be remediated. The strategic position of these lands is very relevant, both in term of real estate and urban densification, thus able to limit new land take if reconverted. Many NKSs raise questions about the remediation procedure: very high cost, waste of time related to bureaucracy and decision makers disagreements, lack of best practices for the impact assessment, weak interaction with research, lack of clarity and uncertainty of the legal system, lack of knowledge about specific soils (Italian lands are very diversified). It's one of the most cited topic and it's priority is considered very high by all the NKSs. It involves many stakeholders and end users who could benefit from this research.

Specific research questions:

- How to **optimize decision making among stakeholders**? Working groups shared with researchers, public institutions and with all the stakeholders are coveted.



Technical decision analysis, decision making supporting systems and tools can be able to provide support throughout the process, which would be shared, transparent and reproducible.

Why: The difficulties in sharing knowledge and decisions, limits dramatically the effectiveness of remediation actions

- How to **shorten the timing**? (this question is strictly related to the previous one: if the decision making process is more efficient the timing is optimized).

Why: Loss of time in intervening could often compromise chance of remediation

- How to **make remediation affordable**? State contributions and tax relief are some of the strategies suggested. Prioritizing contaminated sites is also considered urgent in order to take effective decisions and to understand where best investing money for soil remediation (depending on the environmental risk, people risk and socio-economic factors).

Why: Lack of money and urgency of intervention need to be managed with ad hoc process

- Which are the **best technologies** available (to consider in assessment procedures)? The remediation process isn't only a matter for end users (remediation companies) or local government, but it involves also public officers who are in charge to assess the environmental impact of project and plans.

Why: Soil quality has consequences on people health. Increasing research on technology can help in find the right solution.

- Create a national **database** of contaminated sites (only some regions have it).

Why: A tool is needed to grant a national coherence in soil management

- Improve risk management of contaminants, including **emerging contaminants**, by defining a clearer legislation. Risk thresholds aren't properly evaluated and aren't connected to specific soils. There is also a lack of attention in the law about the emerging pollutants and their consequences on the environment and people's health.

Why: Serious lack of knowledge about contaminants make policies unable to detect or estimate risks for public health.

IT-3: Water management: so what?

Agriculture is the main consumer of water and the productive cycle of crops requires large water volumes. The water resource is available in limited quantities; therefore optimizing the use of water in irrigation is needed in terms of sustainability. Besides, Italy alone accounts for almost one third of water waste from infrastructures (aqueducts) in Europe. Water management concerns infrastructures, monitoring system, but also management agencies, which in some regions of the country are supernumerary. Ensure a sustainable water use is also one of the main objectives of the Directive 2000/60/EC.

This topic has a very high priority and need a quite little effort to be faced in term of research. Knowledge already exists; it's sufficient to transfer and apply it. It's mostly a political and administrative issue.

Specific research questions:

- **Rationalization of water use in agriculture.** A contribution to research, even financial, could come from irrigation Consortia, which are economically strong bodies who govern water management in agriculture;

Why: The responsible use of limited resources is becoming an urgent theme in political agendas world wide



- **Water monitoring systems** could be a worthwhile investment in research. With a global perspective (of the whole country) we could save resources by identifying real risks.

Why: Accessible and organized information is needed to grant a national coherence in water management

- **Improve water system maintenance**

Why: It's a really urgent administrative and economic issue

- Rationalization and **efficiency of the political-administrative system**. For example, Sicily has 7.000 agencies that deal with water while in Italy they are 22.000 in total: it's a no sense.

Why: Lack of resources must be faced by optimization in administrative system. In Italy, bureaucracy is a heavy expense item on the national budget.

IT- 4: Water and soil dynamics: so what?

The challenge to mitigate the climate change in our country should be related to water and hydrogeological instability. Some experts say Italy is a young country and consequently it is naturally subject to the geological risk. But the main cause of instability is often anthropic: bad regimentation of water, concreting of waterways, poor maintenance of water infrastructure, highly intrusive and impacting farming, soil sealing etc. The impact assessment of human activities on the status of surface water and groundwater, as required by the EU, is an important step in this direction.

The urgency of this topic is very high, in order to avoid emergencies and environmental disasters. In Italy there isn't a culture of prevention, we face problems when they become catastrophes. It's necessary to start favouring planning instead of emergency responses.

Specific research questions:

- Development of **non-intrusive agricultural techniques**, able to guarantee greater stability of soils, thus mitigating impacts on soil biodiversity and saving soil fertility;
Why: Massive "industrial" techniques for food production don't take in account soil and biodiversity as a limited resource. Preserve biodiversity and soil fertility is now recognized as an urgent theme.
- Environmental impacts mitigation of farming and crop production increasing: this is the challenge of Genetically Modified Organisms, which are able to make plants more resistant, so reducing the use of chemicals. In Italy GMO field trials are forbidden, but **genetics is a research priority**;
Why: According to some NKSSs, research on OGM can help to answer an increasing food request with a limited soil availability, assuring same production with less chemical provision. Others strongly disagree. The lack of scientific certainties about the long-time effects on consumers makes the theme strongly debated and asks to be studied in depth
- **Risk of surface water run-off**: this phenomena represents a soil threat. The main soil degradation processes involved are: soil erosion and soil contamination by transferring Plant Protection Products (agrochemicals), soil fertility and soil biodiversity loss;
Why: A scientific answer to hydrogeological instability is strongly needed



IT-5: Holistic approach to environment & land management and supporting tools: so what?

Soil, water and sediments have to be considered together, both from the spatial dimension and from the competencies. It means to enforce an holistic and interdisciplinary approach rather than facing issues separately, from different sectors or disciplines. A cultural change in approaching the environment is needed. We know how to solve environmental problems technically, but the biggest issue is how to connect them: which are the environmental charges and benefits of land management? Which are the environmental economic and social costs behind decisions in planning for the environment? How to involve all the stakeholders in decision making? To face the societal challenges looking at the Horizon 2020 an holistic approach is needed, because all the challenges suggested are somehow interconnected. If research moves in separate fields we won't manage to face adequately both the social and climate changes: an ecological and multidisciplinary vision of urban and rural environment is needed

Specific research questions:

- Develop researches following an **integrated and transdisciplinary approach**, starting from education; Procedural standardisation [a technical report rather than a product standard] of soil dynamics analysis. Currently it's a knowledge gap, which involves many disciplines, from geotechnical engineering, to geology and spatial planning.

Why: Complex problems need complex solution. In Italy, culture of specialization often impedes the needed knowledge sharing among disciplines.

- Make integrated laws as well as integrated administrative procedures; Simplify environmental and planning procedures by **coordinating the process**, in order not to waste additional time;

Why: The fragmented framework of laws in Italy contributes to frustrate a lot of efforts aimed to a sustainable use of soil and limited environmental resources

- Improve smart decision supporting systems and dynamic visualization tools to facilitate spatial planning and land management.

Why: Visualization can help to take in account a lot of aspects in a complex problem. ICT can be useful for decision making processes.

8.3 Experiences regarding connecting science to policy/practice

8.3.1. Use of knowledge

Answers of NKSs differ according to their profiles.

The survey revealed that end users regularly use scientific knowledge from any kind of available sources of (scientific) knowledge. Some stakeholders made a distinction between technical data and scientific knowledge, specifying that while technical data are easily available, scientific knowledge and new findings from research are less accessible. The issue is that in Italy there is a lack of applied research, therefore it is quite difficult to benefit from new findings if they aren't adequately connected to practices.

When end users are public authorities, the lack of applied research is specifically referred to standardized and shared procedures, in order to avoid different interpretations of the same law and in order to agree on shared values. Algorithms, models, common vocabularies, cost-benefit analysis, supporting tools are identified as potentially effective goals that the research should achieve.



Some end users, when pertaining to public bodies, are part of a main organization not providing knowledge but that could fund research. What happens is that a sector of the organization co-funds a research that is conducted by external experts, and the results and knowledge do not necessary produce direct benefits to the funding organization. So the knowledge chain is not very clear and demonstrates the strong sectorial approach within public structures.

Pure funders don't directly use scientific knowledge, they are more involved in management and administrative matters. They fund scientific researches and check the impact of funded researches in specific fields or spatial areas connected to the aims of their Organization.

Knowledge providers obviously consider the state of the art and previous research before starting a new research, but they are more focused on knowledge production than on knowledge use. So they are quite caustic on this issue.

8.3.2. Possibilities to set the agenda

In Italy there is no habit to set research agendas at national level, especially on specific disciplines or sectors. The three-year National Research Programme (PNR), prepared by the Ministry of Education, Universities and Research, is almost unknown to most NKSs. People from science sector at least know some specific programmes included in the PNR. Anyway no NKS has ever been consulted for the PNR design. The last PNR (2014-2020) has not been definitely approved yet, but a draft is available. It doesn't refer to specific topics (like environmental issues or land management), but it's focused on different typologies of programmes, such as research infrastructures, scientific excellence and industrial leadership (in the wave of the European Horizon 2020).

Nevertheless the idea to set research or policies agendas is beginning to spread in the Country, for example with the participation of Italian research organizations and funding agencies, administrations and industries to European research agendas, such as:

- The Strategic Research Agenda launched by the Joint Programming Initiatives on Agriculture, Food Security and Climate Change (JPI FACCE)⁹ in 2012, (updated by the "First Biennial Implementation Plan 2014-2015"). Five core themes were identified by the SRA JPI-FACCE: 1. Sustainable food security under climate change; 2. Environmentally sustainable growth and intensification of agriculture; 3. Assessing and reducing trade-offs between food production, biodiversity and ecosystem services; 4. Adaptation to climate change; 5. Mitigation of climate change.
- The Strategic Research and Innovation Agenda within the JPI Water challenges for a changing world (2014)¹⁰. Five Research, development and innovation themes were identified: 1. Maintaining ecosystem sustainability; 2. Developing safe water systems for the citizens; 3. Promoting competitiveness in the water industry; 4. Implementing a water-wise bio-based economy; 5. Closing the water cycle gap.
- The Strategic Research Agenda adopted by the JPI Connecting Climate Change Knowledge for Europe (2011)¹¹. Four modules were designed to generate climate knowledge priorities among the participating countries: 1. Moving towards decadal climate predictions; 2. Research for climate service development; 3. Understanding sustainable transformations of societies under climate change; 4. Improving models and scenario-based tools for decision-making under climate change.

⁹ <https://www.faccejpi.com/>

¹⁰ <http://www.waterjpi.eu>

¹¹ <http://www.jpi-climate.eu/>



- The Strategic Research and Innovation Agenda launched by the JPI Urban Europe¹² in 2015: Global Urban Challenges, Joint European Solutions; which has some shared research questions with Inspiration, like: ecosystem services, enhancing green urban spaces, minimize carbon emissions, improve renewables “green economies” etc.).

Furthermore, Italy is setting the national priorities of an urban agenda that aims to address the national urban policies within the European Structural & Investment Funds. A document was first issued by the Inter-ministerial Committee for Urban Policies (CIPU) in 2013, titled “Methods and contents on the priorities within the Urban Agenda”, addressing research and innovation. For example: the integrated approach to environmental, energy and climate issues; the rational and efficient management of natural resources; the sustainable mobility; the use of ICT to local services management. Then, a National Report on cities was recently launched (October 2015) by the urban@it association, with the aim to address the National Operational Programme on Metropolitan Cities (PON Metro 2014-2020), co-funded by the European Regional Development Fund (ERDF) and European Social Fund (ESF). Following the agenda model, the Report identifies some themes linked with research on land use and environmental matter, among which: land take, climate change mitigation, energy efficiency, citizens inclusion; and, above all, the need to supply the relationship between scientific research programs, practices and policies.

The influence of NKSs on policies agendas, not necessarily related to scientific research, is another matter. Indeed the NKSs that are within public authorities, such as institutional bodies, or that are strictly linked with them, such as governmental agencies, act under the political orientation. It means that if they are involved in research, It's because of the political interest in that research and rarely they autonomously suggest different research topics; anyway when it happened, the research outcomes were not necessarily taken into account. Others NKSs profiles don't feel themselves or their institution really able to influence the politics in general, except the NKSs who are part of the major research centres, which can provide important support to the government in identifying methods and strategies or which can address, somehow (there isn't any institutionalized or standard procedure), research activities.

8.3.3. Science – policy – practice

Almost no NKSs has ever been involved in the formulation of research questions before, but many of them were involved in research projects and proposals and the feedbacks were generally positive. The only issues that were complained within the research experiences, mostly funded by European funds (rather within the European Structural & Investment Funds, above all the Interreg projects, than within the Research and Innovation funds), concern administrative and financial aspects: too much bureaucracy, which produces a big waste of time cut to the project; a procedural simplification was asked from everybody, both in the proposal templates and in administrative management of the project.

Nevertheless the research experiences were positively considered, and research outcomes quite rarely were effectively transferred into policy making or business opportunities. Indeed many people complained the lack of impacts of research into practices or policies, which generally means a lack of applied research and a weak link between scientific research and practices or policies. It doesn't mean that the issue is a general incapacity of knowledge transfer (a matter that however was often cited), but also a political conflict that sometimes emerges from the research outcome (e.g. if a research results imply an unpopular choice, that will be likely rejected by decision-makers).

¹² <http://jpi-urbaneurope.eu/>



Indeed the science-policy interface in Italy appears more like a policy-science interface, which means a quite hierarchical process from the institutions to the scientific world. Sometimes the research world is accused to be auto-referential and not so able to communicate with the outside world, with the risk to waste research efforts for unused results. Other times the focus is more a political matter (as mentioned above).

The research in Italy is evaluated for quality performances according to peer review processes and bibliometric parameters. University and public research centres which benefit from public funds are evaluated periodically (the previous evaluation was from 2004-2010, the current is from 2011-2014) by the National Agency for the Evaluation of Universities and Research Institutes (ANVUR) within the Quality Research Assessment (the Italian acronym is VQR). Universities are evaluated considering the research products of researchers and professors employed in the institution but considered as assembled (associated to any internal infrastructures/department) and not individually. Therefore, only scientific aspects of research are assessed and not the societal impact of scientific research.

In Italy the societal impact of research isn't really assessed, at least not by scientific methodology neither systematically. Nonetheless the ANVUR within the Quality Research Assessment evaluates the public engagement of single department and universities, without considering the impacts of single researches but how much time professors are involved in public engagement activities and which kind of public engagement activities are promoted (until five activities for each university, until two for each department).

Only research centre and institutions (including universities) use to make a Social Responsibility and Balance Sheet or Social Audit, but it refers generally to the research infrastructures and not to single researches or research groups.

8.4 National and transnational funding schemes

8.4.1. Funding schemes and possibilities for research funding

In Italy there is a generally short supply of research founding. The general spending percentage of R&D on the national GDP in Italy is only 1,26% (in 2012), much less of others main countries, such as France (2,23%), Germany (2,88%), UK (1,63%), United States (2,70%), Japan (3,34%), China (1,98%), Israel (4,25%)¹³. Despite of a little growth in the R&D spending in Italy from 2009, the ISTAT¹⁴ announced for the next years an expected decrease in R&D expenditure of public institutions, but an increase of 1.4% of private companies; unfortunately are not available forecast data for the university. Facing this scenario quite little research funding are available; here are distinguished in several major categories: public and private, at the national level or at the local level, and other funds available not purely related to research. All the following funds are totally from the State or partially co-funded by Europe. Research funding schemes provided directly by Europe, such as the Framework Programme for Research and Innovation Horizon 2020 or the LIFE financial instrument that support environmental, nature conservation and climate action projects throughout Europe, are excluded.

National public funds

¹³ All data are from Airi Associations <http://www.airi.it/pubblicazioni/rs-dati-statistiche-della-ricerca/> (last accessed 23/10/2015)

¹⁴ Italian National Institute of Statistics. Information are available at <http://www.istat.it/en/archive/141007> (last accessed 23/10/2015)



The main Italian funding schemes for research funding are provided within the three-year National Research Programme (PNR) - already cited in chapter.3 - prepared annually by the Ministry of Education, Universities and Research. The last PNR provides two main funding schemes for research (excluding research infrastructures) not definitely approved yet: the “Scientific Excellence” and the “Industrial leadership”. Within the first group are provided 9 enables, as many specific programmes and amount of funding:

1. € 60 Mln/year for 1800 PhDs positions: “One thousands and more innovative doctorates”;
2. € 20 Mln/year for hiring researchers in the less developed regions: “Moving potentials to a cohesive and inclusive growth”;
3. € 100 Mln/year for “Scientific Independence of First Stage Researches” (SIR) – following the European Research Council (ERC) starting grants scheme;
4. € 63 Mln/year to attract research talent in the national research system: “Top Talents”;
5. “Excellence with Impact”: 10 projects 5-7 years long for about € 100 M/project which should have a high scientific, economic, social impact;
6. “Support for joint research planning”, with € 15 Mln/year, which aims to promote research networking in order to make better use of R&D resources and to avoid research fragmentation or duplication;
7. “Research (E)quality”, which co-funds gender mainstream in research projects, programmes and institutions; € 1 Mln/year overall is provided;
8. “Talent keys” in order to promote meeting places (real or virtual) for research and society; € 10 Mln/year overall are provided;
9. “Excellent Italian Research” (RIDE), which contributes with € 200 Mln/year to three-years innovative and excellent research projects.

Beside the National Research Programme, other national public funds for research are provided by the same Ministry of Education, Universities and Research (MIUR) and others Ministries (like Ministry of Economic Development, Ministry of Agriculture, Food and Forestry, Ministry of Environment, Land and Sea, Ministry of Infrastructure and Transports) directly to national research centers in order to finance the structural functioning of the institution (if the Ministry is the MIUR) or to finance specific research projects (for the others). The public research centers involved in the Inspiration’s topics are the Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA) and the National Research Council (CNR) with its institutes.

Other funds schemes public to public are provided nationally by public authorities (within the Inspiration’s themes e.g. are Port Authorities, but could be even Regions or others) to national public research centers (like ENEA or CNR above mentioned) or to public universities or, if specific competences are needed, to private research centers.

Regional or local public funds

Funds for research are also invested from the Regions or other local public authorities (such as Cities or Metropolitan Cities etc.) in order to finance the structural functioning of regional research institution (in that case are the Regions that fund their own research agencies, such as IRES or IPLA in Piedmont, or EUPOLIS in Lombardy etc.) or in order to assign specific research projects (usually is applied research) in their “personal” interest to universities or others research centers (even private if needed).

National and local private funds

Research funds in Italy are provided also by banking foundations, which mostly are located in northern Italy, or research foundations, which are often participated by public authorities). They operate locally, investing their funds in the areas identified in their Charter. They can



provide funds to groups (partnerships with associations, companies, NGO ecc.) or to single researchers, covering the whole research cost or a percentage: it depends on the specific call and its objectives.

Professionals categories, such as federations or corporations of specific sectors (like industry, agriculture, commerce, architecture or engineering) could also provide research funds. They usually don't have a specific research program within the organization, but they could co-fund other research projects externally or they could publish specific calls that involve the professional categories in an applied research project or in other projects that can include research activities. In any case the research funds that they could provide are just a little part of the financial capital of the category, because research is a secondary aim for them and often it is not even taken into account.

Companies also invest some funds in research and development and mainly in the North of Italy (75,7% in 2012, compared to 15,6% in the Centre and 8,6% in the South). The spending percentage of R&D invested by companies on the national GDP in Italy in 2012 was of 0,69%, compared to France 1,44%, Germany 1,91%, UK 1,05%, Spain 0,66%; facing the European average of 1,20%¹⁵. Research can be developed intra-moenia or extra-moenia.

Other joint funds available, not purely related to research

The most part of the NKSs experienced researches from funds not strictly related to research and co-funded by Europe instead of having only national financial resources. In this group are included the funding opportunities offered within the European Structural & Investment Funds.

The main ones are calls opened within the European Territorial Cooperation (ETC), better known as Interreg: cross-border (Interreg A), transnational (Interreg B – notably Med was cited) and interregional (Interreg C). These programmes aim to promote joint actions and policy exchanges between national, regional and local actors from different Member States, which can include research activities, even if research is not the main aim.

Other research and opportunities were cited within the European cohesion policy funds, despite they aren't again research-driven funds. These were calls opened within specific Operational Programmes available nationally or locally (regional), which benefit of the European Regional Development Fund (ERDF) and the European Social Fund (ESF). Considering the Inspiration's themes, more appropriate are also the European Agricultural Fund for Rural Development (EAFRD), with calls opened within the national and/or regional rural development programmes (RDPs), which some NKSs cited as "research" opportunities too.

Final considerations on funding schemes

Therefore funding opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems would be available nationally within the PNR programmes and, even if it isn't pure research, within the next calls that will be open by the Operational Programmes available nationally or locally (regional). Beside them, the European Territorial Cooperation programmes represent a research related opportunity.

Integrated approach, participation, strategic planning and better connection between scientific research and practices (or policies) are the most suggested strategies to increase the added value of research on Land and the SSW-system.

¹⁵ All data are from Airi Associations <http://www.airi.it/pubblicazioni/rs-dati-statistiche-della-ricerca/> (last accessed 23/10/2015)



8.4.2. Gaps in financial resources for research

The main gap in financial resources for research and generally in research in Italy is mostly identified with the lack of efficacy of research project, which means that the research outcomes often ignore their application in the real world and disregard the market needs. Therefore the transferability of research results should be ensured, relapsing the market and the milieu. The general idea is more operational and applied research than pure and fundamental research. Beside that gap is the lack of control on final research results. The dissemination phase of research project and communication are also considered quite deficient by someone.

NKS reveal a dichotomy about private funds for research. Some of them are definitely in favour of private fund for research and advocate the participation of enterprises and foundation in research fund schemes; someone suggested also to create stable consortia between public and private agencies and research centres. But others are very sceptic about it and consider private participation in research a strong risk on public interest, which is supposed to be main interest in research. That idea of research, strongly related to public interest, reflects the research environment and culture in Italy that is mostly public; indeed private research centre and above all universities are few in Italy.

8.5 Other remarks made by interviewees

Further remarks will be collated during the 2-day national workshop.

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



8.6 Annexes

1a: NKS interviews in Italy

Date of interview	Organisation	Interview	funder	end user	knowledge provider	Nat.reg. loc. authority	Univ./ research inst	SME /consultant	business & industry	NGO	network	other	soil	sediment	water	Land-use management
16/07/15 21/07/15	Region Piemonte	Annalisa SAVIO Guido BASCHENIS	1			1							1		1	1
23/07/15	City of Turin	Liliana MAZZA		1		1										1
08/10/15	ISPRA	Antonella VECCHIO, Michele MUNAFO'			1		1						1	1	1	
16/10/15	ANCE PIEMONTE	Gianluca POGGI		1							1					1
18/06/15	AUDIS	Marina DRAGOTTO		1							1					1
29/07/15	Confagricoltura Piemonte	Giovanni DEMICHELIS		1							1		1			
06/10/15	Consorzio di Bonifica del Cixerri	Andrea PEDDIS		1		1							1		1	
07/09/15	IPLA	Matteo GIOVANNOZZI		1			1						1			
16/09/15	ADBPO	Francesco PUMA		1		1									1	
06/08/15	ISMAR-CNR	Andrea BARBANTI			1		1							1	1	
19/06/15	Studio PLANETA	Mattia BIASIOLI		1				1					1	1	1	
18/09/15	Zone Onlus (Eddyburg)	Mauro BAIONI		1						1						1
05/08/15	Università Ca' Foscari	Lisa PIZZOL			1		1						1	1	1	
05/08/15	Autorità Portuale di Venezia	Marta CITRON		1		1							1	1	1	1
09/09/15	ARPA Puglia	Domenico GRAMEGNA		1		1							1	1	1	
16/10/15	INU	Silvia VIVIANI (Silvia SOPPA)		1								1				1
07/08/15	Seacoop	Mauro PERINO Giorgio QUAGLIO		1				1					1			1
12/08/15	RICS	Marzia MORENA		1							1					1
16/10/15	Legambiente Emilia Romagna	Nicola DALL'OLIO		1						1			1	1	1	1

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



30/07/15	Fondazione CRC	Andrea ALFIERI	1								1	1			1	
02/07/15	Golder	Jean Pierre DAVIT		1								1	1		1	
09/10/15	Nomisma	Marco MARCATILI			1					1					1	
14/07/15 04/08/15	ENEA	Paola CLERICI Gaetano BORRELLI			1	1						1	1	1	1	
23/09/15	RECONnet	Renato BACIOCCHI, Igor VILLANI		1						1		1	1	1		
08/10/15	INVIMIT	Carlo PETAGNA	1			1									1	
08/08/15	Regione Campania	Antonio RISI	1			1						1	1	1	1	
20/10/15	Ministero Ambiente	Laura D'APRILE (Diego ANGOTTI)	1			1						1	1	1		
26/10/15	Terra srl	Marco STEVANIN						1				1	1	1		
26/10/15	Università del gusto di Pollenzo	Silvestro GRECO					1					1				
			5	18	6	11	5	3	3	2	6	2	19	13	15	16

NOTE: Names in brackets refers to people participating in the National Workshop as substitute of the interviewed person above.



Annex Ib: NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training on 22nd – 23rd June 2015.

[Note: this questionnaire template is meant to help National Focal Points (NFPs) to facilitate the interview/conversation with the National Key Stakeholders (NKS). Some questions are relevant to one NKS, other questions to another NKS. Hence, not all questions are relevant to each single NKS. The NFPs are required to adapt the template accordingly – keeping in it as many as possible of the issues to be addressed. If needed, the NFPs also translate the questionnaire into their national language.]

Il questionario (vedi pagine seguenti) segue il seguente schema:

- A. Informazioni sull'intervista:
Da compilare da parte dell'intervistatore
- B. Introduzione:
Che l'intervistatore può utilizzare per iniziare l'intervista NKS
- C. Contesto della NKS intervistato:
Per lo più 'caselle da sbarrare'
- D. Agenda di ricerca strategica (SRA):
NKS preferito argomenti, documento generale i temi e le possibilità di SRA e state-of-the-art nazionale sui programmi di ricerca di cui il NKS è a conoscenza
- E. Science-Policy-Interface:
Esperienze del NKS per quanto riguarda lo sfruttamento delle conoscenze scientifiche a: migliorare le opportunità di business; affrontare altre sfide sociali; sostenere la politica attuazione e / o di revisione della politica
- F. Finanziamenti:
Prevalentemente utilizzato così come promettente schemi di finanziamento / meccanismi / programmi alternativi per la produzione di conoscenza e di diffusione di cui il NKS è a conoscenza
- G. Altro:
Alla fine lasciare un po' di tempo ai NKS per fornire consigli, eventuali citazioni (che possiamo utilizzare in forma anonima nelle nostre comunicazioni), esempi, ecc.
- H. Termine dell'intervista: follow-up se e come i NKSs saranno coinvolti nelle fasi successive di INSPIRATION

Questionnaire template in National Language

A. Informazioni generali sull'interlocutore

31. Nome e titolo/i:
32. Ente di appartenenza (eventuale):
33. Ruolo all'interno dell'ente o tipologia di attività professionale svolta:
34. Tipologia di ente/soggetto (sono possibili risposte multiple):
- ☐ autorità nazionale-regionale-locale
 - ☐ università/istituto di ricerca
 - ☐ SME (piccola media impresa)/consulente
 - ☐ settore direttivo/produttivo (business/industria)
 - ☐ NGO
 - ☐ rappresentante/leader di un network
 - ☐ altro, specificare:
35. Settore di competenza (sono possibili risposte multiple):
- ☐ suolo
 - ☐ acqua
 - ☐ sedimenti
 - ☐ pianificazione urbanistica (urban planning)
 - ☐ progettazione del paesaggio (landscape designer)
 - ☐ gestione del territorio
 - ☐ altro:

36. La sua organizzazione fornisce finanziamenti per la ricerca?
- ☐ Sì, specificare (*come titolare di programmi-progetti, come gestore di risorse o fondi pubblici/privati ecc.*)
 - ☐ No

D. SRA – Temi per l'Agenda

37. La Commissione Europea cita alcune sfide sociali da affrontare in relazione ai temi di ricerca dell'Agenda (riferiti agli usi e alla gestione del territorio e al sistema Suolo-Acqua-Sedimenti), qui elencate:
- *Contribuire alla sicurezza alimentare;*
 - *Garantire un approvvigionamento sicuro di acqua potabile;*
 - *Assicurare il fabbisogno e la distribuzione di energia;*
 - *Ridurre il consumo di risorse e di materie prime;*
 - *Garantire l'uso efficiente delle risorse naturali;*
 - *Contribuire alla mitigazione dei cambiamenti climatici e all'adattamento sociale;*
 - *Contribuire a un ambiente di vita sano;*
 - *Garantire infrastrutture sicure*
- Quali eventuali ulteriori "sfide sociali" suggerirebbe in relazione ai temi di interesse per la sua attività?

38. Secondo la sua opinione/la sua esperienza professionale, quali temi/argomenti di ricerca (riferiti agli usi e alla gestione del territorio e al sistema Suolo-Acqua-Sedimenti) dovrebbero essere inclusi nell'Agenda?

Per ciascun tema citato le chiediamo di fare riferimento alle seguenti specificazioni:

- *Chi sono i soggetti/enti interessati al tema (intesi come potenziali utilizzatori finali dei prodotti di ricerca conseguenti al tema proposto)?*
- *Chi sono i soggetti responsabili (intesi come i potenziali promotori delle ricerche sul tema proposto, ma non necessariamente come gli esecutori delle ricerche)?*
- *L'argomento proposto riguarda la sua attività professionale/il suo ente di appartenenza (anche diversi rami di competenza rispetto al proprio)?*
- *E' un tema di livello nazionale, oppure è condiviso da più paesi (a quale livello)?*
- *A che punto si trova la ricerca su questo tema, dove potrebbe arrivare nei prossimi anni (orizzonte-obiettivo)?*
- *Come può la nuova conoscenza acquisita dalla ricerca proposta essere utilizzata efficacemente dagli utenti finali?*
- *Qual è il grado di priorità del tema proposto (da elevato a basso)?*
- *Qual è il grado di urgenza del tema? Ovvero cosa accadrebbe se non venisse fatto nulla in merito?*
- *Chi potrebbe/dovrebbe finanziare questo tipo di ricerca?*
- *Esistono documenti rilevanti (documenti istituzionali, strategie nazionali, agende-programmi di ricerca) a sostegno del tema proposto? Quali?*

E. Interfaccia tra politiche e mondo della ricerca scientifica (Science Policy Interface)

39. Nello svolgimento della sua attività professionale utilizza risultati della ricerca scientifica? Quali sono le più recenti contaminazioni derivate dal mondo scientifico nel suo lavoro?
40. La sua attività professionale/l'ente per il quale lavora, è in grado di condizionare direttamente o indirettamente i programmi di ricerca scientifica in Italia? In che modo (attraverso Tavoli di lavoro, consultazioni ecc.) e su quali argomenti?
41. Ritiene che le politiche italiane in materia di ambiente e territorio riflettano i bisogni e le priorità derivate dalla sua attività professionale?
42. La ricerca scientifica in materia di ambiente e territorio influenza le politiche di interesse per la sua professione? In che modo e su quali argomenti?

[Domande 13-14-15-16 riservate ai soggetti intervistati che NON svolgono attività di ricerca scientifica]

43. E' mai stato coinvolto nella formulazione di domande di ricerca scientifica?
44. Nello svolgimento di una ricerca scientifica?
45. Nella costruzione di un progetto di ricerca scientifica?
46. *In caso di risposta affermativa ad una delle domande precedenti:* che cosa è andato bene o cosa si sarebbe dovuto evitare nell'ambito della ricerca (costruzione della domanda di ricerca/progetto) a cui ha partecipato? Cosa potrebbe essere migliorato?



F. Risorse finanziarie

47. In che modo ritiene che gli investimenti nella ricerca in materia di territorio e ambiente possano meglio contribuire alla collettività? Ad esempio, rispetto ai temi di ricerca che ha proposto, in che modo la spesa di investimento fatta per quella ricerca potrebbe portare un effetto moltiplicatore diretto o indiretto anche su altri settori/ambiti?
48. Saprebbe suggerire delle strategie o degli schemi di finanziamento (forme e fonti di finanziamento) particolarmente virtuosi per la ricerca dei quali ha avuto esperienza diretta o di cui è a conoscenza?
49. *Se ha svolto attività di ricerca scientifica in materia territorio ambiente*, quali sistemi/fondi di finanziamento sono stati utilizzati? Di quale livello (nazionale-regionale-europeo)?
50. Conosce forme di finanziamento integrate (ad es. pubblico-privato) in materia di ambiente e territorio per la ricerca? Sono efficaci? Come ritiene possano essere migliorate?

G. Altro (osservazioni, suggerimenti, esempi):

H. Informazioni su INSPIRATION

- Vuole essere aggiornato/a sugli sviluppi della ricerca INSPIRATION? Nel caso indichi dove e come preferisce essere contattato/a:
- Può suggerirci qualcun'altro che possa essere interessato a INSPIRATION, che potremmo contattare o a cui rivolgere il questionario?

INSPIRATION acknowledges the received funding from the European Community's HORIZON2020 Framework Programme under grant agreement no 642372



Annex Ib: NKS hand-out: INSPIRATION interview at a glance

INSPIRATION - L'intervista in sintesi

Scopo di INSPIRATION:

Il principale obiettivo del progetto europeo INSPIRATION, è quello di formulare un'agenda di ricerca strategica (SRA), orientata all'utente finale, sui temi di ricerca riferiti agli usi e alla gestione del territorio e del sistema Suolo-Acqua-Sedimenti al fine di soddisfare le sfide e le esigenze attuali e future della società. Il progetto mira altresì a far emergere modelli di attuazione della SRA e di preparare una rete di istituzioni pubbliche e private che vogliono contribuire in modo congiunto all'implementazione e al finanziamento dell'Agenda di Ricerca Strategica.

National Key Stakeholders (NKS):

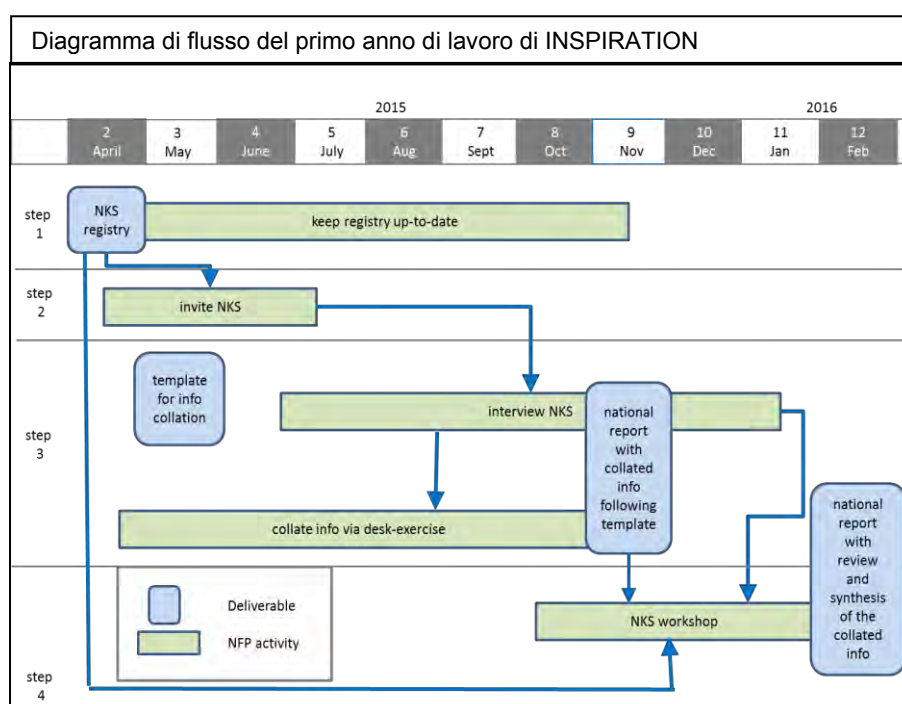
Attraverso una serie di interviste agli Stakeholder nazionali dei vari paesi europei, i *National Focal Point* (NFP) raccolgono a livello nazionale le informazioni relative all'obiettivo di INSPIRATION riguardo:

- Esigenze di Ricerca e Innovazione (Research and Innovation needs)
- Esperienze relative alle connessione tra il mondo della ricerca scientifica e le politiche/pratiche
- Schemi di finanziamento nazionali e transnazionali

Le interviste sono rivolte principalmente agli stakeholder nazionali che, come lei, si collocano in posizioni di rilievo per la loro posizione professionale, hanno una buona panoramica sulle opportunità, una visione chiara e la comprensione delle esigenze di conoscenza (a breve, medio e lungo termine). Inoltre, i NKS dovrebbero occupare posizioni di rilievo nel loro settore di pertinenza e far parte di reti professionali. Inoltre possono rappresentare potenziali ambasciatori per INSPIRATION. Abbiamo scelto gli Stakeholder in modo da rappresentare diverse discipline e contesti istituzionali, tra cui: pianificatori territoriali; manager; esperti sul tema suolo-acqua-sedimenti; ricercatori, finanziatori e soggetti pubblici.

L'intervista:

E' mirata a raccogliere indicazioni da parte sua in qualità di esperto nel suo settore, ed è di fondamentale importanza per il progetto, al fine di aiutarci a descrivere lo stato dell'arte nel nostro paese per fornire degli elementi da inserire nell'Agenda di ricerca europea. Nell'intervista verranno affrontati una serie di temi e domande. Le interviste di NKS (circa 20 per nazione) e un'analisi sulle esigenze di ricerca e sulle possibilità di finanziamento e saranno sintetizzati in un 'rapporto nazionale'. Questa sintesi sarà riesaminata in un workshop nazionale, al fine di definire le priorità sui temi che verranno proposti come punto di vista del nostro Paese. Le relazioni nazionali saranno quindi utilizzate come input per l'elaborazione della SRA europea e per incrociare i temi di ricerca con i possibili canali di finanziamento.





Esempi di domande::

Esigenze di Ricerca e Innovazione (R & I)

- Quali sfide per la società consideri come importante?
- A partire dalla sua esperienza: quali argomenti specifici (bisogni di ricerca) dovrebbero essere inclusi nella SRA?

Esperienze sul collegamento tra ricerca e politiche / prassi

- Come definirebbe 'conoscenza scientifica'?
- in che misura è stato fatto uso di state-of-art nella ricerca scientifica per la formulazione delle politiche esistenti nel nostro paese?

Meccanismi di finanziamento nazionali e transnazionali

- La vostra organizzazione prevede finanziamenti per la ricerca esterna?
- Quali esperienze e aspettative relative a sistemi di finanziamento (pubblico / privato) nel vostro campo potrebbero offrire opportunità per la ricerca futura sull'uso del territorio e sugli impatti e relativi al sistema suolo-acqua-sedimenti?

I possibili benefici:

- Possibilità di influenzare la SRA europea sulla terra e la gestione SSW alla luce delle sfide e delle esigenze della società;
- Essere in grado di utilizzare i risultati del progetto: panoramica della ricerca hanno bisogno e di schemi di finanziamento promettenti su diversi livelli (sub-nazionale, nazionale, europeo, internazionale) e le opportunità per una migliore connessione tra scienza e politica / prassi esistenti ;
- Utilizzare l'opportunità di entrare in contatto con altre reti dentro e fuori del nostro paese, e capire quali sfide possono essere prese in modo congiunto dai diversi stati.

Contatti e ulteriori informazioni:

Per informazioni generali sul progetto INSPIRATION potete visitare il nostro sito ufficiale:
www.inspiration-h2020.eu

Contact the National Focal Point: <i>Matteo Tabasso</i> <i>[Address corso Catelfidardo 30, 10131 Torino Tel. 0039.011.19751548 Matteo.tabasso@siti.polito.it]</i>	Contact the general project coordination: Stephan Bartke FG I3.5 – Coordination INSPIRATION Federal Environment Agency Woerlitzer Platz 1 06844 Dessau-Rosslau Germany stephan.bartke@uba.de



Annex II: Documents used for the IT desk study

Among the numerous document consulted we cite the main one available on line:

- JPi FACCE Strategic Research Agenda available at www.faccejpi.com
- Rurbance: rural urban governance, Regione Piemonte available at www.rurbance.eu
- ENEA, La sostenibilità ambientale. Manuale., Available at <http://www.enea.it/it/pubblicazioni/pdf-volumi/v2015-la-sostenibilita-ambientale.pdf>
- MIFAAf, La strategia per l'innovazione e la ricerca nel settore agricolo alimentare e forestale 2014-2020
- ANVUR, Linee guida per la compilazione della scheda unica annuale della ricerca dipartimentale
- Accordo di partenariato 2014-2020 – Italia
- Comba R. *et al.* (2014), “Le aree ad alto rischio ambientale in Italia”, in *Ecoscienza*, n. 1
- Know4DRR, june 2015 <http://www.know4drd.polimi.it/>



Annex III: Eg. Complete list of societal challenges and related questions as mentioned in the interviews

NKS 1¹⁶

TEMI PER SRA

1) **Contaminazione delle aree agricole:** manca la normazione della materia;

problema del rischio alimentare diretto, quindi rischio per la sicurezza alimentare; se la contaminazione delle aree agricole non viene regolamentata e normata c'è un rischio per la popolazione; particolarmente rilevante in regioni ad alta presenza % di aree agricole.

Responsabile della mancata legislazione è sicuramente il Ministero dell'ambiente e gli organi tecnici (Ispra, autorità locali); il responsabile in senso stretto è poi chi causa l'inquinamento, ma sull'aspetto normativo sono le autorità competenti.

Il tema riguarda la mia attività solo a livello nazionale, ma è sicuramente un tema condiviso tra più paesi (pur non avendo esperienza lavorativa in altri paesi).

Da tempo si parla del tema e si sta muovendo qualcosa sul tema attraverso iniziative nazionali, ma sarebbe meglio si adottasse un approccio europeo al tema, non fosse altro per la libera circolazione delle merci (import-export). Altri paesi sono più avanti di noi sul tema.

Molte conoscenze ci sono già su questo tema, andrebbero probabilmente adattate alla nostra realtà locale perché sono modelli di simulazione che non sempre si possono applicare ai nostri contesti perché noi abbiamo colture molto differenziate. Quindi la ricerca dovrebbe essere focalizzata al trasferimento dei modelli esistenti più che allo sviluppo di nuovi modelli.

I finanziatori di questo tipo di ricerca dovrebbero essere le DG EU Ambiente e Agricoltura.

Food safety e contamination dovrebbero avere un approccio normativo transfrontaliero, non dovrebbe essere solo nazionale.

Abbiamo parecchi prodotti di pregio, che hanno un vantaggio commerciale (IGT & co) e che potrebbero beneficiare certamente di una qualche forma di certificazione del tipo "contaminants free", esempio la risicoltura. Potrebbe tradursi come un vantaggio commerciale per i nostri agricoltori. Solo le colture di pregio che potrebbero davvero beneficiare di simili azioni, ma entriamo nel discorso delle certificazioni...

2) **Contaminazione dei sedimenti:** è carente sotto il profilo normativo a livello nazionale

La proprietà qui è spesso pubblica e quindi non c'è un interesse diretto; è un settore più di nicchia, con fenomeni puntuali molto compromessi.

I finanziamenti anche in questo caso dovrebbero essere di carattere pubblico, ma forse più di interesse nazionale e meno europeo; anche se le normative europee sono ben viste.

È un settore meno rilevante di quello precedente.

Qui i soggetti interessati sono più sul fronte pubblico.

Abbiamo avuto esperienze nello studio su questo tema.

Ci stiamo muovendo sui sedimenti marini perché siamo un paese con un forte sviluppo costiero e con tanti porti industriali; abbiamo contaminazioni importanti a Porto Marghera, Genova, La Spezia. Sui sedimenti lacustri e fluviali siamo un po' indietro perché meno impattanti.

Anche qui c'è un buco normativo, quindi qualsiasi conoscenza acquisita dovrebbe aggiungere quel tassello che manca sui sedimenti.

¹⁶ Numbers don't correspond to the order of NKS names in the list of Annex Ia. The information collected through the interviews aren't attributed directly to the authors. They are considered anonymous.



Per i finanziamenti DG ambiente EU (non agricoltura) e poi Ministero Ambiente, Ispra ecc. Anche qui c'è già molta esperienza acquisita su specifici casi di studio frammentati, da cui si potrebbero trarre informazioni. Non è un tema nuovo da affrontare con nuova ricerca è un tema noto su cui bisogna fare un trasferimento di conoscenza.

Manca la parola acque sotterranee all'elenco proposto. Aggiungerei q.sa tipo "utilizzo sostenibile della risorsa idrica".

Sfide sociali: tutti i temi dell'elenco sono intercettati dai temi suggeriti, solo infrastrutture sicure sono escluse.

Programmi/agende di ricerca esistenti (a livello nazionale): conosco programmi finanziati dal MIUR. Ci sono programmi finanziati a livello regionale (specialità regioni transfrontaliere) e altri finanziati da fondazioni private. I temi sono energia, mobilità sostenibile, meno sui temi proposti.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Esperienze:

tutti i programmi di ricerca difficilmente finanziano ricerca pura bensì ricerca applicata, quindi che sia immediatamente trasferibile al mercato o a policy makers. Da questo punto di vista si sta già cercando di valorizzare le conoscenze acquisite tramite il finanziamento di programmi di ricerca immediatamente trasferibili appunto. Nonostante tutti i programmi di ricerca abbiano questo orientamento, tuttavia a livello nazionale questo trasferimento avviene molto poco: si producono manuali, linee guida ecc. ma è molto difficile che vengano effettivamente applicati.

Quindi dovrebbe essere migliorato questo aspetto. Gli enti locali sono spesso coinvolti nei progetti di ricerca e molto spesso l'attuazione della politica si chiude sul singolo caso studio a livello del singolo comune/regione/provincia che era coinvolta nel progetto ma poi non c'è nessun tipo di trasferimento.

Fonti di informazione scientifica: riviste internazionali scientifiche, mail list.

Informazione tecnica ci sono moltissimi materiali, con ampio accesso all'informazione tecnica, che utilizziamo molto. Informazione scientifica invece molto meno.

In generale quello che ritengo dovrebbe essere migliorato nei bandi di ricerca europea è sempre il supporto nazionale-locale. Anche quando si devono coinvolgere regioni e comuni, non c'è mai nessuno che a livello nazionale conosca bene in programma, che parli bene inglese e ti sappia dare supporto. Ci si muove sempre per conoscenze acquisite. Ci sono società che vivono di questo facendo il mestiere di supporto alla partecipazione dei bandi, ma ritengo che questo non dovrebbe avvenire.

Visto che non sfruttiamo abbastanza le opportunità offerte dall'Europa non stante i contributi pagati, ritengo che un piccolo comune per esempio non sapendo dove rivolgersi dovrebbe poter fruire di un servizio di assistenza pubblico per accedere ai finanziamenti europei. Solo i comuni grossi iniziano a sviluppare un servizio singolo.

A parte i progetti che finanziano azioni dirette e puntuali sul territorio, di cui tutti cercano/riescono a beneficiare, tutti gli altri progetti di finanziamento alla ricerca invece producono faticosamente molti documenti che però spesso sono inutilizzati (i doc e linee guida di cui sopra). Il rischio poi di non utilizzo dei lavori di ricerca svolti è spesso legato a questioni politiche: cambia l'amministrazione e ciò che è stato fatto viene trascurato o cancellato per spostare gli interessi altrove.

Ci sono indicatori sulla qualità della ricerca in Italia.

Per l'attività che svolgo si utilizzano direttamente i dati della ricerca scientifica, per cui si vedono immediatamente gli impatti. Nella società/paese non saprei fare valutazioni specifiche.



FINANZIAMENTI

La partnership pubblico-provato è già un processo in corso.

C'è troppa ricerca che non corrisponde alle esigenze di mercato: adesso che i fondi sono limitati, per fare una buona ricerca devi assolutamente rivolgerti al settore privato di mercato e raccoglierne le esigenze. Non devi identificare i finanziatori ma devi raccogliere le esigenze dai soggetti privati. Ci va sicuramente un maggiore coinvolgimento del settore privato per definire le strategie di ricerca: c'è troppa ricerca che non risponde ad una esigenza immediata (seppure di qualità). Le associazioni di categoria per esempio (ad es. Confindustria. Associazioni di categoria settore agricolo, Ance ecc.) dovrebbero intervenire maggiormente, seppur con il rischio dell'effetto lobby, nell'indirizzare le tematiche di ricerca. Quasi tutti questi temi toccano soggetti che sono già raccolti in associazioni di categoria, si tratterebbe solo di identificarli correttamente e riuscire a coinvolgerli. Tuttavia non li vedo come soggetti finanziatori perché esistono solo in base alle quote associative, ma potrebbero essere portatori degli interessi dei consociati che invece raggruppano grosse realtà (con capacità di spesa).

Secondo me l'approccio integrato si riesce ad ottenere soltanto coinvolgendo tutti gli attori. Parlando di aree agricole si coprono altri temi come contaminazione del suolo, delle acque, dei sedimenti, ma anche la sicurezza alimentare e il sistema produttivo (agricolo). Le tre matrici SWS sono legate, anche con il sistema atmosfera, quello che è necessario è riunire le competenze, sia sotto il fronte di chi legifera su questi argomenti, sia chi la proprietà delle aree sia chi è coinvolto nell'iter amministrativo e i consulenti ambientali: settori differenti, normative differenti, lo sforzo è quello di riunirle insieme per riuscire a garantire l'approccio integrato.

18. Scrivere le call in modo che sia in qualche modo obbligatorio per i partecipanti il trasferimento dei risultati, penso in particolare agli enti locali coinvolti; è molto difficile perché c'è il rischio che non vi partecipino più, ma essere sicuri in partenza che il risultato finale vada in qualche modo adottato/implementato. Molto spesso ci si limita a dichiarazioni di intenti ma difficilmente ci sono delibere di giunta che adottano le strategie e i risultati. Questo renderebbe il risultato interessante perché ci sarebbe la garanzia della trasferibilità del risultato: i risultati di ricerca altrimenti rischiano di essere solo un esercizio scientifico (esclusa la ricerca di base ovviamente, che va preservata). Secondo una linea tra l'altro già percorsa dai bandi europei, perché questa è la sola linea capace di garantire quell'effetto moltiplicatore di cui si parlava.

In sintesi quindi:

Rispondere alle vere esigenze del mercato e del territorio

Essere sicuri che ci sia una ricaduta (già in fase di avvio del progetto)

I finanziamenti dell'UE anche dovrebbero essere concessi sulla base dell'efficacia di quelli già realizzati ovvero sulla base di quanti progetti sono stati poi effettivamente tradotti in pratiche/politiche. Dovrebbero essere premiati i territori più virtuosi in questo senso (con valutazione ex post dell'avvenuto trasferimento).



ALTRO

Dissesto idrogeologico sembra un tema trascurato e forse andrebbe valorizzato seppur implicito nel consumo di suolo, ma include anche abusivismo edilizio, realizzazione infrastrutture (anche se qui sono citate).

NKS 2

Gli istituti di ricerca in Italia non finanziano ricerca, ma sviluppano ricerca sulla base di finanziamenti regionali, nazionali o internazionali. In ambito internazionale in molti casi le agenzie di finanziamento producono anche ricerca, ma nel caso italiano no.

JPI Urban Europe (allineamento programmi di ricerca) <http://jpi-urbaneurope.eu/>

Le “sfide sociali” elencate sono tutte rappresentate da Enea e non ritengo di doverne aggiungere altre.

TEMI PER SRA

Temi da inserire nell'agenda:

Rispondo per quanto di mia competenza:

- 1) Efficienza energetica (e aumento dell'impiego delle fonti di approvvigionamento energetico rinnovabili).

Il tema racchiude in se una serie di contenuti: dall'approccio di sistema all'uso dell'energia a scala urbana, alle smart grid, alle tecnologie abilitanti smart a livello di edificio (ottimizzazione dei consumi energetici a livello di edificio e di cluster di edifici); quando si parla di edifici ci riferiamo sia ai nuclei residenziali che al settore industriale e laboratori di ricerca e sviluppo. Quindi per noi l'accezione del tema efficienza energetica è molto ampia.

Considerando l'energia io direi che non c'è da aggiungere niente altro perché l'area di ricerca a livello europeo è molto strutturata in questa direzione: abbiamo una European Energy Research Alliance (EERA) <http://www.eera-set.eu/> che attraverso i Joint Programmes <http://www.eera-set.eu/eera-joint-programmes-jps/> ha identificato tutta una serie di azioni di ricerca congiunta tra gli stati membri che fanno dei focus approfonditi su alcuni temi, ad es. il solare, il vento, la smart city ecc. Non posso dire che al momento attuale ci sia qualcosa da coprire in ambito di energy, probabilmente maggiori contributi possono venire dai colleghi che si occupano di acqua, aria, suolo, trattamento di rifiuti ecc.

Forse l'unico elemento che in campo energetico si potrebbe suggerire è un approccio di sistema alla progettazione delle infrastrutture: questa potrebbe in qualche modo essere, non una lacuna, ma qualcosa che oggi emerge confrontandosi nei tavoli europei.

Siamo molto avanti nella ricerca su elementi specifici, molti gap del passato sono stati in qualche modo superati, quello che occorre adesso è legare tutti questi elementi; quindi il discorso di un approccio di sistema. Però francamente ritengo che la EERA abbia sviluppato in questi anni molti temi ed abbia contribuito a coprire i gap di conoscenza, anche promuovendo una serie di azioni di ricerca mirate oggetto poi di Horizon ecc.

Enea ha nel suo DNA il fatto di produrre ricerca e di trasferirla, quindi per quanto ci riguarda l'azione è sempre mirata a produrre ricerca e a trasferirla ad interlocutori definiti, incluse le imprese, con cui sviluppare in partnership industriali ulteriori sviluppi. In realtà quindi non credo sia necessario implementare questo meccanismo [di trasferimento delle conoscenze] anche se miglioramenti sono sempre possibili e auspicabili, ma non ritengo questa una criticità. Ancora ricerca può essere fatta a livello nazionale, questo sicuramente.



Destinatari del tema di ricerca suggerita sarebbero gli stakeholders di sistema in ambito urbano: municipalità, piccole e medie imprese, le grandi imprese dell'energia, i cittadini ecc.

Gli **obiettivi** sono i medesimi fissati da Horizon 2020 con le medesime priorità: ogni stato membro e istituto di ricerca può mettere a punto dei modi diversi o diverse strategie per perseguire quel fine; ma non mi sento di dire che ci sono obiettivi diversi da quelli fissati da Horizon, sono diversi solo i modi con cui gli enti e gli stati operano per conseguire quegli obiettivi.

Forse quello che noto (in ragione della mia esperienza di allineamento dei programmi di ricerca internazionale) in tutti gli ambiti è una richiesta di sviluppare un approccio olistico interdisciplinare tra i soggetti che operano a livello urbano e territoriale, ma un'incapacità del sistema di individuare strumenti che consentano la nascita di un nuovo tipo di ricercatore; perché se ci rivolgiamo alla catena della ricerca che nasce nelle università ancora oggi nelle università, non solo italiane, si va avanti per verticalizzazione di compartimenti stagni; in realtà invece l'approccio olistico e transdisciplinare va in una direzione di far nascere la ricerca in modo integrato; questo è un elemento mancante e che facciamo ancora fatica a capire come promuovere. C'è quindi ancora un arretramento del sistema di formazione del ricercatore.

Il **livello di importanza del tema è massimo (10)**: è inutile continuare a pensare soluzioni separate, bisogna pensare verso soluzioni integrate. Il tema dell'integrazione è trasversale ad ogni ambito, si parla anche di integrazione tra i programmi di ricerca, di integrazione degli elementi di conoscenza per la ricerca ecc.; l'integrazione va quindi promossa a tutti i livelli, anche se non è facile comprendere come integrare i vari aspetti.

In ambito energetico **il rischio** è che, essendoci una ricerca ormai molto spinta di componenti di sistema e di soluzioni tecnologiche su aspetti specifici della catena energetica, se non si va verso un'integrazione dei sistemi (e ragionevolmente chi può proporre l'integrazione è un istituto di ricerca) avverrà che (siccome la ricerca può essere sviluppata anche dai produttori e non solo dagli enti di ricerca) verranno delineate soluzioni tecnologiche standardizzate, che potranno essere applicate di volta in volta nelle varie realtà urbane senza in realtà avere certezza che le soluzioni proposte siano davvero efficaci per il soggetto che le sceglie; anche perché spesso purtroppo in ambito urbano si registra la difficoltà di chi effettua le scelte di investimento a poter mettere in atto una serie di analisi critiche di quello che viene offerto. Quindi in assenza di integrazione il rischio è l'adozione di soluzioni tecnologiche standard.

L'integrazione dei sistemi è un tipo di finanziamento della ricerca che può competere sia ai canali classici nazionali (MIUR, MISE) ma anche a livello internazionale da agenzie di finanziamento che pongono questa istanza come prioritaria (ad es. la JPI Urban Europe ha nella sua mission proprio questa finalità).

Lo **stato dell'arte** è che fondamentalmente ci sono 2 azioni. Una che nasce dall'ambito EERA, che attraverso i Joint programmes (ad es. Wind Energy, Photovoltaic Solar Energy, Smart Cities), istituti di ricerca su base volontaria (senza contributi) si incontrano per mettere a punto uno stato dell'arte nei rispettivi ambiti e individuare i gap di conoscenza e le necessità di ricerca – questo in materia energia. L'altra azione è la joint programme initiative (no EERA, ma UERA) **Urban Europe** che cambia completamente rispetto alla precedente perché il focus qui è la città (Urban come agglomerato di soggetti che vivono insieme senza specificare la dimensione della città) e in questo ambito abbiamo definito nel corso di questi anni un quadro strategico di ricerca e sicuramente il documento più importante è la **Strategic Research and Innovation Agenda** che abbiamo chiuso e che verrà presentata il 29-30 settembre a Bruxelles (dove si incontrano le agenzie di finanziamento). <http://jpi-urbaneurope.eu/activities/sria-agenda/>



INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Interfaccia ricerca e politiche/pratiche

Fonti di informazione: tutte quelle elencate

Enea in particolare ha una sua filiera di modalità di pubblicazione e di comunicazione scientifiche e questo può essere un valore aggiunto rispetto ad istituti minori; c'è una produzione costante di pubblicazione scientifica e partecipiamo a progetti internazionali di vario tipo.

Le politiche riflettono i temi delle nostre ricerche ma certo possono sempre essere migliorate.

Su molti temi Enea ha fornito un supporto importante al Governo nell'individuazione di strumenti e strategie, ma non ho competenza diretta su questo argomento. Sicuramente c'è uno scambio importante, ma vi rinvierei ad altri soggetti più competenti in materia.

Nella divisione smart energy (tema innovativo, dal 2010) sono stati raggiunti molti elementi importanti nelle politiche in relazione ai temi di ricerca proposti.

FINANZIAMENTI

Risorse finanziarie

Le JPI sono state volute dalla European Research Alliance, rispondono alla DG Research della Comunità Europea e sono state impiantate prima del 2010 proprio per cercare di aggregare e non duplicare le ricerche e i programmi di ricerca. Sono nate 10 JPI sviluppate dalle Funding Agency all'estero e in Italia dai Ministeri (in primis il MIUR, poi Ministero Salute, beni culturali ecc.) e quindi i soggetti creano delle agende o dei quadri di ricerca attraverso cui si esprimono.

Le JPI sono nate grazie all'azione del GPC (High Level Group for Joint Programming) [cfr. http://ec.europa.eu/research/era/how-does-it-work_en.html] all'interno del quale ricerca e soggetti promotori cercano un allineamento orientando la ricerca.

Consiglio anche di vedere l'azione <https://www.era-learn.eu/>

Un primo livello sono i fondi strutturali, poi i POR, sono finanziamenti che sicuramente possono avere ricadute significative in ambito urbano e regionale.

Con lo sviluppo della ricerca in ambito energetico che contempli **approcci di sistema** si attua altresì una messa a sistema della scelte di governance in ambito energetico e non solo; quindi l'approccio di sistema creerebbe una moltiplicazione importante delle ricadute e dei benefici della ricerca. D'altronde è il concetto base della smart city: qualcosa che produce dei dati se lo aggrego ad altre funzioni e servizi lo uso due volte e quindi ha una ricaduta maggiore, se invece lo lego soltanto ad un ambito ristretto, certo risolve un problema specifico ma resta confinato.

Si sta molto discutendo proprio su questo aspetto: quali sono i modelli di business innovativi che possono essere premianti per andare a promuovere la smart cities. Perché adesso esiste una gamma di prodotti di imprese-aziende che certo già integrano molti dati con ricadute potenziate però non sono sufficienti; quindi il potenziamento potrebbe essere ancora in questa direzione.

Si sta discutendo appunto molto di modelli di business ma ancora in ambito di smart energy si fa fatica ad individuare dei servizi (quindi io con una soluzione smart raccolgo una serie di informazioni che poi devono tradursi in una forma di servizio per l'utente) innovativi da proporre agli utenti, al di là del servizio legato a strategie di risparmio energetico in ambito residenziale (che ha comunque un valore). L'accelerazione credo possa essere data se si trova il modo di fare sedere più stakeholders di sistema e ragionare insieme. Un valore potrebbe essere rappresentato da quello che è il **co-design**:



cioè il design partecipato delle soluzioni secondo un nuovo approccio non ancora totalmente sviluppato né consolidato (coinvolgendo fin dall'inizio tutti gli attori).

Dentro Urban Europe, in uno degli ultimi incontri che abbiamo fatto, abbiamo registrato un cambiamento: curiosamente le città hanno lanciato segnali di cambiamento e sviluppo, maturando la capacità culturale di affrontare i progetti (il modo in cui questo avviene però è ancora da indagare). Sarebbe bello avere delle call che promuovessero nuove modalità di collaborazione e di progettazione partecipata dei programmi di ricerca.

I programmi sono tanti, ma occorre migliorare la partecipazione a livello nazionale.

Partecipa chi è in grado di finanziare la partecipazione (es. università ed istituti di ricerca).

Riuscire a trovare dei meccanismi che promuovano la maggior partecipazione ai programmi di ricerca sarebbe molto importante. Io ho visto nella mia esperienza che la partecipazione è stata determinante, anche se di pende significativamente dal singolo e dalla fidelizzazione del soggetto: maturare il suo interesse e coinvolgerlo. Non credo che servano più programmi ma credo che serva promuovere la partecipazione dei soggetti ai programmi.

NKS 3

Emerge il problema delle definizioni non univoca del concetto di "consumo di suolo".

Dal punto di vista della pianificazione il concetto del consumo di suolo si concretizza nelle pratiche di riutilizzo dei brownfields (siti dismessi) anziché dei greenfields.

C'è però un'ultima definizione Ispra che definisce il consumo di suolo come suolo impermeabilizzato, che secondo me emerge dal modello di calcolo utilizzato che adopera il GIS come strumento di calcolo. Ma se noi utilizziamo questa definizione, molte delle varianti al PRG in corso avrebbero un potenziale negativo perché di fatto utilizzano del suolo precedentemente non impermeabilizzato, per cui emerge che in piena città avviene consumo di suolo (configurando la classe di fertilità dei terreni urbani come classe 1, coltivabile).

Dal punto di vista urbanistico gli approfondimenti che si stanno conducendo vanno in questa direzione; soprattutto la Città si sta spendendo per portare queste tematiche a livello nazionale. I nostri stessi amministrazioni partecipano a commissioni cercando di approfondire le tematiche dell'uso/consumo di suolo e della rigenerazione urbana. Per ciascun intervento poi è importante capire come attivarsi al fine di sostenere i costi di bonifica e riqualificazione; perché sicuramente intervenire su aree vergini è più vantaggioso non essendoci costi di demolizione, costi di bonifica ecc. Bisognerebbe quindi approfondire tutte le tematiche connesse con la fattibilità economica degli interventi e magari prevedere delle defiscalizzazioni o altre agevolazioni che permettano di privilegiare o orientarsi verso l'utilizzo delle aree dismesse anziché di aree nuove: questo è un tema essenziale da approfondire. Se ne parla da anni anche a livello nazionale ma non si riesce mai ad arrivare ad una definizione univoca e condivisa; sarebbe opportuno anche arrivare a livello di legislazione (nazionale e di conseguenza regionale) con delle proposte in merito.

...

Sfide sociali:

- inclusione sociale: coinvolgimento dei cittadini nei processi [\[partecipazione\]](#)
- cultura della sostenibilità ambientale: educazione dei cittadini alla sostenibilità ambientale; formazione degli utenti-cittadini



TEMI PER SRA

Temi per SRA:

- consumo di suolo: riuso;
- defiscalizzazione [\[degli interventi di bonifica\]](#)

Abbiamo avuto modo di vedere che in molti paesi europei (partner nel progetto BTIM?), ad es. Irlanda, Lituania, hanno tutti il problema di come riutilizzare le aree dismesse (aeroporti, industrie chimiche, armamenti ecc.). Molte esperienze dell'Europa si stanno orientando nel riuso temporaneo degli edifici, cosa per noi sconosciuta; ma grazie alla partecipazione a questo progetto ne siamo venuti a conoscenza, potendo così influire sulla nostra legislazione locale (PRG) per poter consentire anche un uso temporaneo. Questo va nella direzione di utilizzare siti dismessi (con consumo di suolo 0) ma andando anche incontro alle esigenze economiche, in un contesto dove notoriamente le risorse sono limitate. I riusi temporanei comportano degli investimenti minori però fanno sì che l'economia in qualche modo si riprenda.

Tipicamente in una città come Torino, caratterizzata dalla presenza di molte aree industriali dismesse e di quasi nessuna area libera (salvo quelle a parco), il problema del riuso si era già posto a partire dal 1995. ... Un elemento che è stato fondamentale nel processo di trasformazione urbana di Torino (attuazione del PRG: aree di spina) è stato il contributo finanziario statale per la realizzazione delle bonifiche delle aree ad uso pubblico che altrimenti non sarebbe stato economicamente sostenibile.

Soggetti responsabili: esperti pianificatori, tecnici e amministratori, gli economisti.

Obiettivo all'orizzonte: Ci si auspica che la riduzione del consumo di suolo divenga un elemento da perseguire a livello legislativo nazionale, magari attraverso la defiscalizzazione. Le procedure ambientali e quelle urbanistiche dovrebbero coincidere senza tempi aggiuntivi di aggravio (rispetto a quelle urbanistiche), perché altrimenti non possiamo offrire a investitori, che magari arrivano dall'estero, tempistiche accettabili. Forse al livello europeo queste problematiche sono ad uno stato più avanzato: mi riferisco al tema della defiscalizzazione in UK che già era possibile 25 anni fa (es. Docklands –Londra-e Birmingham). Qui dovremmo arrivare ad una **semplificazione procedurale** vera, ma non liberalizzando; governando ma coordinando le procedure di diversi settori (ambiente e urbanistica).

Alta priorità dei temi.

Anche i temi che stiamo affrontando attualmente vedono morfologia e sostenibilità progredire parallelamente ed è dall'interazione tra questi due elementi che emerge la qualità urbana e la performance; l'obiettivo è quello di coordinare tutte le azioni in porzioni di tessuto urbano producendo una qualità urbana molto alta; bisogna trovare il giusto equilibrio tra gli interventi per arrivare ad alti livelli di performance (perché non è detto con certezza che il consumo 0 sia la migliore soluzione).

[Quando parla di "qualità urbana", come pensa di poterla misurare/valutare?](#)

Occorrerebbe individuare degli indicatori fondamentali capaci di rappresentare la performance che si vuole ottenere e possono essere i più diversi.

[Ritiene che questa possa rappresentare un'esigenza di ricerca?](#)

Assolutamente sì e l'Europa si sta già muovendo in questo senso, ma a livello più edilizio (Cesbe ecc.), ma anche una qualità di livello morfologico che andrebbe analizzata assieme a quella prettamente



ambientale (ambientale, urbanistica e architettonica); anche il disegno dello spazio pubblico è importante, come potenziale elemento di attrazione. Bisogna saper dare una qualità urbana (urbanistico-territoriale), mentre ora si sta lavorando più a livello energetico, sull'autosufficienza dei manufatti: questo è un fattore importantissimo ma va aggiunto un aspetto di qualità urbana e non solo di singolo edificio.

Questo sarebbe anche uno strumento nelle mani dei politici e un elemento importante di distinzione per i finanziamenti. Ad esempio se un'area garantisce una maggiore qualità ambientale rispetto ad un'altra allora sarò propenso a finanziare questa piuttosto che un'altra di minor qualità: questo permetterebbe di selezionare gli interventi ai fini dell'elargizione dei finanziamenti (POR, PRIU ecc.).

I migliori progetti di ricerca funzionano con una parte tecnica e una parte operativa sul territorio, quindi con un connubio università e enti di ricerca e componente attuativa dei progetti sul territorio. In questa direzione infatti si sta procedendo anche attraverso i centri di ricerca universitari come il MOI delle biotecnologie, dove università e aziende lavorano insieme con risultati direttamente applicabili (ricerca e sviluppo).

Su queste matrici ambientali, gli obiettivi di sostenibilità sono degli enunciati molto generali che poi vengono declinati dai vari soggetti con obiettivi specifici; ma ogni ente/ufficio ha il suo indicatore e la sua interpretazione personale e questo, per esperienza personale, mette in difficoltà; perché anche se cerchi di uniformare empiricamente gli indicatori se ne individueranno a centinaia, perché ogni ente ne usa di differenti.

Secondo me l'UE ha agito dettando dei principi generali e poi utilizzando molto il principio di sussidiarietà, ma sarebbe opportuno che ci fosse una sorta di Direttiva di controllo per uniformarli perché poi sennò ci ritroviamo a differenziazioni locali (operative) molto forti (parametri e "unità di misura" diverse utilizzati per osservare un medesimo fenomeno), che mettono in difficoltà l'azione.

Dovrebbero essere individuati dei parametri uguali per tutti, a tutti i livelli: l'Europa dovrebbe studiare questi aspetti, individuare quelli che sono i criteri che valgono per tutti e poi per ciascuno delle specificità ma con un coordinamento (anche finalizzato all'assegnazione dei finanziamenti europei). I Big Data sono fondamentali e dobbiamo andare in quella direzione: dobbiamo fornire una banca dati uniformata e accessibile.

La matrice Audis andava in quella direzione: cerchiamo di avere tutti i medesimi dati (lì forse erano troppi e non facilmente reperibili). Roma per esempio ha sviluppato il progetto su Roma Capitale utilizzando la stessa matrice Audis

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Science-policy interface

Conoscenza scientifica è sperimentare il processo, capire metodologicamente come determinate cose possano essere anche standardizzate.

Secondo me la conoscenza scientifica è uno studio che alla fine porta alla definizione di un fenomeno: una definizione riproducibile da soggetti diversi e con parametri univoci e il risultato non dipende dal



soggetto che fa l'analisi. Questo è un po' quello che sulla qualità urbana manca; e non c'è uno studio scientifico che definisce dei parametri condivisi sulla qualità urbana, allora difficilmente avremo una visione condivisa; tramite degli studi dovremmo arrivare ad una definizione univoca.

Servirebbero a dare forza e valore anche al nostro lavoro: una volta fatta una valutazione ambientale potremmo giustificare l'esito sulla base delle risultanze del modello applicato.

Sarebbe necessario avere degli studi anche per gli strumenti di lavoro (es. algoritmi, modellistica ecc.). Per esempio il tema della valorizzazione e il calcolo costi/benefici hanno basi scientifiche che noi non possiamo ricostruire ma sono strumenti che utilizziamo.

Utilizziamo tutte le fonti di conoscenza citate.

Per ambiente in particolare il sito dell'Ispra e i siti dei governativi USA su ambiente (che offrono software open source per l'elaborazione dei dati).

Una guida recente dell'Ispra (prima edizione 8 anni fa, poi aggiornamento 3-4 anni fa e a maggio 2015 nuovo aggiornamento) sui contenuti dei rapporti ambientali è uno dei documenti scientifici che sto maggiormente utilizzando e la utilizzo come standard sia per la realizzazione degli studi di valutazione ambientale, sia per la valutazione degli studi che vengono presentati al Comune (non entro nel merito della qualità scientifica del prodotto, ma è un riferimento istituzionale importante). Il problema è che in contemporanea è uscita un'altra guida di Regione Piemonte, sempre riferita ai rapporti ambientali (DGR-aprile 2015), che però differisce da quella Ispra: questa ha legittimazione politica, l'altro più scientifica; ma la delibera di Regione assume un carattere quasi regolamentare per chi opera in Regione perché assume i caratteri di una direttiva dall'alto a cui devono uniformarsi. In questo ho riscontrato uno scollamento tra ricerca-mondo scientifico e mondo politico.

Il Comune non si ritiene capace di condizionare la ricerca, forse attraverso la partecipazione a progetti europei.

Alcuni decreti nazionali (106, Salva Italia) sono andati nella direzione di rendere più facile l'attività edilizia più che urbanistica, ma con grandi dubbi in merito. Perché talvolta questi interventi non si capisce quali ricadute possano avere a livello territoriale: sono tanti piccoli interventi che però talvolta possono stravolgere il significato della pianificazione (se la pianificazione ha ancora un senso).

La semplificazione ha solo riguardato l'attribuzione a soggetti diversi l'onere di determinate verifiche: ciò che prima era compito dell'amministrazione ora attiene il professionista.

Non siamo mai stati coinvolti nella formulazione di domande di ricerca scientifica, né abbiamo un ruolo attivo nella ricerca, magari veniamo coinvolti negli esiti della conoscenza o anche nel fornire noi conoscenza ma la ricerca procede autonomamente; ma forse a livelli più elevati è avvenuto il coinvolgimento, ma non ne sono a conoscenza.

I resoconti delle audizioni Ispra al Senato o alla Camera sono alcuni dei documenti che mi è capitato di leggere in relazione all'interfaccia scienza-politiche. Ultimamente sono 2 i doc che ho letto,



audizioni in Commissione al Senato, entrambi sul tema del consumo di suolo e pubblicate sul sito istituzionale del Senato.

Qualcosa in merito si sta anche muovendo a livello nazionale da parte del gruppo dei sindaci.

FINANZIAMENTI

Risorse finanziarie

Mi viene in mente la ricerca sui sistemi di bonifica che sono molto complessi e molti vengono ancora fatti a titolo sperimentale; quindi su questo aspetto delle bonifiche, che è molto costoso sia in termini di denaro che di tempo (perché si tratta di processi chimico-fisici che per natura necessitano tempi lunghi).

Se ci fosse una ricerca capace di dare indicazioni circostanziate e più precise permetterebbe interventi più efficaci in termini di investimento di spesa.

Magari negli interventi di bonifica su aree significative se ci potesse essere un collegamento con la ricerca sarebbe utile (anche con i privati-le imprese che effettuano le bonifiche), ma dovrebbe uniformarsi con i tempi delle attività e ci sarebbero rischi di discrasia tra le esigenze.

NKS 4

Sfide sociali: autosufficienza alimentare, tra riduzione di suoli agricoli e aumento della popolazione (da nutrire).

TEMI PER SRA

Temi per SRA

- redditività dei suoli e sostenibilità (ambientale, sociale ed economica);

nel sistema economico complessivo [\[filiera della produzione agricola-alimentare\]](#) gli attori che stanno all'inizio della catena sono sempre i più compressi perché la produzione primaria vede da tempo restringersi i propri margini, poi abbiamo la trasformazione (che si sta riducendo) e poi abbiamo la locomotiva (la distribuzione) che ha il sopravvento sulle altre fasi.

La sostenibilità economica, ambientale e sociale è posta in prima linea: la sostenibilità ambientale è legata agli impatti territoriali delle coltivazioni (che devono essere mitigati – vedi uso della chimica, uso delle acque ecc.), tuttavia bisogna aumentare la produzione.

La rivoluzione verde degli anni '60-'70 è stata determinata dalla meccanizzazione e dalla chimica: la meccanizzazione può ancora offrire qualcosa, ma oramai poco, la chimica invece va contenuta e

- 1- **la grande sfida ora è la ricerca genetica**, la biotecnologia, che è nel nostro paese particolarmente osteggiata, con una visione antiscientifica e arcaica; quando in realtà sono biotecnologie a poter garantire redditività, produttività e sostenibilità delle coltivazioni: crescita della produzione e mitigazione degli impatti ambientali dell'attività agricola.

In Italia non è possibile fare sperimentazioni in campo aperto ma solo in laboratorio e quindi noi che eravamo in campo genetico, fino agli anni '70, all'avanguardia del mondo adesso stiamo retrocedendo nelle ultime posizioni proprio perché abbiamo dovuto interrompere la ricerca. Il mondo scientifico è in grande fermento su questi temi, ma continua ad esserci a livello politico, sia nazionale che europeo, una grande chiusura su questi temi.



Si tratta di un problema nazionale per la ricerca, ma per la produzione si tratta di un problema europeo. Di fatto c'è solo la Spagna che sperimenta in campo OGM, ma in compenso importiamo in Italia circa 8 mil. all'anno di prodotti OGM, prevalentemente soia e mais che usiamo nell'alimentazione animale e umana, ma non possiamo produrre OGM né tantomeno fare ricerca in campo, creando un paradosso; "una superstizione" la definiva la Levi Montalcini; è la questione del principio di precauzione: non si sa ancora quali effetti si possano produrre a lunga scadenza. Sono 40 anni che si producono OGM e la bioingegneria è evoluta: adesso non si parla più neppure di cibi trans-genici ma di cibi cis-genici [\[la pianta donatrice appartiene allo stesso genere o specie di quella ricevente, quindi non è ultra-trans\]](#), che conservano intatto il patrimonio genetico della pianta introducendo alcuni correttivi capaci di rendere la pianta più resistente alle aggressioni di agenti esterni e quindi riducendo l'utilizzo di agrofarmaci (prodotti chimici).

La priorità di ricerca è quella genetica, ma attualmente in Italia è impedita in campo aperto, quindi senza poterne verificare efficacemente gli effetti (in laboratorio è solo simulato il processo).

Sono interessati innanzitutto i produttori agricoli, grazie alla possibile riduzione dei costi produttivi (fino al 30%) e all'aumento delle quantità prodotte, con il conseguente aumento della redditività; fino ad un aumento del 60% del reddito dell'impresa agricola. Tenuto conto dei margini ristretti di guadagno per un'impresa agricola, tale prospettiva risulta di interesse prioritario.

Il responsabile della ricerca è lo Stato e gli organismi nazionali competenti; l'UE sta facendo un po' il Ponzio Pilato delegando ai singoli paesi la scelta in merito alla sperimentazione e all'uso degli OGM. È una questione che riguarda l'autorità politica nazionale.

È uno dei principali temi di interesse di Confagricoltura in questo momento storico; anche ad EXPO la scorsa settimana abbiamo presentato esperienze di ricerca internazionali proprio su questi temi.

Questo è un tema particolarmente sentito in Italia e in Europa, ma in altri paesi è stato ampiamente risolto e superato, ad es. America del nord e meridionale hanno circa 180 mil. di ettari a colture transgeniche.

L'obiettivo è quello di arrivare al volgere del più breve tempo possibile al consentire la ricerca e la sperimentazione in pieno campo e abbiamo già sollecitato i ministeri; con grande urgenza e impellenza riteniamo si debba raggiungere questo obiettivo.

Considerando le polemiche riguardo gli interessi delle industrie produttrici di OGM ritengo che **la ricerca dovrebbe essere assolutamente pubblica**, per garantire l'imparzialità e la terzietà capace di superare il conflitto di interessi sul tema

- 2- Trovare le possibilità di ridurre la sottrazione di suolo all'attività produttiva. Oggi facciamo uno sciupio immane di suolo, che è una risorsa limitata che va salvaguardata. Senza penalizzare altre attività produttive bisogna porre come obiettivo la salvaguardia del suolo (fertile); perché è il suolo fertile quello oggetto di competizione tra l'urbanizzazione e l'agricoltura.

Interesse pubblico e di tutta la collettività a salvaguardare il territorio, poi c'è un interesse degli operatori del settore primario a salvaguardare i terreni per la produzione agricola. In questo caso il regolatore è l'ente pubblico, in materia urbanistica, ed essendo una materia di competenza regionale, ovviamente sarà lo Stato e quindi le Regioni e poi comuni, secondo le proprie competenze legislative ovvero amministrative.

Qui i finanziamenti prevedo siano nuovamente pubblici e la priorità ritengo sia molto alta, anche alla luce dei recenti disegni di legge proposti in materia (cfr. proposta Ministro Catania); anche in



Piemonte ci sono iniziative legislative in direzione ma nulla è ancora definito mentre al livello nazionale la questione è in stato di avanzamento maggiore.

L'obiettivo è quello di compromettere ulteriori aree fertili senza impedire il riutilizzo di quelle già modificate e compromesse: il divieto di consumo di suolo non deve essere assoluto, ma ci deve essere una modalità razionale di limitazione dell'uso perché ci sono zone dove è oramai comunque impossibile pensare eventuali utilizzi agricoli.

- 3- C'è ancora la questione relativa all'acqua. Alcuni sostengono che l'agricoltura non consuma acqua perché la riutilizza restituendola a fine processo, tuttavia bisogna fare un uso più oculato dell'acqua; per questo esistono sistemi di irrigazione "a goccia" e altri sistemi che permettono la riduzione dell'uso di acqua in agricoltura. Qui si apre un filone di ricerca tecnologica specifica: **razionalizzazione e contenimento dell'uso dell'acqua in campo agricolo.**

Qui potrebbe esserci un forte **contributo per la ricerca da parte dei consorzi irrigui**, che sono entità associative molto ampie (in Piemonte in particolare Ovest Sesia ed Est Sesia), consorzi di produttori con grande forza economica, disciplinano l'uso delle acque; hanno mezzi finanziari e sono interessati allo studio di sistemi di contenimento e razionalizzazione dell'uso delle acque. In questo caso quindi il soggetto finanziatore non sarebbe il solo ente pubblico ma anche soggetti privati; ad eccezione dei consorzi irrigui e di bonifica, che non sono privati (ad es. Il Consorzio della Barraggia), ma occupandosi anche di bonifiche dei territori hanno una veste pubblica.

C'è un **interesse generale collettivo ma anche dei produttori agricoli**, perché l'uso dell'acqua si paga quindi c'è un grande interesse al risparmio dei costi produttivi. È un tema di interesse nazionale, in particolare piemontese e nel padano-veneto per la produzione del riso.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Interfaccia Ricerca-Politiche

A livello regionale c'è un tavolo che si occupa di ricerca e sperimentazione in agricoltura ed è costituito dai rappresentanti dei produttori agricoli e dagli enti di ricerca pubblici e privati (Università, il Creso (CN) ecc.). nell'ambito del Tavolo esprimiamo esigenze e valutazioni che possono orientare la ricerca dei vari enti. Il Tavolo è costituito istituzionalmente dalla regione e si costituisce periodicamente per stabilire la ripartizione dei finanziamenti regionali della ricerca.

La conoscenza scientifica è la conoscenza della realtà oggettiva in maniera sperimentale e verificabile.

Noi utilizziamo prevalentemente i risultati della ricerca scientifica, specie in campo della biologia, chimica, meccanica. Siamo i primi utilizzatori dei prodotti della ricerca.

Abbiamo professionalità specifiche nei campi di interesse dell'agricoltura, ma rappresentiamo più che altro un soggetto che trasferisce la conoscenza dalla ricerca all'utilizzatore finale. Noi non siamo soggetti dediti alla ricerca, ma ne diffondiamo i risultati e ne facciamo ampiamente uso. Ad es. la recente esperienza relativa al riutilizzo dei fanghi derivati dai sistemi di depurazione (che hanno elementi di fertilità – usati come concimanti) in campo agricolo, previa verifica della presenza di agenti inquinanti; oppure abbiamo collaborato a ricerche nel campo dell'infortunistica.

Collaboriamo invece con i centri di ricerca privati per quanto riguarda le ditte sementiere.

Si certamente abbiamo margini di influenza sulla ricerca in Italia in campo agricolo, in particolare attraverso il Tavolo summenzionato e l'assessorato all'agricoltura.



Le politiche a volte, non stante tutto, sono attente alle esigenze delle imprese, ma bisogna sempre fare una forte azione di pressione e di lobbying per avere dei risultati.

Esperienze di ricerca/partecipazione:

Quando si è trattato di ricerche mirate a prodotti specifici si è trattato di esperienze molto utili, quando invece si parla di ricerche con obiettivi più generali una ricaduta immediata non sempre si riesce a cogliere. Il limite dei ricercatori pubblici è quello di darsi degli obiettivi generali senza fini precisi: non si può generalizzare ma il fenomeno è frequente. Ciò nonostante con l'Istituto di meccanizzazione agraria (ex facoltà agraria) abbiamo sempre avuto stretti contatti di collaborazione con viva attenzione agli input derivati dal mondo produttivo e abbiamo beneficiato quasi sempre in termini immediati dei prodotti della ricerca (macchine, per la sicurezza, impiego di mezzi di precisione – si parla di agricoltura di precisione: diretta ad utilizzare direttamente e puntualmente tutti i mezzi di produzione, usando solo quello che è strettamente necessario, sia per non inquinare sia per non sprecare e quindi limitare i costi produttivi).

FINANZIAMENTI

Risorse finanziarie

Nel settore agricolo ci sono delle opportunità di finanziamento e opportunità di trasferimenti della conoscenza con risorse dei Fondi Strutturali Europei (sviluppo rurale) e quindi ci sono misure ad hoc da usare, che prevedono il coinvolgimento di istituti di ricerca e imprese agricole.

Per quanto riguarda invece fonti provate non sono in grado di dare indicazioni precise: possono esserci interessi da parte delle organizzazioni di produttori (di un determinato comparto, es. ortofrutticolo, lattiero-caseario, carne, vinicoli ecc.), ma hanno una funzione soprattutto di carattere commerciale, quindi di posizionamento dei propri prodotti sul mercato. In quanto organizzazioni o non singoli produttori hanno più forza economica e quindi possono essere interessati a conseguire determinati risultati e quindi con maggiore disponibilità ad eventuali finanziamenti.

Sicuramente la ricerca deve essere più collegata al mondo della produzione: più ricerca applicata e non solo ricerca pura. E la ricerca applicata deve cercare di avere un collegamento maggiore con le attività produttive e con i portatori di interessi legati alle categorie; invece non c'è questa grande attenzione nel mondo dell'Università (che è il nostro principale referente per la ricerca in campo agricolo), ma bisogna ammettere che il Politecnico ha da sempre un'attenzione diversa alle esigenze del mondo produttivo. Un più stretto collegamento potrebbe certo alimentare risorse e rendere più efficace la ricerca.

Partnership PP sono episodiche e legate a specifici scopi e interessi.

La ricerca quando è privata fa riferimento ad uno scopo preciso e ad esigenze puntuali, ma in alcuni ambiti la ricerca è opportuno che invece persegua interessi collettivi ed esigenze non immediate, certo può esserci il concorso di entrambi gli interessi.

NKS 5

Come Federazione non forniamo alcun finanziamento per la ricerca, ma i singoli componenti all'interno possono preoccuparsi autonomamente di raccogliere finanziamenti (). L'associazione di per sé ha un obiettivo di tipo culturale e i suoi fondi sono legati alle quote delle singole associazioni e in alcuni casi abbiamo degli sponsor per specifici progetti di ricerca ma non abbiamo fondi strutturati.



RICS invece è un'associazione mondiale, RICS Italia è parte di RICS Europe e ogni paese ha dei propri budget; in generale Europe o Mondo hanno dei fondi legati ad obiettivi di ricerca, ma sono legati alla standardizzazione internazionale legata all'immobiliare.

[Rientrano negli standard criteri di valutazione ambientale?](#) Sì

[Criteri di valutazione ambientale alla scala urbana?](#) (cfr. letteratura Clima House ecc.) Sì abbastanza, ma nello specifico gli input e gli obiettivi sono un po' diversi perché ragionano su standard a 360° in ambito immobiliare, dagli aspetti finanziari a quelli gestionali.

Sfide sociali:

energia ... l'edilizia io credo abbia un impatto molto importante sull'energia, a livello di numeri, di risorse, di consumi ... edilizia come parte dell'immobiliare; è quello che stiamo cercando di fare in un'ottica di miglioramento.

Mi sembra che il discorso sia molto concentrato sulla risorsa territorio e quindi la parte di gestione è un po' trascurata: un'attenta e accurata riconversione dell'esistente, non solo in termini di brownfield, ma di attenzione e sensibilità a quello che già c'è; su questo stiamo lavorando tanto sia come federazione che nelle singole associazioni.

TEMI PER SRA

Temi per SRA:

come federazione stiamo facendo delle attività molto significative su questi temi accennati – [riconversione dell'esistente](#) - (in particolare Audis, Assoimmobiliare e ULI, che fanno parte di Federimmobiliare, e anche RICS – Professional Group Rural).

1- Recupero degli immobili dismessi e loro riuso in un'ottica di valorizzazione;

soggetti interessati nel mercato immobiliare: sia la domanda che l'offerta, quindi grandi investitori ed erogatori di servizi, sia tecnici che gestionali ovvero energetici;

tema di specifico interesse nazionale (in ragione della specificità legislativa, geografica – di conformazione del territorio - e patrimoniale – la cultura del non-demolire, che in altri paesi è differente perché agli immobili viene dato un valore temporale rispetto ad un dato ciclo di vita), ma condiviso tra più paesi almeno a livello europeo;

I risultati attesi della ricerca su questo tema sono legati ad una maggiore sensibilità degli attori coinvolti nel processo di valorizzazione: un maggior "acculturamento" dei diversi operatori; una sensibilità legata alle scelte che impattano sul ciclo di vita del prodotto seguendo un discorso di sostenibilità (dove la parte energetica ha un impatto molto importante); intervenire in un'ottica di valorizzazione a 360° gradi e valida secondo un orizzonte temporale lungo.

Credo che molto sia già stato fatto negli ultimi anni su questo argomento, specie dopo la Crisi (negli ultimi 7-8 anni); credo che da qui ad una decina d'anni il mercato sarà tutto allineato verso l'alto come capacità, sostenibilità e visioni, per lo meno il mercato dei grandi investitori immobiliari.

Priorità molto alta, specie a livello nazionale (segue il trend).

L'azione dovrebbe essere a carico delle università e della formazione continua, con possibilità di aggiornamento per gli operatori del settore; quindi gli enti legati alla formazione (istituti di formazione e ricerca, ordini professionali) dovrebbero finanziare, perché questi impattano molto sia nel sensibilizzare il mercato sia nell'aggiornare e formare i soggetti coinvolti in questo tema.

2- Gestione del post-evento catastrofico naturale/ambientale (sismi, alluvioni ecc.) in termini di ricostruzione e gestione delle infrastrutture e degli immobili;

Soggetti interessati più la politica nell'ottica di agire secondo una direzione più consapevole: la scelta tra ricostruzione ex-novo o recupero come questione politica-strategica.



Questo tema è molto di nicchia; i terremoti stanno iniziando ad avere un'influenza sul tema della rigenerazione, sulla richiesta di caratteristiche del patrimonio immobiliare. Sono decisioni che non stanno al solo operatore ma a politiche più alte. Gli obiettivi di ricerca sono da giocare soprattutto sulle politiche.

Priorità alta, legata a fattori socio-politici, ma di nicchia e legata prevalentemente alla sola associazione (RICS Rural).

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Politiche e mondo scientifico

A livello di federazione abbiamo un obiettivo culturale attorno all'immobiliare, che di solito non viene visto in un'accezione culturale-scientifica vera e propria; l'obiettivo quindi è quello di far capire che dietro l'immobiliare ci sono delle competenze e professionalità che hanno un impatto sul sistema non indifferente.

Le politiche non ritengo che riflettano molto i bisogni e le priorità derivate dalla nostra professione; siamo ancora un po' lontani da alcuni aspetti culturali, già solo dal nostro mondo dell'immobiliare dalla parte delle politiche c'è una grossa divisione tra il settore delle costruzioni e il settore immobiliare (dove in realtà uno è parte – preponderante- dell'altra), manca una visione della valorizzazione legata alla redditività del prodotto immobiliare e non solo al prodotto in sé stesso; questi passaggi culturali non sono ancora ben assorbiti da parte della governance e quindi come Federazione abbiamo proprio l'obiettivo di far meglio comprendere queste esigenze.

La ricerca scientifica sì influenza le scelte politiche per la nostra professione, specie nella formazione e nel confronto, nella capacità di vedere come i mercati in generale possano influenzarci in maniera positiva: reazioni ed azioni più coscienti rispetto a ciò che si andrà a fare. Anche come Federazione patrociniamo molti eventi legati alla ricerca scientifica pura, anche a corsi universitari e di formazione, convegnistica, con la volontà di portare le ricerche a disposizione di tutti, come bene comune a tutti gli associati, per meglio capire come operare. La Fondazione ha proprio l'obiettivo di intercettare quello che di meglio c'è sul mercato come ricerca scientifica, ma anche convegnistica, per poter essere elemento di ponte per l'azione sul territorio.

La Federazione non possiamo dire possa condizionare i programmi di ricerca, il termine "programmi" è un po' grosso, ma sicuramente c'è un'attenzione al confronto e al far sì che la ricerca non sia fine a se stessa ma possa essere applicata sul mercato.

Coinvolgimento nella formulazione di domande di ricerca o nella ricerca: sì a titolo personale, ma non tanto come federazione, ma so che i nostri consociati spesso sono coinvolti. Come Federazione non siamo mai stati coinvolti, ad eccezione di oggi, ma c'è interesse ad esserlo, anche in forma attiva, specie se c'è la possibilità di perseguire un risultato concreto in termini di obiettivi.

Come federazione abbiamo svolto ricerche sul mercato nazionale in partnership con enti universitari e del mercato, ma sono ricerche nate dalla nostra volontà e non fanno parte di progetti finanziati; erano ricerche finanziate autonomamente o sostenute da eventuali sponsor.



FINANZIAMENTI

Risorse finanziarie

Non abbiamo avuto esperienze di finanziamento per la ricerca. Siamo costituiti dal 2010 e siamo un'associazione abbastanza recente, ma siamo sempre stati legati a finanziamenti privati [\[vedi sopra\]](#) e mai di altro genere.

Il beneficio di una ricerca lo vedo sempre, quando c'è ricerca e il coraggio di confrontarci e riferirsi a best practices è sempre cosa positiva; il problema è capire come sostenere certi tipi di ricerca affinché possano essere d'impatto. Noi al momento non abbiamo ancora ragionato con finanziamenti o con dei progetti così impattanti da avere ricadute sul mercato. Le nostre ricerche al momento sono state più di scenario e di trend però sulle tematiche ambientali potrebbero essere utili ricerche rivolte alla sensibilizzazione dei soggetti per innalzare la capacità di intervento dei singoli operatori (secondo un cambiamento culturale di approccio sul mercato).

Integrazioni dei finanziamenti: esperienze come Federazione no. A titolo personale ritengo però che non sarebbe semplicemente utile, ma necessario portare avanti partnership PP, proprio al fine di poter raggiungere certi obiettivi rispetto alle tematiche poste.

[Migliore coinvolgimento dell'impresa nei progetti di ricerca ...](#)

Il coinvolgimento delle imprese c'è già alla base della nostra attività, è il nostro punto di partenza, ragionando in un'ottica di concretezza. [\(forse è stato frainteso come coinvolgimento delle imprese nell'attività professionale e non nella ricerca ...\)](#)

Noi di solito quando parliamo di impresa abbiamo in mente società di servizi che operano soprattutto nella gestione dei patrimoni e non i singoli studi di progettazione.

Nella valorizzazione delle aree dismesse per esempio chi interviene sono soprattutto committenti investitori, abituati ad avere a che fare con società di servizi. Una categoria da coinvolgere quindi sarebbe soprattutto quella delle società di gestione dei patrimoni, perché sono poi loro a fare le scelte rispetto a quelle che saranno poi le realizzazioni stesse e daranno il risultato del ciclo di vita del prodotto.

NKS 6

[L'ente fornisce finanziamenti per la ricerca?](#)

No

[Sfide sociali](#)

Pensando un po' anche alle ultime call di Horizon vedo che si parla spesso di acque, ma il focus sul suolo manca un po', che rimane una priorità molto rilevante che dovrebbe essere finanziata. È logicamente inserito entro la sfida "garantire un uso efficiente delle risorse naturali", ma manca un'attenzione specifica sulla risorsa suolo, sedimenti e relazioni tra acque di superficie e suolo.

In una frase si potrebbe dire "uso sostenibile del suolo", perché manca un po' il concetto di sostenibilità chiaramente espresso e indica un'interazione tra i vari aspetti economico, sociali e ambientali.

TEMI PER SRA

[Temi per l'agenda](#)

Inserirei un focus particolare sulla gestione dei suoli e sulla bonifica dei suoli in un'ottica di interazione tra gli enti locali, che hanno la responsabilità di gestire tutto l'iter amministrativo, con quelli che sono gli enti di ricerca che possono dare la conoscenza scientifica per portare avanti



questo processo. Il problema che io vedo è proprio l'interazione tra questi diversi portatori di interessi. Se si riuscisse meglio a creare dei tavoli di ricerca condivisa in cui gli enti pubblici potessero indicare quali sono le loro necessità specifiche, e queste necessità venissero poi portate avanti da dei gruppi di ricerca in collaborazione però con gli enti, in modo che anche i risultati vengano condivisi ed entrino nelle normative. Io vedo un po' uno scollamento tra tutti gli enti come Arpa, Ispra, che hanno la necessità di produrre dei documenti scientifici di un certo tipo, di livello altissimo, a supporto degli enti locali e dei ricercatori e consulenti: c'è un po' una differenza tra questi che servono la loro via, gli altri che seguono la loro via, che arrivano magari a conoscenze simili ma non riescono a integrare queste conoscenze e il sapere così si rischia di disperdersi.

Quindi vedo la necessità di temi nuovi e il modo in cui questi temi devono essere trattati. Quindi si potrebbe magari dare più spazio al discorso tavole rotonde e al collegamento tra i vari attori che producono conoscenza scientifica, al fine di finalizzare il più possibile questi risultati all'interno di linee guida, indicazioni condivise da tutti.

Poi gli argomenti specifici ... sicuramente c'è la questione dell'uso sostenibile dei suoli, anche attraverso il coinvolgimento degli stakeholder e cercando di includere tutte quelle tecniche di analisi decisionale, sistemi di supporto alla decisioni, strumenti che possano essere in grado di dare un supporto durante tutto il processo di gestione delle diverse problematiche ambientali attraverso un processo comunque condiviso, trasparente, riproducibile e che permetta di capire i diversi portatori di interesse che ruolo hanno avuto. Perché molto spesso ci si trova a partecipare a dei progetti dove c'è una parte di ricerca che poi porta a delle decisioni e molto spesso quelle decisioni non si sa come sono state prese. Quindi cercare di dare uno strumento condiviso che possa supportare questo processo potrebbe essere molto interessante (per gli enti locali, per chi esegue le bonifiche ecc.).

Mi piacerebbe se potessero creare dei tavoli, dei network finanziati, dei momenti di discussione condivisa, anche al di là di una discussione specifica.

Su argomenti specifici che trattiamo e in cui sono più coinvolta:

quello delle prioritizzazione dei siti contaminati, che ancora a livello nazionale viene toccato pochissimo; cioè il fatto di avere delle regioni che hanno un certo numero di siti contaminati e che devono prendere delle decisioni per capire effettivamente dove investire dei soldi per la bonifica e che queste decisioni devono essere prese in base al rischio ambientale, il rischio per la popolazione, e anche i fattori economici e sociali legati alla riqualificazione dei siti contaminati. Legato a questo c'è la questione dei database dei siti contaminati che è ancora incompleta a livello nazionale (solo alcune regioni ce l'hanno). Poi bisogna capire come gestire questa lista e le priorità.

La necessità di ricerca comunque c'è ancora: cosa fare con i siti potenzialmente contaminati, cosa fare con i siti già bonificati, tutte ricerche finalizzate a supportare una normativa o l'applicazione di normative.

Poi c'è tutto il discorso legato al coinvolgimento degli stakeholder, ad identificare quali sono le aspettative, i bisogni e come includere la loro visione nel momento in cui si va effettivamente a gestire un sito contaminato.

Oltre infine il discorso delle tecniche di bonifica. Ci sono tecniche innovative che ancora non riescono a prendere piede perché magari sia gli enti pubblici che di controllo sono legati alle tecnologie più tradizionali. Quindi magari dare più potenziamenti, favorire l'attività di ricerca nei confronti di tecniche innovative meno impattanti e più sostenibili, potrebbe essere utile.

Tema evidenziato, in termini omnicomprensivi si potrebbe sintetizzare come: "gestione sostenibile degli interventi di bonifica dei suoli" – gestione integrata



Gestione sostenibile implica degli strumenti per la valutazione dei rischi associati, quali software pubblici, mentre manca un po' il discorso di integrazione degli spetti ambientali con quelli economici e sociali legati alla gestione. E per forza bisogna includere le tecniche di bonifica.

Soggetti interessati al tema - siti contaminati e bonifiche - (utilizzatori finali): sia i proprietari dei siti contaminati, sia gli abitanti vicini, poi i tecnici, gli enti pubblici e le autorità locali (con compiti di vigilanza e responsabilità nei confronti della salubrità dell'ambiente), poi enti di ricerca e università per il supporto alla ricerca.

Soggetti responsabili (promotori): secondo me dovrebbe essere comunque il pubblico, dato l'obiettivo finale di garantire la salute pubblica e quella dell'ambiente. Potrebbero esserci anche Fondazioni o altri soggetti privati, ma di solito non capita.

Si tratta di un bisogno condiviso a livello europeo con diverso grado di interesse a seconda del livello di sviluppo dei singoli paesi.

Esiti attesi: devono essere utilizzati in pratica da chi svolge le bonifiche, quindi mi aspetterei qualcosa di pratico per i consulenti e gli operatori del settore.

Si tratta di un tema con una priorità abbastanza alta che nel tempo comunque è diminuita, ma sinceramente ritengo che debba essere rimessa al centro della priorità nazionale, anche in relazione a quanto sta succedendo in Campania e per il fatto che l'utilizzo del suolo è anche legato ai cambiamenti climatici e quindi a tutta una serie di problematiche che non sono solo strettamente legate alla contaminazione, ma ad uno sviluppo sostenibile e alla rinascita economica. Il tema infatti negli ultimi anni è stato un po' trascurato proprio perché legato allo sviluppo immobiliare e all'economia che sono in crisi. E pur vero che non si devono per forza ricostruire nuovi edifici sulle aree ex-contaminate e dismesse, anche perché sia dal punto di vista sociale che visivo possono avere impatti rilevanti. Si possono pensare dei software use per esempio o la riconversione in parchi, una rinascita di queste aree nell'ottica di ridurre la presenza di CO₂ nell'aria.

Finanziatori: sempre secondo me il pubblico perché è un interesse pubblico che le città abbiano una certa qualità e che non abbiano aree degradate al loro interno

Norme di settore, disegni di legge, documenti a sostegno: c'è la rete nazionale Reconet che ha prodotto delle linee guida per la sostenibilità dei siti contaminati (Surf ...) e la loro riqualificazione. La rete sempre più sta sviluppando degli strumenti operativi per riuscire a portare avanti questi principi e i documenti sono tutti reperibili on line.

Anche la bozza di direttiva quadro sul suolo in parte riprende tutti questi contenuti sebbene non sia ancora stata approvata: ma non è una questione di principi di base ma di meccanismi per cui alcuni stati non hanno voluto accettarla.

Ci sono poi i documenti di ISPRA sulle linee guida.



INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Politiche e ricerca

Si certo li utilizzo molto e utilizziamo molto gli articoli scientifici, poi i progetti europei che hanno prodotto strumenti applicativi che utilizziamo (Timbre <http://www.timbre-project.eu/> , Ombre), che cerchiamo di capire come adattare agli specifici contesti e che usiamo come spunto di idee. Poi usiamo rapporti di ricerca e siamo sempre abbastanza aggiornati.

L'ente è in grado di condizionare la ricerca: Il gruppo entro il quale lavoro non credo sia tanto in grado di condizionare, ma si parla a livello di rettorato probabilmente sì ma non ne ho la percezione.

Le politiche riflettono i bisogni dell'ente: sì secondo me, specie se guardo negli anni. Quanto prodotto dalla ricerca viene rispecchiato e poi tradotto in normativa. Qualcosa di più anche sulla sostenibilità in futuro. C'è comunque un ritardo temporale tra cose già assodate a livello di ricerca richiedono tempi lunghi prima di divenire normativa e comunque spesso su spinta degli enti stessi di ricerca.

La ricerca quindi sì influenza le politiche di interesse nel mio campo. Sarebbe bello però riuscire a capire come le normative entrano a contatto con ciò che la ricerca produce perché al momento spesso sembrano provenire chissà da dove. Creare questi tavoli di lavoro permanenti condivisi e trasparenti potrebbe aiutare.

FINANZIAMENTI

Risorse finanziarie

Effetto moltiplicatore: se si riuscisse a far sì che un prodotto scientifico finanziato a livello nazionale producesse un qualcosa di riconosciuto e standardizzato che possa essere utilizzato in forma libera da tutti, anche un software o altro che sia scaricabile, questo potrebbe effettivamente permettere una ricaduta poi a livello economico e di movimento di conoscenza e di strumenti applicativi.

Il problema secondo me è che molto spesso questi progetti sono finiti a se stessi o trascurano la fase divulgativa del progetto (la comunicazione) o sono carenti. I progetti magari vengono sviluppati ma nessuno li prende in carico. I risultati dovrebbero essere sponsorizzati e diffusi dai promotori stessi. E anche qui manca sempre l'interazione tra chi ha la necessità e chi finanzia, e i risultati dovrebbero in qualche modo validati e resi pubblici dall'ente finanziatore. Cosa che molto spesso non avviene, anche perché non c'è controllo sul risultato finale. Molto spesso anche alcuni progetti hanno vinto le selezioni ma poi i budget sono stati ridotti, quindi non si è riusciti a chiudere il progetto. Ci sono poi anche dei problemi di rendicontazione, che spesso non è corretta.

Bisognerebbe fare molta più attenzione sulla valutazione dei progetti come fanno a livello europeo, dove il problema è un po' inferiore ma anche qui molti progetti restano chiusi nel cassetto.

Un buon schema di finanziamento secondo me è quello di Horizon 2020 come idea: hai budget, contenuti e rendicontazione chiaramente definiti; c'è uno schema molto chiaro di come arrivano i finanziamenti per cui non resti mai senza fondi durante il progetto e se fai una buona rendicontazione ricevi quello che è dovuto.

Dovrebbero esserci regole chiare su come vengono concessi i soldi e come fare le dichiarazioni delle spese; cosa che sui progetti nazionali è meno chiara anche se ci si sta adeguando.

Ho utilizzato a livello regionale fondi POR, Horizon e VII e VI Programma Quadro, Interreg in parte, LIFE, Fondo sociale europeo, Fondo di garanzia giovani ecc.



Forme di finanziamento integrate (PP) non le conosco bene anche se tutti ne parlano abbastanza bene ma non ho esperienza diretta.

Altri contatti suggeriti:

Laura d'Aprile del Ministero Ambiente (mi conosce, puoi dare il mio nome)

Divisione VII Bonifiche e Risanamento

Ing. Laura D'Aprile - Tel: 06/57225207

E-mail: TRI-VII@minambiente.it

Indirizzo Pec: dgsta@pec.minambiente.it

Renato Baciocchi (Tor Vergata)

Claudio Albano CH2-1000 referente per il SURF (Sustainable Remediation Forum) Italy, collabora con Baciocchi ma ha un focus più sugli aspetti dei siti contaminati

Prof. Marco Mini, Ca Foscari (mio prof.): visione generale della problematica ambientale

NKS 7

Il porto di Venezia ha due aree. Una è il porto commerciale di Marghera, che è stato definito Sito di interesse nazionale (il primo in Italia), circa 120 ha; poi sono state acquisite al demanio negli ultimi anni altre aree che stiamo riconvertendo da aree industriali ad aree per lo sviluppo della logistica (terminal container, terminal traghetti ecc.), con la costruzione di una nuova darsena. La parte passeggeri invece è collocata in centro storico, quindi c'è tutta la parte della marittima che è zona attrezzata per crociere, yacht ecc.; abbiamo delle banchine qui con ormeggi per navi di piccole dimensioni, navi più grandi invece stanno alla marittima.

L'ente fornisce finanziamenti per la ricerca?

Vengono finanziate delle ricerche nel momento in cui sono finalizzate ad aspetti pratici (ad es. per raccolta dati ecc.). Abbiamo fatto convenzioni con CNR, Università in diverse occasioni, soprattutto per la parte aria (emissioni in atm), ma recentemente anche sullo studio di una nuova via alternativa al raggiungimento della marittima. Stiamo lavorando con enti pubblici per ricerche finalizzate, quindi con finanziamento pubblico-pubblico.

All'interno dell'ente non abbiamo un settore ricerca: abbiamo un'area ambiente che segue gli spetti tecnici e supporta gli enti di ricerca quando ci si interfaccia.

Sfide sociali

Ad es. Nell'ambito della gestione dei rifiuti la percezione che ho è che si tenda a privilegiare lo smaltimento anziché il recupero; mi riferisco soprattutto all'amianto. Noi abbiamo grossissimi problemi, con enormi lacune da parte della legislazione nazionale e il dispendio di fondi pubblici. Spesso ci troviamo a fare dei transfrontalieri mandando i materiali ad altri stati membri, cosa che è assurda: ci dovrebbe essere una maggiore condivisione delle conoscenze (sul recupero e trattamento rifiuti e norme di settore) per permettere di ottimizzare le spese e non avere disparità di livello economico tra gli stati.

Rinominandola come sfida: stabilire un maggiore equilibrio degli investimenti in ambito europeo in materia rifiuti ... potrebbe essere nominato così? Sì

Noi siamo certificati ISO 14001 e queste sono proprio le cose standard legate alle "politiche verdi". Due settori che sarebbe importante sviluppare a livello di conoscenza per gli effetti sulla salute dei alcune sostanze sono la questione rifiuti e la questione sedimenti. Ci dovrebbe essere un maggiore sharing di informazioni tra gli stati europei in merito.



TEMI PER SRA

Una delle cose su cui maggiormente lavoriamo, nell'ambito delle riconversioni di queste aree industriali sono le bonifiche, che all'interno dei Siti di Interesse Nazionale sono allucinanti. Abbiamo toccato il tema amianto ma è solo uno degli aspetti problematici. Secondo me sarebbe importante approfondire tutti i temi che riguardano l'Analisi di Sito Specifica, i livelli soglia, che troppo spesso vengono definiti senza un background veramente forte di conoscenza.

Faccio un esempio sul caso di Marghera. A Venezia abbiamo una serie di normative particolari che non sono applicate su altri siti e che creano grossissimi problemi. Manca alla base della normativa una conoscenza profonda: sia del sito dove si è inseriti sia delle tecniche che si possono applicare per raggiungere gli obiettivi prefissati.

Caso tipico di Venezia, noi abbiamo una legge (Decreto Ministeriale "Ronchi-Costa" del 23/04/1998) che determina i limiti di sversamento in laguna per quanto riguarda gli scarichi industriali. Uno dei limiti previsti per l'arsenico è 1 microgrammo/litro quando il limite per l'acqua di falda è 10. Questo è il classico caso di norme che non si intersecano tra di loro, non si capisce la ratio che ha portato alla determinazione di questi limiti e forse ci vorrebbe maggiore ricerca alla base che riguardi i valori di fondo, i valori rischio effettivo ecc. è solo un esempio ma ci sono n casi simili. Il valore dell'arsenico non riguarda solo le acque di falda ma anche i limiti dei valori di fondo che abbiamo nei sedimenti, nel suolo ... adesso è stato definito un limite soglia di concentrazione di 40 nei terreni, che è ben maggiore dei valori di soglia nel residenziale, dove è molto più basso. Quindi io mi domando: perché prima di fare le norme non si fa una ricerca sito specifica che ti permetta di avere una conoscenza reale delle problematiche effettive (che a volte problemi non sono perché sono valori di fondo naturali)? Questo secondo me è uno degli argomenti da sviluppare: riguarda l'analisi di rischio e tutti i trattamenti di bonifica.

Poi l'altro problema che ci troviamo ad affrontare sono le analisi previste dalla norma: la norma prevede sempre che tu faccia il contenuto totale (ad es l'arsenico), quando in realtà il valore dell'arsenico è riferito alla struttura geochimica del sedimento, quindi in realtà non è biodisponibile; quindi perché mi devo occupare di una cosa che di fatto non è un problema e spendere soldi pubblici? Alla base delle normative quindi ci dovrebbe essere un'istruttoria tecnica vera, e sui valori e sui valori effettivamente raggiungibili, perché un valore 1 di arsenico di fatto non è raggiungibile; quindi di cosa parliamo?

Soggetti interessati al tema (utilizzatori finali): Enti territoriali come noi che gestiamo questo tipo di problemi, ma anche tutte le povere aziende che sono state messe in crisi da questo sistema assurdo. Facendo riferimento al sito di interesse nazionale, magari ci sarebbero state anche meno chiusure di fabbriche (*se il sistema delle bonifiche fosse stato meno complesso e inutilmente dispendioso*).

Soggetti responsabili (promotori): a livello centrale ISPRA, Ministero dell'Ambiente e poi le agenzie locali, perché le specificità del territorio possono essere gestite solo a livello locale, quindi Arpa, Università, CNR. Poi a livello veneziano tra consorzi e università ecc. c'è tanta cultura e tanta conoscenza ed è un peccato che non venga fatta sinergia tra loro.

L'argomento è molto sentito dal nostro ente.

Il discorso dell'analisi di rischio è sicuramente di livello nazionale e anche internazionale, ma sicuramente gli altri paesi hanno degli approcci molto più sensati di noi (perché le soglie sono diversificate ecc.).

Sono anni che sento parlare di questi temi ma non cambia nulla. Tutte le norme sulle bonifiche, prima il 471 adesso c'è il 152, ma di fatto ci sono delle soglie insensate per il caso sito specifico ... non cambia niente.



Esiti attesi: una riduzione dei tempi di riconversione delle aree e delle bonifiche (decurtando verifiche inutili). Quindi anche a livello economico un uso del suolo più sensato di quello che è attuale: adesso abbiamo molte aree abbandonate a Porto Marghera ... è una tristezza.

Il tema ha un alto grado di priorità. Se non venisse fatto nulla in merito secondo me c'è il rischio che alla fine non si riescano a fare le riconversioni aspettate e che si perdano dei territori (tra l'altro di grande potenzialità, come Marghera).

Finanziatori: in primis il Ministero dell'ambiente. Mi verrebbe da dire anche qualche azienda che potrebbe avere dell'interesse ma è chiaro che adesso ci sono notevoli difficoltà finanziarie. Se i fondi fossero europei sarebbe una cosa positiva.

Norme di settore, disegni di legge, documenti: So che a livello normativo stanno lavorando sulla questione dei valori soglia e delle analisi di rischio. Quando ci saranno dei risultati non è dato di sapere. Progetti europei, so che ce ne sono stati sulla riconversione delle aree e analisi di rischio in Horizon2020, ne ho sentito parlare ma non li ho visti.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Politiche e ricerca

Se posso utilizzo sempre i risultati della ricerca scientifica. Recentemente stavamo guardando lo studio sui valori di fondo delle acque in laguna, che non è stato ancora emesso a livello ufficiale, ma come enti locali ci abbiamo lavorato con Regione e Arpa che aveva fatto la ricerca.

L'ente è in grado di condizionare la ricerca: Condizionare direi no a livello nazionale ma a livello locale, soprattutto sul discorso sedimenti nella normativa locale. Ci sono anche dei tavoli tecnici di lavoro. Noi lavoriamo con CNR e Università adesso proprio per fare degli approfondimenti sui sedimenti, valori di soglia ecc.

C'è un tavolo istituzionale gestito dal Provveditorato alle opere pubbliche in cui siamo coinvolti.

Le politiche riflettono i bisogni dell'ente: no, non esattamente.

Si sono stata coinvolta in varie attività di ricerca scientifica sia per quanto riguarda la questione aria, sia per i sedimenti. Abbiamo fatto sperimentazioni e pubblicazioni scientifiche.

Siamo coinvolti come stakeholders a monte dello sviluppo dei progetti di ricerca molto spesso. Ad es. il progetto Apipce <http://www.progettoapice.it/> e il progetto Poseidon-MED sulla qualità dell'aria <http://www.onthemosway.eu/poseidon-med-Ing-european-project/> . Anche su aspetti energetici.

Sono state tutte esperienze molto positive sia per conoscere nuove realtà sia per la metodologia.

FINANZIAMENTI

Risorse finanziarie

Effetto moltiplicatore: Trovare delle best practices per ridurre i tempi di riconversione di aree dismesse ti permetterebbe subito di creare un'esternalità positiva; con anche insediamenti di nuove attività (non necessariamente solo produttive), fondamentali per l'economia nazionale. Per esempio, riconvertire delle aree attualmente dismesse che sono enormi per esempio a terminal container (visto che il container è il futuro), potrebbe comportare per Venezia degli indotti economici che sono notevoli.

Nessun suggerimento per quanto riguarda gli schemi di finanziamento, ma forse i colleghi dell'area progetti comunitari qualche risposta saprebbero darla.



Fondi di finanziamento utilizzati nelle ricerche svolte: fondi MED, INTERREG ecc. Finanziamenti per progetti nostri sono stati pagati con fondi della struttura, quindi dal ministero delle infrastrutture (l'Autorità ne è parte). Noi abbiamo fondi ma non sono utilizzati per la ricerca fine a se stessa ma sono "per progetto". Nei capitoli di spesa previsionali, parte dei soldi del bilancio è stato utilizzato per finanziare ricerche specifiche (è stato fatto in parte per Biogenesis (? - ISPRA) nel 2003: un impianto pilota che è stato testato per la gestione dei sedimenti, per circa 500.000 euro; anche per la questione aria è stato fatto qualcosa di simile). Gli incarichi sono stati affidati per convenzioni con enti pubblici di ricerca (con garanzia di qualità e di immagine).

Forme integrate (PP) di finanziamento: sicuramente qualcosa è stato finanziato da Eni però non conosco nello specifico.

NKS 8

Domanda 5 (sfide sociali):

sì concordo, ma se l'ottica resta legata alla parte ambientale di questo ragionamento va bene, ma non riusciamo ad includere i temi fondanti dello sviluppo del territorio che comportano un ragionamento sull'uso del suolo e quindi sulla necessità di risanare quello che c'è. Questi mi paiono temi molto ambientali mentre proporrei di inserire qualche tema più urbanistico. Per esempio il **tema della rigenerazione e il suolo**: rimettere suolo oggi consumato in un circuito positivo di sviluppo locale. Se io bonifico un sito contaminato ex-industriale e ne faccio un'area urbana che ha una grossa % non impermeabile (cioè in qualche modo sana), non è riportato a suolo vergine, ma sopra ricostruisco nuovi spazi di lavoro e di vita urbana ... ho fatto un buon servizio al suolo (bonificato e traspirante) e ai cittadini (servizi e opportunità), evitando di consumare altro suolo sano (greenfield).

Se entra un tema come quello della rigenerazione del suolo credo che debba avere una certa priorità ... quindi non come ultimo punto dell'elenco suggerito. È importante tenere insieme questo approccio ambientale con un approccio più urbanistico.

Riorganizzerei i temi suggeriti ... aggregando intorno a grandi obiettivi, distinguendo i temi prettamente legati alla salute del suolo con quelli più legati alla vita e all'alimentazione, con quelli che permettono di tenere insieme i due precedenti [la rigenerazione] così rendendo disponibili parti di territorio che altrimenti sarebbero escluse dal ciclo di vita dei suoli, quindi prevenendo il consumo di nuovi suoli atti alla produzione di alimenti.

Domanda 7 (agende di ricerca e programmi esistenti): non sono aggiornata

TEMI PER SRA

Temi di ricerca suggeriti per SRA:

- 1) Come realizzare le bonifiche; come accelerare le tempistiche, come attivare meccanismi economici che ne permettano la realizzazione (in genere molto costosa) e come ottenere territorio rigenerato in modo da rimettere in moto il sistema. Come mettere d'accordo i vari enti territoriali e non (Ministero dell'Ambiente, Regione, Arpa regionali, Province, Comuni) che entrano in gioco nel sistema bonifica-riuso-progettazione urbanistica? [gestione delle politiche – promozione di pratiche di governance multilivello];



Problema dell'incertezza delle tempistiche di bonifica, difficoltà di coordinamento con la procedura urbanistica per la definizione del riuso dei suoli bonificati;

Se non si fa nulla su questo tema, rendendo praticabile la strada della rigenerazione dei suoli contaminati, non si riesce ad attuare una parte importante delle possibili politiche per la rigenerazione urbana e quindi non riusciamo ad attuare uno degli obiettivi prioritari dell'Unione Europa: consumo di suolo zero e città come motori di sviluppo;

E' interessato tutto il sistema e i responsabili sono i soggetti competenti di tutte le diverse fasi di bonifica. Non c'è un solo responsabile, gli enti coinvolti sono numerosi, non solo in Italia;

E' una responsabilità diffusa.

Non siamo all'anno 0 e la normativa sulle bonifiche ha già avuto vari livelli di maturazione, ma è un tema recente (in Italia la prima norma nazionale è del 1999) e un bel po' resta da fare;

(parole chiave): spunti interessanti ma per noi il suolo è il mezzo non il fine e quindi mi sembra evidente che la scelta di intervenire in aree da bonificare sia un tema utile a prevenire il conflitto tra lo sviluppo della comunità e gli usi del suolo; se non riesci a fare le bonifiche per fare un nuovo intervento devi consumare suolo e quindi il tema delle bonifiche è fondamentale per prevenire nuovi consumi.

- 2) Gestione **integrata** del territorio; Pensare il suolo non per lotti definiti dai confini proprietari ma pensare al suolo come continuo, con strategie di intervento, a partire dalla bonifiche, sulla rigenerazione del territorio, a prescindere dalle barriere territoriali a cui oggi siamo costretti. Le nostre città, in tutta Europa, sono ormai "città diffuse" che hanno di fatto superato i confini amministrativi dei vecchi Comuni (all'interno di questo ragionamento le specificità nazionali sulla dimensione e le competenze amministrative dei Comuni hanno molta rilevanza). Un gestione integrata delle aree urbane è quindi indispensabile. La nascita delle "Città Metropolitane" è un tentativo di andare in questa direzione praticato da diversi paesi, ma non è l'unica soluzione possibile. Un gestione integrata del territorio consentirebbe di fare anche delle scelte ponderate sulle priorità di investimento, cercando di privilegiare gli interventi a maggiore valore aggiunto (ambientale e urbanistico)

Sulla gestione integrata del territorio manca la valutazione:

- Spiegare – elaborare l'argomento
 - Chi sarà interessato? Principalmente i soggetti che vogliono proporre interventi di media e grande scala
 - Chi è responsabile?
 - E' un argomento di preoccupazione della vostra organizzazione / servizio Sì, come spiegato più sopra
 - E' solo un tema nazionale, oppure un argomento condiviso da più paesi? Da più paesi
 - A che punto siamo, dove vogliamo essere in x anni (l'orizzonte)? In Italia i tentativi sono stati molti, pochi di successo. Le Città Metropolitane rappresentano un nuovo tentativo, ma è tutto da sperimentare.
 - Come può la nuova conoscenza acquisita essere utilizzata efficacemente? Dovremmo almeno imparare dagli errori e dalle cose che non hanno funzionato perché non adeguate al funzionamento complessivo del sistema.
- b. Priorità: Elevata, media, normale, bassa, nessuna
 - Qual è l'urgenza, vale a dire cosa andrebbe male se non facciamo niente? Direi priorità elevata se vogliamo fare un salto di scala qualitativo reale. Se non si fa niente continueremo a gestire le cose con poca efficienza ed efficacia.



c. Chi potrebbe/dovrebbe finanziare questo tipo di ricerca? (ricerca?)

Le seguenti parole chiave aggiungono ulteriori approfondimenti/riflessioni/nuovi temi al tema proposto (dall'intervistato)?

- Valutazione delle risorse del territorio
- Produttività potenziale del territorio e dei suoli
- Domanda della risorsa suolo/territorio: import/export
- Competizione per gli usi del suolo (conflitti nell'uso di suolo)
- Identificazione e quantificazione degli impatti rilevanti
- Strumenti per evitare/limitare gli impatti (feedback dei processi decisionali)
- Opportunità legate alle tecnologie innovative sull'uso dei suoli
- Sistemi di gestione del territorio orientati alle risorse (resource oriented)

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Mondo scientifico e politiche/pratiche

Esperienze personali: [solo commento critico generale non riferimento a ricerche personali]

Si dovrebbe lavorare sulla capacità di comprensione reciproca di questi due mondi e quindi riuscire ad andare oltre gli slogan. Perché oggi mi pare che quando la politica comprende la ricerca sui temi del suolo, tenda a semplificarli e banalizzarli, facendone bandiere senza riuscire ad approfondire cosa significa quel tema una volta declinato ... dallo slogan alla gestione del territorio. Forse la comunità scientifica dovrebbe cercare di tradurre i suoi risultati in elementi più comprensibili per chi deve prendere decisioni sul territorio dal punto di vista politico: e a sua volta la politica dovrebbe cercare di capire meglio il peso di questo tema (consumo di suolo) sulle nostre vite. Dovrebbe esserci maggiore capacità di comprensione tra questi due mondi.

Fonti: newsletter, aggiornamento sui temi ambientali e urbanistici.

Abbiamo prodotto noi una ricerca sul rapporto tra progetti di bonifica e rigenerazione urbana, commissionata da uno dei nostri soci, coinvolgendo enti locali, aziende, l'ISPRA. È andata molto bene perché sulla base di quella esperienza siamo riusciti a d'affinare la nostra posizione sul tema delle bonifiche in rapporto all'urbanistica; abbiamo smitizzato cose che credevamo importanti, mettendo meglio a fuoco le nostre strategie.

Dovrebbero essere ricerche simili fatte ad un altro livello (più fondi e più continuità), così da produrre ricadute complessive e implementali.

FINANZIAMENTI

Finanziamenti

Conosco fondamentalmente le fonti di finanziamento europee legate ad Horizon 2020 e altri programmi simili che possano lavorare sul mondo ICT.

Sul tema delle bonifiche, certamente in Italia, ma forse anche in Europa, c'è un grande interesse da parte degli enti locali e dei privati che intervengono sul territorio perché per loro avere bloccato il mondo delle bonifiche rispetto al mondo dei loro interventi è un problema; sia che si tratti di un ente pubblico o privato. Quindi ritengo che buone ricerche che mirino a risolvere la questione delle attuazione delle bonifiche possano trovare un interesse nel mondo privato, sia dei proprietari delle aree sia delle aziende che fanno le bonifiche. Quindi se avessero un supporto in quadro istituzionale europeo sarebbero contenti di contribuire.



Per fortuna i temi ambientali non sono stati regionalizzati in Italia e quindi ritengo che si potrebbe fare delle riflessioni a livello nazionale sull'ottimizzazione dei processi di bonifica, favorendo il coinvolgimento dei diversi enti interessati al processo, cercando di risolvere i nodi dove la macchina della progettazione si inceppa. Potrebbe avere molte ricadute in questo caso. Trovare *best practices* praticabili, trovando gli enti competenti (stato, ragione, province, comuni, arpa, imprese che eseguono le bonifiche ecc.).

Evitare di inseguire nuove norme ... in Italia non abbiamo bisogno di nuove norme ma bisogna cercare di applicare meglio quelle che ci sono, cercando di capire quali sono i nodi procedurali che impediscono l'applicazione. E semplificare guardando nel merito le cose.

Altro da segnalare:

Mi piacerebbe capire se l'interesse al fatto che questi temi non debbano essere affrontati solo a livello ambientale è condiviso dal vostro network e se insieme possiamo fare un pezzo di percorso intorno al tema del suolo e delle bonifiche.

Suggerisco Saveria Teston e il dirigente della Regione Lombardia sig. Di Nuzzo, settore bonifiche.

NKS 9

L'ente fornisce finanziamenti per la ricerca? Aspetta che glieli diano ... Fornisce in parte a degli esterni qualora noi non avessimo le risorse necessarie. Per esempio io ora ho un'attività che prevede che siano fatti dei focus group; ma l'Enea non ha degli esperti laureati in sociologia quindi forniamo dei soldi non per ricerca ma per la fornitura di servizi. Poi diamo borse di studio e assegni di ricerca, però sempre in relazione alle attività che noi riusciamo a farci finanziare.

Di per sé muovete fondi che provengono da fonti di finanziamento alternativi, come i progetti europei, ecc.

Abbiamo progetti europei ma poi abbiamo la ricerca sul sistema elettrico con finanziamenti che ci vengono dal MISE (ministero sviluppo economico). Abbiamo vari accordi, adesso sto creando un progetto con la Presidenza del Consiglio dei Ministri per la presentazione di scenari a carattere energetico per il 2030. Stamattina abbiamo chiuso un progetto finanziato dalla FAO sulla valutazione socio economica degli impatti della lotta integrati in un'area laziale (Canino).

I nostri fondi sono prevalentemente statali, ma noi come agenzia siamo anche spesso incaricati dal Ministero per svolgere ricerche che non è in grado di affrontare.

Sfide sociali

Questa agenda a prima vista mi sembrerebbe abbastanza completa ma il problema non è l'elenco che ci fornisce l'UE, perché io so benissimo che abbiamo un problema sui cambiamenti climatici e che è importante procurare il cibo ecc., ma una organizzazione che si rispetti, sia l'Enea o altre, deve dire complessivamente come si affronta il problema. Perché tra l'assicurare l'acqua a tutti ad un prezzo accessibile e i cambiamenti climatici c'è una relazione. Allora se noi analizziamo quei temi e li prendiamo da soli secondo l'approccio riduzionista, noi non facciamo un favore alla scienza. Perché ognuno lavora al proprio orticello. Quello che manca è una visione di tipo olistico (come diceva il mio maestro), cioè se noi vogliamo affrontare quei problemi dobbiamo usare l'approccio dell'ecologia, che non è semplicemente la biologia, è l'ecologia della mente, ossia lo studio delle relazioni tra esseri viventi. In questo studio gli argomenti che lei ha letto ci stanno tutti. Come affrontarli dipende da come noi sappiamo connetterli perché io tecnicamente so benissimo come risolvere il problema dell'acqua, mi aiuta la tecnologia, posso fare un desalinizzatore. Ma il problema è: conviene farlo? Potrebbe portare l'inquinamento dell'area? È utile farlo o possiamo sfruttare delle risorse che sono



già all'interno in un altro modo? Quanto impatta sulla cultura delle popolazioni? Quanto suolo consuma? Allora se io faccio la scelta di costruire un desalinizzatore sull'aspiaggia, quanto perdo di turismo e quanto questa scelta potrebbe essere irreversibile? Quindi il problema non è nei temi di ricerca, quelli sono noti, è come dare a questi temi di ricerca un approccio olistico compatibile con le conoscenze che noi dobbiamo acquisire.

TEMI PER SRA

Temi per l'agenda

Deve essere un'agenda che guardi al concetto di sostenibilità, ma in un modo nuovo, di tipo economico, sociale e ambientale. Se io faccio un'agenda che dice "voglio creare sostenibilità e creo la mela sostenibile", ma costa 10 euro. Quindi non è sostenibile, perché deve essere accessibile (economicamente), deve essere accettata (e mi viene da ridere quando dicono che l'energia nucleare è pulita perché non è vero considerato che per la costruzione della centrale abbiamo consumi di CO₂ enormi, poi non parliamo del de-commissioning). Però il problema è che io non risolvo i cambiamenti climatici con la tecnologia, perché se Venezia è a rischio io faccio il Mose, ma se il Bangladesh è a rischio io il Mose non lo faccio e quelli muoiono. Il problema è che la soluzione tecnologica non sempre è accettata dalla popolazione, come nel caso del nucleare, ammesso che serva a ridurre i cambiamenti climatici. Quindi noi dobbiamo partire da questo concetto, che quello che facciamo per l'ambiente deve essere accettato socialmente, deve essere economicamente sostenibile ed essere ambientalmente sostenibile sotto tutti i suoi aspetti e poi deve essere programmato a breve tempo.

A partire da questa premessa però ritiene che ci siano comunque dei temi emergenti? Certamente, il tema del cambiamento climatico non ha alcun senso in un paese come l'Italia se non consideriamo, parlando di acque, il tema del dissesto idrogeologico. L'Italia essendo terra giovane è naturalmente soggetta al dissesto idrogeologico, il problema è quando al fatto naturale si aggiungono le cause umane. Gli eventi che ci sono stati in Sardegna alla fine dagli annali risulterà che non è successo niente, perché le statistiche sulla caduta di pioggia riguardano gli anni. Effettivamente quanto è accaduto in Sardegna e in Liguria recentemente, dobbiamo domandarci: quanto è colpa del cambiamento climatico e del clima e quanto è colpa del fatto che non avevano pulito il torrente. Quindi ci sono una serie di motivi che rischiano di sminuire l'importanza del cambiamento climatico. Perché l'abitante di Genova, secondo lei, pensa che la causa di quello che è successo è perché non hanno pulito il fiume o perché la temperatura del pianeta è aumentata di 0,2?? Quindi addirittura, il dissesto idrogeologico, non considerato all'interno del contesto, rischia di sminuire l'importanza globale di alcuni argomenti. Quindi il problema è di creare un sistema che sul territorio sia in grado di mettere insieme il fattore antropico, che certamente c'è (anche se non lo si vuole riconoscere), con quello che viene definito il fattore naturale, che pure in Italia certamente esiste.

Le vengono in mente altri temi di interesse per l'agenda?

I temi di interesse, secondo una visione complessiva, si possono scorgere in un libro come questo (<http://www.enea.it/it/pubblicazioni/edizioni-enea/2015/sostenibilita-ambientale>). Perché altri temi quali sono? Ad esempio i rifiuti. Abbiamo una politica nazionale sui rifiuti in Italia? No, abbiamo tante politiche locali. Addirittura non si riesce a stabilire all'interno dei vari comuni se il polistirolo va nella plastica oppure nell'indifferenziato. Cioè noi abbiamo un livello normativo davvero scadente, ad esempio a livello dei rifiuti oppure nelle aree dismesse industriali, argomento che assumerà una grandissima importanza. Oppure il destino di alcuni impianti industriali: è successo recentemente ed è riportato nel libro, che qui si apre una lotta tra il morire di fame e il morire di tumore; mi riferisco alla radioattività. Ma la domanda che noi dobbiamo porci è: quando è compatibile una produzione di acciaio, quanto è sostenibile in quell'area per produrlo. E quanto è economicamente compatibile, perché oramai se compro gli acciai dall'India mi costano molto meno.

Quello che non abbiamo nel nostro paese, ma penso anche in gran parte dell'Europa, è che noi non abbiamo un'idea di sviluppo. Perché le politiche ambientali, energetiche ... Le faccio un esempio. Se



noi siamo destinati ad avere una società di servizi e non più sulla manifattura pesante allora ci bastano le energie dolci, ma senoi decidiamo che il futuro sono gli altiforni dobbiamo fare delle centrali nucleari, a carbone o petrolio. Quindi alla fine il problema si basa sulla nostra idea di futuro (di sviluppo), ma noi questa idea non ce l'abbiamo.

[Riprendendo i temi citati, quindi il dissesto idrogeologico, il tema dei rifiuti, le aree industriali e gli impianti...](#)

C'è un grosso problema anche sulle acque. Noi abbiamo una normativa, che mi sembra entro l'anno prossimo l'UE ci impone di definire come è buono al terzo livello l'uso delle acque potabili, ma noi non ci siamo ancora arrivati. Poi c'è anche un problema sull'uso dell'acqua e sull'educazione all'uso. Noi abbiamo degli sprechi incredibili, ad esempio ruscella menti fatti male, fogne inefficienti che provocano degli sprechi incredibili. Le faccio un esempio su questo. L'Unione dei 15 perdeva dagli acquedotti il 12% di acqua: è un fatto normale perché c'è un trasudo ecc., ma se noi togliamo l'Italia le perdite scendono all'8%. Quindi noi soli contribuiamo per 1/3. Le perdite dell'acquedotto di Palermo sono del 40%, a Milano sono del 35%, non siamo razzisti né al nord né al sud, ma ce n'era una (ad Accettura?) che hanno chiuso che perdeva il 95%. Non parliamo dei buchi partono dal dissalatore di Gela e vanno fino a Licata: sembra di stare in Trentino, ci sono i laghetti. Quindi noi abbiamo un serissimo problema sia di qualità che di gestione politica delle acque. La Sicilia ha 7000 enti che si occupano delle acque e in Italia ce ne sono complessivamente 22.000: mi dice come è possibile la gestione corretta di un bene che il referendum ha deciso deve rimanere un bene comune? Un problema politico e un problema tecnico.

[Per ciascuno di questi temi ci sono poi delle domande di approfondimento che le elenco ...](#)

[Quindi partendo dal dissesto idrogeologico, quali sarebbero gli enti responsabili?](#)

È facile perché la Costituzione dà agli enti locali giurisdizione sul territorio a carattere ambientale, quindi gli enti preposti alla salvaguardia del territorio dovrebbero essere le regioni. Il problema è che devono avere dei finanziamenti certi, poi in casi eccezionali, quando si verificano alcuni incidenti, interviene lo Stato se la regione non è in grado, in virtù del potere sostitutivo.

I responsabili della ricerca invece devono essere gli enti nazionali, ma sulla base di finanziamenti certi. Perché consideri che enti come noi oramai ricevono finanziamenti che ricoprono a stento gli stipendi e quindi siamo costretti a volte a scegliere gli argomenti. Esistono poi centri come CRA (agricoltura), il Servizio italiano di geologia, che ha 30 geologi, che in un territorio come l'Italia mi sembra assurdo. Andrebbero rafforzate le strutture esistenti.

Il mio ente lavora un po' su tutti gli argomenti; abbiamo un settore che fa agricoltura, che si occupa di animali, abbiamo l'energia, il termonucleare, le fonti alternative ecc., perché l'Enea è un ente generalista.

Le problematiche ambientali vanno su più livelli, perché se parlo dell'inquinamento dell'aria non posso mettere barriere, si parla di inquinamento transnazionale; altri temi hanno specificità territoriali, come l'idrogeologico o gli acquedotti.

Il punto in cui si trova la ricerca e cosa sviluppare ... noi abbiamo delle grandi eccellenze, alcune gliele ho citate, noi stessi siamo un'eccellenza su molti settori. Il problema, come dicevo, non sono i temi, ma il cercare di mettere insieme gli argomenti per il miglioramento delle situazioni. Non possono risolvere il tema del dissesto idrogeologico però nel frattempo non metto a posto gli acquedotti e continuo a consumare acqua impropriamente. Bisogna fare un piano di salvaguardia del territorio a livello globale.

[Quindi possiamo considerare questo un esito atteso della ricerca?](#)

Dovremmo, ma la questione è molto complessa. La domanda è: ma rispetto alle altre nazioni, quanto del PIL viene della ricerca? Perché questa è la madre delle domande.

Per esempio abbiamo grandi problemi sul settore alimentare. Abbiamo un problema enorme di frode alimentare. Il pollo è controllato, ma lo 0,001% delle confezioni è effettivamente controllato.



Abbiamo delle carenze che sono proprio strutturali di sistema, quindi come facciamo ad affrontare il tutto. Le cose andrebbero ampiamente discusse. Il governo dice che lo vuole fare e sta preparando il Green Act. Per adesso c'è solo il TU Ambientale, che però alcuni dicono che così come è fatto dà licenza di inquinamento.

[Cito la recente introduzione dei reati penali in materia ambientale ...](#) ma Confindustria è fortemente contraria.

L'ex ministro Catania fece un'ottima legge sui suoli [\[disegno di legge in cartella "revisione letteratura-leggi e norme"\]](#), che poneva in maniera fortissima il divieto di cambiamento dell'uso dei suoli, che è una delle cose più devastanti per gli effetti ambientali in Italia. Non dimentichiamo che alcuni incendi in Italia sono dolosi perché così si pensa di cambiare la destinazione dell'uso dei suoli. La legge Catania, stilata dal governo Monti, non è stata poi approvata né da Monti, né da Letta, né da Renzi. Abbiamo una legge ottima all'avanguardia nell'UE che non riesce a trovare uno spazio parlamentare.

[Riprendendo gli orizzonti/gli obiettivi della ricerca ... Conosce altre realtà europee all'avanguardia su questo tema \(ad es. il dissesto idrogeologico, che secondo l'approccio olistico quindi ricompre anche altri temi\)? Per cui si possa immaginare un trasferimento di conoscenze già acquisite ... Seconda questione, ritiene che ci sia un problema di approccio culturale al problema o anche una questione normativa deficitaria? Per es. rispetto alla proposta di legge Catania citata ...](#)

Non è un problema di scienza, dal punto di vista della produzione scientifica siamo sazi. Il problema non è definire scientificamente cosa sia un dissesto. Il problema è la norma: le competenze sono confuse e troppo diffuse, la valutazione di impatto ambientale non ha una normativa degna di questo nome (potremmo prendere esempio dalla Francia, che già con la Loi Blanche (??) era innovativa [trovata solo la "charte de l'environnement, voluta da Jacques Chirac et e promulgata il 1/3/2005] e con la nuova legge Grenelle (Loi Grenelle I, n° 2009-967: loi française de programmation qui formalise les 268 engagements du Grenelle de l'environnement. + Loi Grenelle II - juillet 2010) sono anni luce in avanti sul tema della salvaguardia dei suoli). Quindi noi abbiamo un problema di normative (si pensi al fallimento della legge su VIA, VAS, che sono solo meri atti burocratici) e poi di tutte queste competenze e norme sparse. Sono stato ad una riunione delle Autostrade dove dicevano che per la gestione degli scavi devono rispettare normative così complicate che i lavori si fermano per mesi perché ogni comune rimbalza le competenze. Sono a favore delle autonomie, ma il fatto che le autonomie esistano non significa che noi dobbiamo stare fermi.

[Il grado di priorità e di urgenza del tema proposto-dei temi direi \(approccio olistico\)?](#)

Il grado di urgenza in Italia viene stabilito dall'evento. Ad es. se mi cade una collina, quella è urgenza. Noi siamo legati ad una cultura assurda, quella dell'emergenza. Perché il solo calcolo dei dati economici direbbe che la salvaguardia del territorio porterebbe certamente ad un risparmio elevato di soldi. Invece no. Mi parla di urgenza? Se cade un traliccio c'è l'urgenza energia, se piove c'è l'urgenza idrogeologica, se gli spazzini scioperano c'è l'emergenza rifiuti. Non avendo noi una visione generale di tutto il problema, di fatto non esiste l'emergenza. Perché se prende un vocabolario di Italiano e leggiamo la voce "emergenza", si dice "emergenza: situazione che cessa nel momento in cui viene ripristinata la situazione precedente". Noi non abbiamo emergenza in Italia perché la situazione precedente non viene mai ripristinata.

Dipende da cosa accade quel giorno. Quella per noi è l'urgenza e l'emergenza.

[Cosa accadrebbe se non venisse fatto nulla in merito?](#)

Il danno è principalmente economico. Facciamo l'ipotesi catastrofista: aumenta la temperatura fino a 6 gradi. Noi non abbiamo problemi, si muore tutti e fine. L'Italia non esisterebbe più a causa dell'innalzamento delle acque. Non è un problema questo. Il fatto quale sarebbe? Un danno economico enorme. Noi siamo un paese che vive di turismo: un tedesco viene a Grado se la spiaggia non c'è più per l'innalzamento delle acque? Quello non viene più. Abbiamo un danno economico



enorme. Ma poi noi non abbiamo un'idea del futuro. Ma tutti quei disoccupati dov'è che possono avere degli sbocchi occupazionali? Il settore dell'ambiente, quello vero della Green economy in Germania è il settore trainante dell'economia. Da noi si dice che aumentano gli addetti della green economy: ma lei lo sa che in Italia gli spazzini sono addetti alla green economy? Che senso ha?

Lo sa che noi abbiamo 1/3 della produzione di energia elettrica rispetto alla Germania, quando abbiamo un grado di irraggiamento tre volte maggiore. Quindi cosa accade? La disoccupazione. Ci saranno meno soldi. Saremmo costretti a spendere per mettere mano all'emergenza perché prima o poi qualcosa dovremmo fare, e saremmo nell'impossibilità di una programmazione seria.

Se non lo volete fare per principio etico fate almeno qualcosa per convenienza.

Chi dovrebbe finanziare la ricerca in questo campo?

Rischio di fare il vecchio comunista ma dico che c'è la necessità di una ricerca di base. È chiaro che devo cercare l'accordo con il privato. Se per esempio faccio un programma per mitigare gli effetti del cambiamento climatico perché non coinvolgere un privato?! Una partecipazione del privato ci deve essere, ma di fronte ad una tassazione così estrema nel nostro paese dovremmo pretendere almeno dal sovra-dirigente (?) dagli organi dello stato e questo del clima e dell'ambiente mi sembra il minimo che si possa fare.

Esistono documenti a sostegno del tema?

Quante tonnellate ne vuole? Solo in questa unità abbiamo sviluppato centinaia di scenari energetici e ambientali e abbiamo fatto un programma che mette l'energia e l'ambiente insieme agli indicatori sociali. Un "according tool" si direbbe con l'indice di Sen (indice di sviluppo umano), per l'integrazione del PIL con gli indici di benessere (e non solo economici).

Noi produciamo solo come Enea migliaia di pagine, così come gli altri enti. Il problema è poi nella decisione politica. Perché essendo noi una democrazia e non una tecnocrazia, quando abbiamo fornito il nostro contributo abbiamo esaurito il nostro compito.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Interfaccia politiche ricerca

Utilizzo sempre i risultati della ricerca scientifica anche nel settore della sociologia. Ai miei studenti non permetto di dire "io penso che", tu devi dimostrarmi con dei numeri che il fenomeno che abbiamo in mano può essere spiegato in dei termini reali ma non soggettivi.

Le più recenti contaminazioni

Recentissima, questo libro, 70 autori che afferiscono a 40 discipline differenti, che hanno partecipato per un totale di 15 istituzioni pubbliche e private. Una cosa importante che ritengo di aver fatto all'interno di questo libro è che in ogni capitolo non ci sono 2 persone dello stesso ente, per non vere un mono-pensiero, e sono sempre persone che afferiscono a settori disciplinari differenti. Si è fatta molta attenzione alla distribuzione in modo da avere un approccio il più possibile trans e multi disciplinare.

Influenza dell'ente (Enea) sulle politiche:

No e in nessun modo. Noi influiamo poco. Facciamo delle proposte che spesso vengono accettate, specie in campo energetico, ma abbiamo una scarsa influenza sulle decisioni del fare o del non fare. Questa è dovuta al fatto che "la coperta è troppo corta".

No. Anche perché la politica italiana non sa cosa sono i bisogni dei cittadini in generale e quindi non vedo come possa conoscere le mie.



La ricerca scientifica influenza le politiche di interesse per la sua professione?

Molto poco. Ho scritto un articolo intitolato “Perché la gente non crede più al cambiamento climatico?” e ricordandomi di essere laureato in filosofia ho detto, Galilei fa la battaglia per liberare la scienza dalla religione. Penso che sia il momento, sul modello galileiano, di fare una battaglia per liberare la scienza dalla politica. È la stessa idea di Galileo, solamente abbiamo sostituito la religione con la politica.

FINANZIAMENTI

Risorse finanziarie

Ad un affetto moltiplicatore si può arrivare in diversi modi, però il principio degli effetti moltiplicatori è fare un lavoro e fare vedere che funziona. Ad esempio in questo settore ho iniziato con alcuni colleghi dell'Enea, un'attività su una città italiana, Brescia, sulle attività per le Smart City. Abbiamo preso un quartiere di Brescia, lo abbiamo reso autonomo da un punto di vista ambientale, stiamo cercando un sistema per creare occupazione all'interno del quartiere con l'idea di far vedere come si fa, per poi mostrare agli altri, in modo da ampliare. Io non credo esista un modello migliore di quello di poter dimostrare che la tua attività funzioni.

Schemi particolarmente virtuosi ce ne sono stati parecchi. In passato l'Enea ha sviluppato una grande ricerca sulla desertificazione che veniva anche da fondi europei. Quindi a mio parere nella situazione italiana i fondi europei sono il principe del finanziamento. Anche perché noi abbiamo degli spazi enormi. Se lei pensa che rispetto a quanto versiamo all'UE, noi prendiamo quanto Cipro, questo è un problema, significa che o non sappiamo scrivere in inglese i progetti o non siamo interessati.

Poi noi non abbiamo una legislazione ambientale autonoma ma dipendiamo dalle direttive europee. Quindi se lei pensa alla nuova normativa dell'acqua, noi siamo soggetti alla legislazione europea, nel bene e nel male. Nel bene perché così non facciamo troppi guai, nel male perché poi paghiamo un sacco di multe perché non rispettiamo gli obiettivi. Il riferimento è l'Europa, quindi dobbiamo avere più Europa perché altrimenti noi non lo facciamo.

Noi utilizziamo principalmente fondi statali. Abbiamo un accordo con il MISE per progetti finalizzati, altrimenti ci basiamo sulle risorse proprie (questo libro è “gratis”).

Finanziamenti integrati

Abbiamo fatto parecchi lavori sia con Eni che con Confindustria, quindi ampiamente un'associazione pubblico-privato che a mio parere è sempre efficace. Per es. sullo smaltimento delle acque reflue e le acque di concia esiste una grande collaborazione tra i produttori che hanno introdotto un sistema innovativo molto efficiente. Sul termoneucleare in Italia nel settore dei cavi siamo molto specializzati. Abbiamo delle risultanze importanti.

[Potendo sviluppare una ricerca su questo tema \(l'approccio ecologico, ovvero sistemico\) quali sono i risultati attesi da questa ricerca?](#)

Il risultato che mi aspetto è una regia unica, magari il Ministero, che metta insieme PP per decidere cosa affrontare prima e in che modo (l'effetto catena tra i temi).

Altri contatti

Ing. Mario Cirillo di ISPRA

Traffico Silvia Brini ISPRA

Corpo Forestale dello stato Lando desiati (esperto biodiversità) e Laura Padovani (lavora con me in Enea)

Maria Gaeta per l'energia (che lavora pure con me in Enea)



Mauro Mallone (politiche energetiche) MISE

NKS 10

TEMI PER SRA

temi per l'SRA:

- 1) Tema dei nuovi contaminanti/contaminanti emergenti (in tutte le matrici), su cui ci sono progetti di ricerca credo, ma sui quali, almeno in Italia, siamo molto lontani dall'avere una legislazione chiara.
- 2) Più legati alla componente aria forse ... è il tema degli impatti relativi alla salute, ovvero avere una maggiore disponibilità di dati medici sugli studi epidemiologici (sono dati mancanti) e quando si arriva all'epidemiologia diventa preda del giornalismo; un framework che permetta di avere i dati, studiarli, metterli in correlazione ...
- 3) Tema del preservare, favorendone lo sviluppo, tutto ciò che è ambiente marino e costiero; per esempio la mappatura dei fondali è molto poco conosciuta.

... le tematiche marine sono escluse dalla ricerca, solo le tematiche costiere; l'acqua è intesa solo in relazione al territorio, acqua dolce o coste → **tema escluso**

- 4) Tema del consumo di suolo: la comprensione dei meccanismi relativi alla propagazione del consumo di suolo, come avviene la propagazione e quali sono i meccanismi per impedirla; come fare in modo che sia effettivamente un meccanismo che favorisca il riutilizzo di siti contaminati, perché al momento è molto più semplice lasciarli lì ... se il valore dell'area supera il costo della bonifica di un bel po' si bonifica, altrimenti no; se poi il valore dell'area è zero, la bonifica è un puro costo e allora nessuno se ne assumerà mai la responsabilità. Si tratta di capire quali sono i meccanismi sociali ed economici che poi possono portare al riutilizzo delle aree da bonificare.
- 5) Più centra l'aria però ... quando si fa l'analisi di rischio della contaminazione presente all'interno del terreno, alla fine molto spesso i valori di rischio sono legati ai vapori della contaminazione e questo è uno dei fattori bloccanti per il ri-sviluppo delle aree; i valori delle analisi di rischio che ci si dà sono bassissimi: il valore incrementale di 1/1 milione, che sono valori totalmente diversi da quelli accettati in ambiente di lavoro e che la società si permette di creare verso i propri lavoratori e che sono enormemente più grandi di quelli che si permette di creare per i propri residenti.
 - I valori che dobbiamo rispettare nelle bonifiche per il comparto residenziale sono molto più restrittivi di quelli che in realtà respiriamo camminando per strada -

Ci si dà la possibilità di creare più malati in ambiente di lavoro rispetto alla possibilità che ci si concede, sostanzialmente nulla, dovuta alla contaminazione. Esiste però molta poca informazione sullo stato di contaminazione delle città, dell'aria-ambiente; ovvero io dico, devo bonificare questo sito dismesso garantendo limiti molto restrittivi dei valori degli inquinanti, quando poi nelle città ci sono valori di presenza di benzene molto più alti. Alla contaminazione poi è associata una colpa per cui c'è una redenzione necessaria molto maggiore, mentre l'ambiente di lavoro e la città sono quello che sono per cui il concetto di colpa non c'è e allora attribuisco valori molto diversi da 1/1mil. (molto più elevati). Il fatto che ci siano pochi dati o poca correlazione tra i dati di bonifica e lo stato della qualità dell'aria ... però il rischio passa dall'aria, che non è suolo, ma sono effetto e causa.



- 6) (legato a n.5) Il tema delle aree agricole trascura la contaminazione delle arie in ambiente agricolo, perché gli effetti di farmaci e fitofarmaci sono poco compresi; sicuramente ciò che è bonifica di sito contaminato viaggia su un binario totalmente separato: perché ho un contaminatore totalmente diverso da ciò che è la contaminazione diffusa delle aree agricole. Se ne parla un po' di più adesso per la questione della Terra dei fuochi, ma su questo aspetto è ancora tutto un po' vago.

È un problema di costi e responsabilità della contaminazioni: non è chiara la mappatura dello stato di salute dei terreni agricoli e quali sono gli effetti che hanno le coltivazioni nel modificare le concentrazioni di fondo di alcuni contaminanti, inclusi soprattutto quelli emergenti.

C'è una mancanza di unificazione di un criterio unico del rischio tra ambienti di lavoro, ambiente urbano e obiettivi di qualità sugli interventi di bonifica, senza giudizio del fatto che un criterio ovvero l'altro debbano essere resi più laschi o restrittivi.

Il problema è soprattutto tecnico; se c'è una causa su un ambiente di lavoro chiamano a parlare un medico del lavoro che fa riferimento ai limiti permessi in ambiente di lavoro e vede la problematica ambientale dal punto di vista della medicina del lavoro, che è un punto di vista totalmente diverso da quello di chi si dà obiettivi di bonifica. Quindi anche le basi tecniche sono diverse: mi pare che medici e eco-tossicologi (che agiscono per le bonifiche) probabilmente non si siano parlati. I temi ambientali propriamente detti e gli studi epidemiologici mi pare non abbiano connessioni, soprattutto a livello di politiche. Questo secondo me è uno spazio importante ove cercare di connettere policy e mondo della ricerca; mi pare ci siano professioni che non si siano parlate abbastanza.

Approfondimenti sui temi individuati:

- 1) **Soggetti interessati:** Autorità sanitarie, autorità di protezione ambiente (Arpa, Ispra ecc.) e le società che fanno consulenza e bonifiche e le società chimiche di produzione ... tutto questo poi rientra nell'ambito REACH, dal punto di vista ambientale propriamente detto. Ad es. al momento in Italia misuriamo nel suolo e nell'acqua (non c'è nulla sui sedimenti) una lista di circa 52 sostanze, ma poi non altre ...

Il REACH - <http://www.minambiente.it/pagina/reach> - è una normativa europea (che si riferisce al settore produttivo non al sistema SWS) entrata in vigore 4-5 anni fa che richiede per ogni sostanza chimica utilizzata nei cicli produttivi di avere una serie di test eco-tossicologici; quindi il nero fumo ad es. o qualunque sostanza che a che vedere con una modificazione chimica deve essere tracciata. Questo ad es. in USA non si fa, in questo l'Europa ha imposto questo cambiamento sul mondo e sulle produzioni anche in altri paesi se importate in Europa. Non è però quello che facciamo in Italia quando guardiamo alla qualità del terreno o delle acque sotterranee. In Francia ad es. non c'è una lista di contaminanti, ma quando penso di aver contaminato un terreno lo analizzo e vedo gli effetti del contaminante, tramite un meccanismo per lo meno di comprensione del fenomeno, che in Italia è trascurato. C'è uno scollamento tra la norma EU che regola la produzione/gestione delle materie che hanno potenziali effetti eco-tossicologici e invece ciò che andiamo a misurare o meglio a NON-misurare nei terreni e nelle acque. Studiamo quali sono gli effetti di una data sostanza (alcune) ma non ne misuriamo le concentrazioni nei suoli. C'è una mancanza normativa su questo ma anche poca conoscenza.

Ad es. IP-FOSS?, caffeina, ormoni femminili delle pillole, sono contaminanti emergenti di cui non conosciamo le concentrazioni e che andrebbero studiati. Quindi chi è interessato? Le autorità preposte a governare l'ambiente ma anche tutta la filiera che lavora sull'ambiente: laboratori di analisi.



Il responsabile in Italia sarebbe il legislatore nazionale.

È un tema all'ordine del giorno e di preoccupazione della nostra società. È un tema globale e non solo nazionale.

Dove si vuole arrivare? Le sostanze chimiche evolvono e bisognerà trovare il modo di far sì che ci sia meno distacco tra le sostanze che viene richiesto di controllare sulle matrici suolo-acqua-sedimenti e ciò che in realtà viene prodotto. Noi in Italia continuiamo a fare moltissime analisi su solventi clorurati ma oramai non si usano più: continueranno ad esserci perché sono persistenti, ma non è un tema di attualità e ci sono altre cose che forse bisognerebbe vedere-controllare.

Priorità normale. (forse più elevata)

Di fatto le bonifiche sono eseguite dai proprietari non responsabili perché i contaminanti sono stati creati dalle imprese negli anni '70. Se noi tardiamo la valutazione dei nuovi contaminanti di fatto rischiamo di trovarci nella situazione in cui la società che li produceva non esisterà più e non sarà possibile individuare direttamente i responsabili (secondo il principio per cui chi inquina paga) e ci troveremo di nuovo con proprietari non responsabili che non faranno le bonifiche quando poi sarà necessario.

Finanziatori potenziali: tema europeo a livello di agenzie di protezione della salute, nazionali.

Sui contaminanti emergenti c'è un gruppo di lavoro RECONNET sui siti contaminati <http://www.reconnet.net>, coordinato da Simona Berardi nell'Inail, ma non ha prodotto molto per ora. Non ci sono documenti ma ci sono attività.

2) Tema simile al precedente per gli attori coinvolti (gli stessi).

Argomento di preoccupazione, internazionale e la priorità simile a prima.

Stessi finanziatori. È solo diverso il punto di vista, in un caso guardo gli effetti sulla salute e tra gli stakeholder ci sono anche i medici, dall'altro i soli elementi inquinanti.

Sulla parte epidemiologica non conosco studi e documenti in merito.

4) Più urbanistica e meno ambiente intorno a questo tema. **Responsabili?** Ispra comunque e soprattutto gli urbanisti, la visione non può essere quella solo ambientale perché altrimenti non funziona, condurrebbero ad analisi di rischio rigorose senza considerare gli effetti sociali degli interventi di recupero delle aree dismesse e gli ambientali non lo capiscono.

È un argomento di preoccupazione per la nostra organizzazione perché vogliamo che le bonifiche si facciano, a differenza degli industriali che non le vogliono fare.

Il limite degli ambientali è quello di focalizzarsi solo sul rischio e non vedere l'opportunità.

Priorità elevata, perché siamo in una fase in cui il valore della proprietà si abbassa e il costo delle bonifiche è stabile, ma l'incrocio della curva è più basso.

Il rischio in caso di inattività su questo tema è il trovarsi in città piene di ruderi e con un sprawl sempre più diffuso.

I finanziamenti dovrebbero provenire dall'UE, che però non è riuscita a mettersi d'accordo sulla legge del consumo di suolo.

Andrebbero favoriti incentivi di tipo economico-finanziario per le bonifiche. Quindi meccanismi che abbiano primariamente una ricaduta economica finanziaria anche se non devono consistere per forza in questo. Ad es. Se mi permetto di concedere una maggiore volumetria rispetto a quella ammessa, al fine di favorire lo sviluppo di un'area in modo che l'operazione diventi economicamente sostenibile, allo stesso modo, potrei andare in deroga su ad alcuni aspetti ambientali per favorire lo sviluppo di un'area? Perché le ricadute sociali del rilasciare quell'area contaminata e non sviluppata e abbandonata sono superiori e certe di quelle potenziali di concedermi di avere un rischio da 1/1mil.



rispetto a 1/100.000 (e costi differirebbero molto nella bonifica). Ma questo è un tabù assoluto, per esempio per l'Ispra. Però come si fanno concessioni dal punto di vista urbanistico con lo scopo di sviluppo del territorio, questo anche in materia ambientale potrebbe essere un meccanismo, perché ci sono nazioni che lo accettano, ma siamo noi che ci siamo imposti una norma molto restrittiva (più della norma EU) che deve rispettare i limiti dei contaminanti anche al confine del sito, con l'obbligo per la bonifica di installare per esempio pompe di estrazione per tutto il ciclo di vita degli impianti (inquinanti) installati – con costi operativi altissimi (per il mantenimento della barriera che non posso spegnere). Sarebbe preferibile e più sensato, come ammesso in altri paesi come la Germania, limitare le emissioni alla sola area sorgente e non a tutto il sito fino al confine, se non ci sono rischi.

Il problema infatti è che abbiamo una normativa più restrittiva in Italia nonché dei costi di bonifica più alti rispetto al resto d'Europa (come dimostrato dagli studi); bloccando così il recupero delle aree dismesse.

Su questo tema c'è un documento della Corte dei conti europea che parlava del ri-sviluppo dei brownfields dal punto di vista della decontaminazione in Europa e ci sono stati progetti europei su questo (Nicole ecc.).

Negli USA ci sono degli enti misti (ITRC?), tipo re-CONNECT, che però è un network. ITRC è un'associazione tra EPA?, quindi parte ambientale, rappresentanti dell'industria, della consulenza ecc.; e produce moltissimi documenti che sono linee guida, di indirizzo, buone pratiche, che hanno il grande merito di non essere dispersi come la pura ricerca e che diventano referenza. Una cosa simile la sta facendo l'Australia. Qualcosa di simile in Europa non c'è; se uno guarda la documentazione di Nicole: è una importante concentrazione di lobbies, ma ... vedo una grande dispersione delle informazioni, ma a livello di linee-guida applicabili non vedo molto, che al contrario invece CRC-CARE e altri producono documenti coincisi e condivisi.

In Europa c'è qualcosa di simile che è il Claire? Dove i documenti sono di buona qualità, ma sempre frammentati e più specifici.

- 5) Il tema delle aree agricole può essere fatto rientrare all'interno dei contaminanti emergenti, perché una buona parte dei contaminanti emergenti sono nelle aree agricole. L'ultimo tema invece è proprio specifico-settoriale e un po' al limite. Mi fermerei qui.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Interfaccia politiche e mondo scientifico

La conoscenza scientifica riguarda la conoscenza dei principi scientifici di base che regolano la professione, qualunque essa sia; si devono conoscere i concetti di base, ma anche una conoscenza dello stato dell'arte e dei temi di moda perché di fatto la ricerca scientifica mi pare si muova per temi di moda. La possibilità di seguire i temi di moda a livello di macro-trend non è forse il lavoro del ricercatore scientifico ma del fruitore della conoscenza in azienda ... comunque ti permettono di sapere qual è la direzione che il mercato potrebbe prendere e quindi strutturarsi di conseguenza, perché se è di moda si può prevedere la ricaduta e il fatto di essere di moda e aiuta a tenere vivo il tema.

Quindi conoscenza di base e aggiornamento sui temi relativi alla propria attività (ovvero di moda).

La sconoscenza scientifica è utilizzata nella nostra attività per proporre soluzioni nuove e per sapere cosa accadrà dal punto di vista legislativo, perché il tema caldo dal punto di vista scientifico prima o poi lo diverrà anche dal punto di vista legislativo e per le società che lavorano in ambito ambientale tutto è figlio della legislazione o della policy (e della buona volontà).



Non facciamo grossa collaborazione con università, cioè non finanziamo progetti, ma spessissimo ci troviamo a lavorare con professori universitari in qualità di consulenti o altro. Non c'è molto passaggio di denaro, ma molto di idee con l'università.

Usiamo articoli scientifici e networking con colleghi e a convegni e poi siti web, newsletter. Facciamo progetti di ricerca interna, ma vorremo fare di più, ma anche l'università mi pare voglia fare di più in termini di capacità di attrazione delle risorse.

Siamo all'interno di Feder-chimica <http://www.federchimica.it/Federchimica/ChiSiamo.aspx>, di Reconnet (con Università, Aspra, Inail ecc.) e partecipiamo con l'Unione petrolifera <http://www.unione petrolifera.it> alle attività di analisi di rischio, quindi siamo all'interno dei gruppi di pressione per Feder-chimica e Unione petrolifera. Il nostro interesse è però quello di fare le bonifiche mentre per l'industria in linea generale non lo è, quindi abbiamo ragioni sociali diverse, ma anche noi lavoriamo nell'interesse dei nostri clienti. Siamo pure consapevoli della complessità insita nelle procedure di autorizzazione di questi provvedimenti.

Avere dei meccanismi più chiari e facili per accedere ai programmi di ricerca sarebbe auspicabile, magari se deducibili dalle imposte ecc. Però avere più accesso a finanziamenti deducibili sarebbe comodo.

Dal punto di vista ambientale la connessione tra mondo della ricerca con le pratiche e la policy c'è sicuramente, anche se in linea di massima è sempre stata fatta la scelta più conservativa (da parte del legislatore). Ma bisogna dare atto che le persone all'interno delle istituzioni attive in materia ambientale (es. Ispra) sono molto coscienti di quali sono i temi di ricerca nazionale e collaborano con l'università, partecipano a convegni scientifici ed è possibile dialogare con loro. Forse a livello politico, dal punto di vista ambientale, non si valutano bene i costi relativi alle attività di bonifica e le conseguenze; in altri paesi si è più pragmatici nel definire le politiche ambientali.

Quindi non è un problema di mancanza di conoscenza scientifica, ma più un difetto di analisi socio-economica (e forse anche in materia urbanistica), specie per il terzo tema.

Il grande difetto della politica ambientale è che è una politica nazionale ma è anche un grande tema a favore della sua omogeneità a livello nazionale.

Formulazione di domande di ricerca scientifica: personalmente con la Golder in Canada sì, ma in Italia no. Stiamo facendo sei progetti che per noi sono di ricerca (sviluppo di macchine ecc.) ma è stato tutto interno. Il progetto è stato fatto con i fondi ricavati dalla detrazione delle imposte e con un'industria petrolifera. Il progetto è andato bene e ne siamo stati soddisfatti perché abbiamo sviluppato oggettivamente un sistema di bonifica e in quel caso era stato tutto molto semplice, ma c'erano pochi interlocutori.

Cerchiamo di essere molto attivi a convegni e a presentare i risultati dei nostri lavori, ma forse è più divulgazione che ricerca.

Secondo noi è importante per società di consulenza come la nostra utilizzare la ricerca scientifica per avere degli elementi di attrattività maggiore: c'è sicuramente una parte di marketing scientifico, una parte di sostanza; come minimo essere alla pari della fascia alta a livello di macchine installate e utilizzate e poi avere sempre le migliori soluzioni. In un ambito di estrema competizione sul mercato riteniamo che sia un importante differenziatore la ricerca. Anche a livello internazionale possiamo fare di più e meglio.



FINANZIAMENTI

Finanziamenti

Non ne usiamo, i programmi che abbiamo in corso sono solo interni. Ci stiamo guardando intorno per fare di più. Ad es. Horizon 2020 sul tema delle coste è per noi di grande interesse, ma non ci stiamo ancora muovendo in maniera approfondita. Nessuno dei professori universitari con cui ho parlato comunque sembra in grado di costituirsi come capofila dei progetti e aspetta di essere chiamato da altri. Noi come organizzazione non abbiamo né la forza né l'interesse da fare da soggetto capofila, né le risorse. I progetti poi chiedono grandi investimenti e molti dei nostri progetti sono piccoli (in termini di impegno economico) e non sono relativi a strumenti di produzione, ma semplicemente macchine (ad uso interno) di impatto limitato ovvero software/pc.

Effetto moltiplicatore: L'integrazione tra gli elementi della salute in ambiente di lavoro e in ambiente classico potrebbe portare a ridurre, potrebbe portare a ridurre le richieste in ambito ambientale e a favorire il riuso delle aree dismesse, perché mi costerebbe meno la bonifica, con obiettivi più ragionevoli. Ma per farlo ho bisogno di quel dialogo tra la parte medica e anche quei dati che lo dicano in maniera chiara. [Con riferimento agli effetti sociali ...](#)

Bisognerebbe capire se esistano strumenti per capire e valutare gli effetti sociali positivi, io non so se esitano, ma sarebbe interessante averli-conoscerli.

Ci fossero canali di formazione per imparare come accedere ai finanziamenti alla ricerca, sia dal punto funzionale che pratico sarebbe molto utile. Io finora non ne ho visti, ma li utilizzeremmo di certo. ([questo aspetto era lamentato anche da Biasioli](#))

Contatti: penso a qualcuno dell'Eni e in SINDIAL (società di Eni per bonifiche) potrebbe essere Luciano Zaninetta (da preavvisare, fa ricerca in materia di sviluppo ambientale) e anche in Versalis potrei avere un contatto.

NKS 11

La regione credo fornisca finanziamenti per la ricerca tramite la direzione Ricerca e Innovazione. Noi abbiamo portato avanti due progetti di ricerca, ma abbiamo fatto una gara atta ad individuare i ricercatori (su finanziamento da fondi europei)

Sfide sociali:

tutte le sfide elencate trovano riscontro nell'attività dei nostri uffici: paesaggio (anche se non viene citato) e territorio sono una conseguenza ...

[\[suggeriamo di aggiungere una sfida relativa alla salvaguardia del paesaggio\]](#)

Il paesaggio poi è una componente della VAS.

TEMI PER SRA

Domande di ricerca da inserire nell'SRA:

Sul tema del paesaggio è tutto molto difficile, anche il tema degli indicatori del paesaggio non è ben definito. [\[possiamo considerare quello degli indicatori un tema di ricerca?\]](#) Sì.

Il tema del consumo di suolo e anche delle aree compromesse e degradate e quindi la salvaguardia di quello che è ancora integro; in effetti è una tematica di paesaggio anche questa, quindi la riqualificazione di aree dismesse/degradate a fronte della salvaguardia del territorio. Il tema di ricerca della possibilità di recupero delle aree degradate dismesse e il loro riutilizzo/riqualificazione urbana. A Torino l'esperienza non ci manca sul recupero di aree produttive dismesse.

Si tratta di un tema su cui si sta lavorando per quanto riguarda le aree urbane da riqualificare; c'è poco al momento su questo tema della riqualificazione, con anche all'estero delle eccellenze e degli



esempi di recupero positivi (ma anche in Italia); è un tema quindi su cui si sta lavorando e che certo ci riguarda come ente (Regione) e sicuramente può interessare i comuni. La responsabilità è dei comuni sicuramente nel momento in cui mettono mano sulle scelte urbanistiche comunali supportate dagli enti territoriali sovraordinati, facendo riferimento alla nuova modalità di approvazione PRG ex L56/77 rivista.

Il risultato atteso potrebbero essere delle Linee guida-indirizzi per i comuni da adottare per l'adeguamento dei PRG, per la costruzione dei piani. Attraverso uno strumento operativo di indirizzo, come quello appena suggerito, la ricerca svolta troverebbe la sua efficacia.

Noi come Regione dovremmo occuparci poco di gestione e più di programmazione e di indirizzo, quindi mi viene in mente quello: questa ricerca dovrebbe essere finalizzata ad ottenere come risultato degli indirizzi, delle linee guida, uno strumento operativo finale che possa essere utilizzato da enti intermedi locali per attuare nuove politiche sul territorio.

Il tema del consumo di suolo direi che è **prioritario** e quindi le linee guida per recupero e riqualificazione e i temi connessi delle bonifiche ecc. sono prioritari: prima riusciamo a muoverci sul tema della riqualificazione delle aree degradate, meglio è per evitare il consumo di nuove aree.

I finanziatori potrebbero essere l'Europa (Horizon 2020) e anche la Regione stessa, ma dispone di pochi fondi per la ricerca.

Sul tema del consumo del suolo c'è un lavoro di ricerca svolto in regione, ma vi suggerisco di parlarne con Paludi o Baschenis, che ha seguito il progetto.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Science-policy

In un piano paesaggistico la parte di conoscenza è alla base e sono necessarie conoscenze scientifiche per la sua costruzione.

Fonti di informazione: tutte quelle citate.

Le regioni influenzano le politiche sicuramente, ma anche la ricerca. Tenendo conto che io lavoro in un settore molto contenuto (consumo di suolo e monitoraggio del consumo) rispetto all'ampiezza delle competenze della Regione.

Le ricadute sul territorio delle nostre azioni sono dirette, si pensi alle prescrizioni del piano paesaggistico realizzate con la Soprintendenza.

Non siete mai stati coinvolti nella formulazione di domande di ricerca scientifica? Non mi viene in mente nulla rispetto a questo.

Avete sviluppato attività di ricerca scientifica all'interno della Regione, al di là degli affidamenti esterni, da soli o in collaborazione con altri progetti? Mi viene in mente ad esempio il consumo di suolo, come attività sviluppata con il CSI, ma vi rimanderei a Baschenis o Paludi. Questa è stata un'attività di ricerca sviluppata internamente.

Oppure il tema energia; c'è un tavolo che sta lavorando sulle tematiche energetiche e non o ci sono consulenti esterni.



FINANZIAMENTI

Risorse finanziarie

Si spera in finanziamenti europei. Abbiamo dato adesione a vari progetti per avviare attività di ricerca che altrimenti non potremmo portare avanti.

A livello nazionale-regionale come direzione ma soprattutto come competenze (quindi territorio e paesaggio) i finanziamenti sono molto limitati. Probabilmente gli aspetti di ricerca scientifica in campo ambientale hanno dei finanziamenti nazionali, sicuramente, però non li conosco.

Data la ricerca [il riferimento è alla domanda di ricerca suggerita in precedenza sul tema del consumo di suolo- costruzione di linee guida] , che è finalizzata ad una sensibilizzazione, formazione degli enti locali per il recupero delle superfici dismesse degradate, la riqualificazione e la salvaguardia del territorio ancora integro (ai margini del territorio urbano), evitando nuove urbanizzazioni, secondo me è ormai fondamentale e quindi l'effetto moltiplicatore è immediato. Pensiamo alle linee guida, incontri, partecipazione, finalizzati a sensibilizzare alla salvaguardia del territorio.

Abbiamo difficoltà enormi sui finanziamenti per cui facciamo tutto "in casa".

Ci dovrebbe essere una maggior connessione tra enti locali e enti di ricerca. Questi settori chiusi e isolati dovrebbero integrarsi maggiormente; collaborazione reciproca e condivisione tra settore diversi interni agli enti ma anche tra i vari enti (regioni e comuni), ma anche con stakeholders diversi quali consorzi, produttori ecc.

La realizzazione di linee guida per noi sono state fatte dal mondo della ricerca, per cui è stata estremamente positiva la relazione con il mondo della ricerca.

NKS 12

La Regione non fornisce finanziamenti per la ricerca, non più, per la mancanza di risorse. Noi stessi cerchiamo di partecipare/partecipiamo a programmi europei, ad es. Alpine Space, per avere la possibilità di assegnare dei temi di ricerca di interesse regionale ad esterni attraverso dei fondi europei.

Nel nostro caso la Regione ha delle risorse per sostenere la ricerca in altri campi/settori. Nel nostro caso specifico abbiamo sviluppato alcuni temi di ricerca in attuazione dei nostri strumenti di pianificazione regionale, PTR ecc. e su tematiche specifiche. Ad esempio questo progetto su spazio alpino che stiamo chiudendo aveva tra le varie tematiche il tema dell'analisi dei servizi ecosistemici, valutazione dei servizi ecosistemici e processi di pianificazione ambientale del territorio, strumentazione di pianificazione in base alla nuova legge regionale. Rappresenta un'occasione per sperimentare delle ricerche su tematiche che fanno parte delle politiche regionali di governo del territorio che spesso sono enunciate in strumenti normativi o di pianificazione che però richiedono una maggiore specificazione ad es. sui temi ecosistemici di cui si è detto o sui temi della perequazione territoriale o temi ambientali ecc. che vanno in qualche modo declinati/codificati attraverso regole e buone pratiche per l'attuazione della normativa.

Il nostro ambito di ricerca è molto orientato sulle nostre competenze istituzionali e negli ultimi anni il canale per poter finanziare questo tipo di ricerca passa sicuramente attraverso i programmi di cooperazione transnazionali europei (Spazio Alpino <http://www.alpine-space.eu> , Med <http://www.programmemed.eu/> ecc).

Sfide sociali

Questi temi non sono direttamente connessi con la pianificazione del territorio ma certamente hanno implicazioni significative; alcune azioni di governo del territorio in qualche modo tendono a



perseguire alcuni di questi obiettivi, che sembrano avere una specificità che esula dai temi più propri della pianificazione.

Si potrebbe aggiungere qualcosa sulla tutela delle risorse primarie, perché qui si parla di garantire l'approvvigionamento, ma non la tutela, l'uso ... con risorse primarie intendo anche le risorse naturali. Forse andrebbe messo più in connessione il rapporto con la tutela delle aree agricole, la funzione ecosistemica delle aree agricole e delle aree naturali, sia in termini di relazione funzionale sia in termini strettamente ambientali, ma anche sulle questioni relative ai servizi ecosistemici quindi come le risorse ambientali in senso lato generale svolgono anche una funzione ... la tutela va ripensata in termini ecosistemici, finalizzata anche alla costruzione di un ambiente sano.

TEMI PER SRA

Domande di ricerca per SRA

Riprenderei la tematica della valutazione dei servizi ecosistemici perché secondo me c'è molto da fare su questo tema; o più in generale il tema delle funzioni ecosistemiche che hanno gli ambiti non urbanizzati (non solo le aree agricole, ma anche i paesaggi e le aree ambientalmente rilevanti ecc.).

Tutto questo ambito ritengo necessiti di risorse e attenzione per cercare di ampliare la ricerca su questi temi, trasformandola in azioni di governo.

Obiettivo finale della ricerca sarebbe quello di individuare un modello, quanto più oggettivo e comprensibile possibile, per chi opera nel campo della pianificazione per farne uno strumento che in qualche modo regoli le trasformazioni territoriali. Attualmente il sistema della pianificazione regionale piemontese è fatto da un insieme di norme più o meno codificate da leggi regionali che guidano il pianificatore locale e gli enti nella fase di valutazione e gestione degli strumenti. Sicuramente l'approccio VAS ha aggiunto molto, ma rispetto ad alcuni spetti mancano degli strumenti condivisi oggettivi di valutazione. Sono già ampiamente codificati i principi della tutela (aree boscate, vincoli ministeriali, ex lege 431, aree agricole in base alla classe d'uso ecc.); c'è un universo di tutele di carattere settoriale che già esplicitano i loro effetti nel campo della pianificazione però è difficile operare una selezione rispetto ad un concetto generalista di tutela; nel senso che all'interno di un'area che in qualche modo va tutelata andrebbero definiti degli strumenti per affinare lo strumento della valutazione e anche della trasformazione e della valorizzazione. Si è già fatto molto rispetto al concetto di aree agricole invariate e si sono aggiunte differenziazioni morfologiche e funzionali. Il valore di tutte queste caratteristiche territoriali andrebbe sviluppata in termini di valutazione (delle funzioni, del valore – non economico puro).

C'è molta accademia su questo e molto interesse da parte della Commissione (ad es. se guardiamo i pilastri delle strategie macroregionali alpine o le priorità del programma di cooperazione spazio alpino il tema delle reti ecologiche ecc. è un tema su cui c'è la volontà di investire in ricerca, perché credo ci sia una consapevolezza di dover approfondire queste tematiche e codificarle perché divengano strumenti operativi.

Si tratta di elementi compresi comunque nella VAS, con l'obiettivo di contrastare alcune scelte territoriali più o meno sostenibili dal punto di vista ambientale con delle argomentazioni certe, aiutando sia gli amministratori che gli operatori del territorio (ad es. gli agricoltori) a capire il valore del territorio non solo come "bellezza panoramica" ma anche in termini ambientali; questo aiuterebbe in forma preventiva a non fare determinate scelte sciagurate dal punto di vista della tutela ambientale.

Il tema della sostenibilità oramai non va più spiegato e le nuove generazioni ne sono consapevoli però non esistono ancora strumenti efficaci per valutare questa sostenibilità; se fosse possibile averne una codifica riconosciuta anche a livello Comunitario secondo me la fase di valutazione ambientale ne avrebbe vantaggio.



Bisognerebbe sensibilizzare gli amministratori su questi temi, ma lo puoi fare solo con degli argomenti convincenti (oggettivi) e gli strumenti per far comprendere i meccanismi e i valori del territorio, con la consapevolezza che certe azioni vanno governate alla scala locale; il tema ambientale

Per chi è pensato questo tema di ricerca? Più per gli amministratori ... per dargli la capacità di dire no quando necessario tramite elementi oggettivi, valutabili e non politici.

La responsabilità sarebbe dell'ente regionale, per fare più programmazione e sviluppare più temi di ricerca piuttosto che gestione; la Regione dovrebbe avere la capacità di individuare le tematiche, finanziarne la ricerca e di definire gli strumenti, divulgarli e fare formazione in merito per chi opera sul territorio.

Si tratta di un tema di interesse che credo sia condiviso. Noi abbiamo degli scambi con altre regioni a livello nazione e l'impressione, anche sentendo dibattiti nazionali, è che questa esigenza di ricerca sia forte. Un tema assolutamente prioritario direi.

La prospettiva all'orizzonte, nel migliore dei modi possibili, sarebbe quello di proseguire il discorso iniziato attraverso l'enunciazione di principi con la ricerca (attraverso programmi europei) anche all'interno dell'ente costruendo un sistema informatico regionale; è un progetto sul quale stiamo già lavorando ma con fatica perché mancano le risorse. Questa codifica di cui abbiamo parlato, gli strumenti di informazione territoriale, le valutazioni dovrebbero essere ricondotti in qualche modo a strati informativi, servizi che la Regione dà agli utenti esterni (amministrazioni locali, progettisti ecc.), questo sarebbe l'obiettivo finale: modelli metodologici e strati di conoscenza e valutazione che possano essere trasformati e sovrapposti come strumenti di interpretazione dei vari livelli informativi territoriali.

Il finanziamento dovrebbe essere da fondi nazionali, per mettere in campo delle politiche territoriali nazionali da una parte, ma anche attivare un sistema di finanziamenti per mettere insieme ricerche e strumenti su questi temi. Ad esempio sul consumo di suolo qualcosa si è già fatto. Lo scorso anno ad esempio è stato presentato il Rapporto dell'Ispra sul consumo di suolo in Italia, lavoro che noi parallelamente stiamo facendo a livello di Regione (l'aggiornamento verrà pubblicato nel 2015); e qui ad esempio ci sono degli indicatori del consumo di suolo che non riusciamo ad utilizzare perché richiedono dei fondi che al momento non abbiamo.

A livello nazionale c'è un documento del Ministero dell'Ambiente sui servizi ecosistemici ed ecologici, c'è qualcosa, ma c'è molta accademia soprattutto. E' un tema difficile da affrontare.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Interfaccia politiche e ricerca scientifica

Si utilizzo informazioni di ricerca scientifica, le più recenti sono quelle legate alla ricerca sull'attuazione del Piano paesaggistico regionale (esito di una ricerca accademica) e poi il lavoro appena chiuso sui servizi ecosistemici che diverrà di fatto un manuale ad uso interno (documento metodologico: linee guida, redatte da soggetti incaricati tramite gara). Il riferimento è al progetto Rurbance [vedi file forniti], che riguardava l'armonizzazione delle politiche territoriali nelle aree periurbane in termini generali, noi l'abbiamo declinato in termini territoriali e pianificatori.

La ricerca sul consumo di suolo citata invece fa parte di una campagna di monitoraggio che è stata sviluppata tra il 2006-2008 attraverso un tavolo inter-direzionale (in Regione) che ha portato a condividere un glossario comune, degli indicatori e una metodologia.



La Regione secondo me deve influenzare le politiche.

La Regione gioca anche un altro ruolo rispetto al programma Espon per esempio, per il quale è stato attivato il processo di individuazione delle tematiche di ricerca per la prossima programmazione (era 2014-2020). Sono state proposte dall'autorità di gestione del programma varie tematiche ma le Regioni, attraverso il Comitato nazionale, hanno avuto la possibilità di esprimere il gradimento su questi temi rispetto alle proprie priorità regionali. Le Regioni quindi hanno anche questa possibilità di influenza, condizionando quelli che saranno i prossimi bandi di ricerca.

Le politiche nazionali tengono conto dell'attività di ricerca e delle istanze da parte del mondo professionale (inclusi enti territoriali)?

Di solito avviene un processo inverso. Rispetto a tematiche considerate strategiche a livello nazionale si chiede alle regioni di tradurre a livello locale gli indirizzi nazionali, secondo un processo calato dall'alto, individuando azioni in coerenza con i temi già scelti a scala nazionale. Poi c'è una fase di consultazione prima che parta il programma nazionale dove le regioni in realtà hanno modo di poter segnalare esigenze/priorità di ricerca/finanziamenti, però la mia sensazione è che tutto sia fortemente centralizzato e che sia difficile proporre dal livello regionale dei temi di ricerca, se non attraverso occasioni quali il tavolo nazionale di Espon o altro. Non so la situazione rispetto ad altri settori di competenza diversi dalla pianificazione territoriale.

Le Regioni sono poi coinvolte in tavoli nazionali di varia natura, però spesso si tratta di una consultazione a giochi fatti. C'è una scarsa autonomia della regione rispetto a queste tematiche e la Regione subisce un po' le scelte nazionali e secondo me si dovrebbe creare una maggiore autonomia regionale perché le politiche nazionali alle volte sono troppo generaliste e non hanno la capacità di produrre risultati efficaci sul territorio. Esistono tante Italie e quindi le scelte di ricerca andrebbero maggiormente commisurate alle esigenze dei singoli territori, con il rischio altrimenti di una perdita di efficacia degli interventi. Credo che le Regioni quindi debbano ritagliarsi una propria autonomia per trovare dei temi che siano più calati sulla propria realtà economico-sociale e geografica; e tra regioni trovare delle sinergie e intese di ricerca specifica. Noi abbiamo cercato di fare questo discorso con un coordinamento interregionale "del nord Italia" (senza connotazione politica), nato dagli assessori di allora ma sviluppato dai tecnici; il progetto era nato dalla condivisione degli strumenti di conoscenza delle singole regioni e dall'individuazione di temi comuni e proposte di ricerca condivise. In questo caso, perché erano partite dal basso le questioni erano molto calate sulla realtà territoriale. Quella fu un'ottima esperienza. (lavoro chiuso nel 2012 con un Documento di intenti; attività promossa intorno al 2009 da Conti).

Quello che ci ha un po' limitato nelle ricerche a cui abbiamo partecipato è stato l'orizzonte temporale definito e limitato, cosa che in presenza di fondi di finanziamento diversi e maggiori si potrebbero sviluppare aspetti teorici e poi operativi con tempi più lunghi di programmazione; anche le nostre competenze sono limitate (vincolate) dalla gestione ordinaria senza avere la possibilità di sviluppare attività di ricerca internamente (siamo obbligati ad affidare gli incarichi ad esterni) ovvero di seguire adeguatamente i programmi avviati.

FINANZIAMENTI

I benefici secondo me sono a medio e lungo termine, per esempio la via progettuale proposta sull'informatizzazione è un processo di lungo termine alla fine del quale tuttavia si potrebbero verificare ampi benefici da parte degli utenti (progettisti, istituti di ricerca, enti ecc.). In questo senso gli effetti moltiplicatori sarebbero quindi rilevanti.



Vedo anche che si tende a concentrare l'attenzione su azioni brevi e ad effetto, in senso generale, secondo una scelta politica-ideologica: dare un finanziamento a qualcuno subito finisci in prima pagina e fai bella figura, cosa diversa invece è fare un investimento rispetto al quale i risultati non saranno evidenti durante la durata dello stesso mandato politico, ma forse molto più tardi. In questo momento storico questi "fast" finanziamenti dovrebbero essere più "slow".

Finanziamenti integrati PP: quando intervengono soggetti privati (lo dico per conoscenza "sentito dire" e non per esperienza diretta) ha spesso dato esiti positivi rispetto a quelli solo pubblici. Forse davvero la cosa migliore da fare è quella di cercare un tipo di partenariato PP con tutti i se e i ma, perché alcuni dicono che se l'interesse è pubblico non dovrebbe intervenire il privato, perché altrimenti porta a delle implicazioni che non sempre sono "moralmente" accettabili anche se fatte in massima legittimità e legalità, ma si tratta di formule difficili. Credo che comunque questa sia la strada.

Penso che sia anche interesse delle amministrazioni pubbliche indirizzare la ricerca e non subirla: a volte l'azione pubblica invece subisce un po' la ricerca, forse perché c'è un interesse da parte del privato a spostare le risorse su alcuni settori specifici magari meno utili dal punto di vista del bene comune. Il rischio quindi è di nuovo quello di subire l'interesse del privato. Tuttavia la PA non credo sia ancora pronta ad operare in PP.

NKS 13

Ruolo:

Mauro Perino, dott. Forestale, vicepresidente Seacoop

Giorgio Quaglio, dott. agronomo, Direttore tecnico Seacoop, membro CdA

PME

Settore di competenza: suolo, acqua, pianificazione urbanistica, progettazione del paesaggio, gestione del territorio

L'ente fornisce finanziamenti per la ricerca?

Di norma no, cerca di averne. Ma negli ultimi due anni abbiamo co-finanziato una piccola borsa di ricerca sul tema pianificazione e gestione delle superfici boscate.

Sfide sociali

Non aggiungerei altri temi, cercherei di dargli maggiore concretezza.

Negli ultimi anni in particolare noi siamo coinvolti su progetti intorno al tema delle emissioni di gas climalteranti e su come la vegetazione, sia in ambiente urbano che extraurbano, può contribuirvi. Si cerca di promuovere la ricerca applicata.

I temi proposti, tra l'altro, sono molto interconnessi tra loro, per cui non aggiungerei altri temi; forse l'idea della pianificazione per dare concretezza, perché la ricerca spesso manca di risvolti attuativi

La pianificazione, aggiungerei, sia per limitare il consumo di materie prime, sia per migliorare l'utilizzazione di materie prime. Noi facciamo anche pianificazione forestale, nell'ottica di un utilizzo razionale delle materie prime. Ci occupiamo sia di pianificazione in senso lato, sia nello specifico di quella forestale e questa in Piemonte soprattutto è poco sviluppata.



TEMI PER SRA

Temi per l'agenda

Come sfida sociale, credo che la riduzione dell'emissione di gas serra sia uno dei temi prevalenti, in quanto responsabile dei cambiamenti climatici; poi come questo tema si possa sviluppare in azioni di ricerca puntuali è cosa più complessa.

Adesso quello che ci interessa molto molto è come tradurre questa problematica nel rapporto tra urbano ed extraurbano.

Ragionando sulle specificità è il tema delle cosiddette strutture verde (spazi non impermeabilizzati con una copertura verde di qualsiasi tipo, agricola o boschiva o a prato ecc.). Torino da questo punto di vista è un esempio particolare perché di fatto abbiamo tutta la fascia collinare che non è gestita e quindi tutte le potenzialità di controllo delle emissioni non vengono valorizzate. C'è tutto il tema poi della vegetazione ornamentale urbana (alberate, parchi, collina ecc.), quindi come valorizzare le formazioni arboree urbane, che dal punto di vista sistemico e di assorbimento delle emissioni è interessante. C'è poi il tema delle superfici incolte, che dal punto di vista degli ecosistemi svolgono una funzione significativa.

Lavorando su questo, di fatto, implicitamente si ragiona sulla biodiversità, sul rapporto tra ecosistema urbano ed ecosistemi periurbani, si ragiona implicitamente sulle modalità di realizzazione del sistema delle infrastrutture urbane.

Sono assolutamente indispensabili dei passi avanti in termini di ricerca su questo tema: ad esempio tecnicamente conoscere gli assorbimenti e la capacità di fissare delle diverse tipologie di copertura forestale. Si sa poco sulle potenzialità delle formazioni di origine antropica o di origine semi-naturale in ambito urbano; e anche le possibilità di gestione ottimali per conseguire i risultati della massimizzazione degli assorbimenti.

Soggetti interessati al tema: dovrebbe interessare tutti i soggetti pubblici che a vario titolo si occupano di pianificazione del territorio, a cominciare dai comuni, agli enti città metropolitana a salire. Perché come dicevamo è la pianificazione il momento in cui gli esiti di questa ricerca dovrebbero tradursi in modalità di gestione del territorio. Ma anche i soggetti che si occupano di pianificazione settoriale, perché l'altro problema è il confronto tra i soggetti appartenenti ai vari settori (forestale, territoriale, manutenzione del verde). Altrimenti questo approccio al tema non può procedere perché prevede l'uscita dei confini tradizionali tra i vari soggetti che in forma separata si occupano delle varie tematiche.

Soggetti responsabili (promotori): i medesimi, gli enti pubblici come soggetti che dovrebbero garantire il bene comune. Perché sottintesa è sempre la questione di salute in materia ambientale, quindi anche i soggetti legati al campo sanitario.

Finanziatori: difficile rispondere perché tutti i soggetti interessati che sono stati citati in questo momento hanno difficoltà a garantirsi la sopravvivenza, quindi non riescono ad avere un punto di vista di medio periodo sul tema. Data la situazione i soli soggetti che potrebbero finanziare la ricerca, a livello locale potrebbero essere le fondazioni, oppure l'UE.

Il tema è di interesse globale, non solo nazionale.

Esiti attesi:

Secondo me mancano un po' di dati e ricerche specifiche. Noi avevamo promosso un progetto per individuare i potenziali di assorbimento di carbonio del verde urbano ecc., da estendere sulla città. Mancano dei dati per capire quello che esattamente si può fare. Questo progetto era stato proposto alla Città di Torino, ma poi purtroppo non è andato a buon fine.



Il tutto dipende dal beneficio economico che si può conseguire con il progetto. Non a caso noi avevamo cercato di legare questa proposta all'acquisizione dei crediti di carbonio, per cercare di capire se la spesa sostenuta per l'esecuzione della ricerca poteva essere compensata dall'acquisizione dei crediti di carbonio (mercato del carbonio). Il progetto stava in piedi dal punto di vista economico. Se non c'è questo tipo di ritorno diventa difficile sostenere la ricerca.

Il risvolto economico è sicuramente una leva che può spingere gli enti ad investire su questo argomento; certo non è solo questo, ma ha un forte rilievo.

Quello che potrebbe essere interessante, traducendosi in normativa, è una premialità nel caso si riesca a conseguire un qualche risultato (sull'emissione degli assorbimenti ad es.), ma non può che essere sito-specifica, date le rilevanti differenze ambientali tra i vari territori.

Grado di priorità: elevato.

Ci occupiamo anche di monitoraggio ambientale sulle varie componenti biotiche e sulle acque. Dal nostro micro-osservatorio vediamo che ci sono dei processi di degenerazione di queste componenti che sembrano correlarsi a fenomeni di alterazione dei processi climatici. Quindi l'urgenza e l'importanza sono elevate, specie considerati i tempi lunghi strutturali di efficacia di simili azioni.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Politiche e ricerca

Noi usiamo continuamente i risultati prodotti dalla ricerca scientifica; tutto ciò che facciamo in modo diretto o indiretto ha a che fare con la ricerca. Ad es. sulla qualità biologica delle acque sono cambiate proprio le procedure.

La mia sensazione è che il mondo della ricerca sia abbastanza autoreferenziale e che risponda a delle logiche interne molto spesso. Ciò non toglie che abbiamo anche delle relazioni molto positive (es. comparto geologico, facoltà di scienze agrarie ecc.).

Non è sempre facile far sì che la domanda di ricerca che si concretizza nel mondo reale, economico ecc. poi riesca a sfondare le barriere.

Possono esserci localmente degli esiti positivi derivati dall'attività professionale che applica gli esiti della ricerca.

La ricerca influenza le politiche di interesse per la vostra professione: assolutamente sì.

Le politiche riflettono i bisogni derivate dalla vostra attività professionale: non vediamo grosse interazioni, se non per il tramite della ricerca.

Per alcune attività vengono coinvolti gli ordini professionali, ma le società professionali non sono coinvolte nelle politiche. Effettivamente gli enti istituzionali riconoscono ancora gli ordini professionali.

Siete mai stati coinvolti nella formulazione di domande di ricerca o nello sviluppo di ricerche scientifiche?

Siamo stati coinvolti molto frequentemente nella costruzione di bandi di ricerca applicata. Ad esempio nel Programma di Sviluppo Rurale, con soggetti di vario tipo, non solo istituzionali.

In caso di successo (ottenimento dei finanziamenti) abbiamo poi anche contribuito allo svolgimento delle ricerche.



Dovrebbe essere enormemente migliorato, in questi casi specifici dei PSR, la gestione burocratica che prevale sui contenuti: rendicontazione, firme ecc.

Alla fine sembra che quello che interessi sia che tu abbia seguito la procedura corretta ma non tanto il risultato che hai ottenuto.

FINANZIAMENTI

Effetto moltiplicatore:

Come externalità vediamo come molto importante il ruolo degli agricoltori, perché potrebbero essere soggetti che hanno a che fare quotidianamente con la gestione di suolo, e poi i proprietari e gestori delle superfici boscate, quali utilizzatori reali del territorio. Questi potrebbero essere indirettamente i beneficiari perché secondo noi è arrivato il momento in cui si riconoscano anche con risvolti economici quelli che sono i servizi ecosistemici.

E quindi la ricaduta positiva per gli operatori di quel settore potrebbe essere un potenziale ed interessante elemento di integrazione di reddito, che potrebbe essere anche riequilibrato da contrazioni di spese di altro tipo meno urgenti.

In termini di benefici connessi al tema di ricerca, si tratta in sostanza della sopravvivenza della specie nel lungo periodo.

Schemi di finanziamento:

ho trovato interessante la procedura di cofinanziamento che abbiamo attivato con il Progetto Lagrange perché risponde ad una esigenza esplicita, per cui abbiamo ritenuto opportuno attivarci coinvolgendo anche altri attori coinvolti direttamente sul territorio (enti locali, proprietari dei terreni ecc.), con dinamiche di interazione positive.

Le Fondazioni bancarie poi sono molto attive, mettendo in piedi azioni interessanti, sempre nell'ambito della ricerca applicata. Noi lavoriamo molto nel cuneese dove la fondazione locale si dà molto da fare, anche Cariplo.

Abbiamo l'impressione che ci sia una generazione di gestori che hanno una maggiore sensibilità rispetto alle tematiche ambientali e lo vediamo anche dai bandi.

NKS 14

Settore di competenza:

- altro: trasferimento "science-to-policy", poi ho una storia e una competenza storica più specifica tecnica sui sedimenti, suoli contaminati, dragaggi ecc.
- sedimenti, suolo, acqua (come sistema)
- territorio: gestione integrata della fascia costiera e pianificazione dello spazio marittimo (ove si mescolano matrici e usi, sistema delle pressioni degli usi)

L'ente fornisce finanziamenti per la ricerca?

Si li cerca, ma fa anche bandi, quindi finanzia anche la ricerca (borse di studio) o gestisce risorse che arrivano dal Miur per il tramite del CNR

Sfide sociali

Sono sufficientemente ampie, poi la loro declinazione in specifici contesti va a precisare i contenuti: quando si parla di risorse o di cambiamenti climatici si includono molti altri temi.



Una definizione abusata ma non per questo meno significativa, come quella dello sviluppo sostenibile, mi sembra che tutto sommato manchi in questa lista. Non si parla mai di sviluppo in maniera compiuta. Noi marinai diciamo “blue growth”, la crescita blu: è la logica della sostenibilità associata al rispetto degli ecosistemi.

TEMI PER SRA

Temi per l'agenda

1. Il tema di definire cosa significhino gli approcci sistemici. Parliamo di suolo, acqua, sedimenti: le tre matrici vanno viste insieme, dal punto vista dell'approccio spaziale – orizzontale (bacino, distretto ecc.), nella loro scala verticale (acque superficiali, interfaccia, sistema sotterraneo e nella loro dinamica temporale. Questo dal punto di vista della ricerca vuol dire clima, cicli bio-geochimici, aspetti quantitativi, flussi, trasporti, eventi estremi, uso e sicurezza dell'uso, rischio e gestione del rischio ecc. In sintesi significa la necessità di avere un approccio olistico al sistema (inteso come approccio concettuale di analisi) poi da declinare in una serie di aspetti più di dettaglio.

Alimentare con attività di ricerca l'approccio sistemico all'analisi ambientale e al sistema SWS. Questo significa sostenere l'implementazione della direttiva Acque e altri documenti strategici integrati.

Senza questa visione integrata si rischia di fare delle azioni parziali e inefficaci.

Soggetti interessati al tema/i:

(per tutti i temi citati)

Interessi di tipo pianificatorio di livello altro che sono ministeriali e nazionali e derivano dagli obblighi di implementazione degli strumenti comunitari ovviamente.

Gli enti di governo del territorio, a partire dai livelli centrali, che fanno le norme, arrivando ai gestori operativi del territorio (enti regionali, autorità di bacino). Scendendo di livello entriamo nell'attuativo, a partire dal livello regionale, che ha un ruolo estremamente importante nell'attuazione degli interessi.

Ci sono delle amministrazioni particolari, ad. es. i porti che hanno bisogno di questo tipo di conoscenza per fare gli interventi in modo più rapido e meno costoso massimizzando i benefici.

C'è poi tutto il mondo del privato. Parliamo di acque, c'è un mondo molto ampio interessato: dagli operatori turistici sulle coste, agli operatori provati della portualità e logistica, tutto il mondo della pesca e dell'acquacoltura. Il tema della depurazione poi coinvolge altri soggetti ancora.

Sono temi che hanno una dimensione europea, quindi direzioni generali europee (DG mare, clima ecc.). Poi a livello nazionale, questi indirizzi strategici devono essere seguiti (non dico promossi). Dal punto di vista della ricerca parliamo del Miur; se parliamo della promozione della ricerca parliamo dei ministeri cui accennavo prima (ambiente, agricoltura, sviluppo economico, infrastrutture e trasporti ecc.).

Il tema (1) è di interesse per il suo ente? Non proprio. Questo tipo di visioni impiegano tempo ad affermarsi e per i decisori restano aspetti un po' ostici, difficili da seguire nelle pratiche. Sono discorsi più facili da affrontare a Bruxelles che a Roma.

(esiti attesi tema 1) L'ottimo è di riuscire a precisare questo concetto generale che vuol dire tante cose e renderlo realmente attuabile attraverso policies e strumenti legislativi che lo rendano prassi.



La ricerca da qualche anno è chiamata a contribuire a questo tipo di discorso e lo vediamo chiaramente dai bandi.

(tema 1) Livello di priorità e ...se non si facesse nulla in merito cosa accadrebbe?:

Il livello di priorità è molto alto perché da questo tipo di approccio discende la capacità di comprendere i fenomeni nella loro interezza e di gestirli; ma comunque richiede la capacità di vedere il “sistema”.

Se non si facesse nulla il rischio è l’inefficienza e lo spreco di risorse, però si sopravvive.

2. L’altro tema è quello del rischio ecologico e per la salute umana legato allo stato di contaminazione delle matrici. È un tema molto studiato ma sul quale c’è da lavorare molto per garantire un impatto accettabile sugli ecosistemi legati alla presenza di contaminanti e un rischio accettabile per la salute umana. Parlando di nuovo di sistemi ampi comprendenti suolo-acqua-sedimenti.

Parlando di SRA, uno dei comparti che dovrebbero essere considerati attentamente è il tema degli “emerging chemicals”, i nuovi inquinanti, come uno dei tanti argomenti puntuali riferiti al tema principale del rischio.

Questo significa salvaguardare gli usi delle risorse, del consumo idropotabile, in un’epoca degli eccessi: della siccità e delle bombe d’acqua, quindi il tema del rischio è certo un punto chiave.

(tema 2) Livello di priorità e ...se non si facesse nulla in merito cosa accadrebbe?:

Le priorità sono alte per tutti e tre gli argomenti. In questo caso però se non si valuta correttamente il rischio la conseguenza potrebbe essere quella di compromettere gli ambienti e la salute delle persone.

Riferimento al tema delle “soglie di rischio” a partire dalle altre interviste svolte, per approfondire la questione.

La gestione dei sedimenti è un problema aperto e c’è una normativa non armonizzata e non chiara e un’attuazione sui territori molto incerta e disarmonica. È un problema di soglie ma soprattutto di framework decisionale: come si usa la soglia? È un bianco/nero e una soglia di attenzione. Non è una questione solo di numeri, ci sono altri strumenti che complementano l’uso dei numeri. In Europa non usano solo in numeri, ma anche la tabella per indirizzare i valori (screening value); la cassetta degli attrezzi è molto più complicata. In Italia invece c’è un grosso problema ad adoperare gli strumenti evoluti.

La gestione dei sedimenti dovrebbe essere Risk Based.

Noi abbiamo un sistema di regole frammentato e poco evoluto, che in parte dipende dalla difficoltà del sistema tecnico amministrativo di usare strumenti più evoluti. Altrimenti siamo costretti a prendere decisioni inconsapevoli o non evolute, solo perché non ci fidiamo, non vogliamo rischiare di prendere decisioni apparentemente meno tutelanti ma più evolute e questo significa essere meno sostenibili dal punto di vista socio-economico.

3. Il tema citato sopra tra le sfide è quello dell’adattamento ai cambiamenti climatici in particolare in riferimento alle coste, perché su queste lavoro (secondo quello stesso approccio sistemico a cui mi riferivo). C’è evidentemente la necessità di mitigare e adattarsi il più possibile ai cambiamenti climatici, specie in una logica di contenimento dello sviluppo e di salvaguardia degli usi, di co-evoluzione dei sistemi naturali e dei sistemi antropici. Questo specifico tema generale comporta mille altri temi di ricerca legati al sistema SWS.



Qui c'è tanto bisogno di knowledge e di sedimenti: il tema dell'uso e della gestione dei sedimenti entro un piano di adattamento, come ci mostra l'Olanda, è un tema importante. Sempre comunque secondo un approccio strategico.

Livello di priorità e ...se non si facesse nulla in merito cosa accadrebbe?:

qui se non si fa nulla e si subisce solo presto avremo problemi di gestione dell'emergenza (tra l'altro già li vediamo): allagamenti, erosione delle coste ecc. davvero è necessario fare e presto con una visione sistemica.

Finanziatori: sistemi di finanziamento nazionali ed europei, anche con formule di tipo integrato (es. Med, Life, che prevedono quote di sostegno locale).

I fondi nazionali su questi temi sono sempre più residuali e li limitano spesso a mantenere le infrastrutture di ricerca.

Si cita come esempio il progetto RITMARE mare finanziato al 100% con fondi nazionali che fa ricerca sul mare, orientato sulle stesse priorità di ricerca UE e cercando di fare sinergia tra le istituzioni.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Politiche e ricerca

C'è un cammino in corso per cui gli enti della ricerca e le amministrazioni si parlano di più secondo entrambi i sensi, con la costruzione di rapporti più costanti e di maggior fiducia, con l'apertura da parte del mondo della ricerca.

Io dovrei essere uno di quelli che produce i risultati, poi certo utilizziamo i risultati della ricerca già prodotta ma con grande difficoltà perché questi risultati non sempre sono accessibili; anche i dati non sono facilmente accessibili (open data è più uno slogan che un fatto). Ci sono evidenti barriere che ostacolano la divulgazione e la circolazione dei dati, bisognerebbe migliorare il networking e la comunicazione, specie il trasferimento delle conoscenze acquisite al mondo degli user.

L'ente è in grado di condizionare la ricerca:

Il nostro ente oltre a produrre ricerca, partecipa al dibattito che indirizza le cose che verranno fatte, cioè lavoriamo alla scrittura e composizione di SRA, programmi operativi, ricerche ecc. Sicuramente facciamo un'azione di lobby nell'indirizzare la ricerca.

C'è un'ampia gamma di documenti strategici a cui riferirsi ed è difficile puntare su alcuni. Acque ad es.: JPI WATER ha una SRA, esiste un analogo di JPI OCEANS, un'altra sul Mediterraneo BLUEMED (coordinata dall'Italia); il discorso di implementazione della Direttiva Acque e della Direttiva Marine Strategy. Esiste poi il Programma Nazionale della Ricerca, che indirizza i macro-temi.

Le politiche riflettono i bisogni della ricerca:

In maniera a volte consapevole a volte no; in dipendenza spesso da volontà più o meno illuminate secondo un meccanismo non sistematico.

Da noi si riesce a fare tutto ciò che si deve fare, perché è previsto dalla norma. Se invece si tratta di fare una cosa che anticipa la norma: questa visione un po' più pianificatoria è più difficile da attuare anche per i suoi risvolti sulla ricerca.

FINANZIAMENTI

Risorse finanziarie



Credo che esista un tema di infrastrutture di base. Un paese come il nostro non può non avere una visione sul sistema di infrastrutture che alimentano la ricerca, la sua organizzazione e consolidamento. Esistono gli istituti, devono aver a disposizione spazi e laboratori e risorse umane. Senza questo layer di base, che coinvolge una parte importante delle risorse, non si pongono neppure le premesse. Poi c'è il tema dell'utilizzo delle infrastrutture. Io credo che le cose che facciamo siano ancora troppo poco problem-driven: sempre di più ci vuole un approccio rivolto a dare risposte a domande, che devono essere molto chiare. Io indirizzerei molto di più le risorse, al di là della infrastrutturazione di base, su delle domande chiaramente formulate, e chiaramente inserite in un quadro strategico.

Altra questione è il tema delle partnership PP di tipo strutturale, verso la quale si sta andando su molti ambiti (anche altri oltre all'ambiente, es. core services per osservazioni sullo spazio). Parlo di strutture permanenti PP che sono in grado di fornire dei servizi di base ad alto valore aggiunto, orientate all'applicazione e all'operatività. Questo aiuta a mettere a sistema risorse, necessità e forse anche la finalizzazione della ricerca. E non si tratta semplicemente di partecipare ad una call con una SME nel gruppo, ma di creare dei consorzi stabili.

Questa modalità non l'abbiamo mai usata nella pratica (nel mondo marino, CNR), ma la conosciamo per esperienze altrui.

Di norma utilizziamo fondi FOE (dotazione di funzionamento), ma il grosso della ricerca è finanziato attraverso fondi europei o fondi nazionali indirizzati su specifici temi e poi ci sono le convenzioni o incarichi con altre amministrazioni o soggetti privati (a cui diamo servizi o con cui facciamo attività di ricerca congiunte).

NKS 15

Non finanziamo la ricerca: non è più previsto, né ci sono i fondi per sostenere la ricerca.

Le **sfide sociali** proposte sono molto ampie e di fatto al loro interno già includono i nostri obiettivi di lavoro. Il rischio idrogeologico è compreso.

Il problema è che spesso ci si ferma agli aspetti prettamente tecnici posti dalle azioni sul territorio mentre sono coinvolti anche aspetti sociologici importanti, quali l'adattamento sociale qui citato. Le sfide per noi sono già comprese.

Garantire infrastrutture sicure è importante, ma può essere interpretato in modo restrittivo o generico, includendo il territorio.

Tutto ciò di cui ci occupiamo è riconducibile ai temi dello sviluppo sostenibile. I problemi che emergono sono legati alla mancata attenzione alla sostenibilità (sociale, economica e ambientale) degli interventi. Di solito ci si concentra sull'aspetto di impatto ambientale ma gli altri aspetti forse sono anche più importanti perché significa davvero trasferire sulle generazioni future i costi. Situazioni di dissesto registrati dalle cronache di fatto gravano su infrastrutture presenti da decenni, tuttavia la mancata attenzione alla loro sostenibilità in passato implica il trasferimento di costi sociali ed economici attuali (trasferimento alle generazioni future): si parla di perdite di vite umane e di costi materiali degli interventi di ripristino.

Io non ho mai visto progetti che abbiano una valutazione di "analisi costi benefici"; non c'è mai attenzione alla sostenibilità degli interventi. In mancanza di risorse non posso intervenire in termini preventivi o per l'emergenza di problemi ambientali non acuti, poi accade l'episodio che genera l'emergenza acuta allora ottengo le risorse, anche in eccesso. È la cultura della progettazione che in Italia è carente. Si agisce solo in casi di emergenza grave. Non è che non si sappia semplicemente progettare, se uno tenta di ricostruire le motivazioni di questa cultura riesce a tracciare facilmente le motivazioni di questo atteggiamento.



Il tema della gestione del rischio qui andrebbe messo in evidenza: una gestione non tecnica ma sociale; l'adattamento sociale al rischio.

TEMI PER SRA

I temi di ricerca:

L'autorità di bacino lavora in interfaccia tra il mondo della ricerca e il mondo della gestione. L'obiettivo è di operare per il trasferimento più veloce ed efficace possibile dei risultati della ricerca avanzata alla gestione. Cosa non facile nel nostro settore, perché costituito da tante professionalità e organizzazioni mono-disciplinari. L'altro aspetto altrettanto complicato quindi è il riuscire a mettere insieme le cose in modo trasversale.

- La capacità di costruire modelli che permettano di fare delle previsioni in relazione all'evoluzione dei fenomeni e all'impatto delle azioni che vengono messe in campo. Questo settore è molto carente. Quindi potenziamento dei sistemi di monitoraggio e modellistica da trasferire il più rapidamente possibile agli utilizzatori. E a basso costo.
- Verificare e approfondire le relazioni causa-effetto tra i fenomeni di rischio e gli impatti.

Il modello di pianificazione strategica che ci propone l'Europa da noi è scarsamente considerato. Questo implicherebbe un processo, mentre da noi il modello di pianificazione è statico, ma nel frattempo gli eventi accadono. Un modello strategico prevede un periodo e delle tappe, indirizzando il percorso con delle linee guida. Ci sono poi delle scadenze, formali e di merito. Inoltre la territorializzazione è molto spinta perché si basa su corpi idrici localizzati.

Uno strumento di gestione che permetta di costruire modelli a diverse scale ma anche le istruzioni (le relazioni). Uno strumento sviluppato un po' in tutta Europa ma non in Italia. In Francia ad esempio ci sono delle agenzie tecnico-finanziarie di bacino affiancate da Atelier di ricerca (all'interno dei quali sostanzialmente ci sono tutti gli enti di ricerca pubblici) che lavorano a supporto dell'attività di pianificazione.

Ci sono ancora molti aspetti da sviluppare che sono di ricerca:

- Come si muovono i sedimenti all'interno dei corsi d'acqua?
- Come si valuta la pericolosità fluviale?
- Come il rischio viene percepito dai cittadini? Come mai le persone adottano comportamenti pericolosi in caso di inondazione?
- Sappiamo poco o niente delle acque sotterranee. Ci sono certo centri di ricerca molto qualificati ma non sono mai riusciti a produrre un quadro complessivo.
- L'altro aspetto che manca è il collegamento tra la salute e l'inquinamento, tra la qualità ambientale (l'acqua per esempio) e gli aspetti di salute.
- Uso efficiente delle risorse ha un versante economico che viene poco indagato
- La valutazione dei servizi ecosistemici, di cui si parla molto ma si fa poco, e connesso a questo gli aspetti di percezione.

Noi come AdB abbiamo accordi e convenzioni con gli enti di ricerca, cercando di affrontare le questioni che più ci interessano.

La crescita complessiva di un sistema è l'obiettivo finale della ricerca proposta. L'obiettivo è quello di creare un sistema tecnico particolare perché l'AdB ha una funzione di coordinamento e di guida di altre strutture e di consolidamento di un sistema tecnico. Il problema oggi è che questo sistema



tecnico è fatto di 2 componenti, che corrispondono a generazioni diverse di tecnici della PA: la prima generazione è fatta di tecnici ambientali (che hanno come riferimento il paradigma della complessità) e in genere fanno parte di equipe interdisciplinare; poi abbiamo le strutture di matrice ingegneristica, legate al Ministero dei lavori pubblici, che è abituato a lavorare sulla base di schemi prestabiliti e consolidati dalla normativa e che considerano tutto ciò che viene dall'esterno come disagio e impedimento. Questa bipartizione, quando si affrontano questioni ambientali diventa un problema operativo e causa di conflitti. La questione è quella invece fare riferimento ad un approccio integrato e non verticalizzato. Rispetto a questo la strada è ancora lunga.

La ricerca dovrebbe essere promossa da CNR e altre strutture di ricerca.

Il problema è che in Italia si fanno leggi che poi non vengono sostenute facendo azioni di ricerca ed educazione. Negli ultimi 10 anni invece mi sembra ci sia un declino della ricerca (di fondi), anche a fronte di un sistema che forse non è adeguato. La scelta oggi è di prendere i fondi per la ricerca dall'Europa.

Questa ricerca dovrebbe essere finanziata attraverso il Piano nazionale della ricerca, che dovrebbe nascere da azioni come questa.

Il tema è di interesse a livello nazionale: il miglioramento attraverso l'introduzione di tecnologie e di risorse umane adeguate. Introdurre tecnologie in Europa e poi svilupparle in tutto il mondo secondo la logica della green economy.

La questione della creazione di nuovi posti di lavoro d'altronde è uno dei temi centrali dell'agenda della ricerca europea (Horizon 2020).

La responsabilità è di chi ha le risorse, quindi lo Stato (che spesso ha accordi con il CNR e altri istituti) e le regioni.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Interfaccia politiche-ricerca scientifica.

Si usiamo i risultati della ricerca.

Noi collaboriamo a molti progetti di ricerca. E abbiamo degli incontri periodici con gruppi di ricercatori. Abbiamo anche promosso a Parma la formazione di un centro di ricerca universitario che si riunisce una volta all'anno. In questo ambito i ricercatori presentano i risultati della ricerca e noi le nostre esigenze. Certo questo è limitato al territorio di Parma. Per quanto possibile poi cerchiamo di trasferire i risultati della ricerca all'interno delle nostre attività, specie per i temi sociologici. Oramai c'è una sovrabbondanza di documenti tecnici.

Questo è dovuto all'iniziativa personale, non sono tavoli istituzionalizzati, ma abbiamo comunque degli accordi non l'università e diamo sostegno a molti progetti.

Indirettamente siamo in grado di influenzare la ricerca. Certo ci sarebbe bisogno di relazioni più strutturate, come in Francia.

Non ritengo che le politiche riflettano le nostre priorità professionali. Le politiche italiane in materia ambientale hanno sostanzialmente due priorità: una mettere dei vincoli e ampliare i procedimenti amministrativi; l'altra è di concentrarsi solo sulle questioni strutturali. Ma le questioni ambientali sono soprattutto non strutturali e questa dimensione sfugge alla maggior parte dei politici italiani. Cioè si fanno solo delle grandi opere, oggetti fisici. Ma la ricerca è un campo di intervento non strutturale e produce valori fondamentali. La politica invece complessivamente è inadeguata perché non riconosce il valore di tutto quello che è non strutturale.



Non c'è collegamento tra politiche e mondo scientifico, tra la decisione e gli elementi conoscitivi sulla base dei quali si prendono le decisioni. Nella mia esperienza c'è proprio un'incapacità di organizzare e indirizzare i sistemi verso azioni non strutturali, perché si pensa siano azioni/soldi sprecati. Questo pensiero è centrale nella politica attuale e forse corrisponde ad un atteggiamento antropologico italiano. È il motivo per cui non si investe in ricerca e in personale non qualificato, con evidenti risvolti.

Non si può pensare di risolvere i problemi ambientali solo facendo delle opere. Nella prossima programmazione degli stanziamenti (in materia ambientale) non c'è nulla in previsione che non sia strutturale, mentre gli interventi che emergono dal piano sono tutti di tipo non strutturale.

Si siamo stati coinvolti in molte ricerche scientifiche ma sempre secondo un rapporto tra le persone e non tra le istituzioni. Il rapporto non è sistematico.

FINANZIAMENTI

Come ottimizzare gli investimenti nella ricerca?

Migliorare la conoscenza e la capacità delle organizzazioni. I risultati della ricerca però devono essere subito operativi, perché solo così si possono ottenere strumenti adeguati e porti di lavoro qualificati. Noi conosciamo sostanzialmente i progetti europei e nelle nostre esperienze abbiamo prevalentemente utilizzato fondi europei.

Abbiamo appena chiuso con il Politecnico di Milano e altri partner europei un progetto volto ad indagare il rapporto tra la conoscenza scientifica con il mondo dei decisori. Il progetto si chiama KNOW4DRR: Disaster Risk Reduction Knowledge "Enabling knowledge for disaster risk reduction in integration to climate change adaptation". All'interno di questo progetto abbiamo realizzato un laboratorio vivente. <http://www.know4drd.polimi.it/>

Conosciamo i fondi privati da parte delle Fondazioni. Collaboriamo con la Fondazione Enrico Mattei che si occupa di cambiamenti climatici. <http://www.feem.it/>

Conosciamo questo tipo di fondi ma abbiamo difficoltà a partecipare come ricercatori ai bandi.

NKS 16

L'ente non fornisce finanziamenti per la ricerca poiché per il finanziamento dipende completamente dalla Regione. Facciamo ricerca applicata/applicativa solo all'interno dei progetti della Regione. Non abbiamo un fondo nostro finalizzato solo alla ricerca, non abbiamo fondi propri spendibili. I finanziamenti arrivano dalla politica. Noi normalmente proponiamo filoni di ricerca alla regione stessa, prima ancora di ricevere indirizzi specifici.

Sfide sociali

- Riguardo il consumo di risorse credo vada messo in risalto il consumo di suolo, anche se probabilmente è incluso.
 - Riguardo il punto acqua potabile, aggiungerei la gestione oculata delle acque
 - Cambiamento climatici, che legherei al suolo, in qualità di maggior sink di carbonio, forse più delle foreste e in questo senso andrebbe tutelato.
 - La tutela delle biodiversità (se non implicitamente inclusa in altri punti)
 - Puntare ad uno sviluppo dell'economia più sostenibile in termini di orizzonti molto alti.
- Questo potrebbe funzionare un po' come cappello a tutti questi punti.



TEMI PER SRA

Temi per l'agenda

- Approfondimento degli studi sui bilanci del suolo, in relazione ad una gestione più oculata delle acque e ai problemi di “desertificazione”, nel nostro territorio meglio di siccità.
- Il problema dell'erosione del suolo: un problema molto regionale (sud Europa), ma di particolare rilievo per le nostre colline che derivano dal bacino terziario piemontese quindi con sedimenti particolarmente erodibili per loro matrice litologica, in più l'uso estensivo del vigneto nelle colline contribuisce significativamente al problema.
- Il rischio di ruscellamento dei corpi idrici principali e secondari.
- La riduzione del consumo di suolo: c'è anche una proposta di legge presentata in materia ma la questione è ferma al momento, nonostante 70 ha al giorno di consumo. Riguardo a questo punto noi abbiamo messo a punto già da alcuni anni uno strumento che è la Carta della capacità d'uso dei suoli, che classifica i suoli in base alla loro potenzialità (classe 1 terre di maggiore qualità, salendo con le limitazioni fino alla classe 6). È uno strumento molto utile a livello pianificatorio ma ahimè poco utilizzato. Una delle poche applicazioni fatte è stata quella relativa al fotovoltaico a terra: potevano essere messi impianti a terra solo su terreno di terza classe e non inferiori. Questo problema tra l'altro è rientrato perché sono finiti i finanziamenti e ci si è convertiti ai pannelli sui tetti. In questo modo comunque si sono protetti i territori di qualità più elevata di pianura.

In questo senso andrebbe comunque presa in considerazione la riconversione di tutte le strutture già esistenti, perché si vedono capannoni abbandonati accanto ai quali si ricostruiscono capannoni nuovi. Riuso, ma andando a pensare delle compensazioni (di mq o di forestazione).

- Per quanto riguarda il tema delle acque. Anche qui abbiamo elaborato una carta della capacità produttiva delle acque di superficie e profonde ed è stata utilizzata ma solo parzialmente in relazione ai controlli sui pozzi, ma più in generale è stata disattesa a livello politico. Anche questa carta è stata suddivisa secondo le capacità produttive – dell'acqua.
- Un altro grosso tema di cui ci occupiamo sono tutte le problematiche relative al PSR, di cui noi curiamo tutti gli aspetti di programmazione scientifica nonché di verifica ex-post ex-ante e orientiamo le misure legate al piano. Qui c'è il grosso problema di territorializzare le misure (come già sollevato da UE): chi applica la misura in un dato contesto – mappale, catastale- ha una priorità a chi vuole applicare quella misura in un contesto differente. Ad es. in relazione alla misura volta a mitigare l'erosione dei suoli, promuovo l'inerbimento totale e lo applico nelle colline del barolo ho una priorità rispetto a qualcuno che in un territorio piano dove questa problematica è meno sentita. Quindi stabilire una priorità delle misure rispetto ai territori specifici in cui deve essere applicata la misura stessa. Oppure diciamo a priori che si può aderire a quella misura solo se si è in un dato contesto territoriale. Per quanto riguarda l'erosione questo si è cominciato a fare, dando priorità ad alcuni terreni (con elevata erosione). Ma quest'ottica andrebbe espansa a tutte le misure perché in questo modo si avrebbe un risultato molto amplificato.

Il problema non è tanto “scientifico” perché noi saremmo in grado, attraverso la carta dei suoli (e varie carte di attitudine, del mais, del grano duro etc.) a dare indicazioni rispetto alle priorità territoriali delle misure. Certo si darebbero indicazioni più cogenti per le misure.



Quindi è di nuovo un problema delle politiche? Nonostante l'indirizzo UE e le vostre capacità scientifiche ...

Una politica simile porrebbe maggiori limitazioni sulle culture e sulle misure e considerando che gran parte dell'agricoltura si finanzia sulla base di queste misure, ridurre la valenza territoriale sarebbe problematico in termini proprio economici, del lavoro e quindi più difficile per la politica da attuare come scelta (impopolare).

Mi sembra di comprendere che più che un problema di lacune scientifiche su questi temi, considerando che già da parte vostra molta ricerca è stata prodotta in merito, sia un problema di interfaccia tra politiche e mondo scientifico.

Certo abbiamo più strumenti dal punto di vista scientifico di quanti la politica in realtà ne utilizzi.

Mi permetto dunque di porre questo come ulteriore tema per l'agenda.

Per quasi tutti i temi proposti:

Utilizzatore è sempre la regione trattandosi di temi a valenza territoriale regionale, poi ovviamente ci sono ricadute sui singoli utilizzatori. Considerata poi la natura dell'Ipla la Regione non può che essere anche il *finanziatore* della ricerca.

Culture per la produzione di biomassa per esempio abbiamo anche cercato di coinvolgere i privati, ma con grande difficoltà quando si tratta di temi di valenza regionale.

(solo per il PSR parliamo anche di UE per i finanziamenti)

Livello di interesse da regionale a sovranazionale (per PSR) o mediterraneo (erosione).

Esiti attesi della ricerca su questi temi? A partire dallo stato dell'arte. Dove immagino si possa arrivare facendo ricerca su questi temi in un prossimo futuro? (in termini di obiettivi)

Un orientamento delle misure a livello territoriale sul PSR potrebbe produrre un rilevante vantaggio economico, con forti benefici. Questo tema ritengo sia quello prioritario.

Documenti etc.:

- Strategia tematica sul suolo 2009 (UE): individua tutte le minacce sul suolo a livello europeo. A questa dovrebbe uscire una direttiva che però non è ancora stata emanata.
- JRC-ISPRA: ha prodotto molti studi scientifici sull'erosione e sul contenuto di carbonio dei suoli.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Interfaccia politiche e ricerca scientifica

Si utilizziamo ampiamente i risultati della ricerca scientifica attraverso canali di informazione vari (articoli scientifici, **scambi con altri ricercatori** etc.).

Ipla si potrebbe condizionare i temi della ricerca, ma non c'è un confronto programmato periodico con la politica. A fronte di problemi specifici veniamo chiamati ai tavoli, secondo un modello a cascata.

Le politiche no, non credo filettano molto le priorità della ricerca. Si muovono molto sul contingente semmai (come accaduto per il fotovoltaico, emanando una normativa quando già gli impianti erano stati costruiti).



FINANZIAMENTI

L'orientamento delle misure per il PSR porterebbe un effetto moltiplicatore molto grande, con vantaggi economici sulla produzione agricola e con vantaggi di tutela dei territori. Con benefici per gli stessi utilizzatori finali che possono ridurre i consumi ad es. delle acque in agricoltura (con vantaggio economico dei consumi e ambientale della risorsa acqua).

Conosco solo schemi di finanziamento regionali, ministeriali (transitati su regione) o europei. Questi ultimi un po' esasperati in termini di formalismi finanziari. Sta bene il controllo formale, ma bisognerebbe tenere più sotto controllo il controllo sui contenuti. La procedura di rendicontazione è talmente complessa che ruba molte risorse al finanziamento, con uno squilibrio sull'investimento iniziale rispetto alla spesa e ai suoi risultati di ricerca.

NK 17

TEMI PER SRA

D. SRA

7. Sfide sociali:

Altro tema da aggiungere, anche se in qualche modo forse rientra in uno dei più ampi già citati (contribuire a un ambiente di vita sano) è quello della **cultura del rischio** (risk management).

8. Temi di interesse:

Tema dei Sedimenti

Problemi dal punto di vista amministrativo.

Importanze di conoscere il percorso gestionale, tecnologico...

Non si sa chi debba occuparsene per effetto della localizzazione spesso a cavallo di comuni... forse le regioni (esempio di Venezia)

L'interesse dovrebbe essere delle autorità portuali e di bacino e del Ministero dell'agricoltura nonché dei grandi proprietari di aree

Tema urgente per problema dei pescaggi e della sicurezza

Possibile sviluppo di studi sul riuso dei sedimenti

Tema affrontato nel progetto Ombre e dal network Cabernet

Documenti sul tema sono stati sviluppati da ISPRA e CNR

Rischio di trovarci con grandi quantità di terreni dismessi senza sapere come gestirli. Si dovrebbe individuare un percorso gestionale e tecnologico per la gestione dei siti dismessi per dare delle certezze a chi interviene in determinate operazioni che si trova a dover gestire delle aree con il rischio che i terreni debbano essere gestiti come rifiuti e con il rischio di incappare anche in procedimenti penali.

Integrazione tra materia urbanistica e ambientale.

Dal punto di vista giuridico non c'è un punto di contatto. La pianificazione va ancora per conto suo, con le sue caratteristiche e disposizioni.

Non sono sufficientemente integrati. La VAS non basta. Sono tentativi nobili che testimoniano che la problematica c'è, ma dal punto di vista operativo le VAS fanno molto poco. Siamo ancora a livello iniziale, il problema diventa contingente quando le cose vengono fatte, soprattutto a livello di pianificazione a monte e poi, in fase operativa, alla fine. Siamo ancora al punto di capire a che livello si deve arrivare con le bonifiche rispetto alle destinazioni d'uso previste oppure siamo al punto che



piccoli comuni pianificano aree residenziali su discariche abbandonate. C'è molta confusione anche perché le due materie sono molto distanti anche come origine. Urbanistica molto più vecchia mentre la materia ambientale è relativamente giovane con linguaggi completamente diversi e non si capiscono.

Coinvolti in progetto europeo OMBRE sulla gestione e rigenerazione dei brownfield. Prima difficoltà è che manca una definizione a livello nazionale di brownfield. Manca una posizione univoca su come tradurre la parola. Un altro aspetto riguarda le autorità locali che affrontano spesso la riqualificazione senza un minimo di programmazione. Quando si cercano degli approcci più ragionati, ci si accorge che mancano le basi: gli indicatori.

Nel confronto tra due soluzioni si valutano i posti di lavoro generati, la salute delle persone, ecc... Ma per fare questo ci vorrebbe un data base di partenza che non c'è.

Una ricerca interessante potrebbe riguardare proprio questo tema, affrontando magari dei casi studio cercando di far crescere realmente questa consapevolezza.

Il progetto OMBRE (da 4 milioni di euro) era troppo grosso (7PQ) ha prodotto tanti documenti ma non è riuscito a calare i risultati sui casi studio che erano stati scelti.

Sarebbe utile sviluppare i casi studio dove il progetto assume un ruolo di centralità e le scelte del comune vengono effettivamente indirizzate dal progetto di ricerca.

Il tema riguarda particolarmente l'Italia ma anche gli altri paesi non sono messi meglio...

Problema molto urgente. Se non si fa nulla si aggrava il consumo di suolo e sarà sempre peggio e i brownfield aumenteranno.

Il finanziamento dovrebbe avvenire a livello europeo, a meno che no. Si trovi o dei grandi gruppi proprietari di brownfield (ad esempio Sindial) che, strategicamente, possono essere interessati dai possibili risvolti di risparmio che potrebbero derivare da un progetto di ricerca.

I comuni avrebbero interesse ma i comuni non hanno fondi.

E' stato fatto un piccolo studio da AUDIS per il comune di Venezia dove esistevano una molteplicità di soggetti pubblici che si occupano del tema al punto che alla fine non si sapeva più a chi occorreva rivolgersi per chiedere una qualsiasi autorizzazione.

Lo studio ha riguardato l'analisi di altre realtà locali e si è scoperto che era stato sempre affrontato in modo migliore o peggiore secondo le capacità e volontà dalle singole amministrazioni locali, ma il problema si risolve attraverso regole che valgono per tutti.

C'è anche un problema di scala, il comune ragiona in termini del proprio territorio ma spesso le problematiche sono più estese.

Probabilmente la scala giusta sarebbe quella regionale, quindi forse anche la Regione potrebbe orientare dei fondi su questi temi. Alcune regioni hanno dei fondi su questi temi (es Lazio ed Emilia Romagna).

Soggetti responsabili: Eu e Regioni

Documenti: Progetto ombre, cabernet, corte dei conti ha fatto un doc conclusivo a seguito di indagini e ispezioni.

Anagrafe dei siti dismessi *(tema emerso alla fine dell'intervista, appena accennato e non approfondito)*

Rappresenta un ulteriore possibile tema di interesse per la ricerca in quanto sarebbe importante avere un data base nazionale, il problema riguarda la difficoltà di mantenerlo aggiornato. Sarebbe interessante stabilire un meccanismo...



INTERFACCIA POLITICHE/MONDO SCIENTIFICO

E. INTERFACCIA TRA POLITICHE E MONDO DELLA RICERCA SCIENTIFICA

Legame tra politiche e mondo della ricerca

La rete deriva dall'università qui di la rete ha fatto suo lo strumento software di analisi del rischio sviluppato dall'università e lo ha messo a disposizione di tutta la rete ReconNet

Più che di contaminazione si può parlare di trasferimento di know how da università alla rete. In realtà è stato un la oro anche di validazione dello strumento (risknet) che nasce dalla ricerca universitaria ed è oggi divenuto uno strumento a disposizione di tutta la comunità scientifica.

In tutti i documenti della rete ci sono comunque riferimenti scientifici legati alla ricerca per dare una base scientifica ed arricchire culturalmente il dibattito sul tema delle bonifiche in Italia.

Uno dei gruppi di lavoro della rete recentemente istituito, tra l'altro, si occupa proprio del tema del rapporto tra urbanistica e ambiente.

Possibilità di condizionare i programmi di ricerca scientifica in Italia:

Come rete, sui programmi di ricerca, con difficoltà... Forse attraverso il software "Risknet" qualche influenza la si ha ma inconsapevolmente...

Le politiche italiane per qua to riguarda i temi in se' non si può' essere critici, ma normano continuamente c'è un'over-produzione... Mentre la legge 152 (testo unico ambientale), nonostante tutti i suoi difetti, aveva rappresentato un punto di riferimento in materia ambientale, con il tempo si e' continuato a modificarlo ed emendarlo seguendo in po' le esigenze dell'uno o dell'altro. Quindi non e' che la normativa rispecchi o meno le esigenze, ma le rispecchia in maniera disordinata, loco congruente. L'approccio, per certi temi, non pare corretto ma i temi e le priorità ci sono. Si può discutere poi su come vengono più approcciati e messi in atto.

La ricerca influenza le politiche...

Difficoltà grossa... più no che si.

Influenzare le politiche è difficile... sono altri interessi che tendono a influenzare le politiche.

Alcuni esempi virtuosi esistono... es l'analisi del rischio ma è difficile!

In generale c'è una difficoltà di approccio scientifico a un problema.

L'input proveniente dal basso dovrebbe essere recepito dal legislatore. Forse viene influenzata più la parte amministrativa operativa. Es sulle le linee guida c'è più margine di influenza perché sui singoli tavoli operativi il livello è elevato e ci sono margini di lavoro...

Ma la ricerca scientifica fino a che livello della policy dovrebbe arrivare? Forse sarebbe più sensato fare delle normative snelle che rimandano a dei documenti tecnici dove ci sarebbe più dialogo con la comunità scientifica. In Italia purtroppo l'approccio è diverso e si tende a normare fino al dettaglio tecnico rendendo difficile il dialogo ma soprattutto l'aggiornamento perché ogni modifica deve passare attraverso il parlamento.

Le politiche vengono toccate quando arrivano delle catastrofi, a quel punto escono i decreti di emergenza che vengono fatti senza alcuna condivisione...

FINANZIAMENTI

Ottica del riutilizzo, ad esempio dei sedimenti può portare notevoli vantaggi economici. Oggi un mercato dei sedimenti non c'è ma potrebbe portare a notevoli vantaggi economici. In primis alle aziende direttamente coinvolte nelle attività, perché si aprono dei nuovi mercati e il mercato della riqualificazione è ancora poco investigato. Anche nell'ottica del risparmio delle risorse, nel momento in cui agevoli il processo di riqualificazione delle aree si innesca un effetto volano riqualifichi il territorio, ne viene usato meno di quello vergine e quindi la disponibilità resta a disposizione per usi



agricoli, ecc... Dovrebbe esserci un'ottica ciclica generale di quello che succede, in modo che si muova tutto in maniera integrata.

Per valutare poi il ritorno sarebbe utile avere degli indicatori. Una cosa che manca in Italia è la base conoscitiva, es anagrafe dei siti contaminati, dei brownfield, ma anche un'anagrafe ambientale in senso lato. Senza conoscere la situazione e al punto zero è impossibile progettare e in Italia manca la base conoscitiva.

Anche le definizioni di siti contaminati a livello europeo non è omogeneo e questo rende inutili certi assessment a livello europeo (es quello fatto due anni fa da JRC).

Difficoltà di mappare la situazione e di mantenere aggiornata la situazione. Esigenza di uno strumento dinamico dal momento che i siti contaminati si evolvono settimanalmente...

Possibile ricerca sulle modalità... Dopo anni di ricerca su questi temi e' ora necessario trovare il modo di calare sulla realtà territoriale tutto quello che e' stato studiato. Che e' poi quello che chiede la programmazione H2020... Ormai la Commissione vuole un ritorno, non vuole più la ricerca fine a se stessa...

Schemi di finanziamento virtuosi

Esperienza su progetti Life e FP7.

Life e' un buon modello che consente di fare progetti su scala dimostrativa con il coinvolgimento di stakeholder sia pubblici sia privati, ma c'è il difetto che il cofinanziamento e' al 60 per cento. Ma questo può comunque essere un buon modo per coinvolgere dei privati effettivamente interessati. In questo risponde anche alla domanda (20) sulle partnership pubblico/privato...

H. SUGGERIMENTI

Come migliorare?

Semplificare e ridurre gli aspetti burocratici. Complicatissimo dalla proposta fino all'ultimo euro ricevuto a seguito di rendicontazione.

Quello che manca totalmente in questi progetti (non tanto nei Life ma negli FP7) è, invece, la verificare fattuale di quello che si è fatto.

Possibili Soggetti da suggerire?

Grossi proprietari. Syndial è il maggior proprietario di aree dismesse (bad company dell'ENI)... (Manuel o Luciano).

Ministero dell'Ambiente: Laura d'Aprile (daprile.laura@minambiente.it – Tel. 06 57225207)

Sul tema riqualificazione, se ci fosse un ente che se ne occupa non saremmo qui a parlarne... C'è chi si occupa di bonifiche, chi di aree dismesse, chi di bonifiche di aree dismesse. Possono essere di interesse tutti gli Accordi di Programma, ad esempio quello di Porto Marghera...

Su questi aspetti il Ministero ha i protocolli, che rappresentano un elemento operativo.

Il ministero della ricerca finanzia? Negli ultimi anni non parrebbe... Una volta c'erano i PrIn (che non vengono fatti da anni) ora aspettarsi che il ministero della ricerca finanzia qualcosa su questi temi è dura...

Schemi di finanziamento?

Una volta c'erano i PON forse più per aree del sud... Me erano comunque fondi europei...

Esiste un Programma Nazionale per la ricerca? Baciocchi non ne è a conoscenza

Si naviga a vista, anzi peggio, la nave sta andando da sola... L'unica cosa certa a livello universitario e' il sistema di valutazione VQR. Ma il problema è che si fa valutazione senza programmazione e senza fondi!



NKS 18

Sfide sociali:

la riduzione del rischio idrogeologico anche in relazione all'adattamento ai cambiamenti climatici e non solo alle mitigazioni dei cambiamenti. In Calabria, Puglia, Campania, Basilicata (Regioni Convergenza) abbiamo sviluppato un'interessante ricerca legata alla questione dell'adattamento al cambiamento climatico (più che la mitigazione) includendo variabili di tipo socio-economico. E si è verificato che i territori dove prevalgono attività agricole o attività turistiche sono più vulnerabili al cambiamento climatico. Poi ci sono stati i ragionamenti più legati alle variazioni climatiche e alla tenuta del territorio: eventi meteorologici estremi, esondazioni, desertificazione; quindi la mappatura delle aree che potrebbero essere interessate da questi eventi in una logica di previsione dalle tipologie di cambiamento climatico e i loro effetti. Quindi andando un po' oltre la mitigazione e aumentando la resilienza dei territori.

TEMI PER SRA

temi per l'SRA:

- 7) La questione suoli intesa sia come qualità chimico-fisiche dei suoli (inquinamento *strictu sensu*) e quindi anche la connessione con acque sotterranee e superficiali. Riguardo questi argomenti e le analisi non vedo particolari carenze conoscitive, il problema emerge quando si parla di **dinamica dei suoli**, cioè tutti i fenomeni connessi alla franosità, agli smottamenti. In particolare il nostro ufficio svolse un lavoro importante di ricerca su questo tema usando la tecnica dell'interferometria differenziale (tecnica satellitare) con il Politecnico di Milano. Con questo sistema abbiamo avuto una mappatura di 10 anni al livello di cm. nelle aree non boscate (edifici e rocce merse). Le informazioni sulla dinamica dei suoli sono poco standardizzate e le informazioni delle diverse autorità spesso non coincidono e non permettono di definire in maniera univoca gli indici di pericolosità prima del rischio inteso come valore esposto, cioè la probabilità che si inneschi un fenomeno franoso e qual è la sua portata e quali sono le condizioni meteorologiche che lo possono implementare. Questo ragionamento si connette e diventa strategico legato alla riduzione dei rischi dovuti al cambiamento climatico e quindi anche all'adattamento climatico. Spesso ci troviamo a non poter confrontare, in una condizione di risorse limitate, capire qual è la priorità di intervento non è cosa da poco per un ente governativo di programmazione (come quello dove lavoro).

Un approfondimento tecnico scientifico sulle dinamiche dei suoli e la possibilità di standardizzazione di questi criteri, in modo che siano generalizzabili e correlabili a situazioni sito specifiche, è una condizione di debolezza tecnica scientifica di conoscenza in questo momento, che va dalla geotecnica alla geologia e altre discipline legate alla pianificazione.

Faccio questo esempio. Ci siamo trovati a dover valutare interventi di mitigazione dei gas serra, come gli impianti eolici. Per anni questi interventi hanno riguardato un po' di tutto, dall'avifauna agli impatti paesaggistici però si è sottolineato l'impatto di questi impianti, che hanno pali profondi, possono generare fenomeni franosi. (come accaduto a Monte Acuto) Questa è una questione molto importante per un impianti che tuttavia ha molte ricadute di tipo positivo.

- 8) Per estensione dal suolo agli habitat c'è un altro tema: la protezione dei habitat protetti con la famosa Valutazione di Incidenza. Indubbiamente su questa questione il principio



precauzionale che ha spinto a definire la Rete Natura 2000 e tutte le delimitazioni dell'uso dei suoli in queste aree debba fare un passo in avanti. I valutatori devono avere delle informazioni scientifiche di natura ecosistemica su quali sono le pressioni che i diversi tipi di interventi possono avere su un'area protetta.

Faccio un esempio. Mi sono trovato a dover valutare un intervento per la realizzazione di un collettore fognario in un habitat protetto (un pascolo). La mia valutazione concludeva che l'intervento produceva una perturbazione temporanea e mitigabile, diversamente dalla realizzazione di un gazebo che diventando un attrattore di frequentazione da parte delle persone poteva produrre impatti più gravi. Questo per dire che la prevalenza del principio precauzionale ci porta poi, in assenza di informazioni certe, porta alla parestesi e al non fare come opzione. Cioè il non fare il collettore perché può impattare l'habitat può generare tuttavia problemi ambientali per le acque di scarico. Queste sono quelle che io chiamo contraddizioni ambiente-ambiente. Soprattutto sugli ecosistemi protetti, avere più chiarezza di conoscenza per sapere quali sono le azioni antropiche che possono mettere veramente in discussione la permanenza di quell'habitat (azioni che possono essere sottostimate, come un intervento agricolo a lunga distanza). Sarebbe necessario che la ricerca fornisse informazioni precise da usare come linee guida e indicazioni per gli istruttori.

- 9) Tutta la problematica legata ai suoli e alle loro caratteristiche fisico-chimiche: sono le **procedure di bonifica**. Quali sono le tecnologie ammissibili? Ad es. il lavaggio di suoli e il riuso in loco. Poi ci c'è la questione delle caratterizzazioni specifiche del suolo (ad es. in Campania il manganese non dipende dall'inquinamento ma dalla natura vulcanica del suolo, ma comunque c'è un problema di soglia rispetto al quadro normativo).

Io vorrei avere un po' di chiarezza su quali sono i tipi di impianti efficaci che permettano di svolgere le bonifiche riducendo al minimo i costi di movimento terra (che tra l'altro è uno dei canali privilegiati di ingresso della malavita organizzata: piccole imprese di movimento terra).

Noi abbiamo un piano bonifiche in Campania che classifica i suoli in siti potenzialmente contaminati (dove i criteri di soglia sono abbastanza chiari) e poi nell'anagrafe dei siti da bonificare; ma i criteri sito specifici di rischio sono problematici e sono stati diversificati nel caso in cui la fonte primaria di inquinamento sia amovibile o meno (distinzione che cerca in qualche modo di adeguare le soglie).

Tema 1:

Soggetti interessati: autorità di bacino a autorità di distretto idrogeologico, ma la ricaduta sarebbe su tutte le attività in quanto la valutazione è poi volta al rilascio delle autorizzazioni per lo svolgimento delle attività.

Soggetti promotori (e finanziatori): fondi pubblici; con la direttiva Acque vengono costituite le autorità di bacino idrografico e potrebbero essere loro a promuovere ricerche simili o anche l'autorità di Bacino e quindi la regione; anche l'Agenzia spaziale europea o italiana potrebbe essere interessata allo sviluppo di tecnologie *remote sensing*; è un tema interdisciplinare sicuramente.

I gestori della rete di trasporto stradale ferroviaria potrebbero anche essere potenziali finanziatori, per verificare quali sono i tratti esposti al rischio.

È un tema (dinamica dei suoli e rischio idrogeologico, ma anche la qualità chimico-fisica dei suoli, quindi le bonifiche) condiviso per certo a livello italiano, non so bene in Europa.

Esiti attesi: Definizione dei criteri interpretativi della realtà più omogenei. Esistono già molte tecnologie avanzate ma sono indipendenti e legate a differenti discipline. Sarebbe auspicata una visione olistica.



Priorità altissima. Il rischio è che si spendano soldi per mettere in sicurezza cose già sicure ma poi ci si trova d'improvviso una grave frana.

Tema 3:

Soggetti interessati: Tutto il settore del petrolchimico potrebbe essere interessato a questo tipo di attività (bonifiche).

In questo caso le Arpa svolgono certamente un ruolo prioritario rispetto alle autorità di bacino, ma i due contesti conoscitivi potrebbero comunque combinarsi (es. sedimenti inquinati da esondazione).

Per le bonifiche c'è anche una spinta privata da parte dei proprietari delle aree.

Nota a margine:

Uno dei punti di debolezza grave nel processo decisionale è la mancanza di parametri unificanti credibili tra valutazioni ambientali e valutazioni economico-finanziarie. Le valutazioni economiche finanziarie di norma procedono considerando le questioni ambientali esternalità qualitative, ma in molti casi invece rappresentano un tema prioritario (ad es. per le bonifiche). La cosa paradossale è che le bonifiche consumano molte risorse finanziarie senza arrivare al riuso effettivo dell'area, come il caso di Bagnoli (1,5 mil in principio volevano essere smantellati con dei costi insostenibili). Una valutazione costi benefici che metta al centro l'analisi ambientale, anche una ricerca su questo sarebbe interessante.

Questo penso sia condiviso da più paesi (es. Ruhr Germania)

Esiti attesi: la definizione di criteri di rischio accettabile legati ai costi, definire dei parametri in relazione alle tipologie di utilizzo. Credo ci sia necessità di avere criteri scientifici in una situazione in cui prevale molto l'emozione mediatica che storna finanze.

Priorità altissima

Finanziatori oltre ai soggetti privati anche il ruolo pubblico del Ministero dell'Ambiente sarebbe importante.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Interfaccia politiche e mondo scientifico

La contaminazione più diretta della ricerca nell'ambito della nostra attività è stata quella citata dell'impianto satellitare che citavo prima: il Progetto Tellus, che è in rete.

Noi sostanzialmente gestiamo i fondi strutturali europei, anche per la ricerca, in Italia.

Trasportare i risultati della ricerca all'interno del quadro normativo è la sfida maggiore.

Il risultato di una ricerca che mi diventa linee guida per l'istruttoria di una procedura (sia VAS, VIA, Caratterizzazione sito specifica ecc.) credo potrebbe essere un buon rafforzamento del network.

All'interno della VAS e nel periodo precedente di programmazione europea ci sono state influenze significative su altre regioni e a livello europeo con i progetti realizzati.

Le esperienze di partecipazione ad attività di ricerca mi ha permesso di acquisire nuova conoscenza, più difficile invece il trasferimento degli esiti della ricerca a livello istituzionale e nella pratica quotidiana delle valutazioni (questo aspetto potrebbe essere migliorato).

FINANZIAMENTI

Finanziamenti

Un effetto moltiplicatore e un effetto di riduzione del rischio di investimenti fallimentari sarebbero i vantaggi economici dati dalle ricerche ipotizzate.

L'efficacia degli interventi troppo spesso non è monitorata.

Il Progetto operativo difesa suolo citato della programmazione 2000-2006 ha visto il coinvolgimento di molti enti e dello Spin-off del Politecnico con risultati virtuosi. Ma è stata una situazione



eccezionale (legata alle sensibilità dei singoli soggetti coinvolti) che dovrebbe invece essere normale. È stata una ricerca fortunata forse un po' per caso.

Tavoli istituzionali permanenti potrebbero generare domanda di ricerca e condivisione dei risultati. Penso che i POR prevedano ampiamente la compartecipazione dei privati. In teoria sono efficaci ma i risultati della programmazione precedente non sono stati ottimali. Potrebbero appunto essere migliorati con la costituzione di tavoli permanenti tematici, per la validazione di dati e la creazione di nuove domande.

[Altri contatti potenziali:](#)

Ufficio dell'autorità ambientale della Regione Puglia

Le autorità di gestione dei fondi strutturali e tutti i soggetti connessi ai finanziamenti europei.

NKS 19

TEMI PER SRA

Temi

Lavorare sulle driving forces e determinanti, non solo sugli effetti (soprattutto per quanto riguarda suolo, acqua, sedimenti)

- **Fabbisogni abitativi/problema casa**

Enti interessati: tutte le amministrazioni locali, e nazionale

Responsabili: Stato, Regioni, grandi istituti di ricerca nazionali, università, associazioni di categoria /sindacati (sind. Inquilini, CGIL, che in verità già operano in parte...)

Riguarda il tuo ente: si

Tema condiviso da più paesi, problema globale, ma risposte condivise da reti di soggetti

Stato ricerca: ha attraversato tutto il secolo, ma deve essere aggiornata rispetto ai cambiamenti attuali; dobbiamo capire come crisi economica + cambiamento strutturale comportano cambiamenti nei modelli insediativi, dove la gente va ad abitare, quali parti del territorio crescono, quali sono in abbandono, dinamiche e possibili risposte, diverse da quelle date dal mercato

Utilizzo della nuova conoscenza: per politiche di correzione del mercato

Grado di priorità elevato, in particolare nel nostro paese

Urgenza: molta, la casa è uno dei temi su cui si riflettono in maniera più forte le disuguaglianze sociali, economiche e territoriali, molto più che le dinamiche del salario o dell'occupazione. Variazioni nei prezzi e nell'accessibilità alle abitazioni comportano cambiamenti/problemi molto più forti rispetto a tutti gli altri beni

Finanziamenti: promotori+ coinvolgere anche banche e imprese, dato che l'abitazione è un bene di mercato, gestione del risparmio intercetta questo argomento. Sono in gioco potenziali interessi economici, anche altri rispetto all'investimento economico a grande realizzo... piuttosto investimenti più pazienti, a lungo termine e con un ritorno sicuro. Ci può essere un interesse economico, ancora più se in associazione con enti locali e amministrazioni che possono garantire un ritorno sul capitale

Doc: vedi pubblicazioni feder casa sull'housing sociale, nulla di molto aggiornato

- **temi sociali ed economici dello sviluppo territoriale locale/pianificazione urbana**

Enti interessati: tutte le amministrazioni locali, e nazionale

Responsabili: Stato, Regioni, grandi istituti di ricerca nazionali, università, associazioni di categoria imprenditoriale (CC, ...)



Riguarda il tuo ente: sì

Tema condiviso da più paesi, problema globale

Stato ricerca: sul tema dello sviluppo locale abbiamo alle spalle almeno due generazioni di ricerca, ma bisogna confrontarlo con lo stato attuale

Utilizzo della nuova conoscenza: da integrare nella filiera di programmazione 2014-2021; in altri paesi si utilizzano molto di più i vari fondi per lo sviluppo locale; da noi i finanziamenti vengono sparsi a pioggia ma senza logiche che perseguano obiettivi specifici e attentamente calibrati sui bisogni locali

Grado di priorità: la ricerca dovrebbe orientare l'utilizzo di risorse pubbliche per progetti strategici, noi abbiamo stagioni di finanziamenti ma sempre speciali, emergenze ecc... bisogna rendere ordinaria la programmazione e l'impiego di risorse pubbliche su progetti, e non su competenze

Soprattutto se hai risorse scarse...

Urgenza: drammatica, in particolare per l'Italia del centro-sud

Finanziamenti: tutti, dalle parti pubbliche a quelle private, soprattutto nei territori ad economia debole coinvolgere imprenditori e associazioni di categoria

Doc: studi ex ministro Barca (governo monti)

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Politiche/ricerca

9. Non utilizza risultati della ricerca scientifica (piuttosto si appoggiano al dibattito culturale in corso), anche perché i risultati, soprattutto in ambito scienze sociali, non sono così significativi; utilizzo molto basso anche per analisi delle politiche pubbliche (gap: la ricerca non risponde ai bisogni reali, o debolezza di eddyburg, non segue quel modo di documentarsi con i risultati ricerca accademica)

10. Sono in grado di influenzare molto poco. Una volta di più, essendo una NGO la capacità di agire dipende dal peso specifico dei suoi componenti (una volta eddy era molto più attivo, più legato al mondo accademico...)

11. assolutamente no + 12. No → nessun dialogo, nessuna influenza

Mai coinvolto nella formulazione di domande, né nella costruzione di un progetto.

Nello svolgimento sì, ma è passato molto tempo ed era un contributo minimo

Cosa si sarebbe dovuto evitare: l'autoreferenzialità della ricerca

FINANZIAMENTI

Risorse finanziarie

Come ottenere effetto moltiplicatore: Attraverso la costruzione di politiche efficaci, in termini di efficienza della spesa pubblica, con ricadute in termini economici e di benessere.

Se superiamo il problema dell'autoreferenzialità (e quindi la ricerca non serve a pubblicare un paper per poi far assumere un ricercatore...) ma i risultati della ricerca vengono messi in circolo, allora quei risultati potrebbero essere il punto di partenza per costruire delle politiche pubbliche, e a quel punto si otterrebbe veramente un effetto moltiplicatore.

Se si riuscisse a ricostruire, o meglio consolidare, il rapporto tra chi fa le politiche e gestisce la spesa pubblica, e il settore della ricerca, allora forse si riuscirebbe a superare questo problema.

Gli enti pubblici non commissionano ricerche, non c'è una contaminazione così naturale tra i due mondi. E anche la spesa pubblica non avviene sulla base di programmi che hanno alle spalle un



framework scientifico, né analisi territoriali mirate, si ragiona su altri tipi di logiche per l'impiego dei soldi...

...bisognerebbe cambiare questo flusso, e quindi la ricerca diventerebbe più utile/finalizzata/applicata

In questo periodo di grandi cambiamenti inoltre anche la ricerca teorica ha perso i suoi paradigmi (capire cosa si può tenere dei vecchi modelli teorici e cosa invece va cambiato)

18/19/20 No forme di finanziamento

Suggerimenti per altre interviste:

CRESME (Bellicini)

Assessore urbanistica Comune di Roma + prof Università: Giovanni Caudo

Intervista Peddis - Consorzio Bonifica Cixerri – 6-10-2015

NKS 20

TEMI PER SRA

D. SRA

7. Sfide sociali:

tra quelli citati, le attività del consorzio rientrano nella voce sul consumo di risorse e di materie prime.

8. Temi di interesse:

Tema dell'erosione del tessuto fertile

(collegato al tema del risparmio idrico e del dissesto idrogeologico)

Il territorio agricolo è stato sottoposto a lavorazioni ormai obsolete che tendono a impoverirne la fertilità. Studiare nuove tecniche meno invasive di coltivazione e per la protezione dagli effetti del vento e inondazioni che portano via lo strato di terreno fertile. Il tema si collega quindi a quello del dissesto idrogeologico e del risparmio idrico.

Per quanto riguarda il tema, collegato, del dissesto idrogeologico e del risparmio idrico il problema è che non c'è stabilità dal punto di vista idrico, esistono anni molto secchi e altri con maggiore abbondanza. Sarebbe importante capire come gestire questa risorsa. Il problema è legato al sistema di regimentazione delle acque (cementificazione dei corsi d'acqua e la mancata manutenzione dei corsi d'acqua). Ci ritroviamo oggi con frequenti esondazioni e allagamenti con effetti negativi sulla fertilità.

Notevole impoverimento del suolo.

A fruire della ricerca su questo tema sarebbero innanzitutto le aziende agricole perché si andrebbero a evitare i danni legati a inondazioni e smottamenti, ma in generale tutta la popolazione che è soggetta alle conseguenze delle problematiche idrogeologiche.

Sul tema l'interesse dovrebbe coinvolgere la Comunità Europea a livello più alto in quanto il tema riguarda ormai tutti gli Stati. L'Europa dovrebbe dare la possibilità alle regioni e agli enti locali che gestiscono il territorio di beneficiare di studi sul tema.

E' un tema che riguarda le attività del consorzio ma che riguarda anche altri paesi, però esistono delle differenze tra le varie realtà, pertanto le competenze messe in campo devono confrontarsi con le realtà locali che gestiscono territori specifici e far sì che la ricerca possa risultare efficace.

Se la ricerca viene studiata insieme agli enti locali può avere una maggiore utilità.



Esistono ricerche che vengono prese in considerazione, svolte da enti di ricerca superiore. E' una problematica sottovalutata. Se ne parla ma si fa poco.

La ricerca dovrebbe essere messa a disposizione di tutti per far si che si possano attingere informazioni per evitare che i fenomeni continuino a impoverire i terreni.

La priorità e' elevata, siamo fortemente in ritardo su questi temi. Si sarebbero dovuti studiare anni fa consentire di fare più prevenzione e i problemi che oggi si presentano quotidianamente sono legati al fatto che non e' stato dato un peso sufficiente a queste problematiche.

La ricerca su questi temi dovrebbe essere finanziata dall'UE e dalle regioni, dal momento che la diverse regioni possono presentare problematiche diverse. Per quanto riguarda i temi del risparmio idrico la Comunità Europea finanzia attraverso i POR dei progetti finalizzati al risparmio idrico. Nei prossimi POR si dovrebbe orientare maggiormente sulle tematiche del dissesto idrogeologico.

Documenti rilevanti sul tema:

Studi del Consiglio per la ricerca e la sperimentazione in agricoltura su conservazione e fertilizzazione del suolo cambiamenti climatici e protezione del paesaggio,

Studio dell'ISPRA sul consumo di suolo in Italia.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

E. INTERFACCIA TRA POLITICHE E MONDO DELLA RICERCA SCIENTIFICA

Legame tra politiche e mondo della ricerca

Approfondimento di ricerche sullo sviluppo di nuove tecnologie di controllo ed efficientamento delle risorse idriche.

Influenza sulla ricerca scientifica già avviene attraverso l'ANBI, associazione tra tutti i consorzi irrigui italiani che ha proprio lo scopo di dialogare con il mondo della politica e della ricerca sui temi più caldi relativi al funzionamento e alla gestione dei consorzi di bonifica.

Possibilità di condizionare i programmi di ricerca scientifica in Italia:

Le politiche italiane riflettono i bisogni per quanto riguarda il risparmio idrico (anche sulla spinta delle politiche EU) mentre per quanto riguarda il dissesto idrogeologico siamo più indietro.

La ricerca influenza le politiche

Non saprei dire se la ricerca scientifica sia in grado di influenzare le politiche.

13,14, 15 no. Mai coinvolto su domande di ricerca

FINANZIAMENTI

F. RISORSE FINANZIARIE

Effetto moltiplicatore rispetto agli investimenti si potrebbe avere se gli investimenti sono mirati a risolvere problematiche reali. Importante confronto con le realtà locali. Se la ricerca non e' calata e concordata con la realtà locale, difficile che possa generare valore aggiunto.

Se si trovasse il modo di ridurre l'impatto delle problematiche indicate, si potrebbe avere un incremento di valore legato alla maggior redditività dei terreni per le aziende agricole. E' anche importante studiare nuove tecniche che consentano risparmio idrico per ottimizzare l'irrigazione

Schemi di finanziamento virtuosi

Schemi di finanziamento per la ricerca non ne conoscono, mentre finanziamenti per risolvere i problemi vengono finanziati attraverso i POR.

Esistono poi i piani regionali per la bonifica che però non si occupano di. Ricerca ma di interventi.



H. SUGGERIMENTI

Come migliorare?

-

Possibili Soggetti da suggerire?

ANBI

Conoscono le problematiche a livello nazionale sulle problematiche dei consorzi di bonifica in Italia

Schemi di finanziamento?

Agenzia regionale per la prevenzione e la protezione dell'ambiente_ARPA

NKS 21

Sfide sociali:

mi pare un elenco già completo

forse il recupero delle aree dismesse e la riduzione del consumo di suolo, che forse sono già inclusi nell'elenco ... forse nel punto sui cambiamenti climatici.

TEMI PER SRA

Argomenti di ricerca:

1. Un'esigenza che ritengo assolutamente importante è quella della definizione dei fondi. Poiché la legislazione impone come limiti, per definire se un suolo è contaminato o meno, dei valori estremamente bassi. Spesso si vede che questi sono superati senza il contributo antropico. Una mappatura più completa dei suoli per andare a **definire i fondi, naturale e antropico**, potrebbe essere un argomento interessante e che potrebbe **escludere il rischio** di andare a spendere risorse per **bonificare suoli che di fatto inquinati non sono**.
2. Le **reti di monitoraggio** sulle acque, i suoli. La progettazione di reti di monitoraggio che forniscano un numero di dati, il più alto possibile, anche dal punto di vista qualitativo. Questo potrebbe essere un investimento utile in ricerca. In un'ottica globale potremmo avere un risparmio delle risorse in quanto avremmo una visione più completa. Non ci sarebbe la necessità di andare a scoprire situazioni nelle quali esiste qualche cosa che potrebbe essere attribuibile a un fenomeno antropico; quando invece avendo a disposizione dei **dati storici** potremmo escludere dagli elementi di indagine ... sto pensando per esempio alle caratterizzazioni: suolo potenzialmente inquinato, una caratterizzazione da parte del soggetto. È vero che al soggetto obbligato spettano le spese, ma in molti casi questo non provvede quindi si devono poi stanziare fondi pubblici. Se noi avessimo una visione globale della situazione e monitorata nel tempo, di fatto potremmo evitare di spendere risorse e tempo alla ricerca di situazioni non realmente pericolose.
3. Lo sviluppo di **metodologie e modelli per la valutazione del rischio** nei sedimenti. Questo aspetto non è abbastanza sviluppato. Noi siamo abituati ad applicare l'analisi di rischio sui suoli nei siti contaminati, ma spesso ci si trova in situazioni in cui la matrice non è così definita e omogenea, ma ci troviamo in un ambito di transizione dove più variabili complesse intervengono. Epa negli Stati Uniti ha lavorato su questo tema, ma con un modello che è



difficilmente applicabile all'Italia. Perché questi modelli possono essere applicati in relazione agli organismi territoriali locali e le nostre realtà sono molto diverse da quelle degli Usa e quindi è necessario un modello **adattabile al contesto italiano e alle diverse condizioni territoriali regionali/locali**.

Si potrebbe pensare quindi ad un trasferimento della conoscenza già esistente nel contesto specifico, "personalizzando" il modello alla realtà nazionale e locale.

4. Un altro tema è quello dei **recuperi massivi dei rifiuti**, ovvero dei rifiuti che vengono prodotti in grandissima quantità e che dovrebbero poter essere riutilizzati per impieghi utili. Parlo dei fanghi di depurazione, dei rifiuti di demolizione, che sono abbandonati (come rileviamo dai nostri sistemi di monitoraggio) e che potrebbero essere utilizzati come inerti nell'edilizia e nella costruzione di infrastrutture. Per esempio anche gli pneumatici, i compost, le scorie di acciaieria. Questo è un tema di ricerca di grandissima importanza perché questi materiali non utilizzati vanno ad impattare in maniera importante, quando non costringono a costruire discariche, quando addirittura non vengono riversati in mare. La Puglia dovrebbe produrre circa 500.000 tonnellate di fanghi ma ne produciamo ufficialmente 160.000: dove vanno a finire gli altri? Abbiamo molti km di coste e questo rappresenta una tentazione importante. Tutta la filiera del recupero andrebbe sviluppata. Anche perché è inutile lavorare sulla raccolta differenziata quando non si hanno le tecnologie o la volontà politica o le possibilità economiche quando non sono stati trovati sistemi di recupero più efficace di questi materiali. Al di là della pericolosità e dell'impatto sociale prodotto da questi rifiuti, bisogna anche lavorare sui rifiuti che di per sé non costituiscono un grosso rischio però vengono abbandonati e che potrebbero acquisire nuova vita, con risvolti sociali di tutto interesse.

Soggetti interessati:

- Rispetto al tema 4, **gli enti locali**, per quanto riguarda **il recupero dei rifiuti**. Il raggiungimento degli obiettivi di raccolta differenziata (e incentivi) in realtà si trasforma in una beffa perché in realtà tutti questi materiali riciclati in realtà vengono portati in discarica.
- Per quanto riguarda la **mappatura dei suoli**, **gli utilizzatori** sono certamente i soggetti obbligati, che nei piani di caratterizzazione farebbero riferimento a questa situazione in quanto evidente che le successive fasi di bonifica dovrebbero rifarsi a queste conoscenze, consentendo una forte riduzione dei costi di bonifica.
- Valutazione del rischio dei sedimenti è un discorso che potrebbe calmierare l'allarme sociale che si genera contro questi materiali che di fatto sono materiali utili. Si pensi alla laguna di Venezia, dove i sedimenti erano oro. Per quanto riguarda gli investimenti di spesa, in questo caso potrei mirare in modo più efficace gli interventi. È di oggi un intervento del Governo su di una quantità piuttosto elevata di sedimenti che non si vogliono portare in discarica e si devono portare al riutilizzo, ma previo trattamento raggiungendo certi parametri ai sensi di legge. Ma serve davvero rimuovere questi "rifiuti"? Questi sedimenti non possono essere abbandonati in cava per la legge italiana, ma con forti contraddizioni legislative. Una maggiore conoscenza di questi materiali sicuramente sarebbe utile e quindi una valutazione del rischio più adeguata.



Soggetti responsabili-promotori (non per forze esecutori):

- Il Ministero dell'Ambiente (**per monitoraggio e sedimenti**) eventualmente anche la Regione, ma più propriamente l'**Ispira** che in qualche maniera raccoglie tutte le Arpa regionali.

Sviluppare la ricerca su questi temi significherebbe avere dei dati a disposizione che possono essere impiegabili in diverse situazioni e in diversi procedimenti. Quindi si farebbe una volta la spesa ma poi si avrebbe a disposizione un dato che in compenso verrebbe risparmiato su molte altre procedure singole la cui realizzazione altrimenti richiederebbe investimenti più elevate. Quindi certamente a promuovere ricerche di questo tipo dovrebbe essere il **governo e i ministeri competenti**.

Diciamo che la conoscenza è quella che ci rende liberi (Paolo apostolo). Immaginare una situazione di questo tipo che coinvolge cabine di regia, incontri tematici, tavoli tecnici, tutte situazioni che si protraggono nel tempo, quando questi materiali sono lì da decenni e ancora non si decide cosa si deve fare. Perché la non conoscenza di questi materiali è spaventosa...

Tenga conto che il Ministero con il Servizio regionale di Valutazione dell'Ambiente SRPA ???, ha istituito una cinquantina di tavoli di lavoro su diverse tematiche, tra cui anche quella citata sui fondi. Questi gruppi di lavoro sono coordinati da Ispira. Il quadro sinottico di questi gruppi di **lavoro sarebbe utile per riuscire ad individuare verso quale direzione si stanno muovendo il sistema nazionale delle agenzie regionali e capire i temi** su quali sarebbe opportuno e strategico investire in ricerca.

- **Confindustria e i vari consorzi della filiera** potrebbero essere altri soggetti interessati del tema del recupero dei rifiuti (4). Questi sicuramente sarebbero i clienti principali, anche perché sarebbe l'impresa a dover realizzare gli investimenti per la creazione di strutture atte al recupero dei materiali.
- Il Ministero dello sviluppo economico potrebbe rappresentare il promotore di questi interventi.

Livello territoriale di interesse del tema:

Certamente è una sensibilità nostra ma non conosco il grado di diffusione all'estero.

A livello europeo comunque questi temi sono espressi come priorità: **il recupero dei rifiuti, il discorso del monitoraggio**. Per i paesi che non implementano reti di monitoraggio, come previsto per legge (per es. per i corpi idrici superficiali e sotterranei), l'UE ne fa un discorso di condizionalità dei finanziamenti in merito: l'Europa finanzia solo a condizione della creazione delle reti.

Priorità e urgenza del tema: l'Europa ha stabilito la priorità di questi temi, ma qual è la loro urgenza sul territorio? Cosa accadrebbe se non venisse fatto nulla su questi temi? Salvo le sanzioni dell'EU quale sarebbero i rischi territoriali?

La mia personale visione su questo aspetto è che **l'urgenza è "l'altro ieri"**, non a caso l'Italia è sanzionata, specie sul discorso delle discariche abusive: è stata condannata con pesanti sanzioni dovute sia dal ritardo sia dalla scarsa conoscenza del territorio degli aspetti ambientali. Faccio un es. sui siti contaminati: noi abbiamo 60 siti entrati in procedure di infrazione, perché definiti a livello europeo discariche abusive; poi quando siamo intervenuti di persona abbiamo constatato si trattasse di semplici abbandoni. Ci si sarebbe dovuti intervenire in maniera immediata invece si è tardato perché non si conosceva la portata del problema e si faceva confusione anche a livello legislativo tra una discarica abusiva e un semplice abbandono di rifiuti che si può risolvere con una rimozione in breve tempo. **Il ritardo è rilevante perché non c'è la conoscenza necessaria: noi agiamo come un'ambulanza all'ultimo minuto.**

Noi partecipiamo ad un programma con la Regione, il CNR e le Forze dell'Ordine per andare a scovare proprio questi siti e ne abbiamo trovati più di 3000 in 10 anni circa: li abbiamo catalogati, perimetrati



su un data-base attraverso il quale individuiamo le cattive abitudini della popolazione. I negozianti ad es. hanno l'obbligo di ritirare gli elettrodomestici inutilizzati all'acquisto dei nuovi, ma molti cittadini non lo sanno e li abbandonano nelle campagne, creando un problema enorme solo per ignoranza.

[Forse la comunicazione potrebbe essere una strategia perseguibile per la diffusione della conoscenza sui rifiuti e il loro riutilizzo/smaltimento?](#)

Sono molto pessimista a riguardo, anche perché ho partecipato a decine di convegni sul tema: queste cose funzionano per i primi tempi ma poi le persone vanno avanti con le proprie cattive e radicate abitudini. Più che di maggiore informazione ci sarebbe **bisogno di un tambureggiamento goebbelsiano attraverso la pubblicità in televisione**, ma questa è di tipo commerciale mentre per le questioni ambientali ci si limita a lievi prediche, quando ci vorrebbe un martellamento su questi temi per riuscire ad essere diffusi.

[Altri documenti:](#)

Le linee guida del sistema agenziale (?)

Sui temi proposti evidentemente abbiamo una carenza documentale e di ricerche.

Lavoriamo molto sul campo e la nostra maggiore esperienza deriva dalle pratiche.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

[Ricerca scientifica e politiche](#)

Utilizziamo i dati della ricerca specie quando approfondiamo un tema, recentemente sul tema amianto ed es. abbiamo analizzato i possibili interventi alternativi allo smaltimento in discarica, riallacciandoci al tema nominato del riuso dei rifiuti.

Quando abbiamo realizzato il Rapporto ambientale sul piano di gestione dei rifiuti urbani poi abbiamo fatto un confronto tra i vari sistemi di gestione (inceneritori e termovalorizzatori) per stabilirne una graduatoria rispetto agli impatti e alle emissioni.

In generale sono studi che approfondiamo una tantum di fronte al tema emergenti e usiamo molto le norme UNI, in particolare i Rapporti tecnici, che ci danno un'idea delle caratteristiche standard da seguire.

Nei procedimenti di VIA e VAS è utile osservare i diversi metodi di valutazione elaborati dall'università o altri centri di ricerca, specie se siamo noi a doverci redigere.

Usiamo spesso la ricerca anche per cercare elementi penalmente utili nell'ambito delle deleghe di indagini della Procura.

[L'ente/voi è in grado di influenzare la ricerca in Italia?](#)

In Italia no, a livello regionale sì e non è improbabile che l'ente regione ci metta a disposizione fondi per approfondimenti di ricerca legata a procedimenti amministrativi.

È la Regione che stabilisce le nostre priorità di lavoro e non il contrario.

[E i tavoli tra agenzie ambientali di cui parlavate prima?](#)

Sono tavoli che servono a definire delle linee guida del tutto teoriche, non c'è attività di ricerca dietro. Al massimo l'Ispra talvolta ha fatto autonomamente delle sperimentazioni (ma non riguardavano suolo e sedimenti). Ad esempio si è trattato di valutare la caratteristica di pericolosità di eco-tossico e Ispra ha fatto una sperimentazione sull'utilizzo di metodi biologici, ma senza renderci partecipi dell'iniziativa, solo comunicandone gli esiti.

La verità è che questi gruppi di lavoro al massimo servono a noi per capire quale sia l'interpretazione migliore di una certa legge; e ad informare di una certa attività le diverse regioni, perché di fronte ad una direttiva ogni Arpa tende ad avere un proprio comportamento ma è utile uniformare la propria attività con le altre regioni.



La ricerca diciamo ci agevola molto nel processo di assistenza al decisore politico. Il politico manifesta il problema e noi rispondiamo con un suggerimento tecnico-scientifico.

Abbiamo collaborato con istituti di ricerca. Alle volte abbiamo anche lavorato su impianti sperimentali (nel monitoraggio), ma sono sempre procedure riconosciute a livello normativo come prerogative dell'Arpa, non c'è nulla di straordinario rispetto alle nostre attività di mandato (quale è il monitoraggio degli impianti o il controllo delle emissioni in atm, sui rifiuti ecc.).

Non abbiamo mai partecipato a progetti di ricerca pura, ma gli enti di ricerca che hanno collaborato con noi ne hanno fatto derivare pubblicazioni scientifiche.

Quelle che svolgiamo sono tutte attività di ricerca finalizzate a definire un percorso utile al decisore politico. Sono ricerche comunque incardinate in una procedura che deve essere fatta per una specifica necessità/problema.

FINANZIAMENTI

Risorse finanziarie

Ne abbiamo già parlato ...

La definizione dei fondi (tema 1) serve per agevolare il procedimento amministrativo. Quello dei fondi è un tema che ha rilevanza anche da un punto di vista dell'edilizia, restringendo sensibilmente le procedure di rilascio delle autorizzazioni/permessi.

Se io ho le idee chiare sullo stato dei suoli prima di eseguire gli interventi urbanistici e di costruzione sono in grado di agevolare l'esito della procedura senza imprevisti (rispetto agli scavi ad es.).

Il recupero del materiale ha una grandissima importanza sia dal punto di vista ambientale che economico.

Il recupero dei rifiuti rappresenta una beneficio per tutta la collettività anche in termini di possibilità di riduzione delle tariffe.

Non conosciamo schemi specifici-virtuosi di finanziamento per la ricerca.

L'intervento del privato nell'attività di ricerca è una strada perseguibile ma altamente sconsigliata. Quando si interagisce con il privato emergono alcuni rischi di corruzione e sospetto. I privati chiaramente investono per realizzare degli utili, ma quando intervengono ci si mette in una dinamica nella quale, se qualcosa va male, interviene la cultura del sospetto.

NKS 22

TEMI PER SRA

D. SRA

7. Sfide sociali:

Contenimento dell'uso del suolo e **riuso delle volumetrie esistenti**.

Contenimento dei consumi degli edifici pubblici in uso

Utilizzo mirato del suolo

8. Temi di interesse:

Manca un'azione strutturale per quanto riguarda la gestione delle **Ex aree militari** e in generale sul riuso dei **contenitori pubblici** (ad es. le scuole).

Vengono gestite di volta in volta in maniera non strutturata.

Il tema interessa i costruttori, titolari di progettazione e tutti i comuni proprietari di terreni o edifici...



Ad esempio lavorano per finanziare la realizzazione di nuove scuole e riutilizzare i vecchi contenitori scolastici in un'ottica di riduzione del consumo di suolo.

Il tema e' molto condiviso ma poco praticato.

Volendo focalizzare su un tema di interesse per la ricerca ci si potrebbe concentrare proprio sull'**edilizia scolastica**. i fondi di Invimit già nella sua mission sono anche per provare a portare avanti un programma nazionale che in un periodo di tempo rigeneri completamente il patrimonio scolastico. I 3 temi su cui ci impegnamo 1-la rigenerazione urbana, 2-efficientamento energetico e-3 ricostruzione del patrimonio scolastico

Tema molto rilevante anche dal punto di vista sociale.

Nobile intento ma ci vorrebbe uno sforzo ulteriore per sfruttare il patrimonio in dotazione all'ente, pari a 700.000.000€ che prevede interventi. Ipotizzando di dividere in 3 restano poco più di 200 milioni di euro che e' pochissimo rispetto al numero di edifici. Se Invimit può essere un canale utile in supporto o in alternativa all'appalto classico (che viene comunque fatto quando occorre adeguare gli edifici).

Ma si potrebbe pensare all'idea di fare fondo sulla base di un programma di sostituzione di vecchie scuole con nuove scuole che **preveda anche efficientamento energetico, utilizzo e fruizione sociale diverso dalla pura scuola, con ricadute anche nell'intorno dell'edificio**.

Es un fondo sta proponendo di essere partner di un progetto che crea nuove scuole ma crea contemporaneamente in prossimità un impianto di sfruttamento energetico dei rifiuti che consentono alle scuole di essere autosufficienti ma contribuisce anche al sostentamento del comune. Il suolo viene ad avere una doppia valenza. Esempio di uso intelligente del suolo che crea un volano di efficienza energetica... Esempio un po' isolato: si dovrebbe **pensare a ricerca che sistematizzi le modalità di ottimizzare l'edilizia pubblica in modo che nuovi edifici possano rappresentare elementi di riqualificazione urbana**. Il settore pubblico e' scarsamente interessato, se non casualmente per la presenza di un appaltatore pubblico illuminato, ad azioni innovative di questo tipo.

Invimit è membro del PRI (principle for responsible investment) dell'ONU che mira a portare concetti etici e sostenibili all'interno dei soggetti che investono nel mondo della finanza, anche applicato al caso dell'immobiliare.

Maggiore attenzione del settore pubblico (Governo e ministero Infrastrutture) a un'etica degli interventi sociali che in Invimit è una caratteristica legata esclusivamente alla volontà dei singoli. Si dovrebbe istituire un **filone nazionale di ricerca** e di commitment pubblico che metta insieme i ministri infrastrutture e economia e finanza coinvolti per fare un programma nazionale a 20 anni dentro un quadro chiaramente strutturato. Invimit potrebbe essere il braccio operativo di un programma nazionale e non casuale.

.

Altro esempio ex manifattura tabacchi a Bari, area abbandonata degradata recuperata attraverso l'inserimento dell'edificio (25000mq) in un fondo Invimit che ha individuato CNR come potenziale utilizzatore. La cittadella CNR con 700 lavoratori e indotto.

La ricerca potrebbe aiutare per **studiare modelli virtuosi di partenariato e finanza** che aiutino ad incrementare le pratiche *fine tuning* delle procedure amministrative.

All'estero funziona meglio. In Italia una ricerca potrebbe aiutare a capire come gestire finanza, procedure e il rapporto pubbli-privato.

Quello del fondo pare possa essere uno strumento che più agevolmente possa muoversi in questo ambito, ma a volte le dimensioni degli interventi non giustificano la creazione di un fondo...



Una ricerca su questi temi potrebbe servire in parallelo a quelli sui materiali e sulle tecniche costruttive...

Molti progetti si bloccano per i costi di costruzione. Progetti quali social housing e scuole sono a basso tiraggio di fondi (non portano denaro): e' quindi necessario abbattere i costi di costruzione. Su queste cose c'e' poca ricerca. Il settore e' lasciato a pochi pionieri

I costruttori in Italia sono poco supportati nella necessità di innovare.

Necessaria ricerca che consenta di **abbattere sensibilmente (50-60%) i costi di costruzione** per consentire anche interventi a basso tiraggio di fondi come scuole e social housing. I costi devono scendere da 1.400 euro al metro a 600, come avviene all'estero. Per fare questo o si sviluppa una ricerca mirata che consenta di fare un salto quantico in basso oppure non si riusciranno a far partire interventi di questo tipo.

Occorre fare come in Olanda dove fanno operazione di *retrofitting* degli edifici al costo di 1/5 rispetto a noi. Ovviamente è un altro contesto ma manca un impiego del governo o del sistema paese ma è lasciato all'iniziativa dei singoli imprenditori che riescono a cogliere le occasioni.

Manca l'integrazione tra ricerca, finanza, stakeholder pubblici e impresa privata. Questi soggetti dovrebbero parlarsi sistematicamente. AUDIS può rappresentare, ad esempio un elemento catalizzatore di un sistema integrato in cui si parlano i diversi soggetti, ma non sulla progettualità singola ma sulla strutturalità di sistema. Su come lanciare in Italia dei programmi ventennali in cui si ragiona in questa logica che deve diventare una prassi per tutti i soggetti che si occupano di rigenerazione.

Soggetti interessati:

Meccanismi premianti al privato

La debolezza è nazionale

Urgente perché a causa di questa disorganizzazione l'Italia perde investimenti

Documenti: il piano città ottima idea che si è arenata nella burocrazia. Il meccanismo era interessante.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

E. INTERFACCIA TRA POLITICHE E MONDO DELLA RICERCA SCIENTIFICA

Lamenta l'assenza di un coordinamento strutturato tra direttive politiche (ministeri) e ricerca/azione degli enti strumentali

Legame tra politiche e mondo della ricerca

...

Possibilità di condizionare i programmi di ricerca scientifica in Italia:

Contaminazioni: tecniche costruttive, nuovi materiali, efficienza energetica.

Siamo soggetti che possono condizionare la ricerca

La ricerca influenza le politiche...

No non c'è contatto tra i due mondi.

FINANZIAMENTI

F. RISORSE FINANZIARIE

Meccanismo virtuoso di riutilizzo dei ricavi per risparmiare la ricerca e, parallelamente risparmiare grazie alla ricerca (es nuove metodologie tecnologiche)- attualmente i tempi di ritorno sono troppo lunghi! Mancano i raccordi tra i vari mondi



Autoalimentazione dei progetti
Migliore uso delle risorse pubbliche

Schemi di finanziamento virtuosi

Fondi rotativi: a mano a mano che i progetti vanno a buon fine i fondi tornano: ossia si finanziano progetti che sono in grado di restituire il prestito: quanto viene restituito si reinveste sui medesimi temi. È un buon metodo per evitare finanziamenti a pioggia senza filtro.

H. SUGGERIMENTI

Come migliorare?

La ricerca non si confronta col mondo reale

La ricerca in compenso rende percepibili come possibili delle cose che interessano la vivibilità delle persone (se fosse divulgata!!!) Manca la diffusione!

Possibili Soggetti da suggerire?

Paolo Testa nell'ambito delle infrastrutture

Schemi di finanziamento?

...

NKS 23

TEMI PER SRA

SRA

Sfide sociali

Quali temi di ricerca da aggiungere?

Limitazione consumo di suolo

Impermeabilizzazione

Riqualificazione e rigenerazione urbana

Per ciascun tema:

soggetti interessati/utilizzatori dei prodotti di ricerca: nel monitoraggio del consumo di suolo: sistema delle agenzie ambientali

nelle politiche sul consumo di suolo: amministrazioni locali

soggetti responsabili/promotori: per il monitoraggio Istituti di ricerca che si occupano di territorio sia dal punto di vista tecnico geologico agronomico che politico urbanistico.

Il tema interessa ISPRA ed è codiviso a livello globale

La ricerca su questo tema (monitoraggio) si trova in una fase di mezzo: piuttosto recente l'innovazione strumentale: copernicus, sentinelle (satelliti) ...sono iniziative dell'unione europea per portare l'EU a essere indipendenti nel monitoraggio rispetto alle tecnologie americane. Sull'uso di questi dati non siamo ancora al top, c'è bisogno di ricerca.

Invece per le politiche siamo a un livello più consolidato, il problema è l'attuazione, la ricerca ha più poco da dire.

Gli studi sono spesso poco fruibili dall'utilizzatore: manca un quadro generale a scala nazionale, certi studi nono approfonditissimi ma solo per una zona



L'interesse e l'urgenza del tema consumo di suolo sono elevati.

L'UE Dovrebbe finanziare la ricerca e supportare la definizione degli strumenti legali: direttiva quadro, strumenti legislativi oltre che finanziamenti.

Esistono documenti ISPRA,

Documenti UE sulla strategia tematica, proposta di direttiva, 7 programma di azione, linee guida 2012, Agenzia Europea per l'ambiente, reporting ambientali

Proposte governative in Commissione Ambiente,

Leggi regionali...

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

E politica-ricerca

Contaminazioni: con il mondo statistico; con dipartimenti o soggetti esterni su gestione dati tele rilevati.

L'ISPRA è in grado di condizionare l'agenda scientifica? I report di ISPRA servono da indirizzo per l'attività di ricerca (strumento principale: reporting ambientale)

Le politiche rispecchiano "a parole" i bisogni derivati dalle attività professionali, ma poi non affrontano nel merito le questioni, anzi spesso contraddicono i principi (leggi inadeguate)

La ricerca influenza le politiche? Sì

FINANZIAMENTI

F. Risorse finanziarie

In che modo gli investimenti nella ricerca contribuiscono alla collettività? La ricerca sul consumo di suolo potrebbe contribuire alla trasparenza dei processi decisionali: i dati del monitoraggio, resi disponibili consentirebbero di riconoscere la valenza del suolo e di effettuare una migliore pianificazione: riconsiderazione della questione ambientale nella pianificazione

Finanziamenti virtuosi

Fondi europei i più disponibili per la ricerca. Life ad esempio è finalizzato a ricerca applicata.

NKS 24

TEMI PER SRA

D. SRA

7. Sfide sociali: Utilizzo efficiente ed efficace delle risorse per

- Sviluppo Inclusivo
- Innovazione sociale (attraverso un meccanismo partecipato e diffuso: non basta un'idea top-down nel riuso di suolo e nella pianificazione strategica)



8. Temi di interesse:

- Mancano i **meccanismi partecipativi** e diffuso nel riuso di suolo e nella pianificazione strategica: non si sa quali sono i processi? Come si mettono in piedi?
- Il partenariato **pubblico-Privato**: è fondamentale ma manca una tecnostruttura che accompagna la governante collaborativa, nuove forme di collaborazione tra pubblico e privato che sono due mondi in contrasto ma che invece devono per forza di cose collaborare
- La pianificazione strategica deve essere condivisa sin dall'inizio(ad es. economia, ambiente salute e paesaggio non parlano tra loro!!) mancano linguaggi comuni, condivisione degli obiettivi: **Integrazione tra diverse competenze**
- La finanziabilità: **quali strumenti** per gestire i suoli e i beni comuni fuori da una logica di intervento puramente pubblico? In Europa si sperimentano Emissioni obbligazionali di scopo; Social impact bond: i privati sono coinvolti in investimenti con finalità pubblica-sociale.

Partecipazione e patnership PP

I soggetti interessanti sono tutti

I promotori dovrebbe essere il pubblico che però non è pronto: il privato potrebbe essere molto più efficiente se eletto a promotore di questi processi.

Questo tema interessa la attività professionale. È un tema di rilevanza internazionale e in Italia siamo indietro dal punto di vista della ricerca. La ricerca è molto scarsa.

La nuova conoscenza acquisita può interferire sull'approccio generale, culturale su come si affronta il problema del riuso di suolo.

L'urgenza è estrema perché senza questa inversione di rotta le cose non partono.

Esistono documenti ma sono retorici.

Integrazione tra competenze

i soggetti interessanti sono tutti

I promotori: bisogna che siano educate le PA committenti: bisogna sensibilizzare alla necessità di integrazione delle competenze in fase di creazione progetti e piani di riuso del suolo.

L'Italia su questi temi ha un gap perché la cultura è specialistica e non generalista come negli USA, per cui si fa fatica a mettere in comunicazione le competenze.

Il grado di urgenza è relativo, dipende dalla qualità del progetto che si desidera ottenere.

È un tema di conoscenza pubblica: Sono le università che dovrebbero portare avanti questo tipo di cambio culturale, la ricerca in questo senso è già finanziata.

Finanziabilità

I soggetti finanziari sono interessati poiché hanno un maggior grado di successo nel momento in cui erogano un finanziamento in un quadro definito chiaramente

Il mondo finanziario dovrebbe finanziare la ricerca che definisce gli strumenti.

Il problema è di livello transnazionale. C'è molta ricerca ma non c'è attuazione. Anche H2020 chiede la definizione di nuovi strumenti.

Ad oggi nessuna banca locale fa Social Impact Bond perché non si sa dove prenderli.

Grado di urgenza elevato.

Esistono documenti ma non propongono modelli avanzati ma retrò: si propone un modello centralista, mentre oggi abbiamo bisogno di strumenti de-centralisti.



Credo che Cassa depositi e Prestiti e Banca d'Italia abbiano pubblicato qualcosa in questo senso (anacronistico)

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

E. INTERFACCIA TRA POLITICHE E MONDO DELLA RICERCA SCIENTIFICA

Legame tra politiche e mondo della ricerca

Nello svolgimento della attività professionale, utilizza i risultati della ricerca scientifica

Quali contaminazioni tra la scienza e il tuo lavoro? Io faccio parte della ricerca scientifica **Nomisma dovrebbe dare indicazioni di ricerca scientifica per attuare delle politiche**: oggi io propongo di inserire ad esempio il tema della salute e della pianificazione strategica nel discorso del riuso del suolo. Prima nomisma era focalizzata sul valore economico.

Possibilità di condizionare i programmi di ricerca scientifica in Italia:

L'attività professionale di Nomisma non è in grado di condizionare i programmi di ricerca. Ha un minimo effetto sulle scelte politiche poiché nomisma è riconosciuto come ente indipendente e terzo.

Le politiche italiane in materia di ambiente non riflettono i bisogni e le priorità emerse dall'attività professionale. La politica Italiana non è basata sulla conoscenza scientifica.

La ricerca scientifica in materia di ambiente influenza le politiche di interesse per la

la tua la professione? Sì. I temi come compensazioni, VIA, valutazioni di impatto sanitario, sono temi di interesse professionali.

FINANZIAMENTI

F. RISORSE FINANZIARIE

L'effetto moltiplicatore gli investimenti sui temi del territorio e ambiente potrebbero portare benefici alla collettività: la Pianificazione strategica) se la fai bene crei futuro, altrimenti perdi futuro. Ad esempio puoi attrarre investimenti e migliorare la qualità della vita.

...Strategie di finanziamento virtuose : "Crowdfunding"; creare partnership PP, cercare l'interesse e il contatto con attori del territorio

Nelle attività di ricerca svolte i finanziamenti utilizzati sono stati di tipo tradizionale (committenza diretta) nazionale oppure europeo (H2020; LIFE)

Sono finanziamenti efficaci dal punto di vista dell'esperienza, ma sono ricerche difficilmente spendibili sul campo.

Schemi di finanziamento virtuosi

H. SUGGERIMENTI

Possibili Soggetti da suggerire? Ministero dell'Ambiente: Marco Stevanin, ex commissario VIA (advisor Nomisma)

Silvestro Greco (Università di Pollenzo)

NKS 25

TEMI PER SRA

D. SRA – Temi per l'Agenda

2. La Commissione Europea cita alcune sfide sociali da affrontare in relazione ai temi di ricerca dell'Agenda (riferiti agli usi e alla gestione del territorio e al sistema Suolo-Acqua-Sedimenti), qui elencate:



- Contribuire alla sicurezza alimentare;
 - Garantire un approvvigionamento sicuro di acqua potabile;
 - Assicurare il fabbisogno e la distribuzione di energia;
 - Ridurre il consumo di risorse e di materie prime;
 - Garantire l'uso efficiente delle risorse naturali;
 - Contribuire alla mitigazione dei cambiamenti climatici e all'adattamento sociale;
 - Contribuire a un ambiente di vita sano;
 - Garantire infrastrutture sicure
- Quali eventuali ulteriori "sfide sociali" suggerirebbe in relazione ai temi di interesse per la sua attività?
 - Favorire la sostituzione di edifici senza pregio architettonico ed obsoleti escludendoli dalle agevolazioni limitate al solo efficientamento energetico
 - Favorire gli interventi di efficientamento energetico per le altre categorie di edifici
 - Predisporre un Piano contro il dissesto idrogeologico
3. Secondo la sua opinione/la sua esperienza professionale, quali temi/argomenti di ricerca (riferiti agli usi e alla gestione del territorio e al sistema Suolo-Acqua-Sedimenti) dovrebbero essere inclusi nell'Agenda?
- L'attivazione di fondi per la realizzazione degli Eco-quartieri

Per ciascun tema citato le chiediamo di fare riferimento alle seguenti specificazioni:

- Chi sono i soggetti/enti interessati al tema (intesi come potenziali utilizzatori finali dei prodotti di ricerca conseguenti al tema proposto)? I cittadini
- Chi sono i soggetti responsabili (intesi come i potenziali promotori delle ricerche sul tema proposto, ma non necessariamente come gli esecutori delle ricerche)? Enti pubblici, Università e Fondazioni.
- L'argomento proposto riguarda la sua attività professionale/il suo ente di appartenenza (anche diversi rami di competenza rispetto al proprio)? Sì
- E' un tema di livello nazionale, oppure è condiviso da più paesi (a quale livello)? Sì
- A che punto si trova la ricerca su questo tema, dove potrebbe arrivare nei prossimi anni (orizzonte-obiettivo)? Al momento ci sono limitate esperienze a livello nazionale
- Come può la nuova conoscenza acquisita dalla ricerca proposta essere utilizzata efficacemente dagli utenti finali? Attraverso insediamenti sostenibili e ad elevata efficienza energetica in grado di migliorare la qualità della vita dei cittadini
- Qual è il grado di priorità del tema proposto (da elevato a basso)? Alto
- Qual è il grado di urgenza del tema? Ovvero cosa accadrebbe se non venisse fatto nulla in merito? Alto, senza interventi si rischia il decadimento
- Chi potrebbe/dovrebbe finanziare questo tipo di ricerca? Italia ed Europa attraverso fondi strutturali e le Fondazioni.
- Esistono documenti rilevanti (documenti istituzionali, strategie nazionali, agende-programmi di ricerca) a sostegno del tema proposto? Quali? La documentazione relativa ai fondi strutturali

E. Interfaccia tra politiche e mondo della ricerca scientifica (Science Policy Interface)

4. Nello svolgimento della sua attività professionale utilizza risultati della ricerca scientifica? Quali sono le più recenti contaminazioni derivate dal mondo scientifico nel suo lavoro?

Utilizziamo i principali dati statistici per studiare l'andamento economico del settore. Predisponiamo questionari sia di previsione che consuntivi per monitorare l'andamento dell'attività delle imprese associate.



5. La sua attività professionale/l'ente per il quale lavora, è in grado di condizionare direttamente o indirettamente i programmi di ricerca scientifica in Italia? In che modo (attraverso Tavoli di lavoro, consultazioni ecc.) e su quali argomenti?

L'Ance è di stimolo nei confronti dell'Ispra (in modo limitato)

6. Ritieni che le politiche italiane in materia di ambiente e territorio riflettano i bisogni e le priorità derivate dalla sua attività professionale? No, le politiche non tengono in considerazione il reale contesto nel quale dovrebbero essere attivate

7. La ricerca scientifica in materia di ambiente e territorio influenza le politiche di interesse per la sua professione? In che modo e su quali argomenti? Sì, sia in ambito privato sia in riferimento alle opere pubbliche

[Domande 13-14-15-16 riservate ai soggetti intervistati che NON svolgono attività di ricerca scientifica]

8. E' mai stato coinvolto nella formulazione di domande di ricerca scientifica?

9. Nello svolgimento di una ricerca scientifica?

10. Nella costruzione di un progetto di ricerca scientifica?

11. In caso di risposta affermativa ad una delle domande precedenti: che cosa è andato bene o cosa si sarebbe dovuto evitare nell'ambito della ricerca (costruzione della domanda di ricerca/progetto) a cui ha partecipato? Cosa potrebbe essere migliorato?

F. Risorse finanziarie

12. In che modo ritiene che gli investimenti nella ricerca in materia di territorio e ambiente possano meglio contribuire alla collettività? Ad esempio, rispetto ai temi di ricerca che ha proposto, in che modo la spesa di investimento fatta per quella ricerca potrebbe portare un effetto moltiplicatore diretto o indiretto anche su altri settori/ambiti? Favorendo il miglioramento della qualità della vita dei cittadini

13. Saprebbe suggerire delle strategie o degli schemi di finanziamento (forme e fonti di finanziamento) particolarmente virtuosi per la ricerca dei quali ha avuto esperienza diretta o di cui è a conoscenza? No

14. Se ha svolto attività di ricerca scientifica in materia territorio ambiente, quali sistemi/fondi di finanziamento sono stati utilizzati? Di quale livello (nazionale-regionale-europeo)? Non utilizzati

15. Conosce forme di finanziamento integrate (ad es. pubblico-privato) in materia di ambiente e territorio per la ricerca? Sono efficaci? Come ritiene possano essere migliorate? No

NKS 26

TEMI PER SRA

SRA

Sfide sociali

Quali temi di ricerca da aggiungere?

Gestione efficiente della risorsa suolo intendendo il suolo anche come risorsa economica da tutelare e far fruttare nel modo migliore.

Protezione del suolo in senso lato dalla pianificazione alle ricadute sulla sicurezza alimentare
Tutela della biodiversità

Per ciascun tema:

soggetti interessati/utilizzatori dei prodotti di ricerca:

ARPA, ISPRA ministero ambiente e tutti i soggetti incaricati di fare politiche e monitoraggio ambientale.



Anche industria e Servizi che sono vincolati dalla normativa ambientale
pianificatori

soggetti promotori: Europa (commissione EU) e Italia (Ministero della ricerca e dell'ambiente) che dovrebbero promuovere un approccio integrato

Il tema interessa a livello globale: tuttavia il tema del suolo è sempre affrontato in modo particolare, mai trasversale, integrato tra settori. Anche a livello Europeo, sebbene il suolo compaia spesso nei programmi europei, manca una visione complessiva: agricoltura non parla con acque, rigenerazione non parla con contaminazione

Il tema è globale In altri paesi l'approccio è già più integrato che in Italia.

La ricerca su questo tema è sempre settoriale.

Potrebbe essere utile all'utente finale perché offrirebbe dati e strumenti per la pianificazione territoriale, la gestione delle bonifiche, il controllo degli impianti, la valutazione degli impatti nelle aree naturali protette, la valutazione della sicurezza alimentare. Avrebbe ricadute tecniche e politiche.

Il tema è poco sviluppato, la priorità di questo approccio complessivo sulla tematica suolo è alta. L'urgenza non è alta, le cose resterebbero come sono.

Esistono documenti ? A livello nazionale non ci sono linee guida integrate. A livello Europeo c'è qualcosa (in Olanda) ma non ho riferimenti precisi.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

E. politica-ricerca

Utilizza nel lavoro risultati della ricerca scientifica facendo supporto tecnico e attività di ricerca. Si occupa per il risk assessment

L'ISPRA è in grado di condizionare l'agenda scientifica? Si ad esempio sui nitrati abbiamo influenzato programmi di ricerca del MIUR; idem sulle acque. Non sul suolo: in ISPRA questo filone non è abbastanza forte per poter portare questo tema in agende politiche. Però in compenso quando proponiamo al MIUR ricerche su ambiente e salute, inseriamo anche il pezzetto tematica contaminazione dei suoli.

Le politiche rispecchiano raramente i bisogni derivati dalle attività professionali, ma poi non affrontano nel merito le questioni, anzi spesso contraddicono i principi (leggi inadeguate)

La ricerca influenza le politiche di interesse per la sua professione?

FINANZIAMENTI

F. Risorse finanziarie

In che modo gli investimenti nella ricerca contribuiscono alla collettività? L'integrazione tra pianificazione territoriale e siti contaminati potrebbero influire sugli investimenti immobiliari; La prevenzione dei rischi sulla salute può comportare minore impatto sulla spesa sanitaria. La ricerca integrata ha sicuramente ricadute positive su tutto il tessuto economico e sociale (vedi il brownfield di expoMilano)

Finanziamenti virtuosi

LIFE, bando accessibile e su cui noi italiani siamo molto forti. L'unico difetto è che hanno un budget limitato

Ho partecipato a Programmi del 7PQ, dell'Agenzia dell'Ambiente.



Finanziamento pubblico privato: nel mio settore i due ruoli Pubblico –Privato sono in contrasto normalmente

NKS 27

TEMI PER SRA

SRA

Sfide sociali

Conservazione delle risorse non rinnovabili e preservare gli ecosistemi

Quali temi di ricerca da aggiungere?

Pianificazione territoriale: bisogna approfondire a livello Europeo come raggiungere il saldo zero di consumo di suolo nel 2050. È un obiettivo ambizioso che non si sa come raggiungere:

va approfondito:

la reversibilità : in quanto tempo un suolo compromesso, cementificato torna verde

il riuso: dove si mette il suolo che si toglie da un cantiere? Come si costruisce suolo? Manca ricerca e monitoraggio di lungo periodo, essendo i processi geologici molto lenti.

Per ciascun tema:

soggetti interessati/utilizzatori dei prodotti di ricerca: target della ricerca sono le Amministrazioni pubbliche interessate a controlli ambientali e pianificazione del territorio. Ma anche settore delle costruzioni che dovrebbero avere una cultura del suolo, che è spesso gestito solo come un inerte.

soggetti esecutori della ricerca: Università, Centri nazionali di ricerca, Agenzie per Protezione dell'ambiente

soggetti finanziatori:UE, le Regioni e i Governi Nazionali, Consorzi di bonifica, Autorità di Bacino che sono quelli che subiscono le conseguenze dell'impermeabilizzazione dei suoli, organizzazioni professionali agricole (che non difendono l'agricoltura ma gli agricoltori!!), Istituti Nazionali Economia Agraria (INEA)

Il tema interessa l'attività professionale e a livello Europeo è un tema sentito. In USA anche ora si preoccupano del Land Take e soil ceiling (consumo di suolo e impermeabilizzazione) : il suolo è risorsa finita a livello mondiale

L'orizzonte della ricerca su questo tema deve essere volta a capire come migliorare i processi di rigenerazione del suolo e come costruire suolo. Ad esempio i temi di rigenerazione sono effettivamente catastrofici come ci dicono? Dipende dal contesto geologico e pedologico. C'è da studiare!

Anche quali sono i parametri per capire le funzioni ecologiche del suolo? Anche in contesti urbani: Quali sono le forme per garantire la permeabilità? La tecnologia può dare soluzioni.

Quale effetto in termini di CO2 legato alla rimozione del suolo e all'impermeabilizzazione?

E cosa succede sotto un suolo impermeabilizzato a livello biologico? Ci serve avere queste informazioni per realizzare un riuso più cosciente.

Da studiare anche i benefici di una più saggia gestione dei suoli diretti degli utenti finali (attraverso studi econometrici).

Questa conoscenza va poi tradotta in norme e linee guida per essere usata efficacemente dall'utente finale nel settore delle costruzioni, opere pubbliche strade...



Il tema è poco sviluppato, la priorità di questo approccio complessivo sulla tematica suolo è alta. L'urgenza è abbastanza alta perchè c'è un vuoto.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

E. politica-ricerca

Utilizza nel lavoro risultati della ricerca scientifica? I risultati della ricerca scientifica sono tradotti in info generali che vengono recepite e costruiscono una consapevolezza nuova...ma si tratta di una **ricerca empirica che non trova diretta attuazione nella attività professionale**. La ricerca aiuta a definire gli obiettivi, ma non c'è un trasferimento diretto ad es. nella pianificazione

Legambiente è in grado di condizionare l'agenda scientifica? Legambiente agisce in particolare sulla diffusione della conoscenza e il suo trasferimento in azione concreta. ma **Può anche indicare in tavoli di confronto degli assi prioritari su cui approfondire attività di ricerca**.

Le politiche rispecchiano rispondono alle esigenze di Legambiente con lentezza e in modo non pervasivo. I grandi quadri normativi sono piuttosto rigidi e la politica (faticosamente) assume nuove posizioni e acquisisce concetti chiave importanti, ad esempio sui temi della salvaguardia e tutela del suolo. Quello che manca sono strumenti attuativi.

In contesti più piccoli (a livello ad es. comunale) la politica è meno vincolata da pressioni e strutture e quindi risulta più "concreta".

La ricerca influenza le politiche di interesse per la sua professione? Sì, come illustrato sopra: la ricerca definisce gli obbiettivi e concetti che condizionano, permeano la politica che le traduce in linee guida e indirizzi di interesse per la professione.

Legambiente non svolge attività diretta di ricerca scientifica: Contribuisce alla diffusione e sensibilizzazione dei risultati scientifici.

FINANZIAMENTI

F. Risorse finanziarie

In che modo gli investimenti nella ricerca contribuiscono alla collettività? Sul tema del suolo non vedo effetto moltiplicatore poiché non si tratta di produzione di profitto. Tuttavia **un incremento di conoscenza può evitare costi** (specie sui rischi alluvioni).

"Come la ricerca su suolo è ambiente può comportare risparmi?" Lo si potrebbe studiare!!

Finanziamenti virtuosi

Finanziamento pubblico-privato? È efficace?

Auspicabile il maggiore coinvolgimento delle **fondazioni bancarie**. Progetto AGER Importante perché non è cosa comune in Italia. Fondazione Golinelli.

Il coinvolgimento delle fondazioni su questi temi è altrettanto importante che il sostegno sui temi sociali (va bene comprare l'ambulanza, ma una società va avanti anche con la ricerca sul territorio!)

Altro?

Sui finanziamenti del Life Indicazione e maggiore scambio tra i concorrenti e l'ente finanziatore: non ha senso fare proposte di ricerca con gran dispendio di energia se poi non ci sono certezze e non si sa se il bersaglio è interessante. Ciò richiede maggiore sforzo (valutazione preliminare aggiuntiva) ma rende meno barbaro il sistema di finanziamento



TEMI PER SRA

D. SRA

7. Sfide sociali:

Tra le sfide sociali, quella che più ci interessa in questo periodo riguarda il contributo alla mitigazione dei cambiamenti climatici e all'adattamento sociale.

8. Temi di interesse:

A. Capacità di progettare in modo di adattare l'ambiente urbano ai mutamenti

Partendo dalla sfida sociale relativa alla capacità dei nostri ambienti ad adattarsi ai cambiamenti occorre capire come questi possano essere perseguiti. Esigenza di vedere insieme il mutamento climatico e quello sociale. Se la ricerca aiuta se su questi temi si potrebbe indirizzare il progetto di città in un modo nuovo.

Da questo tema passiamo alla capacità di garantire un uso delle risorse corretto (distribuzione dei servizi energetici, ciclo dei rifiuti, ecc.). Un'idea ecologica della città discende da questa capacità di progettare in modo di adattare l'ambiente urbano ai mutamenti. Da qui deriva la possibilità di garantire un diritto fondamentale rappresentato dalla città salutare e sicura. Salute e sicurezza diventano gli impatti di una buona politica che unisce l'adattamento climatico e quello sociale.

Da questo deriva un cambiamento culturale e un grande investimento formativo. La ricerca dovrebbe aiutare perché dovrebbe fornire anche i materiali per formare le diverse categorie.

La ricerca può aiutare nel farci vedere come si sviluppano questi temi e come sono collegati, noi aiutiamo le politiche integrati. La ricerca è utile nel momento in cui ci aiuta a superare le settorialità.

Soggetti interessati: filiera pubblica perché la ricerca dovrebbe poterli aiutare nel superare le conflittualità che spesso ci sono tra soggetti pubblici, derivanti a una ripartizione per settori. Se la ricerca ci aiuta potremmo far lavorare la PA per progetti e non più per settori.

Altri soggetti interessati sono le classi professionali che hanno bisogno di essere aggiornati e formati verso questo nuovo approccio. Inoltre sono interessati tutti coloro che si occupano di formazione perché la formazione deve far sì che le ricerche vengano rese pubbliche e fatte conoscere. Spesso la formazione non usa nemmeno i materiali delle ricerche e questo rappresenta uno scollamento.

Questo tipo di ricerca potrebbe essere promosso dal settore pubblico ma anche le associazioni come l'INU, che si occupano del cambio culturale e i soggetti che si occupano, ad esempio delle politiche dell'abitare perché, occupandosi di servizi contribuiscono, in qualche modo, all'adattamento sociale.

Chi si occupa di politiche dell'abitare, che è un po' a metà tra il pubblico e il privato potrebbe essere promotore nei confronti del mondo della ricerca chiedendo che fornisca gli strumenti.

Tema di interesse per l'ente.

Tema condiviso da più paesi.

La ricerca si sta occupando del tema ma dovremmo riuscire a porre meglio i termini su cui lavorare per renderla più efficace. Esistono molte buone pratiche, l'obiettivo della ricerca dovrebbe essere quello di fornirci le connessioni, quindi poterci dare dei percorsi da approfondire, considerando i soggetti che poi potrebbero essere gli esecutori di buone pratiche.

La ricerca acquisita dovrebbe essere spaccettata per essere più efficace.

Il tema è importante e urgente, se non si cambia la mentalità è difficile produrre effetti, a cambiare le città in modo che cambino anche gli stili e i comportamenti.

Dando per scontato il livello europeo, il tema potrebbe essere finanziato a livello nazionale. Sarebbe importante avere un'agenda nazionale su questi temi... Anche le regioni e le città metropolitane potrebbero finanziare...

Strategie nazionali sul tema, al momento non se ne vedono...



B. Nuovi strumenti di supporto alla pianificazione basati sull'uso dei dati

INU sta collaborando per tentare di sviluppare degli strumenti informativi dinamici per valutare gli effetti delle scelte.

Con CRESME stiamo sviluppando uno strumento per valutare i movimenti delle popolazione a livello nazionale. Utile per il tema dell'adattamento sociale

Con UNINA stiamo sviluppando uno strumento informatico territorializzato e dinamico che riesce a misurare le prestazioni qualitative dei suoli a seconda delle scelte che si fanno (es. lavoriamo sulla città esistente, cosa si fa su un'area abbandonata? Che destinazioni diamo? Occorre invece lavorare sul ruolo e sulla funzione che un'area può avere per la città? Cosa capita se lo trasformo in area verde, se lo rendo permeabile...

Entrambi gli strumenti sono stati presentati al festival della Città Metropolitana...

A INU interesserebbe aiutare a sviluppare strumenti tecnologici che sgravano le conoscenze dalla staticità. Si potrebbero mettere insieme le varie sperimentazioni, anche con lo strumento sviluppato da SiTI (InViTo) per fare un progetto pilota che dimostri che gli indicatori non sono statici ma possono diventare degli strumenti.

Utilizzare i dati attraverso nuovi strumenti che li rendano dinamici e utilizzabili per la pianificazione...

Corrispondono molto bene a un progetto di città metropolitana transcalare

Sarebbe bello fare una prova confrontando i tre strumenti.

Soggetti interessati: in particolare gli enti che si occupano di pianificazione

Il finanziamento più plausibile è l'Europa

La ricerca potrebbe essere promossa dai vari enti che si occupano di pianificazione tra cui INU.

È un tema che riguarda l'attività di INU

È un tema condiviso da più paesi.

La ricerca sul tema è frammentata

Si potrebbe arrivare ad un nuovo modello di pianificazione in grado di integrare effettivamente più competenze. Potrebbe essere inserita nei processi decisionali

Priorità elevata per non perdere l'occasione della presenza di grandi moli di dati ad oggi poco utilizzati nelle scelte pianificatorie.

Se non si fa nulla si continuerebbe a pianificare con metodi tradizionali e si perderebbe un'opportunità.

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

E. INTERFACCIA TRA POLITICHE E MONDO DELLA RICERCA SCIENTIFICA

Legame tra politiche e mondo della ricerca

L'attività professionale è anche un'attività educativa, quindi è giusto portare l'esito delle ricerche fin nel più piccolo livello locale

Contaminazioni: sta cercando di utilizzare la ricerca sul tema delle nuove infrastrutture delle città, quelle cosiddette blu e verdi, unire l'urbanità alla naturalità in modo armonico.

Possibilità di condizionare i programmi di ricerca scientifica in Italia:

Non in grado di influenzare la ricerca, solo le politiche....

Non coinvolti in tavoli

La politiche italiane in materia di ricerca non riflettono abbastanza i nostri bisogni e le nostre priorità.

Non c'è ancora abbastanza contaminazione reciproca tra i due mondi.



In passato INU ha lavorato su progetti di ricerca scientifica in quanto all'interno di INU sono rappresentati il mondo scientifico, il mondo professionale e il mondo degli enti, quindi in passato, quando c'era più disposizione di fondi...

Quello che andrebbe migliorato sono le ricadute in termini di impatto.

INU sta lavorando a sostegno di un progetto della Regione Toscana...

Bisognerebbe che le ricerche si trasformassero in strumenti della nostra cassetta, diventassero praticabili...

FINANZIAMENTI

F. RISORSE FINANZIARIE

C'è una questione poco affrontata che è quella della responsabilità civica.

Un buon investimento potrebbe essere monitorato e valutato anche in base alla capacità di far crescere la conoscenza, la responsabilità e il contributo diretto al cambiamento che auspichiamo

Schemi di finanziamento virtuosi

Nei progetti c'è sempre una quota sulla divulgazione. Su questo tema si deve fare di più. La divulgazione non può essere solo un'attività informativa ma bisognerebbe riuscire a individuare delle forme più coinvolgenti. Le risorse sono poche e si dovrebbe fare uno sforzo per focalizzare meglio le ricerche...

H. SUGGERIMENTI

Possibili Soggetti da suggerire?

Lorenzo Bellicini CRESME

Fabio terribile – Università degli Studi di Napoli

NKS 29

TEMI PER SRA

TEMI

Sfide sociali:

Tutela della biodiversità naturale/domestica e alimentare

Utilizzo dell'acqua – razionale e senza dispersioni, grazie allo sviluppo tecnologico. Risparmio idrico ed energetico possibili ma un tema per ora trascurato

Garantire la sostenibilità dell'agricoltura, tema scottante perché

- Aumento popolazione mondiale – problema della sostenibilità della produzione di cibo, tendenza all'omologazione e alla perdita di ricchezza. Salvaguardare le produzioni locali,.

Soggetti utilizzatori: forza lavoro agricola, mondo dell'agricoltura, e in modo mediato tutta la cittadinanza che comunque acquista del cibo

Responsabili: politica, chi governa le politiche della ricerca nel paese dovrebbe dare gli indirizzi e innescare ricadute a cascata. Centri di ricerca strutturati a livello locale, che si muovono in modo più autonomo (cita SiTI) potrebbero ugualmente essere responsabili e individuare questa come priorità da approfondire



Riguarda il tuo ente? FCRC 80% risorse per innovazione tecnologica per agricoltura sostenibile (qualche ricerca fatta in passato anche per gestione energetica delle acque)

Priorità a livello mondiale (report UN, tema globale, sfida a cui bisogna rispondere insieme, a livello locale si può dare un contributo ma va affrontata a livello globale).

Ricerca: è maturata una consapevolezza sull'importanza di questi temi, c'è una coscienza culturale. Ma ancora molta strada da fare.. Manca ancora un orientamento politico della ricerca (importanza della sostenibilità ambientale → esempio boella che 5 anni fa progettava serre per coltivazione pomodori che fossero controllate in remoto..per evitare che i coltivatori rimanessero intossicati dai diserbanti: ha senso? dopo anni di piccole dosi poi uno si ammala)

L'innovazione tecnologica dovrebbe avere una guida etica (innovazione a che scopo?)

Priorità elevata, l'agricoltura influisce su cambiamenti climatici e riscaldamento globale, tipo di coltivazioni cambia CO2, saldo azoto ecc.

Urgente da risolvere, trend della popolazione globale è in crescita esponenziale, si spera che entro qualche decennio sia arresti, dobbiamo nutrire il mondo senza esaurire le risorse naturali.

Finanziatori: tutti gli organi che hanno la ricerca scientifica nella loro mission, organizz internazionali, ministeri, università, fondazioni private insistono molto a livello europeo sui cambiamenti climatici. Si stanno ancora studiando le dinamiche dei CC, bisogna lavorare sulle cause, rendere più sostenibile il rapporto con l'agricoltura. Quindi anche fondazioni private, non solo bancarie ma anche di impresa

Doc: vedi doc nazioni unite, studio FAO che lancia l'allarme su minacce agricoltura non sostenibile

In agricoltura tutti gli studi vengono fatti dalle grandi multinazionali proprietarie dei semi, orientamento OGM e grande produzione.

Al di fuori di queste, non ci sono piccole realtà che beneficino di fondi per la ricerca.

Fondazioni italiane guidate da Cariplo – progetto AGER per la ricerca scientifica in agricoltura. Vedi sito. (Più grande progetto europeo con fondi privati sul tema, 36 m euro).

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

POLITICHE/RICERCA

Come fondazione finanziamo la ricerca, mettiamo a disposizione del territorio i piccoli risultati che riusciamo ad ottenere. Non siamo utilizzatori.

Finanziamo la ricerca a due condizioni:

- Che sia prevista una disseminazione dei risultati
- Che venga coinvolto il territorio di 'competenza' (come da statuto delle fondazioni di origine bancaria in Italia, reinvestire gli utili sul territorio)

Non condizioniamo, neanche indirettamente, i programmi di ricerca. Tentiamo di dare un contributo nel nostro piccolo.

Non condizioniamo le politiche; c'è un minimo di dialogo tra l'associazione delle fondazioni e il governo, ma molto mediato

Sì, dialogo tra ricerca e politiche avviene, ogni ministero ha i suoi consulenti... voglio essere ottimista

Mai coinvolti nella formulazione di domande, né svolgimento, né...



FINANZIAMENTI

FONDI

- Le ricerche sicuramente hanno un effetto moltiplicatore e su altri ambiti; ci sono molti libri su come può essere progettata al meglio una ricerca... non saprei; provare a monitorare gli effetti delle ricerche, assicurarsi che abbiano un seguito nelle ricadute applicative, ma non saprei indicare metodi. Possiamo parlare piuttosto di temi, alcuni hanno più implicazioni, ad esempio l'acqua (risparmio energetico, suolo...)..
- Come meglio contribuire: concentrare le risorse (ma facendo attenzione a non sbagliare obiettivo!)
- Non conosco finanziamenti integrati; una volta noi finanziavamo la ricerca tecnologica in agricoltura, e obbligavamo le università a cofinanziare i progetti; ora che la ricerca è in crisi (almeno come finanziam.) diamo il 100% - dal 2015- (rispetto al 75% di prima). Era irrealistico pensare che un'università che ha 5000 euro all'anno riesca a cofinanziare una ricerca ad es con 30000. Dal nostro punto di vista quindi c'è piuttosto un'involuzione.

NKS 30

TEMI PER SRA

D. SRA

-Domanda 6: forniscono finanziamenti per la ricerca sia come titolari di programmi sia come gestori di risorse pubbliche.

7. Sfide sociali:

- Il consumo di suolo
- Garantire la salubrità di prodotti agroalimentari legato alla contaminazione del suolo e alla sicurezza alimentare
- La comunicazione e l'informazione su i rischi ambientali

8. Temi di interesse:

1. Trasferimento dei contaminanti presenti nel suolo in termini di biodisponibilità e bio-accumulo dei contaminanti. Sia nei vegetali che negli esseri umani. Con riferimenti ai contaminanti emergenti.
2. Comunicazione e informazione su i rischi ambientali

Tema 1

Soggetti? Sia operatori pubblici che privati, associazioni di categoria, associazioni ambientalisti e tutte le amministrazioni.

Soggetti responsabili? Ministero della salute e dell'ambiente.

Argomento riguarda la vostra attività? Sì

Tema nazionale? Condiviso da più paesi.

Stato attuale della ricerca? Ricerca in fase iniziale, deve essere implementata.



Come possono essere riutilizzati gli esiti della ricerca? Sia per implementare all'interno della normativa dei valori di riferimento adeguati rispetto all'obiettivo di preservare la salute. Correttivo dei valori di riferimento da attuare. Per i cittadini e le associazioni per promuovere una maggiore consapevolezza dell'effettiva pericolosità di queste sostanze presenti nel suolo.

Priorità? Elevato con urgenza media.

Se non si da nulla? Sovra o sotto stimare il rischio della contaminazione del suolo e generare degli allarmi o viceversa generare una sottostima dei rischi.

Chi dovrebbe finanziare? L'Unione Europea.

Ricerca già effettuata? Qualcosa c'è a livello internazionale ma a livello nazionale nulla. Solo alcuni indirizzi in documenti tecnici ma non sono una vera e propria strategia.

Tema 2

??? Definire una strategia europea sull'informazione in campo ambientale che garantisca l'applicazione di criteri minimi negli stati membri da utilizzare per comunicare i rischi ambientali, degli obblighi minimi.

Soggetti? Consumatori e privati perché è una garanzia di qualità.

Responsabili? Ministero delle politiche agricole, ambiente e salute.

In linea con la sua ricerca? No, ma con l'ente di appartenenza.

A che livello? Nazionale ma sentito dagli altri paesi.

Come può essere utile? Diventando uno standard obbligatorio diventa una certezza per gli utenti.

Priorità? Elevato con urgenza elevata. Implicazioni di carattere anche economico.

Chi finanzierebbe? L'Unione Europea.

Esiste qualcosa? Credo di sì

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

Legame tra politiche e mondo della ricerca: non c'è un trasferimento diretto dei risultati della ricerca scientifica nelle politiche.

Possibilità di condizionare i programmi di ricerca scientifica in Italia: Sì, non direttamente

La ricerca scientifica in materia di ambiente influenza le politiche di interesse per la sua professione?
L'applicazione dell'analisi di rischio sanitario ambientale per la gestione dei processi di bonifica.

FINANZIAMENTI

F. RISORSE FINANZIARIE

Gli investimenti come possono contribuire alla collettività? Diretta rispetto alle spese in materia sanitaria e rispetto allo sviluppo economico.

Strategie e schemi di finanziamento? No.

Finanziamenti utilizzati? Con la ricerca universitaria i finanziamenti del ministero dell'università della ricerca, finanziamenti nazionali di enti e istituti di ricerca (MIUR finanziamenti call su bandi, con ISPRA finanziamenti diretti), INTERREG.

Finanziamenti integrati? Modello da implementare come in Europa. Supporto di carattere normativo per far funzionare meglio il meccanismo.

NKS 31

TEMI PER SRA

D. SRA

7. Sfide sociali:

- Acqua potabile
- Produzione e sicurezza alimentare

8. Temi di interesse:

- Produzione di prodotti della filiera di carne nel rispetto della qualità.
- Acqua potabile.
- Cambiamenti climatici

Tema 1

Sanificazione del prodotto per grandi marche, trattamenti alternativi alla sanificazione chimica.

Tema 2

Regioni senza acqua potabile, contaminate (atrazina e arsenico), manca la ricerca di base, la caratterizzazione delle falde di acqua potabile, nessun progetto, hotspot da denuncia, manca piano nazionale di qualità delle acque potabile.

I soggetti interessati: regioni, ministero dell'ambiente e della salute.

I promotori: dovrebbero essere gli assessori alla sanità delle regioni.

Questo tema interessa la sua attività professionale: Non direttamente

È un tema di rilevanza: europea, UE

La nuova conoscenza da acquisire: definire il concetto di qualità dell'acqua e realizzare una mappatura che identifichi le regioni che presentano una situazione di emergenza.

Esistono documenti ? letteratura grigia, qualche studio sparso.

Tema 3

Cuneo salino e desertificazione

INTERFACCIA POLITICHE/MONDO SCIENTIFICO

E. INTERFACCIA TRA POLITICHE E MONDO DELLA RICERCA SCIENTIFICA

Legame tra politiche e mondo della ricerca: mancano le basi per costruire il legame.

Possibilità di condizionare i programmi di ricerca scientifica in Italia: sul tema del cibo sì, elaborazione dell'indice di Pollenzo, feedback con regioni e ministero dell'agricoltura.

La ricerca scientifica in materia di ambiente influenza le politiche di interesse per la tua la professione? Ben poco.

FINANZIAMENTI

F. RISORSE FINANZIARIE

Gli investimenti come possono contribuire alla collettività? Non frammentare con interventi archeologici???, con programmi nazionali interdisciplinari coinvolgendo istituti e università serie, troppe risorse sprecate, molti dati presenti ma non utilizzabili. Bisognerebbe come prima cosa revisionare l'esistente.

Strategie e schemi di finanziamento? Tassa sulle industrie da destinare alla ricerca, qualsiasi attività che attinge dall'ecosistema deve pagare una tassa.

Finanziamenti utilizzati? Tutto.

Finanziamenti integrati? Poco presenti, qualcosa avviene nei grandi piani PON.

9. Poland

Report by Anna Starzewska-Sikorska

9.1 Introduction

This national report (i.e. INSPIRATION deliverable 2.4) reports the information collated for Poland. The information was collated in accordance with INSPIRATION D2.3 "Template for national information collation". In Poland, 13 NKS were interviewed. Further 3 persons will be interviewed in next 3 weeks. Details on these NKS are provided in Annex I. The desk study was based on documents as suggested by NKS.

9.2 Research and Innovation (R&I) needs

Topic a: Demand-driven* suggestions for the Strategic Research Agenda (SRA), i.e. suggestions from the perspective of industry, end-users and funders.
Related key question to be answered: ***What (new) knowledge do these parties need to tackle societal challenges including the increase of job opportunities?***

****Demand-driven** in INSPIRATION means focusing on the demands of those who are responsible or feel committed to tackle the societal challenges related to the INSPIRATION scope and themes, i.e. industry, end-users and funders. These parties could improve their business opportunities and/or take better informed decisions on what measures to take and execute in order to tackle other societal challenges if they would (be enabled to) use the knowledge as resulting from execution of the INSPIRATION SRA.

9.2.1. Societal challenges and needs

1. One of the examples is fees for water. They are very low but they cannot be increased - it is a problem of social sensitivity. But there is a question: what percentage in the fee for water is taken by the costs of water supplying company functioning and how much is used for environmental costs? It is one of the economic aspects. There is a need for including of economic aspects in environmental management.

2. Safe environment is a serious social challenge. People still in some regions are exposed to environmental risk connected with polluted soil. There is food production on areas with increased level of pollution. There is no policy, no risk management. There should be a system connected financial analysis but also with education of producers and consumers.

3. 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.

4. Education is necessary of general public. Especially concerning pro-ecological solutions in cities, long-term consequences of decisions, e.g. concerning transport. Education should be conducted on all levels. From small children to adults. People have to be confirmed 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.



There is also a need for collecting information on EU reports concerning soil. Reports presenting shortly and in simple language the results and conclusions and also recommendations which would support national policies.

9.2.2. Topics / research needs to include in the SRA

Soil problems in Poland are reflected in several research needs:

Research project: Estimation of pollution caused by emission from soil erosion and its impact on water and sediments.

Research project connected with the above: Climate change impact on soil erosion

Erosion is a significant factor, which has to be taken into consideration in soil threat assessment. In Poland 40% of soil is exposed to erosion. Erosion is a physical process which has significant chemical consequences connected with secondary dusting, threatening the environment including water and sediments.

Therefore in the planned research there is a need for answer to the question what part of pollution is transferred to water and sediments, estimation is needed to what extend erosion is contributing to this pollution. It is also important to investigate the impact of climate change on erosion. In this case both heavy rains and long-term droughts have to be taken into account.

Research project: Evaluation of a loss of soil habitat quality resulting from changing functions of urban areas.

Problem of soil in urban areas. There is a need of joining the soils management and land use management in urban areas. The urban soil is not protected and in Poland 30% of agricultural soil is in urban areas. There is no an appropriate approach to soil management in land use planning. It is also connected with changing the agricultural function into different one (e.g. housing) therefore in a consequence we have a significant fragmentation of the landscape in urban areas.

Research project: Geochemical and biochemical atlas of areas in a scale useful for local land use planning

There is a need for better identification of soil quality and state by construction of maps of a large scale to be used for local (municipal) land use plans. It is also important in the context of the impact of brownfields - especially these polluted with heavy metals and hydrocarbons - on underground water resources. The lack of information on brownfields soil and ground quality (pollution level) is also a barrier for further planning of new functions on an area. Such atlas could be based on geochemical and biochemical investigations and give the picture on the potential of the land resources in urban areas, also in the aspect of risk connected with this pollution.

Research project: New land use planning theory

There is a need for new methods of land use planning. Land use planning theory is necessary. The land use plan should look different than it used to look. Today there is a play of interests and the local self-government is just one of the players. Investors dictate conditions, otherwise they go somewhere else.

Urban sprawl is a problem of the change control. There are certain trends, fashion, people need an attractive alternative to choose living inside a city. It is a question of new policy not research.

Research project: Legal and economic instruments supporting land management efficiency (possibilities of use of frozen areas inside the city – in order to counteract extensive use of land inside the city).



Research topic: Analysis of various alternatives of country adaptation to climate change (e.g. comparing various technologies with for instance planting trees instead of collection of CO₂ in underground post-mining excavations).

Space is a limited resource. It should be used rationally, the land management should avoid extensive use of land. It results in urban sprawl. We should also use the land in coherence with climate change adaptation. For instance in Poland there are plans for housing areas exceeding significantly the needs. It has been estimated that we have housing areas in plans for about 130 mln and for the nearest 300 years. Instead of planting trees/ increasing forests area we use land for housing. It is due to economic factors – the housing lots have higher value.

Research project: Criteria of soil quality assessment including bio-availability.

There is a problem of bio-availability of pollution in soil. It is important to know, how high the level of bio-availability is. It happens that there is low level of pollution but the bio-availability is high and another way round.

There is a need for monitoring of soil and changes in the soil. It should be a multi-year program of soil changes observation including new methods of soil protection against climate change, protection of biodiversity (plants, birds, mammals).

To this end a common policy of ministries of agriculture and environment is necessary in order to counteract factors threatening soil.

Strategic topic. New instruments for assessment of changes in soil – identification of synergies, risk mechanisms, acidification, loss of organic matter cumulated mechanisms. There is a need for assessment of these mechanisms.

9.3 Experiences regarding connecting science to policy/practice

Topic b: *Experiences regarding the exploitation of scientific knowledge to improve business opportunities and/or tackle other societal challenges.*

*Related key question to be answered: **Where to improve the science-policy interface so that (new) knowledge can and will be more effectively exploited by the demand side?***

9.3.1. Use of knowledge

1. Education is needed of local and regional public authorities concerning risk management to protect human health connected with food production on polluted soil.

2. It is important how researchers contribute to their project implementation. This implementation should be regarded from the very beginning of the project and should be developed parallel to the research itself. Also the project authors should formulate conclusions in a practical form to show what consequences concerning social challenges will take place after the project implementation. It is a task of the researchers. It is not a project proposal but it should be taken into consideration by all researchers. It is a question of the science-policy interface.

9.3.2. Possibilities to set the agenda

According to the statements in the interviews in this subject there is an opinion, that the present national agendas do not reflect the specific needs and priorities expressed in the discussions.

9.3.3. Science – policy – 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.

9.4 National and transnational funding schemes

Topic c: *Predominant, current as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination.*

Related key question to be answered: *How to get with one Euro of national/regional funding a multitude of Euro's (from all sources) worth of knowledge in return contributing to EU and national demands? Or even how to get with one euro of EU funding a multitude of euro's (from national, regional, local, and private sector) worth of knowledge in return contributing to the R&I demands on Land and the Soil-Sediment-Water systems.*

Topic d: *Experiences regarding the use of any trans-national, common budget for scientific knowledge production related to the scope of INSPIRATION.*

Related key question to be answered: *How to set up/govern the appropriate funding option(s) resulting from INSPIRATION – based on previous learning experiences – so that: (1) the above demands will be fulfilled, (2) knowledge resulting from implementation of the SRA will be taken up and used and (3) funders experience that their invested, national Euros are indeed multiplied?"*

9.4.1. Funding schemes and possibilities for research funding

Financing research in Poland

Except for military R & D projects (which are financed through direct transfers from the Ministry of Finance to the Ministry of Defence), all government support for separately budgeted research is channeled entirely through the **Ministry of Science and Higher Education**. There are six ways of financing:

1. Core funding for statutory R & D activities, i.e. institutional finance provided selectively to designated research establishments, units and university departments for covering the costs of their own research activities. Schools at university level cannot use those funds to finance their educational or training activities.
2. Investments in R & D infrastructure, such as buildings and equipment.
3. Peer-reviewed research grants based on research proposals, presented by small



research teams or individual researchers, no matter where they are employed or what scientific degrees they hold. Applications are evaluated by an appropriate group of the Committee twice a year. Research projects should deal with new scientific problems and must not be financed from the state budget in any other form.

4. Subsidies for R & D programmes of national importance commissioned by enterprises, state administrative bodies or local authorities. The financial means are allocated for the implementation of projects and the utilization of research findings.

5. Subsidies for international scientific and technological cooperation resulting from intergovernmental agreements.

6. Subsidies for selected R & D support activities (e.g. information services).

National Science Centre (NCN)

NCN is a government agency, supervised by the Ministry of Science and Higher Education, set up in 2011 to support basic research in Poland. Basic research is defined as experimental or theoretical endeavours undertaken to gain new knowledge of the foundations of phenomena and observable facts. With a budget of over € 200 M a year NCN funds projects in Arts, Humanities and Social Sciences, Life Sciences and Physical Sciences and Engineering. The NCN has set up [10 types of funding schemes](#) dedicated to researchers at different stages of their career.

NCN goals

- supporting excellent research projects in all fields of science and humanities
- funding doctoral scholarships and post-doctoral internships
- financing research projects carried out by experienced researchers aimed at implementing pioneering research important for the development of science
- inspiring international cooperation in basic research
- supervising the implementation of the awarded research projects

Funding schemes

The National Science Centre supports basic research by funding **research projects** carried out by **individual researchers and research teams**, both on the domestic and international level, as well as **doctoral fellowships** and **post-doctoral internships**. NCN announces calls for proposals four times a year. NCN funding schemes:

[OPUS](#): general grants

OPUS is a funding opportunity intended for a wide range of applicants. The research proposal submitted under this scheme may include the purchase or construction of research equipment.

[HARMONIA](#): international research projects

HARMONIA is a funding opportunity designed for scientists wanting to carry out research in the following forms:

- in cooperation with foreign partners,



- within the framework of international programmes or initiatives announced under bi- or multilateral cooperation,
- utilising large-scale international research infrastructure.

[MAESTRO](#): advanced grants

MAESTRO is a funding opportunity designed for advanced researchers wanting to conduct pioneering research, including interdisciplinary research which is important for the development of science. Projects within this funding scheme should surpass the current state of knowledge, lead to the creation of a new paradigm, or forge pathways to new frontiers in that field.

[TANGO](#): proof-of-concept type grants

TANGO is a funding scheme that enables scientists, engineers and scholars to turn their projects in basic research into solutions and products that may benefit populations and economies in a direct way. This funding opportunity is organised by the NCN together with the NCBR (National Centre for Research and Development).

[SYMFONIA](#): interdisciplinary grants

[ETIUDA](#): doctoral scholarship

[FUGA](#): post-doctoral internships

[PRELUDIUM](#): pre-doctoral grants

[SONATA](#): PhD holder grants

The National Centre for Research and Development

The National Centre for Research and Development is the implementing agency of the Minister of Science and Higher Education. It was appointed in the summer 2007 as an entity in charge of the performance of the tasks within the area of national science, science and technology and innovation policies. When it was founded, it was the first entity of this type, created as the platform of an effective dialogue between the scientific and business communities.

In addition, the National Centre for Research and Development extended its activity with new initiatives and possibilities on 1 September 2011. Assigned by the Ministry of Science and Higher Education the function of the Mediation Institution in three operational programmes: Human Capital, Innovative Economy and Infrastructure and Environment, the Centre became one of the greatest innovation centres in Poland.

The activity of the Centre is funded by the national treasury and the European Union.

Currently, the Centre is implementing two strategic research and development programmes:

- Advanced Technologies for Energy Generation;
- Interdisciplinary System for Interactive Scientific and Scientific Technical Information;



The National Fund for Environmental Protection and Water Management (NFEP&WM)

The National Fund for Environmental Protection and Water Management which was established in 1989 in cooperation with voivodeship funds for environmental protection and water management is the pillar of the Polish system of financing environmental protection.

The financing system was extended in 1993 with voivodeship funds for environmental protection and water management. The National Fund for Environmental Protection and Water Management runs independent finances pursuant to the Environmental Protection Law. By putting the principle of “polluter pays” into practice, the National Fund collects funds mostly from: fees and fines for exploitation of the environment, mining fees and concession fees, payments resulting from Energy Law and the Act on recycling of end-of-life vehicles, revenue from sales of CO₂ units and other sources. The National Fund ensures the use of foreign funds for environmental protection from, *inter alia*, the Cohesion Fund, the European Regional Development Fund, the LIFE+ financial instrument, the Norwegian Financial Mechanism and the European Economic Area Financial Mechanism. Owing to the Green Investment Scheme (GIS) and funds obtained by Poland in international sales transactions of CO₂ emission allowances granted under the Kyoto Protocol, the National Fund co-finances investments from the field of climate protection and reduction of CO₂ emissions.

The National Fund offers assistance to beneficiaries in an efficient and timely implementation of projects having *inter alia* programmes for co-financing implementation of projects using national funds. The National Fund provides financial support mostly for projects which implement environmental obligations of Poland transpiring from the membership in the European Union. It also supports the Minister of Environment in meeting Polish obligations under *inter alia*: the Climate Convention, the Convention on Biodiversity, the NATURA 2000 Programme.

Bank for Environmental Protection

This is a Polish Bank. Since 1997 its shares have been quoted on the main market of the Warsaw Stock Exchange.

For over 20 years the bank has inspired the customers to spend less and earn more profiting from ecology. The bank creates innovative banking products with “green benefits” added to the profit of their personal finances. The bank’s product offer regularly earns awards and honorary mentions of independent financial experts.

Also the bank’s corporate customers benefit from preferential loans for environmental investments supporting their business development.

For 24 years of operations, the bank has contributed 15,1 billion PLN to finance ecological projects.

Deposits collected in BOS Bank are protected by the Bank Guarantee Fund.



9.4.2. Gaps in financial resources for research

There is wide research area that is not covered by any funding mechanisms – economic aspects in ecological projects.

There is also a need for wider approach to revitalization in Poland. It is still a problem although many areas have been already rehabilitated but at the same time the so far results show weak points in the process. The conclusions are presenting a wrong approach to the whole process. The social and economic aspects have to be involved in the revitalization process. Before starting with rehabilitation/revitalization projects the economy of a municipality/town/city has to be strengthened. It should be included in documents concerning general strategy of social and economic development. These documents should then refer to social challenges connected with the environmental conditions and environmental resources availability and quality.

9.5 Other remarks made by interviewees

1. If dangerous substances are identified in a brownfield ground or an object located on it, there is a problem of profitability of remediation activities which bring costs prevailing benefits resulting from re-use of an area after remediation. There is no mechanism which would make an investor cover costs of pollution removal. In most cases investors give up if it is a condition of using the area.

In a conclusion it should be stated that brownfields remediation constitutes a barrier for re-using these areas. There is a lack of efficient mechanism of financing activities aiming at rehabilitation of these areas which cannot be re-used in the present state.

It should be stressed that if remediation is to be an own task of a municipality, it is a wrong solution as local municipality has no means to cover high costs of remediation. Such tasks should be financed by other sources.

1. Acidification constitutes a Basic factor of soil degradation In Poland. The scale of this phenomenon is the highest in Europe. It takes place despite multi-year practice of liming. Acid and very acid soils in Poland cover 60% of all soils used for agriculture. It causes decreasing of efficiency especially in case of using fertilizers. There is no research how in various environmental conditions mitigation of acidification will proceed – what will be liming efficiency. It is well known that acidification is also causing other negative effects not only these connected with agricultural production. There is migration of mineral compounds, e.g. aluminium is migrating to underground water. Therefore these resources especially in northern Poland are seriously threatened, which is causing negative health effects in form of increased number of large intestine cancer cases.

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



9.6 Annexes

1a: NKS interviews in Poland

Date of interview	Organisation	Interview	funder	end user	knowledge provider	Nat.re g.loc. authority	Univ./research inst	SME /consultant	business & industry	NGO	network	other	soil	sediment	water	land use-management
24-09-15	Faculty of Architecture, Silesian University of Technology	Zbigniew Kamiński			1		1									1
14-10-15	National Fund for Environment Protection and Water Economy	Jerzy Swatoń	1			1							1			
12-10-15	Society of Polish Town Planners	Maciej Bors		1								1				1
05-11-15	Polish Ecological Club	Ewa Hajduk		1						1					1	
10-07-15	Industrial and Technological Park EkoPark Ltd	Alina Karnabał		1					1							1
11-06-15	Institute of Soil Science and Plant Cultivation	Bożena Smreczak			1		1						1			
30-06-15	Silesian University - Department of Earth Sciences	Janusz Janeczek			1		1						1			
28-04-15	Institute of Environmental Protection	Barbara Gworek			1		1						1		1	
13-05-15	SGS Ekoprojekt	Tomasz Stuczyński		1	1				1				1			1
18-09-15	Institute for Ecology of Industrial Areas	Marta Pogrzeba			1		1						1	1		
28-09-15	Committee for Spatial Economy and Regional Planning	Krzysztof Gasidło			1		1									1
02-10-15	Land Use Planning Department in the City of Sosnowiec	Barbara Knapik		1		1										1
23-10-15	Marshal's Office Silesian Voivodeship	Robert Orpych		1		1										1
26-10-15	Upper Silesian Fund	Tadeusz Adamski	1						1							1
05-11-15	Company of Przechlebie Waste Dump Exploitation	Leszek Bartkowiak		1				1								1
05-11-15	National Fund for Environment Protection and Water Economy	Wanda Galikowska-Kopacka	1			1							1			
05-11-15	Silesian University -	Adam Rostański			1		1						1			

Annex Ib: NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training on 22nd – 23rd June 2015.

[Note: this questionnaire template is meant to help National Focal Points (NFPs) to facilitate the interview/conversation with the National Key Stakeholders (NKS). Some questions are relevant to one NKS, other questions to another NKS. Hence, not all questions are relevant to each single NKS. The NFPs are required to adapt the template accordingly – keeping in it as many as possible of the issues to be addressed. If needed, the NFPs also translate the questionnaire into their national language.]

The questionnaire (see next pages) has the following outline:

- OO. Interview information:
To be filled out by the interviewer
- PP. Introduction:
That the interviewer can use to start the NKS interview
- QQ. Background information of the NKS interviewed:
Mostly 'tick-boxes'
- RR. Strategic Research Agenda (SRA):
NKS preferred topics, overarching themes and scope for the SRA and national state-of-the-art on research agendas that the NKS is aware of
- SS. Science-Policy-Interface:
NKS experiences regarding the exploitation of scientific knowledge to: improve business opportunities; tackle other societal challenges; assist policy-implementation and/or policy revision
- TT. Funding:
Predominantly used as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination that the NKS is aware of
- UU. Other:
At the end there is some time advised to let the NKS give us their advice, some nice quotes (that we can use anonymously in our communications), examples etc.
- VV. Ending the interview:
Explain follow up and if/how NKSs will be involved in the next steps of INSPIRATION

Questionnaire template in Polish

A. Informacje dot. wywiadu: Kraj: Nazwisko osoby ankietowanej: Instytucja/ pozycja w instytucji: W jaki sposób osoba ankietowana chce być cytowana: Nazwisko osoby ankietującej ze strony projektu INSPIRATION: Data wywiadu:
B. Preambuła: Wprowadzenie <i>Głównym celem projektu INSPIRATION jest sformułowanie, skonsultowanie oraz zweryfikowanie z punktu widzenia użytkownika końcowego strategicznej agendy badawczej (SAB) w zakresie gospodarowania przestrzenią, zmian w gospodarowaniu przestrzenią i w i w zarządzaniu systemem gleba-osady-woda (Soil-Sediment-Water – SSW) w świetle obecnych i przyszłych wyzwań społecznych (cywilizacyjnych).</i> <i>Projekt zmierza do zbudowania modeli wdrażania SAB i przygotowania sieci publicznych i prywatnych instytucji finansujących realizację SAB.</i> <i>Wywiad stanowi część serii wywiadów prowadzonych w krajach UE zbierających informacje dotyczące stanu badań dotyczących gospodarowania przestrzenią, zmian w gospodarowaniu przestrzenią i w zarządzaniu systemem gleba-osady-woda jak również ich finansowania a w szczególności poszukiwania potrzeb badawczych oraz przyszłych możliwości ich finansowania.</i> <i>W wywiadach koncentrujemy się na wymiarze strategicznym ankietując osoby będące mistrzami w dziedzinie, mającymi szerokie spojrzenie i mogącymi wskazać kierunki w zakresie badań glebowych. Wywiad nie powinien przekroczyć czasu jednej do półtorej godziny.</i> Formularz zgody ankietowanego: należy przekazać formularz osobie ankietowanej z prośbą o wypełnienie
C. Informacje dotyczące osoby ankietowanej 51. Obecna rola i zadania związane z badaniami dotyczącymi gleb/terenów? Czy jest Pani/Pan osobą pracującą w (możliwa więcej niż jedna odpowiedź): ☐ administracji krajowej/regionalnej/lokalnej, ☐ uniwersytecie/instytucji naukowo-badawczym, ☐ MSP/konsultant, ☐ biznes/przemysł, ☐ NGO,

○ reprezentant/lider sieci, ○ Inną, proszę podać:.....
2. Jak długo Pani/Pan działa w tej roli? <i>[czy pojedynczo, czy w zespole, jaka wielkość zespołu, wykształcenie etc.]</i>
3. Dziedzina (możliwa więcej niż jedna odpowiedź): ○ Gleba ○ Woda ○ Osady ○ planowanie miast ○ projektowanie krajobrazu ○ zarządzanie przestrzenią ○ O Inne.... ○
4. Czy Pani/Pana organizacja finansuje badania? • Tak, proszę określić (jako właściciel programu, incydentalnie, jako finanse publiczne, prywatne) • Nie
D. Strategiczna Agenda Badawcza (SAB)
5. Jakie są Pani/Pana preferencje w odniesieniu do SAB? <i>[Think about time span of research need, state-of-the-art description, stakeholder analysis, issues per country or cross European countries, overview of national agendas, funding opportunities, matchmaking opportunities,...] [Należy wziąć pod uwagę okres realizacji potrzeb badawczych, obecny stan wiedzy, analizę grup interesariuszy, problemy w skali kraju i w skali wielu krajów europejskich, przegląd krajowych agend, możliwości finansowania, możliwości łączenia (powiązania),...]</i>
6. Jakie są Pani/Pana oczekiwania w odniesieniu do SAB? <i>[To what strategic objectives should it contribute?] [Do których celów strategicznych powinna nawiązywać agenda badawcza?]</i>
7. Pani/Pana proponowany zakres/ tematyka w SAB? <i>[Content based: kind of areas, scales, societal challenges, needs, ...] [zakres merytoryczny: rodzaje terenów, skala, potrzeby społeczne,...]</i>
8. Obecne agendy badawcze / programy <i>[Ask for available documents, sources or desk-study including the timeline of programming and windows-of-opportunities to influence agendas / programs]</i> <i>[Dostępne dokumenty, źródła lub prace studialne dotyczące programowania i inne okazje mające wpływ na agendy / programy]</i>
9. Czy prowadzi się ocenę efektów / oddziaływania badań w Polsce? <i>[If not: why, and if yes: how and what lessons could be learned for new research]</i>

programmes? it is impact evaluation of research, not about quality of research. Info is of need for our implementation plan. WP4! What evaluations/studies have been made to measure the quality of land and SSW related research in your country? Try and obtain copies of these studies if you don't already have them. What do you consider to be the most important two or three findings of these evaluations/studies? = follow-up to question 8: existing research agenda's / programs]

[Jeśli nie: dlaczego a jeśli tak: jak to się odbywa i jakie płyną wnioski dla nowych programów badawczych? Jest to ocena wpływu badań, a nie ich jakości. Wnioski są potrzebne dla planu wdrażania. Jakie przeprowadzono działania/ studia, aby ocenić jakość badań dotyczących terenów oraz systemu GOW w Polsce? Jakie są dwa-trzech najważniejsze wnioski z tej oceny? To jest powiązane z pytaniem 8: istniejące agendy / programy badawcze]

10. Co obecnie znajduje się w krajowej agendzie badawczej w zakresie tej tematyki (zarządzanie terenami/ system GOW)?

11. Jakie zagadnienia mają priorytet? *[należy skorzystać z poniższych pytań i rozumieć zagadnienia praktyki gospodarowania przestrzenią, zmian w gospodarowaniu przestrzenią i w zarządzaniu systemem gleba-osady-woda, która może:*

- *przyczyniać się do bezpieczeństwa żywności;*
- *zapewnić bezpieczne dostawy wody pitnej;*
- *zapewnić dostawy i dystrybucję energii;*
- *obniżyć konsumpcję materiałów i surowców / zasobów;*
- *zapewnić efektywne wykorzystanie zasobów naturalnych;*
- *przyczyniać się do mitygacji i społecznej adaptacji do zmian klimatu;*
- *przyczyniać się do zapewnienia zdrowego środowiska do życia;*
- *zapewnić bezpieczną infrastrukturę]*

[Do każdego z powyższych pytań odnoszą się pytania poniżej:]

12. Jak dalece pilne /palące jest to zagadnienie [co się stanie, jeżeli nic nie zostanie zrobione]?
13. Kto odczuje skutki?
14. Kto jest odpowiedzialny?
15. Czy jest to temat zajmujący szczególnie Pani/Pana instytucję / branżę biznesu lub jest to problem całego kraju czy może większej liczby krajów?
16. Jaka jest najważniejsza potrzeba badań dotycząca tego zagadnienia?
[Gdzie jesteście teraz, gdzie chcemy być za x lat proszę wskazać horyzont czasowy]
17. W jaki sposób mogą być wdrażane proponowane zmiany i nowa wiedza?
18. Kto powinien finansować te badania?

E. Relacja Nauka - Praktyka (SPI)

19. Jakie są Pani / Pana doświadczenia w wykorzystaniu wiedzy naukowej do:
- poprawy sytuacji w biznesie?
 - rozwiązywania problemów społecznych?
 - wspierania wdrażania polityk i/lub zmiany polityk?

- [Co działa dobrze a co należy poprawić?]*
20. Z jakich źródeł informacji (naukowej) Pani/Pan korzysta?
[Gdzie znajduje Pani/Pan informacje, co byłoby potrzebne? Czy korzysta Pani/Pan z Wise-RTD? Z innych websites? Itd.]
21. W jaki sposób sektor nie-naukowy (biznes, zarządzanie, inni interesariusze) jest włączony w kreowanie potrzeb i pytań do nauki?
[Co działa dobrze a co należy poprawić?]
22. W jaki sposób sektor nie-naukowy (biznes, zarządzanie) jest włączony w realizację nauki?
[Co działa dobrze a co należy poprawić? Czy poprzez włączenie w konsorcja naukowo-innowacyjne, włączenie we współtworzenie wiedzy itd.]
23. Czy Pani/Pan zna, może polecić dokumenty krajowe SPI?

F. Finansowanie

24. Jakie modele finansowania są Pani/Panu znane (z własnej działalności lub z doświadczenia), które mogą być przydatne w skali:
- e) Regionalnej?
 - f) Krajowej?
 - g) Europejskiej?
[np. H2020, wielostronne takie jak Inicjatywy Wspólnego Programowania - Joint Programming Initiatives]
 - h) Międzykontynentalne?
[np. Belmont Forum]
- [For all R&I questions aiming at achieving policy targets in the Land & SSW related system, like e.g. Sustainable Development Goals on soils (to be adopted at UN level in September 2015, existing EU directives such as the Environmental Liability Directive, etc. Considering all Public and Private funding sources. If possible please ask to provide details and give most important references (documents, website) that could be relevant for explaining the answer] [*
25. Jak uzyskać pomnożenie zainwestowanego w skali regionalnej/krajowej 1 Euro (1 PLN) (biorąc pod uwagę wszystkie źródła finansowania) jako wartości uzyskanej w efekcie nowej wiedzy odpowiadającej na europejskie i krajowe zapotrzebowanie?
[CONSTRUCTIONS that (could) work??? PP, PPI, etc. Just ask for suggestions, ideas, and experiences: as open as possible!]
26. Lub inaczej: jak uzyskać zwielokrotnienie zainwestowanego 1 Euro (ze źródeł krajowych, regionalnych, lokalnych i prywatnych) w postaci wartości nowej wiedzy odpowiadającej na zapotrzebowanie europejskie i krajowe w dziedzinie badań i innowacji w zakresie terenów oraz systemu GOW?
27. Dobre przykłady współpracy w ustalaniu/wdrażaniu/finansowaniu programów badawczych (finansowanych) w zakresie projektu INSPIRATION?
28. Czy są dziedziny, które obecnie nie znajdują finansowania a które wymagałyby nowych systemów finansowania?
29. Badania zintegrowane (niezbędne w przypadku szczególnych problemów

społecznych związanych z systemem GOW oraz zarządzaniem terenami) są trudne do sfinansowania a także rzadko podejmowane przez gremia naukowe. Co byłoby niezbędne, aby ten problem rozwiązać?

30. Jak planować /zarządzać odpowiednimi opcjami finansowania wynikającymi z projektu INSPIRATION – na podstawie poprzednich doświadczeń - tak aby:

- potrzeby społeczne były zaspokojone?,
- wiedza wynikająca z realizacji Strategicznej Agendy Badawczej była przyjęta i wykorzystana? oraz
- wykorzystać doświadczenie “fundatorów”, którzy rzeczywiście pomnożyli zainwestowane w wiedzę pieniądze w skali swoich krajów?

G. Inne (uwagi, sugestie, przykłady):

H. Zakończenie wywiadu

Dziękuję za poświęcenie czasu i uczestniczenie w tym wywiadzie:

- Czy chciałaby Pani/Pan być informowana o projekcie INSPIRATION?
- Czy może Pani/Pan zasugerować, z kim jeszcze możnaby przeprowadzić ten wywiad?
- Czy ma Pani/Pan jakieś pytania wynikające z treści tego wywiadu?

[Być może osoba ankietowana będzie miała życzenie, aby przedstawić jej treść podsumowania wywiadu i/lub wyniki badań. Jeśli tak, to należy poinformować, że nie będziemy przekazywać całych sprawozdań, natomiast możemy udostępnić zestawienie wyników projektu z chwilą ich opracowania. Należy także wspomnieć, że aspekty nie omówione w trakcie wywiadu mogą zostać dołączone do KPK]

10. Portugal

Report by Thomas Panagopoulos, Vera Ferreira, Dulce Antunes

10.1 Introduction

This national report (i.e. INSPIRATION deliverable 2.4) reports the information collated for Portugal. The information was collated in accordance with INSPIRATION D2.3 “Template for national information collation”. In Portugal, 20 NKS were interviewed. Details on these NKS are provided in Annex I. The desk study was based on documents as suggested by NKS. These are listed in Annex II.

10.2 Research and Innovation (R&I) needs

Topic a: Demand-driven* suggestions for the Strategic Research Agenda (SRA), i.e. suggestions from the perspective of industry, end-users and funders.
Related key question to be answered: **What (new) knowledge do these parties need to tackle societal challenges including the increase of job opportunities)?**

****Demand-driven** in INSPIRATION means focusing on the demands of those who are responsible or feel committed to tackle the societal challenges related to the INSPIRATION scope and themes, i.e. industry, end-users and funders. These parties could improve their business opportunities and/or take better informed decisions on what measures to take and execute in order to tackle other societal challenges if they would (be enabled to) use the knowledge as resulting from execution of the INSPIRATION SRA.

10.2.1. Societal challenges and needs

When asking the most important societal challenges, the interviewees listed the following (in parenthesis is the number of preferences):

- Reduce raw material and resource consumption, Ensure efficient use of natural resources; (16)
- Contribute to food security and food safety; (14)
- Contribute to a healthy living environment; (14)
- Contribute to climate change mitigation and societal adaptation; (13)
- Ensure secure supplies of safe drinking water; (11)
- Secure energy supply and distribution; (3)

10.2.2. Topics / research needs to include in the SRA

A synthesis of specific topics indicated by the NKS to include the SRA was the following: Soil fertility, increasing soil organic matter; soil conservation practices and sustainable management. Potential productivity of soils (which cultures). Organic farming / sustainable agriculture; sustainable production techniques; economic valorisation of non-wood forest resources. Soil pollution. Effects of livestock effluents on soil (particularly on the Montado); Assessing waste compost alternatives for soil. Carbon sequestration in soils. Water use efficiency in agriculture; protection of water bodies. Combating desertification. Soil erosion



under climate change. Green infrastructure as tools for adaptation to changes and augment resilience of cities. Grass management and urban greening. Ageing; land-use efficiency; socio-economic transformations. Planning for multicultural cities.

The NKS recommended/cited the following important/relevant documents, agendas or programs that define global orientations on the mentioned research topics:

Lei dos solos, Programa Nacional da Política de Ordenamento do Território (PNPOT), Soil Framework Directive on EU.

Plano de Ação Nacional de Combate à Desertificação (resolução de ministros 78/2014, DR 248).

Lei dos solos, Programa Nacional da Política de Ordenamento do Território (PNPOT), Soil Framework Directive on EU. These base documents define global orientations.

A Estratégia Nacional de Desenvolvimento Sustentável” (ENDS 2015); Estratégia de Adaptação da Agricultura e das Florestas às Alterações Climáticas; Programa de Ação Nacional de Combate à Desertificação (PANCD).

De Brognieza D.; C. Ballabio, A. Stevens, R. J. A. Jones, L. Montanarella & B. van Wesemael. 2015. A map of the topsoil organic carbon content of Europe generated by a generalized additive model. *European Journal of Soil Science*, 66, 121–134.

Carbon sequestration in soils: a challenge for food security and climate action (7 July 2015). International organizations (CGIAR, CCAFS, GRA, Global Soil Partnership, AGMIP, FACCE-JPI, African soil carbon network and networks supports by UNEP)

Our Common Future Under Climate Change (7-10 July 2015). Organizations: INRA, Paris, France, CIRAD, Montpellier, France, IRD, Eco&sols research unit, Montpellier.

IPCC, 2014. *Climate Change 2014: Impacts, Adaptation and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.* Cambridge University Press, Cambridge (United Kingdom) and New York (USA), 1131 pp

Lugato E., F. Bampa, P. Panagos, L. Montanarella, A. Jones. 2014. Potential carbon sequestration of European arable soils estimated by modelling a comprehensive set of management practices. *Global Change Biology J. Vol. 20 (11) Pag. 3557–3567.*

Zdruli P., J. A. J. Robert, L. Montanarella. 2014 - Organic Matter in the Soils of Southern Europe. *European Soil Bureau Technical Report, EUR 21083 EN*

Terraprima - Portuguese Project of Pastures Biodiverse Seeded (for carbon sequestration) is awarded with Energy Globe Award Portugal 2014 among 160 countries candidates in worldwide. UNIDO, UNEP and UNESCO

Guardians of Environment Framework: An Integrated Approach of Strategies for Prevention of Soil Pollution and Rehabilitation of Harmed Territories - WP3 – IDENTIFICATION AND ANALYSIS OF THE CURRENT STATUS Act 3.1 Environmental Risk Management: Existing Situation in the Target Regions - The Case of Soil and Water Pollution. GUARDEN South East Europe Transnational Cooperation Programm. 2013.

Environmental Recovery of Degraded Soils And Desertified By A New Treatment Technology For Land Reconstruction. Project sponsored by European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement nr. 282864.

The state of soil in Europe: A contribution of the JRC to the EEA Environment State and Outlook Report-SOER 2010. 2012. A. Jones, P. Panagos, S. Barcelo, F. Bouraoui, C. Bosco, O. Dewitte, C. Gardi, J. Hervás, R. Hiederer, S. Jaffery, L. Montanarella, V. Penizek, G. Tóter, M. Van Den Eeckhant, M. van Liedekerke, F. Verheijen, Y. Yigini.



ORGANIC AGRICULTURE: A Strategy for Climate Change Adaptation. Antje Kölling, Teresa Elola-Calderón eds., Dossier IFOAM EU Group 2012.

THE EUROPEAN ENVIRONMENT STATE AND OUTLOOK 2010: SOIL. Arwyn Jones (European Commission JRC). EEA e JRC ed., Publications Office of the European Union, 2010. ISBN 978-92-9213-157-9.

Falloon P, Betts R, Climate impacts on European agriculture and water management in the context of adaptation and mitigation—The importance of an integrated approach, Sci Total Environ (2009), doi:10.1016/j.scitotenv.2009.05.002

<http://www.fao.org/soils-portal/soil-management/soil-carbon-sequestration/en/>

Topics proposed during the interviews:

PT-1: Soil fertility, increasing soil organic matter; soil conservation practices and sustainable management. Potential productivity of soils and sustainable production techniques. Carbon sequestration.

These worldwide topics are of concern of most Portuguese organizations with high priority. The responsibility is from Ministry of Agriculture, who should fund this kind of research, according to most NKS. The knowledge about the importance and about the needed practices to increase the organic matter in soils, to increase the carbon soil sequestration, are well known, but currently there is insufficient research on this topic, which is fundamental to support the policy making process and subsequently the implementation of soil conservation practices to enhancing soil fertility. How to keep the organic matter in the soils when climate conditions are so favourable to the mineralization of the organic matter? The management practices to reduce the carbon losses to the atmosphere are not feasible to implement in an intensive agriculture system. According to NKS, the farmers, land users will be affected, and the responsibility is from Agência Portuguesa do Ambiente (APA), Instituto da Conservação da Natureza e das Florestas (ICNF), and the Regional Coordination and Development Commissions (CCDR). Currently there isn't awareness to soil and assessment to land resources, so it is important to create specific soil management plans, including integrated strategies for soil-water-sedimentation systems. The newly knowledge can be used in pilot projects with dissemination of the results, i.e. first the practice, and second the results divulgation. There is alarming urgency for research in this topic because if nothing is done there will be resources degradation with economic consequences, and the European Union and Government should fund this investigation.

PT-2: Sustainability / Organic farming / sustainable agriculture / Economic valorisation of non-wood forest resources.

These topics are of concern of some NKS organization and shared by multiple countries. According to the NKS which were Regional planner, ministry of Agriculture representative and researchers those topics have some importance but should be given higher priority. The population in general and farmers specifically will be affected by these global questions and the Ministry of Agriculture should be responsible, but with shared responsibility to other institutions, agricultural cooperatives and associations. NKS think that currently, there is concern from some farmers, but their actions will depend from economic factors. Scientific knowledge about sustainable practices in agriculture and their advantages and disadvantages, can be effectively used on local soil conservation, avoiding the land degradation process and social-economic consequences. Currently we are at initial phase with a growing concern about these topics, expecting a significant increase on the horizon of 5 to 10 years. NKS suggests on this kind of research the articulation between different aspects (social, economic and bio-physical).



PT-3: Soil pollution and effects of livestock effluents on soil/watter (particularly on the Montado); Assessing waste compost alternatives for soil.

According to the NKS, farmers and population in general will be affected by these questions and the regional administrations of agriculture should be responsible. These topics are of concern of NKS organization and with high priority to them. The potential productivity of soils is a national/regional topic, assessing which cultures can be successfully adapted to local characteristics (soil, climate). The effects of livestock effluents on soil it's a question that she considers more relevant to assess on the Montado, a sensible ecosystem. The waste compost alternatives it's an international question. The engineer admitted some difficulty to know the actual situation on these topics, but she thinks that related research can be useful to give effective results and knowledge, valuable on land management instruments and for different stakeholders. The famers associations together with government should fund this kind of research.

PT-4: Combating desertification; Soil regeneration; Population awareness on land degradation.

It's a topic of concern of many NKS organizations with high priority, and it is considers a European concern since it is a global question, affects the farmers and the society in general in most countries. The governments (official administrations), companies, institutions and associations should be the responsible for research in this topic. Currently there is some instruments for land decision-makers but it is necessary consolidate them and give some coherency. Nowadays, the research knowledge about this concern is low, without updated information, and in the future it's important to improve the data bases/platforms about this resource in Portugal, as it exists for United States (Ex: USDA), and to be acquainted with the soil state-of-art (ex: practices that are being implemented). There is monitoring information about this research topic but it is important to create pilot experiments and demonstration sites. The newly knowledge can be used in workshops and for other dissemination conducts. According to NKS, the conventions has low efficacy, operating to demonstrate activity and not to change things. This topic has some priority since we can put concerned the human existence. Different domains are involved on that question, so about who should fund this research, NKS propose that it's fundamental to include different sources, not only environmental institutions but also social and policy components. This new knowledge can be used by general public and soil resource users. Regarding priority, NKS consider that these subjects presents high priority, because if nothing is done it will cause rural abandonment, soil degradation and human desertification. Governments should fund this investigation.

PT-5: Erosion associated to climate change. Water use efficiency in agriculture; Protection of water bodies.

Those are topics of concern of some NKS organizations with some priority, and it concerns the global humanity because as an inevitable problem and will affect everybody in the world, mainly the water users (companies). Up to now, there is evidences and scenarios about erosion increasing all over the world, obtained in different studies, and this newly gained knowledge should be used to delineate adaptive measures for sustainable land management. The knowledge and available technology to use the water efficiently in the agriculture is well known, but how to develop integrated management systems to reuse the water for the agriculture in a feasible way before expend money treating indiscriminately all urban water, it is not yet dominated for a great scale. NKS considers instruments to minimize impacts important as a support for decision-making process, and that the Government should fund this kind of research. At the moment there are documents with strategic adaptive



measures to climate change for agriculture but NKS considers important to include more specific sustainable practices for land management and actions in case of damage caused by erosion. Other aspect for research is the evaluation of the environment gains from cultivated varieties well adapted to local conditions.

PT-6: Green infrastructure; Urban greening and grass management.

There is an increasing interest in the topic of urban green infrastructure as tool for adaptation to changes and augment resilience of cities, although isn't yet a concern of NKS organizations. Companies, the tourism sector and well-being of urban citizens in general will be affected, and the responsibility for these research needs should be from local authorities, the companies and universities. Urban agriculture and allotments are neglected topics of research and they affect food safety issues, water bodies pollution and well-being of citizens. Nowadays there is the pesticides application however it is important more safety, because the inadequate used of them can cause more pollution. Research needed also in cities for grass management in parks and also about green-roofs that lastly is increasingly used as an adaptation to climate change strategy.

PT-7: Brownfield redevelopment; urban planning.

According to the NKS, brownfield redevelopment and land use management have raised several concerns all over the world and it's currently one of the national priorities in terms of urban redevelopment, which is shared by other countries. However, tough these subjects affect almost everyone, mainly and tourism sector, and responsibility towards the management/development of these areas remains generally in state hands, since the existing legislation does not seems to be enough. NKS reflects that currently there is not a National policy that reinforces land reuse recycling, and we consuming green areas to feed our urban development is the main local policy, while we could be reusing brownfields converting problems in opportunities. Regarding priority, NKS suggests that those subjects should have some priority, considering the positive impact it represents in terms of urban development and sustainability with direct and indirect significance to: Productivity of land and soils; land/infrastructure reuse; competition between land-uses; opportunities of innovative land-use technologies; resource-oriented land management systems; soil regeneration and soil and groundwater remediation. NKS mention that this research should be funded not only by the government who grants permissions to urban and industrial development, but also by private sector like urban contractors, industrial companies, and corporations, which will, on a near future, be part of this problem.

PT-8: Ageing. Planning for multicultural cities. Land-use efficiency. Socio-economic transformations.

These topics are of concern of some organizations but shared by multiple countries in Europe. Regarding priority, NKS thinks that ageing has high priority and land-use efficiency and socio-economic transformations some priority. Populations in rural and urban areas will be affected and the responsibility to fund this kind of research should be from social security system and regional-local authorities (municipalities and the Regional Coordination and Development Commissions - CCDR). It is necessary to create more and recent cartography to use it in land management, planning and projecting the future change and development. There is need to link the environmental with social benefits of ecosystem services. As discussed, currently there is a strong ageing process of the population in some cities and the objective is to contribute to improve their life quality (active ageing). The newly gained knowledge should be used in pilot experiments and networks creation.



PT-9: Modelling the impact of agricultural/environmental policies. The NKS commented that is a European problem with neutral priority and it is of concern of many organizations in Portugal. Farmers and land owners will be affected and the responsibility is from Ministry of Agriculture. NKS mentioned that is necessary to predict the long-term effects of agricultural policies and the newly gained knowledge can be used on models. The models should incorporate the environmental, social and economic aspects of benefits and costs of the policies. According to NKS, this kind of research should be funded by national funds of Fundação para a Ciência e a Tecnologia (FCT).

10.3 Experiences regarding connecting science to policy/practice

Topic b: *Experiences regarding the exploitation of scientific knowledge to improve business opportunities and/or tackle other societal challenges.*

*Related key question to be answered: **Where to improve the science-policy interface so that (new) knowledge can and will be more effectively exploited by the demand side?***

10.3.1. Use of knowledge

“Scientific knowledge” was described as new knowledge obtained through scientific methods, to achieve specific objectives. The users of knowledge define “Scientific knowledge” as the acquired knowledge through practice, experimentation and validation and revealed to use it regularly on decision process and to elaborate land management instruments.

All NKS uses a lot newly/recent knowledge to produce innovative new products and methods. The mainly sources to learn about are the scientific papers, experiences/examples within country and abroad, conferences and websites.

10.3.2. Possibilities to set the agenda

Most NKS think that have little influence on the setting of scientific research policies/agendas in our country and these reflect slightly specific needs and priorities, although some update information being used for the formulation of existing policies in our country. These national policies/agendas reflect only slightly the priorities and needs, revealing that state-of-the-art in scientific research where weakly used for national policies formulation, since the recommendations are coming from the European Commission.

10.3.3. Science – policy – practice

All NKS were involved on doing or collaborating in scientific research and consider that was very successful/satisfying, namely the objective execution (The scientific publications were mentioned as the only used indicators on the project evaluation, which is a negative aspect). Nevertheless the dissemination and the involvement with the stakeholders should be included in the research projects, so that the obtained knowledge can be useful in practice and known in the wider society. Also the project management and identification should be improved, and the thematic concentration should be avoided.

The societal impact of scientific research is considered indirectly and it was mentioned as satisfying to inexistent or of unknown impact from most NKS. However indicators can be used to evaluate this impact namely information collection about management land practices (which ones, and who), connections between science, legislation and applications.

As improvements also can be the public participation through conferences and with the stakeholder's involvement in the research since the beginning of the project (specially the private stakeholders), promoting the proximity between the research and practice and avoiding the deviation between investigation and societal needs.

From some NKS it was mentioned that it should be allowed the creation of work groups and business opportunities and that it should be avoided the research/policy not applicable to local necessities and practice.

Science-Policy-Interface Documents mentioned:

The United Nations Convention to Combat Desertification (UNCCD);

Fundos Ambientais (Fundo Português de Carbono, Fundo de Proteção dos Recursos Hídricos, Fundo de Intervenção Ambiental) -
<http://www.apambiente.pt/index.php?ref=17&subref=162>;

Estratégia Nacional de Adaptação às Alterações Climáticas (ENAC 2020)-
http://sniamb.apambiente.pt/infos/geoportaldocs/Consulta_Publica/DOCS_QEPIC/150515_ENAAC_Consulta_Publica.pdf;

Programa Nacional para as Alterações Climáticas (PNAC 2020/2030)-
http://sniamb.apambiente.pt/infos/geoportaldocs/Consulta_Publica/DOCS_QEPIC/150515_PNAC_Consulta_Publica.pdf;

Estratégia do Ministério da Agricultura e do Mar para a Investigação e Inovação Agroalimentar e Florestal no Período de 2014-2020:
http://www.inia.pt/fotos/editor2/estrategia_mam_livro.pdf

Estratégia Nacional para as Florestas (2014):
<http://www.icnf.pt/portal/icnf/docref/resource/doc/docref/enf-auscultacao>

Planos Diretores Municipais (PDM);

Plano Nacional de Agricultura; and Marine Spatial Planning legislation;

Decreto-Lei n.º 565/99, about non-native species:

National and transnational funding schemes

Topic c: *Predominant, current as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination.*

Related key question to be answered: How to get with one Euro of national/regional funding a multitude of Euro's (from all sources) worth of knowledge in return contributing to EU and national demands? Or even how to get with one euro of EU funding a multitude of euro's (from national, regional, local, and private sector) worth of knowledge in return contributing to the R&I demands on Land and the Soil-Sediment-Water systems.

Topic d: *Experiences regarding the use of any trans-national, common budget for scientific knowledge production related to the scope of INSPIRATION.*

Related key question to be answered: How to set up/govern the appropriate funding option(s) resulting from INSPIRATION – based on previous learning experiences – so that: (1) the above demands will be fulfilled, (2) knowledge resulting from implementation of the SRA will be taken up and used and (3) funders experience that their invested, national Euros are indeed multiplied?"



10.4.1. Funding schemes and possibilities for research funding

About experiences and expectations in funding schemes that could offer opportunities for research, the NKS revealed that the public fund from the Rural development plan (ProDer) at a National level and INTERREG initiatives from European funds are the most important for future research on land-use and management and related impacts to Soil-/Sediment-/Water-systems. Other funding schemes mentioned were at a regional level CCDR programs (Regional Coordination and Development Commission), the QREN projects (National Strategic Reference Framework), CEBAL (Centro de Biotecnologia Agrícola e Agro-Alimentar do Alentejo), and the ARHs (Administração da Região Hidrográfica) at sub-national level. At a national level the FTC grants (Fundação para a Ciência e a Tecnologia), the Vales I&D (public and private fund) and at European level programs the H2020 and the Life program - Financial Instrument for the Environment and Climate Action.

Private companies (ex: agro-chemical or EDIA - Empresa de Desenvolvimento e Infra-estruturas do Alqueva, S.A) should contribute to research in SSW as the importance of the resource for them. For example some determinate sectors should invest in research to obtain better results (ex: Tourism sector has the interest in superior landscape).

When asking about how to increase the added value of financial resources for doing research that contributes to national and EU demands, it's mentioned the "Plataforma do Golf" as an example about linkage between Golf enterprises and university research to achieve this multiplier. It was also suggested active participation of farmers and other private stakeholders on the projects with innovative practices and knowledge on new markets.

A cost-benefit analysis is important. Inclusion of societal impact indicators can improve the integrated approaches to be fund and get recognized. Besides that NKS suggested regional funding options to ensure the inclusion of local social necessities and the definition of specific objectives according the specificities of economies. Stakeholder's intervention should be improved with projects transparency.

Demonstration fields were suggested as important way to increase the added value of financial resources for doing research that contributes to national and EU demands, and should be covered by new funding schemes. Experimental and demonstrating centers should be covered by international funding mechanisms. It's relevant the creation of a dissemination platform that includes results of existing ongoing projects. It could help to avoid the funding on already studied aspects. The connection between institutions should be improved and the information should be available (avoiding the payment to get it).

It was also discussed the necessity of changing mentalities on private sector to understand the benefits of research, and that the research sector should demonstrate properly these benefits.

PPP could be a very useful instrument. Although in the past some formed schemes didn't work well, so it's important to improve the cooperation. Still, state and privates need to understand that a PPP should be a win-win commitment, and not a way to enrich few national companies and corporations.

10.4.2. Gaps in financial resources for resource

Concluding the interviews, the NKS consolidated recommendations on the future projects, which should ensure the linkage between research institutes and companies, and should comprise costs evaluation, related to environmental impacts. There are areas of environmental research and innovation that are not priority yet. The climate change as a problem in Portugal was not covered by the funding schemes, because usually it's investigated in an international approach. The brownfield redevelopment is indicated as an



area not covered by current funding schemes. The ecosystems and the adaptive mechanisms should be included in current funding, according to some NKS. The turfgrass management was indicated as an area not covered by current funding schemes yet. The landscape architecture subjects also lack of funding schemes.

Some NKS consider the current funding options successful, because usually promotes the creation of networks for continuation of research, however, it's fundamental the networks divulgation and to avoid problems with excessive partners. Some other NKS considers the funding options unsuccessful, because usually the results of research study don't have influence on national policies, and this is happening because of insufficient diffusion. Some aspects that should be included regarding the funding options are: performance targets, priority themes and validation of the results. The practice component should be required. However, the scientific information should be simplified and adequate for dissemination with the stakeholders.

The best solution for funding societal demands of the SRA, is to ensure the integration of different components on the projects as economic, social, environment and research fields. It will permit to gain knowledge in different areas and understanding different benefits. NKS discussed that all the components should have the same weight, avoiding some areas to be predominant and recommend funding calls for multidisciplinary topics.

NKS think that to avoid the difficulty to fund and to recognize the integrated approaches related to land use and management and SSW systems through integrated approaches, it's necessary the definition of target sectors for research funding, that represent a line and mechanism with not only social and economic objectives but also concerning ecosystem sustainability (e.g. research in Wine). NKS considers that the definition of guidelines for integrated approaches would be necessary since these are usually difficult to fund and get recognized.

Research results should be more visible and the finding of projects should be emphasized near local and regional communities so that people can understand that research funding money is necessary for the country development and sustainability. On the last 40 years there was an evolution on the environment policies, however it's necessary to develop the population culture and awareness in environmental questions, as for example I happen with the "recycling", since the citizens have to percept benefits to change their behavior. An example is the relation between public health and pollution.

It will be fundamental, the results demonstration and divulgation, including cost outcomes assessment, so that integrated approach get recognized. Stakeholder's involvement will be a strategic way for integrated approaches on soil resource management, including different socio-economic components, and the partnerships can be an effective solution.

A mechanism to demonstrate the relevance of the study, including marketing of the results, it's considered important to get fund and recognized by the research funding communities.

Research funding communities should require multidisciplinary and projects with socio-economic and environmental benefits, avoiding the funding on project without applicability.

10.4 Other remarks made by interviewees

The European Commission allocated 31.7 billion of euros to fund the research and innovation in the great societal challenges, such as: health and wellbeing, demographic changes, food security and safety; sustainable agriculture; marine research and bio-economy; safe, clean and efficient energy; intelligent, eco and integrated transports; climate changes, resources use efficiency, inclusive, innovating and safe societies.



The state-of-the-art reveals that EU is consciousness for the deficit in soil carbon and the consequences of intensive agriculture systems in the soil and water degradation. The most of the scientific reports cited were deliverable by the EU committee, providing sound evidences about the need of policies to regulate the use of the soil in the EU and stimulates the conservation agriculture systems. In fact, the last CAP and the projects as SOLIBAM and DIVERSIFOOD funded by FP 7 and H2020, respectively, reflect that there are effective new policies and strategies in EU for the soil, water and ecosystems conservation. One more effective way to influence these agendas will be through Focus Groups as EIP or Cost Actions working specifically to suggest policies and regulations to save the management land, water and soil quality in the southern Europe.

During the evaluation of new research proposal Multidisciplinary panel of evaluators is necessary for integrated approaches get funding.

The national govern and private institutions should provide fund schemes to support research.

Scientific knowledge and data should be freely available to avoid repeated research and it's important the monitoring after the research ending.

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



10.5 Annexes

1a: NKS interviews in Portugal

Date of interview	Organisation	Interview	funder	end user	knowledge provider	Nat.reg.loc. authority	Univ./ research inst	SME /consultant	business & industry	NGO	network	other	soil	sediment	water	land use-management
10-10-15	IPC	Daniela dos Santos			1		1						1		1	
24-09-15	CEVREME	António Sebastião & Duarte Candeias		1				1	1				1			1
31-08-15	CIEO	Ana Paula Barreira		1	1		1									1
06-11-15	IPB	Tomas Figueredo			1		1						1			1
22-10-15	Platforma do Golfe	Carlos Guerrero		1	1		1	1	1				1		1	1
20-10-15	IPCB	João Paulo Carneiro			1		1						1			
10-08-15	IPP	Luis Loures			1		1									1
01-09-15	CEOT	Dulce Antunes			1		1						1			1
21-10-15	ICNF	Espírito Santo Fernandes	1	1	1	1					1		1	1	1	1
21-10-15	UNISCAPE	Vera Ferreira			1		1				1			1		1
27-10-15	IPMA	Carlos Vale		1	1	1								1		
27-10-15	EDIA	Ana Ilhéu		1					1					1	1	
16-11-15	ICCAM	João Paulo Fernandes			1		1									1
27-10-15	UN-CNCD	Maria Roxo					1				1					
19-11-15	C Montemor-o-Novo	Rita Dionísio & Cândida Martins	1			1							1			1
10-10-15	UALG	Alcinda Neves			1		1						1		1	
15-10-15	MEDITBIO	Maria Belem Freitas			1		1									1
03-11-15	CIBIO	Marisa Graça			1		1									1
06-11-15	INIAV	Regina Menino & Amelia Castelo Branco		1	1	1	1						1	1	1	
	FCT	Dina Carrilho	1			1							1	1	1	1



Annex Ib: NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training on 22nd – 23rd June 2015.

[Note: this questionnaire template is meant to help National Focal Points (NFPs) to facilitate the interview/conversation with the National Key Stakeholders (NKS). Some questions are relevant to one NKS, other questions to another NKS. Hence, not all questions are relevant to each single NKS. The NFPs are required to adapt the template accordingly – keeping in it as many as possible of the issues to be addressed. If needed, the NFPs also translate the questionnaire into their national language.]

The questionnaire (see next pages) has the following outline:

WW. Interview information:

To be filled out by the interviewer

XX. Introduction:

That the interviewer can use to start the NKS interview

YY. Background information of the NKS interviewed:

Mostly 'tick-boxes'

ZZ. Strategic Research Agenda (SRA):

NKS preferred topics, overarching themes and scope for the SRA and national state-of-the-art on research agendas that the NKS is aware of

AAA. Science-Policy-Interface:

NKS experiences regarding the exploitation of scientific knowledge to: improve business opportunities; tackle other societal challenges; assist policy-implementation and/or policy revision

BBB. Funding:

Predominantly used as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination that the NKS is aware of

CCC. Other:

At the end there is some time advised to let the NKS give us their advice, some nice quotes (that we can use anonymously in our communications), examples etc.

DDD. Ending the interview:

Explain follow up and if/how NKSs will be involved in the next steps of INSPIRATION



Questionnaire template

A. Interview information
Country: Name of INSPIRATION Researcher: Date of Interview: How does the NKS wish to be referred to: <i>[Anonymous, personal opinions, company's opinion. Choose when it is a good time to discuss this. In the beginning or later on.</i> <i>SHOW the interviewed NKS the ENGAGEMENT CONSENT FORM and ask him/her to fill it out. Please introduce the engagement consent form (available in 'D2.1 MoU' and editable by yourself) and hand a copy to the interviewee to read and fill in – make sure that you take this away with you and keep for your own records]</i>
B. Introductions
<i>[Please introduce your selves, the project and the purpose of the interview. You can use the handout as provided at the end of this template. This can also be sent beforehand to the NKS. Agree on a time span: approximately one and a half hour.]</i>
C. Background information on the interviewee
49. Name of NKS interviewed: 50. Institution: 51. Role:
52. Are you a (multiple answers possible): ☐ National-regional-local authority ☐ University/research institute ☐ Small or Medium sized Enterprise (SME, i.e. < 500 employees) / consultant ☐ Business and industry ☐ Non-Governmental Organisation (NGO) ☐ Network representative / leader ☐ Other, specify: ...
53. Fields of expertise (multiple answers possible): <i>[Ask to specify background regarding the selected item(s) in order to understand expertise background of interviewee]</i> ☐ Soil ☐ Water ☐ Sediment ☐ Urban / spatial planning ☐ Landscape design ☐ Land management ☐ Other, specify: ...



54. Does your organisation provide external research funding?

- Yes. Please specify: ...
[e.g. as programme holder, public, private, ...]
- No

D. SRA

55. Which societal challenges do you regard as important?

[If needed, you can use the European Commissions (EC) list of societal challenges here. These EC themes are:]

- Contribute to food security and food safety;
- Ensure secure supplies of safe drinking water;
- Secure energy supply and distribution;
- Reduce raw material and resource consumption, Ensure efficient use of natural resources;
- Contribute to climate change mitigation and societal adaptation;
- Contribute to a healthy living environment;
- Ensure secure infrastructure

[Explain that these challenges may be used as bases for defining of the overarching themes for aggregating the research topics of our SRA.]

d. If applicable, what additional, other or alternative challenges would you suggest/prefer?

[When needed, you can mention challenges as nature conservation, sustainable use of ecosystem services, halting the loss of biodiversity]

56. Starting with your own experience: which specific topics (research needs) should be included in the SRA?

[For each single topic mentioned by the NKS, use the following follow-up questions. The a, b and c sub-questions are mandatory. The other sub-questions are optional]:

m. Explain – elaborate the topic

- *Who will be affected?*
- *Who is responsible?*
- *Is it a topic of concern of your organisation / department*
- *Is it only a national topic, or a shared topic by multiple countries?*
- *Where are we now, where do we want to be in x years (point on the horizon)?*
- *How can the newly gained knowledge be effectively used?*

n. Priority:

- 21. *High priority*
- 22. *Some priority*
- 23. *Neutral priority*
- 24. *Low priority*
- 25. *No priority*

- *What is the urgency, i.e. what goes wrong if we do nothing?*

o. Who wants to/should fund this kind of research?

[Optionally: check the following WP3 key-words for relevance, i.e. if they raise any additional topics by the NKS. The key-words can be used as support / check list Be sensible as interviewer if this is needed.]

- *Assessment of land resources*
- *Potential productivity of land and soils*

- *Demand for soil/land resources, imports and exports*
- *Competition between land uses (land-use conflicts)*
- *Concepts to identify and quantify relevant impacts*
- *Instruments to avoid / minimise impacts (feedback to decision-making process)*
- *Opportunities of innovative land-use technologies*
- *Resource-oriented land management systems]*
- *Soil regeneration*
- *Soil and groundwater remediation*

57. Linked to topics mentioned by the NKS:

- a. What are the important / relevant documents, research agendas, research programmes underpinning these topics? (state-of-the-art)
- b. Related to these agendas and programmes: what are timelines of programming and windows-of-opportunities to influence agendas / programmes?

[Note: question 9b is input for work package 5]

E. Science-Policy-Interfacing (SPI)

58. How would you define 'scientific knowledge'?

59. For what do you use scientific knowledge in your job?

60. Which sources of (scientific) knowledge do you use for doing your job?

[Open question and you can mention some of the sources underneath as examples]

○ <i>scientific paper</i>	○ <i>newspapers</i>
○ <i>consultants</i>	○ <i>television</i>
○ <i>reports</i>	○ <i>conferences Involvement in research projects</i>
○ <i>colleagues</i>	○ <i>data (bases)</i>
○ <i>experiences /examples within my own country</i>	○ <i>websites, such as:</i>
○ <i>experiences /examples abroad</i>	○ <i>other, specify:</i>

61. To what extent do you use most recent/new scientific knowledge (i.e. state-of-the-art scientific insights/findings) for doing your job?

62. To what extent are you able to influence (and how) the setting of scientific research policies/agendas in our country?

63. To which extent do our national policies/agendas reflect your specific needs and priorities?

64. To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?



[Questions only for NKS from the non-science sector (business and policy):]

65. Have you ever been involved in:

- g. the formulation of scientific research questions?
- h. doing scientific research (i.e. knowledge co-creation)?
- i. synthesizing/wrapping-up of scientific knowledge, e.g. to feed into policy making or to increase business opportunities?

[When yes: Follow-up questions]

- How successful/satisfying was this, on a scale of 1-5?

16. *Very successful/satisfying*

17. *Successful /satisfying*

18. *Neutral*

19. *Unsuccessful/unsatisfying*

20. *Very unsuccessful/unsatisfying*

- What went well
- What could be improved?
- What to avoid/not to do?
- Additional remarks?

[Question only to NKS who are likely to have insights here (e.g. research funders)]

66. (How) is the societal impact of scientific research related to the scope of INSPIRATION being assessed in our country?

[If they know: Follow-up questions:]

- How successful/satisfying is this, on a scale of 1-5?

16. *Very successful/satisfying*

17. *Successful/satisfying*

18. *Neutral*

19. *Unsuccessful/unsatisfying*

20. *Very unsuccessful/unsatisfying*

- What indicators are used?
- What goes well?
- What can be improved?
- What to avoid/not to do?
- Additional remarks?

67. Which national Science-Policy-Interface documents do you know of / can you recommend?

F. Funding

68. Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems:

- Sub-nationally /regionally?
- Nationally?
- European? *[e.g. H2020, Interreg, multi-lateral such as the Joint Programming Initiatives]*
- International? *[e.g. Belmont Forum, Foundations.]*



[For all R&I questions aiming at achieving policy targets in the Land & SSW related system (like e.g. Sustainable Development Goals on soils -to be adopted at UN level in September 2015-, existing EU directives such as the Environmental Liability Directive, etc.) Consider all Public and Private funding sources. Please ask to provide details and give most important references (documents, website) that could be relevant for explaining the answer]

69. How to increase the added value of different financial resources (i.e. achieve a multiplier) for doing research that contributes to EU and national demands, in particular to the R&I demands on Land and the SSW-system?
[CONSTRUCTIONS that (could) work. PP, PPI, etc. Just ask for, as open as possible for suggestions, ideas, experiences, good examples]

70. Are there areas of research and innovation (R&I) that you are aware of that are not (yet) covered by current funding mechanisms and which would need new/different funding schemes / infrastructures?

71. Integrated approaches (necessary for addressing particular societal challenges related to the use and management of land and related impacts to SSW systems) are usually difficult to fund / get recognised by the research funding communities. What would be necessary to improve this?

72. Based on previous learning experiences that you are aware of: how to best set up / govern funding option(s), so that societal demands will be fulfilled, knowledge resulting from execution of the SRA will be taken up and used; and funders experience that their invested, national Euros are indeed multiplied?

[if they know: Follow-up questions]

- How successful/satisfying was this, on a scale of 1-5?
16. Very successful/satisfying
17. Successful/satisfying
18. Neutral
19. Unsuccessful/unsatisfying
20. Very unsuccessful/unsatisfying
- What went well
- What could be improved?
- What to avoid/not to do?
- Additional remarks?

G. Other (remarks, suggestions, examples):

H. Ending the interview

Thank you for taking the time to participate in this interview:

- Would you like us to keep you updated about INSPIRATION progress?
- Would you suggest anyone else who we should be interviewed by us?
- Do you have further questions arising from this interview, or would you like to add anything else?



- What information are you interested in, and willing to give feedback on?
[Discuss the feedback mechanism and if they have expressed their opinions as a person or as a representative of their organisation/network. Checklist:]
 - g. Information to exchange / willingness to give feedback on:
 - (complete interview, not recommended)
 - summary of main conclusions
 - national report, national contribution to D2.4
 - complete D2.4, all countries
 - h. Preferred level of feedback:
 - no feedback
 - informal feedback
 - formal feedback (e.g. on behalf of represented organisation)

[Check: have you discussed consent form / how to refer to interviewee]

INSPIRATION acknowledges the received funding from the
European Community's HORIZON2020 Framework Programme
under grant agreement no 642372



Annex Ib: NKS hand-out: INSPIRATION interview at a glance

INSPIRATION interview at a glance

Aim of INSPIRATION:

The main purpose of the EC-funded INSPIRATION project is to formulate an end-user driven strategic research agenda (SRA) for land-use, land-use changes and the related, impacted compartments of the Soil-Sediment-Water (SSW) system in order to meet current and future societal challenges and needs. Next to that, the project aims to scope out models of implementing the SRA and to prepare a network of public and private funding institutions willing to commonly fund the execution of the SRA.

National Key Stakeholders (NKS):

In a series of NKS interviews across EU nations the “National Focal Points (NFP) gather for nations individually information related to the INSPIRATION scope (land and SSW-system use and management) on:

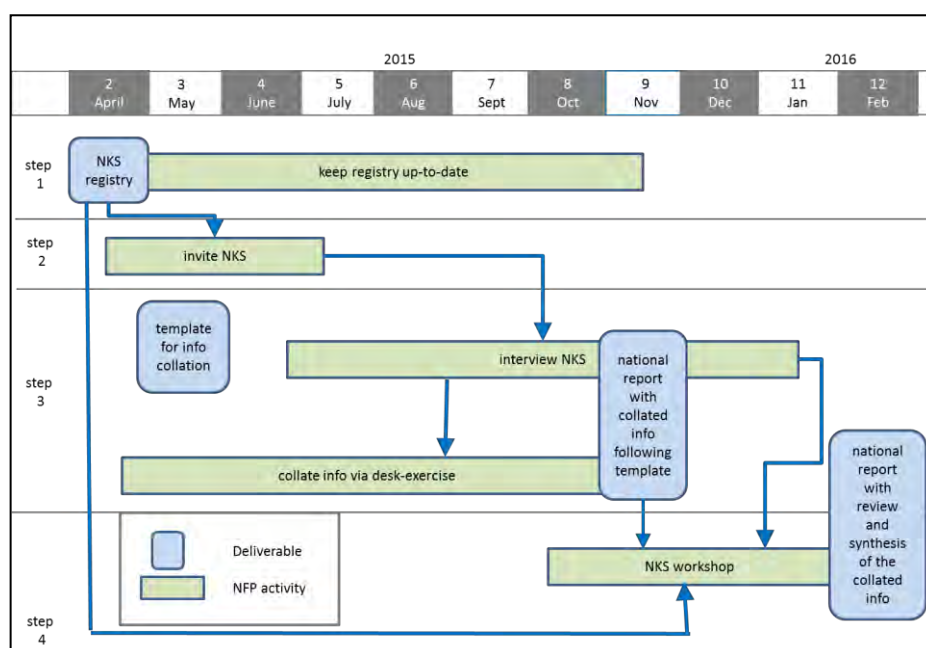
- Research and Innovation (R&I) needs
- Experiences regarding connecting science to policy/practice
- National and transnational funding schemes

In the interviews we focus at NKS – like you – positioned at a strategic level, i.e. leading persons in their field of profession; with a good overview on opportunities; a clear vision on, and insight in knowledge demands (short, middle and long-term). Furthermore, these NKS are well positioned and participate in relevant professional network(s) and may also have potential to become an ambassador for INSPIRATION. We selected NKS to represent different disciplines and institutional backgrounds including: land-use planners; managers; soil, sediment and water experts; researchers, funders and regulators/policy makers.

This interview:

Collecting input from you – an expert in your field – is crucial for the project in order to help us describing the state-of-the-art in our country as input into the European research agenda. In the interview we will go through a series of topics and questions: The interviews of NKS (ca. 20 per nation), together with a desk study on research needs and funding possibilities will be synthesized to a ‘national report’. This synthesis will be reviewed in a national workshop, to prioritize the topics for the suggested Strategic Research Agenda (SRA) from our country’s point of view. The national reports will finally be used as input for elaborating the European SRA and cross-nation matchmaking (matching research needs to possible funding).

Workflow in first year of INSPIRATION





Example questions:

Research and Innovation (R&I) needs

- Which societal challenges do you regard as important?
- Starting with your own experience: which specific topics (research needs) should be included in the SRA?

Experiences regarding connecting science to policy/practice

- How would you define 'scientific knowledge'?
- To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

National and transnational funding schemes

- Does your organisation provide external research funding?
- Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems

Your benefits from participating:

- A chance to influence the European SRA on land and SSW management in the light of societal challenges and needs;
- Being able to make use of the results of the project: overview of research need and of existing and promising funding schemes on different levels (sub-national, national, European, international) and opportunities for a better connection between science and policy/practice;
- Use the matchmaking opportunity to get in contact with other networks in- and outside our country, and countries learn which shared challenges can be taken up jointly.

Contact and further information:

For general information on the INSPIRATION project visit our website: www.inspiration-h2020.eu

Contact the National Focal Point: <i>[Thomas Panagopoulos]</i> <i>[University of Algarve, Campus de Gambelas, 8005-139 Faro, Portugal Email: tpanago@ualg.pt]</i>	Contact the general project coordination: Stephan Bartke FG I3.5 – Coordination INSPIRATION Federal Environment Agency Woerlitzer Platz 1 06844 Dessau-Rosslau Germany stephan.bartke@uba.de

11. Romania

Report by **Mihail Dumitru, Sorin Liviu Stefanescu, Andrei Vrinceanu, Valentina Voicu, Nicoleta Vrinceanu**

11.1 Introduction

This national report (i.e. INSPIRATION deliverable 2.4) reports the information collated for Romania. The information was collated in accordance with INSPIRATION D2.3 “Template for national information collation”. In Romania, 23 NKS were interviewed. Details on these NKS are provided in Annex I. The desk study was based on documents as suggested by NKS. These are listed in Annex II.

11.2 Research and Innovation (R&I) needs

Topic a: Demand-driven* suggestions for the Strategic Research Agenda (SRA), i.e. suggestions from the perspective of industry, end-users and funders.

Related key question to be answered: **What (new) knowledge do these parties need to tackle societal challenges including the increase of job opportunities)?**

****Demand-driven** in INSPIRATION means focusing on the demands of those who are responsible or feel committed to tackle the societal challenges related to the INSPIRATION scope and themes, i.e. industry, end-users and funders. These parties could improve their business opportunities and/or take better informed decisions on what measures to take and execute in order to tackle other societal challenges if they would (be enabled to) use the knowledge as resulting from execution of the INSPIRATION SRA.

11.2.1. Societal challenges and needs

Overall all the topics listed are seen by respondents as important topics. Couple of respondents has ticked all the options: (i) Contribute to food security and food safety; (ii) Ensure secure supplies of safe drinking water; (iii) Secure energy supply and distribution; (iv) Reduce raw material and resource consumption, Ensure efficient use of natural resources; (v) Contribute to climate change mitigation and societal adaptation; (vi) Contribute to a healthy living environment; (vii) Ensure secure infrastructure.

The Contribution to food security and food safety is seen (quantitatively) as the highest priority. Some respondents commented on this particularly topic that “soil fertility conservation, degraded land remediation, crop technologies for polluted soils are ever lasting important research issues.” The second ranked priority is shared by “Reduce raw material and resource consumption, Ensure efficient use of natural resources” (with comments like “Soil quality monitoring contributes to the decrease of fertilizers consumption”), and “Contribute to a healthy living environment” (with comments like “It is the highest challenge of the modern society”, “Pollution sources monitoring and the pollutants impact on agro-systems and food are seen as important research topics by EC”, or “Organic farming is a fair alternative”), followed close on third place by “Contribute to climate change mitigation and societal adaptation” (with comments like “Agro-forestry measures on degraded lands and anti-erosion undertakings limit the effects of climate changes”). The last priority is given to “Ensure secure infrastructure”, maybe related to the fact that no respondent is somehow directly related with infrastructure on a professional basis.



Nature conservation, sustainable use of the eco-systemic services, stopping the biodiversity losses, organic farming and the use of organic fertilization for preventing soil degradation and soil nutrients depletion, decrease of the agricultural superficies due to the inadequate land use, improper use of the forestry resources, remedial fertilization used in agriculture without compliance to agro-chemical needs, conservation and protection of renewable natural resources (soil, water, air, biodiversity) and sustainable use of agricultural natural resources, use of higher quality seeds and seedlings (drought and pest resistant) for climate change adaptation, development of a set of indicators for the international (cross-border) use of agricultural lands, upscale the rural located public agricultural advisory system and compliance of the national education and research system with EU-15 countries are some of the other or alternative challenges suggested by the respondents.

11.2.2. Topics / research needs to include 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.

The continuous growing world demands for food consumption and the last decades public concerns on environment issues linked to an increased number of “food scares” has led to a committed seek for achieving a sustainable agriculture and viable agricultural systems as critical issues for both food security and food safety, if not in all, but for sure in most of the developed countries, where the technological products of modernity have produced innumerable benefits as well as unforeseen risks. Improvement in agricultural sustainability requires, alongside effective water and crop management, the optimal use and management of soil fertility and soil physical, chemical and biological properties. Assessments made reveal a need for more practical farm-oriented approaches and decision support tools are recently used for farmers up taking of soil and water management practices and experiences.

Specific research questions:

- How food security and food safety simultaneously can be achieved with a minimum impact on soil, water and biodiversity?
Why: Viable technical support is needed to respond to the most common farmer’s questions: Where we can produce more? Which are the types of holdings with the highest growth potential? Where this kind of growth puts the lowest pressure on soil, water and biodiversity resources?
- Development of practical tools able to respond to risks induced by soil degradation processes under the global climate change impact.
Why: At country level, there are recorded significant soil degradation processes developed in the agricultural area: soil erosion, organic matter and biodiversity losses, soil contamination, soil cover with low-permeability artificial structures, soil compaction, soil alkalinity/salinity.
- Fresh water: how soils can be managed with regard to an intelligent use of continuously decreasing water resources?
Why: There is a certain need for an improved water use in the farms. A better insight of the soil-water-sediments-plant system will lead to a better shaped range of water stress resistant crops and varieties. It is expected that water deficit during drought periods will lead to an increased number of dams built on almost all rivers across the country. The occurring run off erosion and dam lakes silting (with sediments) have to be assessed and predicted by a long-term plan for minimizing the impact of soil erosion in the collector river basins.

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

Introduction or maintenance of organic farming is often, together with extensive farming systems, applied in order to maintain and enhance soil functionality. Organic farming tends to conserve soil fertility and system stability better than conventional farming system, mainly due to higher organic matter contents, higher biological activity and higher erosion control potential. Soil pollution associated with manufactured pesticides is absent. Moreover, organic farming performs better than conventional farming in respect to floral and faunal diversity and provides potentials that result in positive effects on wildlife conservation and landscape. In response to the recent increasing concern for the environmental issues, particularly with regard to biodiversity loss, climate change, soil, water and air pollution and depletion of natural resources, organic farming has become an important aspect of the European agri-environmental policy. The positive effects of organic farming practices to the environment have been systematically studied during the last decades. Since late 90's, Romania has also joined the European research area concerning the environmental benefits of organic farming but not much has been done lately in terms of continuity and systematic approaches. Even if Romania the share of "potential fertile soils" is significant (Chernozems and Phaeozems are roughly 1/3 of UAA), the present use is highly unsustainable (degradation, poor management, nutrients depletion etc).

Specific research questions:

- Establish at least two long term trials/demo fields (in plain and hilly side, respectively) for organic vs. conventional farming, to get a multidisciplinary approach in terms of soil quality, environmental impact of inputs use, energy consumption, productivity levels and trends of greenhouse gases' emissions.
Why: DG-AGRI noted in September 2014 on the observations on the Rural Development Program 2014-2020 in Romania that particular attention should be paid to the aid calculation as consistent technical and economical information on organic farming are not available in the country and the calculation is based primarily on expert assumptions. Romania should set in place the necessary systems to collect and reinforce data on the Romanian situation for any future revision of the aid calculations under the measure for organic farming. Moreover, as the calculation is made at country level only, the regional specificity is almost missed and there are debates whether Romania should tackle the support for organic farming on a regional based approach.
- Improve the level of awareness and understanding regarding the environmental benefits of organic farming in vocational schools, agricultural universities and among farmers by a multi-leveled curriculum developed for technical, vocational and continuing training.
Why: Still in schools and universities the Agro-chemistry topics overwhelming prevails and prejudgments for scholars/students are set on long term without a choice balanced curriculum. There is a need for including theoretical and practical topics environment oriented. On the other hand, the public advisory agricultural system (significantly small sized famers oriented), lacks a proper expertise on organic farming.
- Develop a large-scale research, extension and implementation program for small and medium grassland holdings converting to organic farming.

Why: Over the last years, Romania has seen a steady and rapid rise in the amount of land and number of holdings adhering to organic standards but yet the organic farming national share is almost three times less than EU average. The relative low level of pollution in Romanian's agriculture continues to provide good opportunities for conversion to organic practices. In spite its highest bio-geographical diversity in EU-27 as well as its semi-natural ecosystems cover (47% of the entire area of the country), the amount of 3.4 mil ha grasslands plus 1.5 mil hayfields (34 % of the entire Romanian agricultural area) is very, very low converted to organic (less than 100,000 ha). Organic farming provides also better employment rates than conventional agriculture in rural areas.

- Develop a private-public partnership cluster research/inspection bodies/farmers associations for organic farming inputs certification.

Why: More diversified organic farming inputs await to be certified (fertilizers and pest-control inputs). The research institutions have the needed expertise and share a certain public trust on its findings; the private inspection bodies have the legal means for certification whilst the farmers associations have the larger practical experience of input use. A legal and clear frame for organic farming inputs is very much needed.

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.

Soil nutrient levels can decrease over time when crop plants are harvested, as nutrients are not returned to the soil. Essential nutrients need to be compensated either through the natural process of decomposition or by the easy means of adding fertilizers. Chemical fertilizers increase crop production but their overuse may have harmful effects on the soil and water, especially when they are very concentrated and water soluble and may ultimately end up leaking into our water bodies, ponds, streams, ground water and contaminate water supply. The increasing costs for energy are another point of concern for chemical fertilizers consumption. Seeking for alternatives, largely accessible organic wastes can be turned into valuable compost products for raising crops organically and replacing the use of chemical fertilizers. Municipalities, industries and agriculture farms are generating huge amounts of organic wastes but their disposal and use may pose serious threats to the environment and human health.

Specific research questions:

- Optimized use of synthetic fertilizers under the global climate change impact.
Why: Energy and raw materials are scarce every day, everywhere. Costs for fertilizers are continuously increasing. Prevention of soils and aquifers pollution from chemical fertilizers is mandatory.
- Waste recycling: a better use of soil as bio-geo-chemical reactor to prevent its contamination and sustain its productive potential.
Why: The proper management of agricultural, urban and industrial is one of the most important challenges of the last decade's modern society. The most recent approaches focus on the design of systems able to convert the wastes into resources. Developing locally adapted waste recycling systems will reduce the risks related to waste long distance transportation. As the entire world population is getting more and more urbanized, the sewage sludge use in agriculture needs to fit better to soil, water and yields environmental quality.
- Climate change: how soils productivity and resilience will be affected?
Why: The human induced impact on environment is raising more and more public concerns. Even the smallest environmental changes should be identified and carefully assessed, as they might grow to an extent and magnitude unable to be controlled. Proper land use management systems have to be designed in order to

mitigate the climate change impact with regard to carbon sequestration in agricultural and forestry lands, reducing agricultural land CH₄ and NO₂ gases emissions, biomass for bio-fuels.

Among the answers related with important/relevant documents, research agendas, research programmes underpinning these topics, the respondents have listed The National Plan for Rural Development 2014 - 2020, the National Strategy for Agri-food Sector Development on Medium and Long Term, the UEFISCDI National Plan for Research, Development and Innovation 2014-2020, The Research Sectorial Plan of the Ministry of Agriculture and Rural Development, the National Programme of Research PN II - developed by the Executive Agency for Higher Education, Research, Development and Innovation (UEFISCDI): (i) Capacity, (ii) Partnerships in priority areas and (iii) Human Resources and also, the EU Directives.

Some of the listed documents have received more weight in respondents explanation like for the National Plan for Research and Innovation 2015-2020 which acts in coordination, coherence and implementation of national policies on research and development and knowledge; the program is run by the National Authority for Scientific Research and Innovation (NASR) under the Ministry of Education and Research, having the role of synthesis and coordination in implementing the Strategy and Governance Program in scientific research, technological development and innovation. It comprises five programs: Development of the national research and development, increasing competitiveness of the Romanian economy through R & D and innovation, European and international cooperation, and Frontier and fundamental research in areas of strategic interest.

11.3 Experiences regarding connecting science to policy/practice

Topic b: *Experiences regarding the exploitation of scientific knowledge to improve business opportunities and/or tackle other societal challenges.*

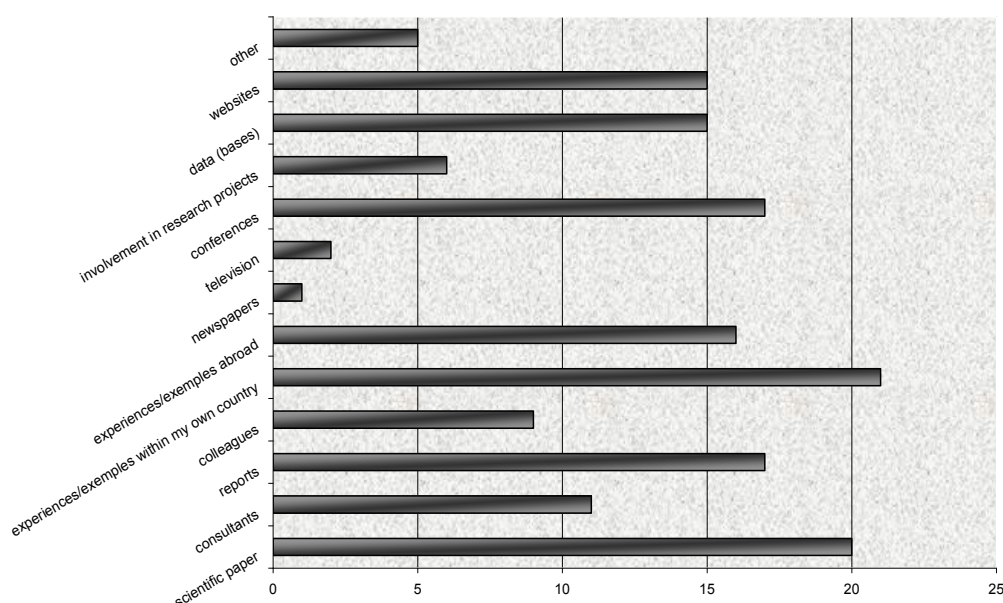
*Related key question to be answered: **Where to improve the science-policy interface so that (new) knowledge can and will be more effectively exploited by the demand side?***

11.3.1. Use of knowledge

There is recorded no standard answer for defining the scientific knowledge. Some answers were extensively given like *“Scientific knowledge can be defined as a laborious process of observation and measurement of phenomena, of accumulation and arrangement of materials, of hypothesis and patterns creation and validation through experiments, tests, assays, of acknowledgement or invalidation of hypothesis, of issuing the obtained results so that they can be validated, of modification or development of the model according to the obtained practical results and the final users opinions”* or very short like *“An explicit undertaking to reach a précised task”*.

Most common scientific knowledge is seen as *“An assembly of ideas, hypothesis, issues, verified through studies and experiences which lead to a new model for solving theoretical and practical issues and the emergence of new ideas and outputs”* or *“An assembly of ideas, hypothesis, theories, issues, which through different studies and trials may become technologies, new or improved products, contributing to theoretical and practical progress”* or *“A knowledge pool filled in time through experiences, hypothesis and scientific based theories”*.

RO answers weight (nr.) to question „ Which sources of (scientific) knowledge do you use for doing your job?“



The most acknowledged scientific sources are “*experiences /examples within my own country*” (95% of respondents) and “*scientific paper*” (90% of the respondents). “*Television*” and “*newspapers*” are the lowest ranked. The last two options were ticked by farmers, suggesting a potential very low impact of the national agricultural advisory services.

Scientific knowledge is used for a deeper development of the own professional expertise skills, to the development of knowledge base specific to the own professional needs or to collect, cumulate and analyze information for resolving an issue and/or develop some research topics.

The most recent/new scientific knowledge is used in a significant extent, the most common answer being “*As much as it is possible, related to the needs*” or “*As much as possible, for a successful research and education performance*”.

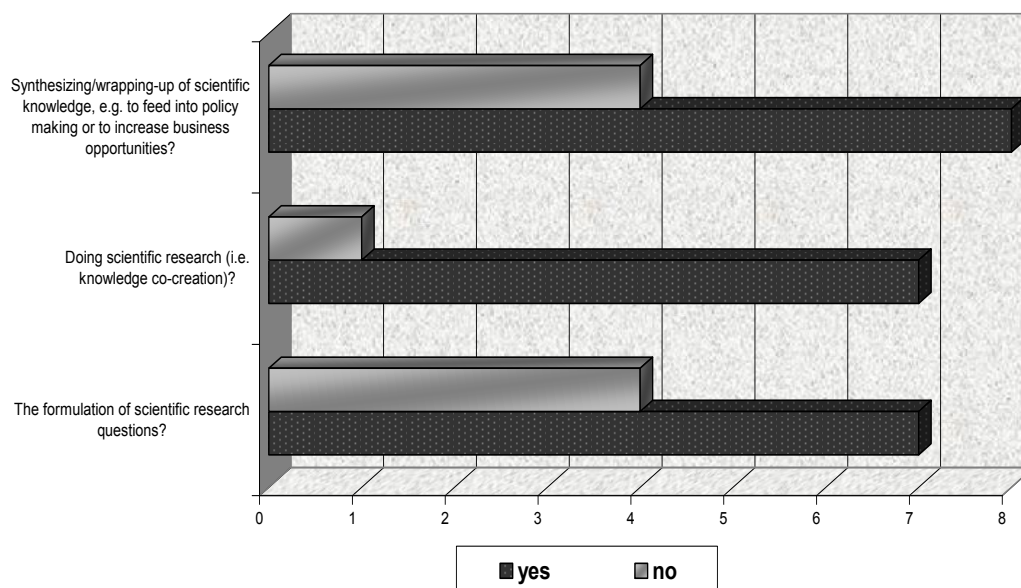
The extent of the use of the most recent scientific research for the formulation of the existing policies ranges wide from not having knowledge of the issue to a medium or significant extent.

11.3.2. Possibilities to set the agenda

Generally, the capacity of the respondents to influence the setting of scientific research policies/agendas in the country is low.

Few respondents were involved in “doing scientific research”.

RO answers weight (number) to the question „ have you ever been involved in:“



The answer to the question “To which extend do our national policies/agendas reflect your specific needs and priorities?” is somehow split in different views but frequently, the respondents make an immediate connection with EU Directives in answers like “Our national agendas mirror the specific needs and priorities in the field of genetic plant improvement and the enforcement of the European Directives” and “The agenda mirrors the requests set by EU Directives; whether soil and sediments topics should be considered and get funded, an European Directive on soils should also be set” or comments like “The enforcement of the EC Directives, with regard to environment and agriculture, should take into account the national specific of the traditional practices maintenance as well as to the shaping of research requirements to bring the agricultural performance and environment preservation to the level of the international standards”.

11.3.3. Science – policy – practice

The societal impact of scientific research related to the scope of INSPIRATION is commonly assessed ranging from neutral to very satisfactory but the option “Very successful/satisfying” is the most ticked. Some respondents see for a prospective improvement that “SRA agenda should be applied in all MS, not only in the developed MS” and “The widening of the gap in terms of research, between different MS” should be avoided. Also a Soil Directive and a European Research Program for SSW system is seen as very much needed.

The National Plan for Rural Development is seen by many respondents as the most important national Science-Policy-Interface document.

11.4 National and transnational funding schemes

Topic c: *Predominant, current as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination.*

Related key question to be answered: *How to get with one Euro of national/regional funding a multitude of Euro's (from all sources) worth of knowledge in return contributing to EU and national demands? Or even how to get with one euro of EU funding a multitude of euro's (from national, regional, local, and private sector) worth of knowledge in return contributing to the R&I demands on Land and the Soil-Sediment-Water systems.*

Topic d: *Experiences regarding the use of any trans-national, common budget for scientific knowledge production related to the scope of INSPIRATION.*

Related key question to be answered: *How to set up/govern the appropriate funding option(s) resulting from INSPIRATION – based on previous learning experiences – so that: (1) the above demands will be fulfilled, (2) knowledge resulting from implementation of the SRA will be taken up and used and (3) funders experience that their invested, national Euros are indeed multiplied?"*

11.4.1. Funding schemes and possibilities for research funding

To the question “Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and - management and related impacts to Soil-/Sediment-/Water-systems”, the majority of respondents have chosen to tick “Nationally” and “European”.

The increase of the added value of different financial resources is seen to be done by some respondents by setting multi-disciplinary consortiums, increase the level of expertise of the research teams, increase performance of the funding through an optimal use of resources, encourage the research staff to increase its personal value, improvement of the stability and predictability of the financial sources at European and national level.

Some respondents think that the relation soli-sediments-water may be studied locally, regionally and national, as there are specific local features of this relationship. They also see that all the results will be analyzed at EU level and then EU will synthesize the conclusions and draw a document applicable in all MS. If we seek for a fair use of resources, the huge differences between MS should be leveled. The destruction of the national research network in some less developed countries fuels higher differences between MS and lower the value of the index of resources use. Equalizing the rate of development in this field will induce leveling the analyze methods, assessments and interpretation of results which finally lead to an increased efficiency of the financial resources. A scientific sound assessment of the results will lead to a multiplication of the area of application, thus to an increased economic efficiency.

In Romania, over 60% of the agricultural land is used by subsistence farmers. If the soil and agro-chemical surveys are done at commune level, the price will be times lower as at farm level. Here, the investment should be done by the State. Without a proper legislation, neither the large farmers (which in fact are tenants) are interested in the evolution of the soil quality; they look only to the profit increase. They are never interested in studies. For farmers, the relation agriculture-environment is not an interesting topic. There are no funds available for such issues and if there are, these are very, very scarce.

The take up and use of knowledge resulting from execution of the SRA is seen by respondents as “*neutral*”, on the average. Lots of critic views were shared by respondents that tempted to be rather skeptical. Research in Romania is done mostly based on former and aged results; there are no private investors in research. New scientific findings are brought by the multinational companies, which have no interest to support the research in Romania. Only the State can support the national research costs. The multitude of existing foreign farmers is provided with research outputs from their own countries, they show no interest for soil as an environment factor but they treat soil like a commodity and a capital good. There is no a significant experience in Romania regarding private donors. Between 1995-2000, when this has been tried, lot of research entities collapsed and have been closed. Practically, there are no private donors, nor the legislation has a clear frame on this issue. The societal demands cannot be met either then through the national budget intervention, as more than 60% of the Romanian agriculture is a subsistent one and the large sized farms are in direct connection with multinational companies. Romanian capital is short, so is the interest for such a research field. The SSW field does not benefit of private funding for research. Also, hardly national funds are involved and extremely rare, international ones. Without the issue of a Soil Directive or a legal framework for SSW as well as a core funding from National Plan for Rural Development, there is no way to progress, at least in Romania. The potential investors need to be convinced that funds allocation for SSW research will turn, among the environment protection, to economic benefits.

11.4.2 Gaps in financial resources for resource

The majority of respondents agreed with the fact that a significant number of areas of research and innovation (R&I) are not (yet) covered by current funding mechanisms.

Little attention 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, Green House gases 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.

Regarding integrated approaches, the respondents view as some improvements the EU support, like the one for Rural Development, and request for Directives which may set certain conformities to be complied in terms of research not only for reporting. Whether a Soil Directive or a clear legal frame at EU level would be in place, maybe the Romanian leaders will understand the importance of the relation soil-sediment-water. For the water, the things are much clear because of the existence of a Common regulatory framework. There is less interest and consideration for soil and sediment. A higher awareness degree is seen as needed among the direct target groups, regarding the benefits of the environmental friendly practices.

11.5 Other remarks made by interviewees

Related to question nr. 9, an interesting point came from a ministerial representative: *“Scientists, professors, civil servants, farmers, holding owners are always invited when drafting the development strategies and the national plans. Unfortunately, less are those with soil expertise due to the low number of soil profiled organizations. Therefore, the number of proposals regarding soil topics is limited, and no priority can be given to them. Most usually, in Romania, the research topics are simply copied from EC, little we can influence these topics which sometime are unfit with the national conditions and issues”.*



11.6 Annexes

1a: NKS interviews in Romania

Date of the interview	Name of the entity	Contact person	funder	end user	knowledge provider	national-regional-local authority	university/research institute	SME /consultant	business and industry	NGO	network	other	soil	sediment	water	land use-management
5/10/2015	Ministry of Environment and Climate Change	Istrate Gabriela	1			1							1	1	1	
12/9/2015	Romanian Farmers Association	Popescu Oprea Adelina		1							1					1
Not applied	Romanian National Institute of Marine Geology and Geoecology-GeoEcoMar	Stanica Adrian			1			1						1	1	
5/10/2015	University of Agronomic Science and Veterinary Medicine - București	Mihalache Mircea			1		1						1			1
5/10/2015	University of Agronomic Science and Veterinary Medicine - București	Ilie Leonard			1		1						1			1
10/9/2015	University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca	Paulette Laura			1		1						1			1
11/9/2015	University POLITEHNICA of Bucharest	Constantin Carolina			1		1						1		1	
12/9/2015	Ministry of Agriculture and Rural Development	Morarescu Viorel	1			1							1		1	1
12/9/2015	Ministry of Agriculture and Rural Development	Tatomir Elena	1			1							1		1	1
1/10/2015	Ministry of Education and Sciences	Dinu Iuliana	1			1							1			
1/10/2015	Ministry of Education and Sciences	Soriga Iuliana	1			1									1	
8/10/2015	Soil Testing Laboratory Timis	Tarau Dorin		1							1		1			1
12/9/2015	Soil Testing Laboratory Gorj	Craioveanu Gheorghe		1							1		1			1
5/10/2015	Soil Testing Laboratory Gorj	Creanga Ion		1							1		1			1
6/10/2015	Association of Cereals and Oleaginous Crops Producers	Lamureanu Gheorghe		1					1							1
12/9/2015	AGROLIFE	Vasile Nicu		1					1				1			1

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



2/11/2015	AGROFAM HOLDING SRL	Poenaru Stefan		1					1						1
24/09/2015	Romanian National Society of Soil Science	Toti Mihai			1					1			1		1
13/09/2015	Agricost SRL	Buzdugan Lucian		1					1				1		1
8/10/2015	Politehnica University of Timisoara	Rogobete Gheorghe			1		1						1	1	1
23/09/2015	National Research and Development Institute for Soil Science, Agro-chemistry and Environment - ICPA Bucharest	Vranceanu Andrei			1		1						1		1
10/11/2015	The Academy of Agriculture and Forestry Sciences	Jelev Ioan			1		1							1	
6/10/2015	Farmer, Agigea	Banu Ionica		1					1						1
			5	9	9	5	7	1	5	1	4	0	16	4	17

Annex Ib: NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training on 22nd – 23rd June 2015.

[Note: this questionnaire template is meant to help National Focal Points (NFPs) to facilitate the interview/conversation with the National Key Stakeholders (NKS). Some questions are relevant to one NKS, other questions to another NKS. Hence, not all questions are relevant to each single NKS. The NFPs are required to adapt the template accordingly – keeping in it as many as possible of the issues to be addressed. If needed, the NFPs also translate the questionnaire into their national language.]

The questionnaire (see next pages) has the following outline:

EEE. Interview information:

To be filled out by the interviewer

FFF. Introduction:

That the interviewer can use to start the NKS interview

GGG. Background information of the NKS interviewed:

Mostly 'tick-boxes'

HHH. Strategic Research Agenda (SRA):

NKS preferred topics, overarching themes and scope for the SRA and national state-of-the-art on research agendas that the NKS is aware of

III. Science-Policy-Interface:

NKS experiences regarding the exploitation of scientific knowledge to: improve business opportunities; tackle other societal challenges; assist policy-implementation and/or policy revision

JJJ. Funding:

Predominantly used as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination that the NKS is aware of

KKK. Other:

At the end there is some time advised to let the NKS give us their advice, some nice quotes (that we can use anonymously in our communications), examples etc.

LLL. Ending the interview:

Explain follow up and if/how NKSs will be involved in the next steps of INSPIRATION

Questionnaire template in National Language

A. Interview information
Country: Name of INSPIRATION Researcher: Date of Interview: How does the NKS wish to be referred to: <i>[Anonymous, personal opinions, company's opinion. Choose when it is a good time to discuss this. In the beginning or later on.</i> <i>SHOW the interviewed NKS the ENGAGEMENT CONSENT FORM and ask him/her to fill it out. Please introduce the engagement consent form (available in 'D2.1 MoU' and editable by yourself) and hand a copy to the interviewee to read and fill in – make sure that you take this away with you and keep for your own records]</i>
B. Introductions
<i>[Please introduce your selves, the project and the purpose of the interview. You can use the handout as provided at the end of this template. This can also be sent beforehand to the NKS. Agree on a time span: approximately one and a half hour.]</i>
C. Background information on the interviewee
73. Name of NKS interviewed: 74. Institution: 75. Role:
76. Are you a (multiple answers possible): ☐ National-regional-local authority ☐ University/research institute ☐ Small or Medium sized Enterprise (SME, i.e. < 500 employees) / consultant ☐ Business and industry ☐ Non-Governmental Organisation (NGO) ☐ Network representative / leader ☐ Other, specify: ...
77. Fields of expertise (multiple answers possible): <i>[Ask to specify background regarding the selected item(s) in order to understand expertise background of interviewee]</i> ☐ Soil ☐ Water ☐ Sediment ☐ Urban / spatial planning ☐ Landscape design ☐ Land management ☐ Other, specify:

78. Does your organisation provide external research funding?

- Yes. Please specify: ...
[e.g. as programme holder, public, private, ...]
- No

D. SRA

79. Which societal challenges do you regard as important?

[If needed, you can use the European Commissions (EC) list of societal challenges here. These EC themes are:]

- Contribute to food security and food safety;
- Ensure secure supplies of safe drinking water;
- Secure energy supply and distribution;
- Reduce raw material and resource consumption, Ensure efficient use of natural resources;
- Contribute to climate change mitigation and societal adaptation;
- Contribute to a healthy living environment;
- Ensure secure infrastructure

[Explain that these challenges may be used as bases for defining of the overarching themes for aggregating the research topics of our SRA.]

e. If applicable, what additional, other or alternative challenges would you suggest/prefer?

[When needed, you can mention challenges as nature conservation, sustainable use of ecosystem services, halting the loss of biodiversity]

80. Starting with your own experience: which specific topics (research needs) should be included in the SRA?

[For each single topic mentioned by the NKS, use the following follow-up questions. The a, b and c sub-questions are mandatory. The other sub-questions are optional]:

- p. Explain – elaborate the topic
- *Who will be affected?*
 - *Who is responsible?*
 - *Is it a topic of concern of your organisation / department*
 - *Is it only a national topic, or a shared topic by multiple countries?*
 - *Where are we now, where do we want to be in x years (point on the horizon)?*
 - *How can the newly gained knowledge be effectively used?*
- q. Priority:
- 26. *High priority*
 - 27. *Some priority*
 - 28. *Neutral priority*
 - 29. *Low priority*
 - 30. *No priority*
 - *What is the urgency, i.e. what goes wrong if we do nothing?*
- r. Who wants to/should fund this kind of research?

[Optionally: check the following WP3 key-words for relevance, i.e. if they raise any additional topics by the NKS. The key-words can be used as support / check list Be sensible as interviewer if this is needed.]

- *Assessment of land resources*
- *Potential productivity of land and soils*

- *Demand for soil/land resources, imports and exports*
- *Competition between land uses (land-use conflicts)*
- *Concepts to identify and quantify relevant impacts*
- *Instruments to avoid / minimise impacts (feedback to decision-making process)*
- *Opportunities of innovative land-use technologies*
- *Resource-oriented land management systems]*
- *Soil regeneration*
- *Soil and groundwater remediation*

81. Linked to topics mentioned by the NKS:

- a. What are the important / relevant documents, research agendas, research programmes underpinning these topics? (state-of-the-art)
- b. Related to these agendas and programmes: what are timelines of programming and windows-of-opportunities to influence agendas / programmes?

[Note: question 9b is input for work package 5]

E. Science-Policy-Interfacing (SPI)

82. How would you define 'scientific knowledge'?

83. For what do you use scientific knowledge in your job?

84. Which sources of (scientific) knowledge do you use for doing your job?

[Open question and you can mention some of the sources underneath as examples]

○ <i>scientific paper</i>	○ <i>newspapers</i>
○ <i>consultants</i>	○ <i>television</i>
○ <i>reports</i>	○ <i>conferences Involvement in research projects</i>
○ <i>colleagues</i>	○ <i>data (bases)</i>
○ <i>experiences /examples within my own country</i>	○ <i>websites, such as:</i>
○ <i>experiences /examples abroad</i>	○ <i>other, specify:</i>

85. To what extent do you use most recent/new scientific knowledge (i.e. state-of-the-art scientific insights/findings) for doing your job?

86. To what extent are you able to influence (and how) the setting of scientific research policies/agendas in our country?

87. To which extent do our national policies/agendas reflect your specific needs and priorities?

88. To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

[Questions only for NKS from the non-science sector (business and policy):]

89. Have you ever been involved in:

- j. the formulation of scientific research questions?
- k. doing scientific research (i.e. knowledge co-creation)?
- l. synthesizing/wrapping-up of scientific knowledge, e.g. to feed into policy making or to increase business opportunities?

[When yes: Follow-up questions]

- How successful/satisfying was this, on a scale of 1-5?

21. *Very successful/satisfying*

22. *Successful /satisfying*

23. *Neutral*

24. *Unsuccessful/unsatisfying*

25. *Very unsuccessful/unsatisfying*

- What went well
- What could be improved?
- What to avoid/not to do?
- Additional remarks?

[Question only to NKS who are likely to have insights here (e.g. research funders)]

90. (How) is the societal impact of scientific research related to the scope of INSPIRATION being assessed in our country?

[If they know: Follow-up questions:]

- How successful/satisfying is this, on a scale of 1-5?

21. *Very successful/satisfying*

22. *Successful/satisfying*

23. *Neutral*

24. *Unsuccessful/unsatisfying*

25. *Very unsuccessful/unsatisfying*

- What indicators are used?
- What goes well?
- What can be improved?
- What to avoid/not to do?
- Additional remarks?

91. Which national Science-Policy-Interface documents do you know of / can you recommend?

F. Funding

92. Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems:

- Sub-nationally /regionally?
- Nationally?
- European? *[e.g. H2020, Interreg, multi-lateral such as the Joint Programming Initiatives]*
- International? *[e.g. Belmont Forum, Foundations.]*

[For all R&I questions aiming at achieving policy targets in the Land & SSW related system (like e.g. Sustainable Development Goals on soils -to be adopted at UN level in September 2015-, existing EU directives such as the Environmental Liability Directive, etc.) Consider all Public and Private funding sources. Please ask to provide details and give most important references (documents, website) that could be relevant for explaining the answer]

93. How to increase the added value of different financial resources (i.e. achieve a multiplier) for doing research that contributes to EU and national demands, in particular to the R&I demands on Land and the SSW-system?
[CONSTRUCTIONS that (could) work. PP, PPI, etc. Just ask for, as open as possible for suggestions, ideas, experiences, good examples]

94. Are there areas of research and innovation (R&I) that you are aware of that are not (yet) covered by current funding mechanisms and which would need new/different funding schemes / infrastructures?

95. Integrated approaches (necessary for addressing particular societal challenges related to the use and management of land and related impacts to SSW systems) are usually difficult to fund / get recognised by the research funding communities. What would be necessary to improve this?

96. Based on previous learning experiences that you are aware of: how to best set up / govern funding option(s), so that societal demands will be fulfilled, knowledge resulting from execution of the SRA will be taken up and used; and funders experience that their invested, national Euros are indeed multiplied?

[if they know: Follow-up questions]

- How successful/satisfying was this, on a scale of 1-5?
21. Very successful/satisfying
22. Successful/satisfying
23. Neutral
24. Unsuccessful/unsatisfying
25. Very unsuccessful/unsatisfying
- What went well
- What could be improved?
- What to avoid/not to do?
- Additional remarks?

G. Other (remarks, suggestions, examples):

H. Ending the interview

Thank you for taking the time to participate in this interview:

- Would you like us to keep you updated about INSPIRATION progress?
- Would you suggest anyone else who we should be interviewed by us?
- Do you have further questions arising from this interview, or would you like to add

anything else?

- What information are you interested in, and willing to give feedback on?
[Discuss the feedback mechanism and if they have expressed their opinions as a person or as a representative of their organisation/network. Checklist:]
 - i. Information to exchange / willingness to give feedback on:
 - (complete interview, not recommended)
 - summary of main conclusions
 - national report, national contribution to D2.4
 - complete D2.4, all countries
 - j. Preferred level of feedback:
 - no feedback
 - informal feedback
 - formal feedback (e.g. on behalf of represented organisation)

[Check: have you discussed consent form / how to refer to interviewee]

INSPIRATION acknowledges the received funding from the
European Community's HORIZON2020 Framework Programme
under grant agreement no 642372



Annex Ib: NKS hand-out: INSPIRATION interview at a glance

INSPIRATION interview at a glance

Aim of INSPIRATION:

The main purpose of the EC-funded INSPIRATION project is to formulate an end-user driven strategic research agenda (SRA) for land-use, land-use changes and the related, impacted compartments of the Soil-Sediment-Water (SSW) system in order to meet current and future societal challenges and needs. Next to that, the project aims to scope out models of implementing the SRA and to prepare a network of public and private funding institutions willing to commonly fund the execution of the SRA.

National Key Stakeholders (NKS):

In a series of NKS interviews across EU nations the “National Focal Points (NFP) gather for nations individually information related to the INSPIRATION scope (land and SSW-system use and management) on:

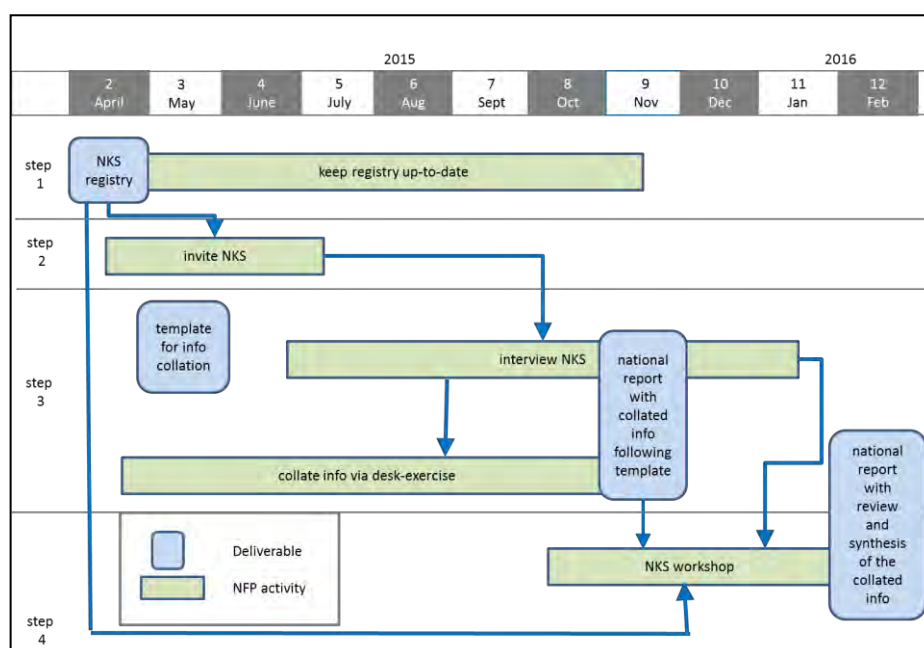
- Research and Innovation (R&I) needs
- Experiences regarding connecting science to policy/practice
- National and transnational funding schemes

In the interviews we focus at NKS – like you – positioned at a strategic level, i.e. leading persons in their field of profession; with a good overview on opportunities; a clear vision on, and insight in knowledge demands (short, middle and long-term). Furthermore, these NKS are well positioned and participate in relevant professional network(s) and may also have potential to become an ambassador for INSPIRATION. We selected NKS to represent different disciplines and institutional backgrounds including: land-use planners; managers; soil, sediment and water experts; researchers, funders and regulators/policy makers.

This interview:

Collecting input from you – an expert in your field – is crucial for the project in order to help us describing the state-of-the-art in our country as input into the European research agenda. In the interview we will go through a series of topics and questions: The interviews of NKS (ca. 20 per nation), together with a desk study on research needs and funding possibilities will be synthesized to a 'national report'. This synthesis will be reviewed in a national workshop, to prioritize the topics for the suggested Strategic Research Agenda (SRA) from our country's point of view. The national reports will finally be used as input for elaborating the European SRA and cross-nation matchmaking (matching research needs to possible funding).

Workflow in first year of INSPIRATION



Example questions:

Research and Innovation (R&I) needs

- Which societal challenges do you regard as important?
- Starting with your own experience: which specific topics (research needs) should be included in the SRA?

Experiences regarding connecting science to policy/practice

- How would you define 'scientific knowledge'?
- To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

National and transnational funding schemes

- Does your organisation provide external research funding?
- Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems

Your benefits from participating:

- A chance to influence the European SRA on land and SSW management in the light of societal challenges and needs;
- Being able to make use of the results of the project: overview of research need and of existing and promising funding schemes on different levels (sub-national, national, European, international) and opportunities for a better connection between science and policy/practice;
- Use the matchmaking opportunity to get in contact with other networks in- and outside our country, and countries learn which shared challenges can be taken up jointly.

Contact and further information:

For general information on the INSPIRATION project visit our website: www.inspiration-h2020.eu

Contact the National Focal Point: <i>[Name]</i> <i>[Address]</i> <i>Tel</i> <i>Email]</i>	Contact the general project coordination: Stephan Bartke FG I3.5 – Coordination INSPIRATION Federal Environment Agency Woerlitzer Platz 1 06844 Dessau-Rosslau Germany stephan.bartke@uba.de

12. Slovakia

Report by Maros Finka, Maria Kozova, Zita Izakovicova, Lubomir Jamecny, Vladimir Ondrejicka

12.1 Introduction

This national report (i.e. INSPIRATION deliverable 2.4) reports the information collated for Slovakia. The information was collated in accordance with INSPIRATION D2.3 “Template for national information collation”. In Slovakia, 50 NKSs were interviewed. Details on these NKS are provided in Annex I. The desk study was based on documents based on NFP knowledge as well as suggested by NKS. These are listed in Annex II. This national report is based on broad desk research, review with NKSs and 3 workshops in different parts of Slovakia and different thematic focus with the goal to collect relevant representative information from different groups of stakeholders representing different problem regions, different thematic background and of course the whole scale of positions in the land, soil, water and sediments management. Based on this the national report has been developed in Slovak language with the goal to address stakeholders for their feedback. The final version of the national report reflecting the NKSs’ opinion, results from the desk research and feedback from chosen representatives of NKSs’ groups was translated and edited into the final version.

12.2 Research and Innovation (R&I) needs

Topic a: Demand-driven* suggestions for the Strategic Research Agenda (SRA), i.e. suggestions from the perspective of industry, end-users and funders.

Related key question to be answered: **What (new) knowledge do these parties need to tackle societal challenges including the increase of job opportunities)?**

****Demand-driven** in INSPIRATION means focusing on the demands of those who are responsible or feel committed to tackle the societal challenges related to the INSPIRATION scope and themes, i.e. industry, end-users and funders. These parties could improve their business opportunities and/or take better informed decisions on what measures to take and execute in order to tackle other societal challenges if they would (be enabled to) use the knowledge as resulting from execution of the INSPIRATION SRA.

12.2.1. Societal challenges and needs

Which societal challenges do you regard as important?

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
- to contribute 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
- to contribute to the efficient use of natural resources

Only very marginal part of the reviewed NKSs added among key challenges:

- to safeguard safe infrastructure
- to safeguard energy supply and distribution

All above listed topics are in the harmony with the Research and Innovation Strategy for Smart Specialisation of the Slovak Republic (RIS3 SK) containing the research priorities for Slovak Republic up to 2020. Among them the topics related to the environment protection, use of natural resources, clean energy e.g.:

- Efficiently usable energy resources
- Environment, agriculture, food safety

In addition following other issues/challenges were addressed by reviewed NKSs

Alternative challenges/topics, deepening above listed societal challenges/topics

- Protection of soil (agricultural, forest, green in open as well as in urban landscape) against urbanization and degradation, there is no any joint EU policy on soil protection which is in contrast with existing agricultural EU policy
- Efficient use of soil (agricultural, forest) and development of sustainable soil management reflecting potentials and limits in the use of soil as well as balance between economic and environmental interests
- Integration of the soil-water-land management with the link to ecosystem services and stress on their implementation in the practice and on their benefits / underline the economic dimension as well
- Implementation of preventive measures for soil – water – land protection tackling the danger of natural disasters (not only climate change)
- Lowering the negative effects of urbanisation, urban sprawl regulation, monitoring of the industrial production effects – absence of scientific knowledge on their impacts on public health
- Implementation of the measures lowering the contamination of soil, water and other elements of environment, including the measures limiting the land degradation, sediments contamination
- Limitation of the landscape and biotopes fragmentation, lowering the effects of the fragmentation, further development of green infrastructure
- Revitalisation of degraded ecosystems and brownfields
- Use of abandoned land for quick growing trees
- Realisation of effective environmental education and growth of social awareness
- Sustainable development of cultural landscape and historic landscape structures
- R&D in the field of plastic materials with the stress on recycling and bio-degradation
- Improvement of the public awareness regarding sustainable land/soil/water/sediments management and quality of life/value systems with special focus on key actors including the environmental education and spatial planning education

Supplementing alternative important challenges linked to the land/soil management (not properly reflected in Slovakia for longer time)

- Problems connected with soil/forest ownership transformation
- Research capacity building at the national and regional level with relevant scientific profile for soil, water, land management
- Systematic state support for research-practice cooperation including technology transfer related to the land – soil – water issues
- Access to the information, up-date of the information, harmonisation of scientific assessment methods related to land and soil
- Integrated information system about elements and factors of environment usable for self-government and local state governmental bodies
- Redevelopment of the practical education on agriculture in the primary and secondary schools as the tool for redevelopment of the awareness about value and relationship to the soil



A common problem was appointed by many NKSs – the topic “land-soil-water-sediments” needs systematic research (e.g. monitoring, long term effects assessment after the implementation of respective intervention) and not only set of short-term projects as it is reality across the levels incl. EU level. In many cases the research is more reacting on pressing problems than preparing the background for prevention oriented measures.

12.2.2. Topics / research needs to include in the SRA

Please give a synthesis of answers to questions 8 and 9:

- Starting with your own experience: which specific topics (research needs) should be included in the SRA?
- Linked to topics mentioned by the NKS:
 - What are the important / relevant documents, research agendas, research programmes underpinning these topics? (state-of-the-art)

Please follow the following outline in presenting the topics:

1. Give a **headline** to the topic that in max one line identifies the core issue! (Number the Topics starting with a two-digit.country code, e.g. EU-1, EU-2..)
2. Introduce the topic in an abstract of about 50 – 100 words maximum. Indicate: Why and for whom is this a relevant topic? What aspects are part of the issue?
3. Give a set of three to five specific research questions under the topic.

Based on the contributions from the reviewed NKS and workshops outputs following issues seems to be priority for EU supported research as the part of SRA:

I. Topic – core issue:

Sustainability and sustainable management of natural resources – optimization of soil functions

- Approaches, methods and instruments of the productive land protection against its transformation towards build-up areas
- Research on and development of intensive and ecologic acceptable production approaches in agricultural and forest country including the aspects of cultural landscape quality development
- The effect of ownership transformation in the land management (specific Slovak issue)
- Access to the information about land, soil including up-date of information systems and their content, harmonization of the methods, structure of the data.

II. Topic – core issue:

Improvement of the reflection of scientific knowledge into institutional instruments of land management incl. economic instruments.

Although there is joint environmental policy in the EU, a lot of agreements, strategies and supportive schemes, but the state of art of the environment is not satisfying. The question is, where is the problem, to which extend are the policies and schemes effective, where are barriers and problems with their implementation, how can be the problems eliminated. This should be the object of the research as well addressing following topics:



- Assessment of long term policies – analyses of policies and assessment of their effects, contributions to the environmental quality, efficiency, factors of efficiency
- Assessment of the effects of supportive EU schemes for environment, efficiency of the financial investments, methods and indicators for the assessment of their efficiency
- Transfer of knowledge into environmental practice, assessment, mechanisms, transfer barriers in reaction to the fact, that the scientific knowledge, providing the notions about the dangerous development is not reflected in the policies up to the moment of disasters and not rewardable changes. The question is where are barriers for transfer of know how into the policies and strategies, and which measures can support barrier less transfer.

III. Topic – core issue: Sustainability of water resources and of quality of water management services.

In relation to the sustainability of water resources and of quality of water management services in agricultural, forest and urban landscape following topic is from the point of view of NKSs crucial:

- Assessment of global (incl. climatic) and regional factors influencing the development of water balance in the territory and predicting of environmental and economic effects due the proposed/implemented measures

Why and for whom is this a relevant topic? What aspects are part of the issue?

Absence of proper approaches could bring higher price for water for citizens, industry, negatively influence water based biotopes and eco-system services. The target groups regarding the research outputs are responsible subjects for water management/supply and land users.

IV. Topic – core issue:

Approaches, methods and instruments of the lowering and elimination of natural hazards and risks (floods, forest calamities, forest fires, geodynamic hazards and erosion)

- Risk assessment on land use/soil use in relation the quality of water
- Risk assessment on drought and floods as the effects of climate change and anthropic changes in the landscape
- Development of the mitigation measures to lower abiotic and biotic damages on forest
- Integration of interrelations between land-soil-water and sediments in the frame of integrated management

V. Topic – core issue:

Risk assessment in regard to land use effects on the quality of natural resources

Reflecting the dynamics of changes in the land use, lack of coordination among requests from different human activities, conflicts in the land use itself and with protection and sustainable use of natural resources following topic are of special importance:

- Research on changes in the landscape, spatial optimisation of the land use
- Ecologic optimal functional landscape organisation
- Development of the model of integrated landscape management based on system approach to the landscape as an integration of natural resources in respective space
- Strategic assessment of the quality and efficient use of landscape, environmental loads, potentials, and limits – development of assessment methods, incl. risks and degradation processes assessment,



Why and for whom is this a relevant topic? What aspects are part of the issue?

This topic, although locally based has transnational dimension. The subjects addressed are all levels of responsible governance and government structures, as well as other stakeholders e.g. land users, owners, enterprises as well as citizens.

VI. Topic – core issue:

Mapping and assessment of natural capital, mapping, assessment and revitalization of degraded landscape ecosystems and the landscape ability to provide ecosystem services

In relation to the efficient use of landscape following topics are of special importance:

- Mapping and assessment of landscape and biotopes' fragmentation with special focus on urban landscape and biodiversity in urban landscape and methods of its protection and revitalisation
- Approaches, methods and instruments for revitalisation of degraded landscape ecosystems incl. brownfields
- Approaches, methods and instruments for efficient implementation of the ecosystem services concept into the practice of landscape integrative management incl. spatial planning with the stress on their benefits (as economic category as well)
- Approaches, methods and instruments of multifunctional assessment and use of ecosystem services incl. the monitoring and assessment of the threats between particular ecosystem services (e.g. production versus protection)

Why and for whom is this a relevant topic? What aspects are part of the issue?

This is relevant topic for all levels as it is important to have an overview about the natural capital, spatial distribution of the landscape ability to provide ecosystem services. This is important for planning and management, implementation of green economy, revitalisation measures in the responsibility of the local, regional, national governance and government bodies and EU structures, professional organisations and institutions.

VII. Topic – core issue:

Lowering of negative effects of urbanization, urban sprawl regulation, consequent monitoring of industrial production effects.

- Approaches, methods and instruments of assessment of urban sprawl and its limitation and mitigation of negative effects
- Approaches, methods and instruments for green infrastructure revitalisation, development and maintenance,
- Approaches, methods and instruments for identification of complex caring capacity of urban landscape and for monitoring and provision of the data on environmental quality incl. the risks accessible for all stakeholders in real time
- Approaches, methods and instruments for lowering and prevention of the negative impacts on human health.
- Approaches, methods and instruments for management of regional specific environmental loads (e.g. soil contamination in the regions with magnesit production or aluminium production)

Why and for whom is this a relevant topic? What aspects are part of the issue?

This is relevant topic for all levels as it is important to have an overview about the natural capital, spatial distribution of the landscape ability to provide ecosystem services. This is important for planning and management, implementation of green economy, revitalisation measures in the responsibility of the local, regional, national governance and government bodies and EU structures, professional organisations and institutions.

VIII. Topic – core issue:

Modelling of the global megatrends effects

In the context of global economic, social and environmental interlinks, global competition, global effects like biodiversity degradation, not efficient use of natural resources, climate changes special attention should be paid to the 11 megatrends listed by EEA in 5 clusters decision making from long-term perspective in European environment. Special focus should be oriented to the following questions and topics:

- How to lower growing pressure on ecosystems, degradation biodiversity, destruction of natural ecosystems?
- How predict and lower the effects of global urbanization on landscape, its structure, character, visual parameters with the goal to protect the value of cultural landscape?
- Development of new identification methods for environmental loads, for the assessment of synergies (sediments-water-soil-air) and transport of chemicals between respective mediums
- What are the effects and development trajectories of different consumption models in regard to their environmental foot prints?
- Integrated modelling of global climate change effects
- Integrated research on the effects of the transformation from industrial to post-industrial knowledge based society and economy on land, soil, water and landscape transformation/use and management
- Integrated research on the effect of long-distance migration on land, soil, water and landscape demands and management

Relevant documents relating to the management of environment, water, soil, rural landscape.../Strategy for flooding protection and control to the year 2020 (2013)

- Adaptation Strategy of the Slovak Republic on Adverse Impacts of Climate Change (NAS) (2014)
- Slovak Operational Programme Quality of Environment (2014)
- Slovak Rural Development Programme (2014)
- Environmental Strategy Slovakia to the year 2030 (2015-2016) - Under preparation (the first draft is prepared for reviewing. Elaborated by the Ministry of Environment SR. The document will include a separate chapter on climate change and air protection).
- EU Framework Directive on Water
- Landscape convention
- Biodiversity convention
- *Directive 2007/60/EC on the assessment and management of flood risks*
- *UN Framework Convention of Climate Change*
- Directive on Environmental Quality Standards
- National Strategy of Sustainable Development
- National sectoral strategies
- Thematic strategy for soil protection

Relevant documents relating to the science and research agenda

- *Research and Innovation Strategy for Smart Specialisation* for Slovak Republic for period 2014-2020 / *Stratégia výskumu a inovácií pre inteligentnú špecializáciu Slovenskej republiky: oblasť špecializácie pôdohospodárstvo a životné prostredie vrátane moderných chemických technológií šetrných k životnému prostrediu*
- Strategy of applied research in the agriculture/ *Stratégia aplikovaného výskumu v pôdohospodárstve*
- Agricultural research in the Programme Horizon 2020 / *Pôdohospodársky výskum v Programe Horizont 2020*

- Concept of advisor education for programming period 2014-2020 / Koncepcia vzdelávania poradcov na programovacie obdobie 2014-2020
- European innovation partnership / Európske inovačné partnerstvo
- Action plan for implementation of the *Research and Innovation Strategy for Smart Specialisation* for Slovak Republic for period 2014-2020 / Akčný plán implementácie Stratégie výskumu a inovácií pre inteligentnú špecializáciu SR na roky 2014 – 2016 marec 2015, Ministerstvo školstva, vedy, výskumu a športu SR a Ministerstvo hospodárstva SR (Action Plan for implementing research and innovation strategy for smart specialization SR for the years 2014 - 2016 in March 2015, the Ministry of Education, Science, Research and Sport SR and the Ministry of Economy SR)
- Up-date of the long-term strategy for state science and technology policy up to 2015 / Aktualizácia dlhodobého zámeru štátnej vednej a technickej politiky do roku 2015 (Stratégia Fénix) (Updating long-term state science and technology policy to the year 2015)
- Operational program research and innovations 2014-2020 / OPERAČNÝ PROGRAM VÝSKUM A INOVÁCIE 2014-2020, 2014, Ministerstvo školstva, vedy, výskumu a športu SR (OPERATIONAL PROGRAMME OF RESEARCH AND INNOVATION 2014-2020, 2014, Ministry of Education, Science, Research and Sports SR)
- Research and innovations strategy for smart specialisation of Slovak Republic - RIS3 / Poznatkami k prosperite - Stratégia výskumu a inovácií pre inteligentnú špecializáciu Slovenskej republiky (RIS3 SK). 13. november 2013 (Knowledge to prosperity - research and innovation strategy for smart specialization of the Slovak Republic)
 - zákon č. 172/2005 o organizácii štátnej podpory VaV a o doplnení zákona č. 575/2001 Z. z. o organizácii činnosti vlády a organizácii ústrednej štátnej správy...
 - zákon č. 185/2009 Z. z. o stimuloch pre VaV a o doplnení zákona č. 595/2003 Z. z. o dani z príjmov v znení neskorších predpisov

Other relevant documents

a) Information basis for integrated land management

- KEZIMK (Katalog objektov krajinnno-ekologickej základne pre integrovaný manažment krajiny – Catalog of the Objects of Landscape-ecological Basis for Integrated Landscape Management)
- Integrated spatial information system NIP

b) Landscape-ecologic and spatial framework for integrated land management

- Land-use planning documents incl. landscape ecologic plans

c) Sectoral documents

- Landscape and nature protection documents;
- Comassation documents;
- Forest management documents.
- Water management documents, planning documents for catchments areas;
- Flood protection documents;
- others (e.g. protection and use of minerals, tourism...)

d) Documents and instruments of the environmental protection.

- Integrated prevention and pollutions control (IPKZ)
- SEA/EIA documents

12.3 Experiences regarding connecting science to policy/practice

Topic b: *Experiences regarding the exploitation of scientific knowledge to improve business opportunities and/or tackle other societal challenges.*

*Related key question to be answered: **Where to improve the science-policy interface so that (new) knowledge can and will be more effectively exploited by the demand side?***

12.3.1. Use of knowledge

Please give a synthesis of answers to questions 10-11-12-13 and 16:

- How would you define 'scientific knowledge'?
- For what do you use scientific knowledge in your job?
- Which sources of (scientific) knowledge do you use for doing your job?
- To what extent do you use most recent/new scientific knowledge (i.e. state-of-the-art scientific insights/findings) for doing your job?
- To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

The NKSs understand the knowledge as a product of higher form of learning. The majority of NKSs lined the knowledge to scientific activities. Summarising the answers from the respondents we can formulate following definitions:

- The knowledge is a form of output from scientific or research activities obtained by basic or applied research, which can enrich following research activities, can be used in the practice, can contribute to the quality of life. Knowledge is developed based on previous knowledge and on learning via deduction or observing. Knowledge can be validated by following research. Acceptance of new knowledge is evidence based.
- Information oriented towards getting data to solve the problems
- Findings obtained based on data collected by defined methodology and assessed based on clear criteria and methodologies
- Scientific knowledge is answer to the question formulated by research based on societal demand or individual demand representing capital the value of which is given by the effects from its use.

Majority of NKSs use scientific knowledge for improvement of their work, for research, publishing of scientific papers, practical projects and problem solutions, for education. The cyclic character of knowledge has been underlined – the knowledge is used for deriving new knowledge.

The knowledge sources are different, mostly the project work was appointed as the source not only by academicians but NGO and SMEs as well. Important role in gaining the knowledge the "good practices" are playing. Important role play conferences, web pages, data-bases. Up to 70% of the NKSs appointed own colleagues as the source of knowledge. Absolutely marginal is the role of media.

The NKSs use the newest knowledge very often up to average, some of them even every day. The main factor of their use is the awareness about their existence, accessibility and technical and personal capacities in respective institution/NGO/SME/enterprise. As a problem the availability of proper data-bases was defined. Lower accessibility of knowledge was indicated by the sectoral research institutions and SMEs.

Involvement of researchers and scientists into the formulation of research and science policies is very weak. Although they use to be invited to be the members of the respective committees, their voice is taken into account only marginally. From the point of view of researchers and scientists the topic of land /soil, water and landscape is only marginally represented in science and research policies (e.g.RIS3) in Slovakia. The opinion of the policies authors is in contradiction with this view.



Some NKSs underlined the OECD and EEA activities regarding the eco-systems' management and eco-system services and monitoring as the source of experience/view from the practice as well as potential sources of finances for research.

12.3.2. Possibilities to set the agenda

Please give a synthesis of answers to questions 14-15

- To what extent are you able to influence (and how) the setting of scientific research policies/agendas in our country?
 - To which extent do our national policies/agendas reflect your specific needs and priorities?
 - Scientists feel to have enough information to influence the right orientation of the research and science policies and are ready to offer them to the decision makers, but they feel lack of interests from their side. The scientists try to provide their knowledge for the practice, but the transfer process is not properly functioning (more than 50% of NKSs have negative experience).
 - Positive experience 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, territorial systems of ecologic stability as a part of commasations plans, methodology for landscape planning documentation, 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 their implementation efficiency, many of measures based on newest knowledge has not been implemented in the practice. In the field of forest ecology research there were successfully included priorities in the current state research strategy (RIS3)
 - 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, the measures are moved from year to year, from document to document. Many of documents are elaborated only as they are required by international agreements. The policies are influenced by lobbying and interests of specific interest groups. In addition the topic of soil management is in responsibilities of several ministries, which creates a barrier for coherent strategies in the practice as well in the research.
 - Different opinion was represented by the representatives responsible for policies' development stressing that the broad professional discussion created the base for the formulation of the Concept for science and research policy for 2014 – 2020 with the perspective up to 2030. The Ministry for education, science and research and youth established workshops under participation of the representatives from universities, Slovak Academy of Science, industry, enterprises and associations. The outputs were analytical documents mapping the needs, possibilities and infrastructure in respective fields of science and research (the representatives of land use and management were not included) and proposal for priorities for the period 2014-2020 up to 2030. Regarding the knowledge transfer towards practice was the new law on state grants for enterprises No. 185/2009 Z. z. *About the stimuli for science and research mentioned. But this is only marginally relevant for land use and management.*
- NKSs assessed the National RIS3 SK strategy as not complex documents defining state science and research strategy. Such documents absent at the national as well as regional levels (e.g. program declaration of the government, state programs). The measures included are not sufficient to solve the problems. Research and science are in long term period underfinanced. **0,5 % GDP is very low proportion** (average in EU 27 is 1,82 % GDP) and the advised level by EC is 3 %. (See Annex III). The research



institutions have to find own resources (can not use own budget from state subventions) to co-finance EU projects although the outputs from the projects are not targeted to them but to the public sector. Private sector is not properly motivated to finance research and development, the basic research is marginalized even by the state supporting technology oriented research. The public sector at the lower than national level is absolutely passive in supporting the research although there are many specific needs at the local and regional level, they do not have adequate financial resources to finance research. The final phase of the research – model solutions, pre-production is under-financed.

12.3.3. Science – policy – practice

Please give a synthesis of answers to questions 17-18-19

46. Have you ever been involved in:

- d. the formulation of scientific research questions?
- e. doing scientific research (i.e. knowledge co-creation)?
- f. synthesizing/wrapping-up of scientific knowledge, e.g. to feed into policy making or to increase business opportunities?
- How is the societal impact of scientific research related to the scope of INSPIRATION being assessed in our country?
- Which national Science-Policy-Interface documents do you know of / can you recommend?

Majority of the NKSs participating at the survey was involved in the formulation of scientific research, realisation of scientific research and synthesizing/wrapping-up of scientific knowledge. They perceived their participation as satisfactorily up to neutral, in one case as negative. Their participation contributed to the formulation of strategic documents, methodologies and their transfer into the new norms/law acts. New softwares for modelling of natural processes are the products as well.

The NKSs consider as necessary:

- to support the knowledge transfer into the practice, to accept as the outputs as well the publications, methodologies and other documentation in national languages addressing directly the practice in respective country
- to respect / to require consequent respect regarding the law in which the outputs from the research is to certain extent reflected
- to formulate the goals for strategic research and consequently fill them up across election periods
- to support SMSs
- to support consortia of research institutions and subjects from the practice
- to increase involvement of the representatives from outside of academic society on the science and research policy formulations
- to strengthen integrative approach to environmental problems
- to coordinate scientific potential and avoid duplicities
- to be more consequent in the control of national and regional projects and their effects for the practice
- to support consequently environmental education across different levels of educational system

These indicators for the assessment of scientific and research performance are based on Main Science and Technology Indicators OECD. As crucial indicators for monitoring the efficiency of the research are appointed following indicators:

- Number of SCI publications,
- Number of SCI quotations,

- Number of patents,
- Inventions and utility models,
- Discoveries,
- Licences.

This indicators are not proper for the environmental research, they do not reflect specific needs of regional and local environmental research (e.g. transfer towards regional/local practice). They are mostly quantitative and not qualitative, not oriented towards effects and usability of the outputs.

As the indicators showing added value are mostly used following indicators:

- New partnership between academic and business sector
- New research-educational working place
- New enterprise under participation of researchers
- New research and development projects based on outputs from the project
- Derived projects for international competition
- New research infrastructure
- New incubators oriented towards certain economic sector
- New science and technology park
- New certified laboratory
- Accreditation of new PhD study program
- Education of new researchers, popularization of the research outputs and mobility

Societal effect of the research on the protection of particular natural resources is low. There are knowledge, methodologies, and models available, but their usability in the practice is low. The NKSs indicated only 30% rate of usability of the research outputs in the practice.

12.4 National and transnational funding schemes

Topic c: *Predominant, current as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination.*

*Related key question to be answered: **How to get with one Euro of national/regional funding a multitude of Euro's (from all sources) worth of knowledge in return contributing to EU and national demands? Or even how to get with one euro of EU funding a multitude of euro's (from national, regional, local, and private sector) worth of knowledge in return contributing to the R&I demands on Land and the Soil-Sediment-Water systems.***

Topic d: *Experiences regarding the use of any trans-national, common budget for scientific knowledge production related to the scope of INSPIRATION.*

*Related key question to be answered: **How to set up/govern the appropriate funding option(s) resulting from INSPIRATION – based on previous learning experiences – so that: (1)the above demands will be fulfilled, (2) knowledge resulting from implementation of the SRA will be taken up and used and (3) funders experience that their invested, national Euros are indeed multiplied?"***



12.4.1. Funding schemes and possibilities for research funding

Please give a synthesis of answers to questions 20-21-24

47. Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems
48. How to increase the added value of different financial resources (i.e. achieve a multiplier) for doing research that contributes to EU and national demands, in particular to the R&I demands on Land and the SSW-system?
49. Based on previous learning experiences that you are aware of: how to best set up / govern funding option(s), so that societal demands will be fulfilled, knowledge resulting from execution of the SRA will be taken up and used; and funders experience that their invested, national Euros are indeed multiplied?

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

As the international sources are very competitive, big pressure is at the national level but the amount of finances in national schemes is very low and the grants do not allow serious research. Big problem are administration and co-financing of research projects financed by the EU as well as late reimbursement of the expenditures, discrimination of some research units in the calls (structural funds) e.g. not eligibility for researchers from Bratislava although they have the same precondition if not more negative than others in SK. Due the international lobbyism underdeveloped from Slovak representatives in Brussels Slovak researchers do not have the same access to the H2020 and other European schemes.

Added value and synergies among different sources can be improved by the measures listed by the NKSs as follows:

- To invest more public resources in strategic research
- To finance basic research from the state budget across the sectoral division of research units
- To co-finance applied research via sectoral ministries and their institutions
- To increase the proportion of private resources via proper supportive measures
- To eliminate not correct lobbying from European as well as national level
- To guarantee fair professional assessment of the projects, to eliminate complicated administration
- To define proper assessment criteria for the project outputs, to focus on outputs and not on formal aspects like number of hours spent etc.
- To eliminate un-equal payment for equal performance at the European level
- To coordinate thematic research, to avoid duplicity, to support collaboration and coordination
- To support transfer from the research to the practice in the not business oriented fields
- To open the calls for different nature of the subjects not as today, where there are the calls opened only for certain subjects and not for all which is counterproductive for integrated research and integration of the practice into research



12.4.2. Gaps in financial resources for resource

Please give a synthesis of answers to questions 22-23

50. Are there areas of research and innovation (R&I) that you are aware of that are not (yet) covered by current funding mechanisms and which would need new/different funding schemes / infrastructures?
51. Integrated approaches (necessary for addressing particular societal challenges related to the use and management of land and related impacts to SSW systems) are usually difficult to fund / get recognised by the research funding communities. What would be necessary to improve this?

NKSs reflected the situation with following advices:

- To improve research coordination especially inter-sectorial coordination
- Priority on the research with clear linked to the identified or expected problems in society
- To prioritise research focused on environmental effects
- To avoid financing of the research by the firms, individuals, NGO without proper own human capital, laboratories and technologies
- To stop negative development in financing the research
- To improve awareness about the role of science and research in society.
- To support integrative instead of particular research (60% of NKSs identified problem that even integrative projects proposals end with sectoral research projects in reality)
- To create proper legal/institutional framework for integrative financing of the research,(to create agency for integrated research support)
- To create proper fair environment for European competition based on equal payment for equal performance

12.5 Other remarks made by interviewees

Please give a synthesis of remarks, suggestions, examples, points of attention given by the interviewees

Summary

Positive aspects of the development so far can be from the perspective of NKSs defined as follows:

- Definition of the needs of interdisciplinary approach in the field of protection and use of natural resources
- Implementation of available knowledge into the legal framework and partially in planning and programming practice, harmonisation of the law with the EU
- Elaboration of several strategic documents under the participation of professionals, researchers and scientists
- Availability of the knowledge for the policy makers and broad public
- Support of larger environmentally oriented projects
- Involvement of broader spectrum of stakeholders into the research projects (limited)
- Development of planning documents for catchment areas and for flood prevention reflecting recent knowledge

Negative aspects of the development so far can be from the perspective of NKSs defined as follows:

- Sustaining formal approaches to the problems of sustainable development, much more declarative than practical strategic documents and their implementation



- Low level of coordination among subjects responsible for implementation of policies and strategies starting with EU ending with local level, incl. research activities, data collections, sectoral policies and their effects
- Gap between available knowledge and real life due the lack of capacities, finances, awareness on the side of the subjects responsible for implementation of the policies across different levels of government and governance
- Not sufficient activation of different disciplines into the integrated research, dominance of natural sciences, lack of complex approaches including social, economy and technology sciences, lack of methodologic, terminological and instrumental coordination
- Lack of financial resources for integrative research and lack of institutional support for such research on land-soil-water-landscape issues
- Insufficient awareness about need of new knowledge, need of integrative research on land-soil-water-landscape issues, marginalisation of environmental research against technology research

To face the above mentioned problems and to use efficiently potentials the **NKSs see the necessity:**

- To improve the financing incl. activation of private resources, to provide environment for systematic research
- To solve the problem of co-financing by research institutions of the research in which the public sector is the target sector for the outputs
- To improve preconditions for involvement of Slovak scientists in international research
- To establish fair and equal payments for equal performance in EU funded projects
- To support interdisciplinary and complexity of related disciplines in respective research projects
- To improve communication among subjects in the research arena and decision makers in the field of R&D
- To apply new criteria for the assessment of the research projects with the focus on research outputs quality and not on formal administration of the projects like spent time reporting
- To support investments into the knowledge implementation in the private as well as in the public sector
- To improve accessibility of the data
- To support local and regional research
- To develop state programmes for research support in national specific fields

It is necessary to avoid:

- To prefer the sectoral approaches to the research on land-soil-water-landscape topics
- To accept formal assessment instead of assessment of the quality and quantity of outputs
- To prefer specific research topics instead of cross-oriented topics with high relevance for practice
- Contradicting interests in research
- Subjective assessment of the projects and negative lobbying influence.

12.6 Annexes

I. a: NKS interviews in Slovakia (Ruzomberok, Bratislava, Zvolen)

Date of interview	Organisation	Interview	finder	end user	knowledge provider	Nat.reg .loc. authority	Univ./ research inst	SME /consultant	business & industry	N G O	network	other	soil	sediment	water	land use-management
17-08-15	Catholic Univ. Ruzomberok	MAK			1		1						1			1
27-09-15	Ministry of education, science...	PBP	1			1							1	1	1	1
17-08-15	Catholic Univ. Ruzomberok	JCD			1		1						1		1	1
11-09-15	Slovak Land Office in Liptovský Mikuláš	MDS		1						1			1			1
11-09-15	District Office in Liptovský Mikuláš	KEU		1		1							1			1
14-09-15	Research Institute for Soil Science and Conservation in Bratislava	JFS			1		1						1			1
18-09-15	District Office in Ružomberok	MGF		1		1							1		1	1
01-10-15	MONDI, SCP, Ruzomberok	MHM		1					1				1			1
02-10-15	City Office in Ruzomberok	MIS		1		1										1
08-10-15	Water Research Institute in Bratislava	RJB			1		1								1	1
13-10-15	Catholic University in Ruzomberok	EKB			1		1						1			1
29-10-15	Slovak Environmental Agency in Zilina	SLM			1		1						1		1	1

03-11-15	Water Company in Ruzomberok	JMB		1				1							1	
03-11-15	Urban Forest in Ruzomberok	MNS		1				1					1			1
09-11-15	Regional Public Health Office in Banská Bystrica	DOB		1		1									1	1
15-11-15	Laboratory monitoring of air quality, ENVitech Trenčín	MPO		1	1			1								1
21-09-15	Biosfira	FRP	1		1					1			1			1
10-11-15	MŠ	PSP	1			1										
14-09-15	Esprit, s.r.o.	DTK		1	1			1					1		1	1
17-09-15	Krajina 21	TUH			1					1			1			1
21-09-15	Európska Akadémia vied a umení	SVL			1		1						1			
17-09-15	Regioplán	PZM		1	1					1			1			1
15-09-15	Ústav krajinskej ekológie SAV	DXS			1	1	1									1
30-09-15	SPU Nitra	JYS			1		1						1			1
20-09-15	SPU Nitra	LAI			1		1						1		1	
21-09-15	UKF Nitra	JBH			1		1						1	1	1	1
27-09-15	MAB UNESCO	JCO	1	1	1	1				1						1
31-08-15		ZDG		1	1					1						1
08-10-15	VÚVH	REB			1		1						1		1	
02-10-15	GÚ SAV	MFL			1	1	1							1	1	1

09-09-15	STU Zvolen	LGM			1		1						1		1	1
25-09-15	Magistrát Bratislava	MHD	1	1		1										1
03-11-15	PriF UK	VIK	1		1		1								1	
04-11-15	GI PriF UK	MJK	1		1		1							1		
03-11-15	PriF UK	AKS			1		1						1	1		
05-11-15	PriF UK	ZLZ			1		1							1	1	
06-11-15	PriF UK	DMK			1		1							1	1	
11-9-15	Cetip	VNG			1		1						1			1
18-9-15	ŠOP SR	SOA			1	1		1					1		1	1
18-9-15	ŠOP SR	KPJ			1	1		1					1		1	1
10-9-15	SAŽP	PRP	1		1	1							1	1	1	1
17-09-15	Štátne lesy	MSL		1					1							1
16-9-15	ÚEL SAV	LTD			1		1						1		1	1
21-9-15	SEVS	JUM			1		1									1
16-9-15	Univerzita Zvolen	RVS			1		1						1		1	1
04-9-15	MŽP	RZR	1		1	1							1	1	1	1
7-10-15	SvF STU	VXM			1		1								1	
7-10-15	EURAS	LYJ		1	1			1								1

Annex Ib: NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training on 22nd – 23rd June 2015.

[Note: this questionnaire template is meant to help National Focal Points (NFPs) to facilitate the interview/conversation with the National Key Stakeholders (NKS). Some questions are relevant to one NKS, other questions to another NKS. Hence, not all questions are relevant to each single NKS. The NFPs are required to adapt the template accordingly – keeping in it as many as possible of the issues to be addressed. If needed, the NFPs also translate the questionnaire into their national language.]

The questionnaire (see next pages) has the following outline:

MMM. Interview information:

To be filled out by the interviewer

NNN. Introduction:

That the interviewer can use to start the NKS interview

OOO. Background information of the NKS interviewed:

Mostly 'tick-boxes'

PPP. Strategic Research Agenda (SRA):

NKS preferred topics, overarching themes and scope for the SRA and national state-of-the-art on research agendas that the NKS is aware of

QQQ. Science-Policy-Interface:

NKS experiences regarding the exploitation of scientific knowledge to: improve business opportunities; tackle other societal challenges; assist policy-implementation and/or policy revision

RRR. Funding:

Predominantly used as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination that the NKS is aware of

SSS. Other:

At the end there is some time advised to let the NKS give us their advice, some nice quotes (that we can use anonymously in our communications), examples etc.

TTT. Ending the interview:

Explain follow up and if/how NKSs will be involved in the next steps of INSPIRATION

Questionnaire template in Slovak language

Slovak version of the questionnaire

INtegrated Spatial PlannIng, Land Use and Soil Management Research ACTION (INSPIRATION)

Výskumné opatrenia pre integrované priestorové plánovanie, využívanie zeme a manažment pôdy

Dobrý deň,

oslovili sme Vás v rámci projektu INSPIRATION financovaného Európskou Komisiou, ktorý je zameraný na formuláciu strategického plánu výskumu a vylepšenie systému financovania v oblastiach výskumu využitia pôdy, vody, manažmentu územia, ochrany prírody a krajiny. V rámci projektu bude oslovených 20 respondentov za každú krajinu EÚ (územní plánovači, odborníci na pôdu, vodu, lesy, manažéri, politici, členovia záujmových organizácií). Tento rozhovor je dôležitý pre získanie poznatkov o aktuálnom stave vývoja výskumu v našej krajine ako vstupný materiál do EU výskumného programu. Vďaka rozhovoru máte aj vy možnosť ovplyvniť ďalšie smerovanie strategického plánu výskumu a systému jeho financovania. Výsledky rozhovorov budú prediskutované na workshopoch, ktoré sa na SR budú konať v mestách Bratislava, Zvolen a Ružomberok v priebehu októbra (Bratislava: 09. 10. 2015, Ružomberok: 12. 10. 2015 a Zvolen 16. 10. 2015) a budú využité pre správu Európskej komisie ako podklad pre tvorbu strategického plánu výskumu v problematike efektívneho a udržateľného využitia pôdy a územia.

Prikladáme otázky pre rozhovor:

A. Informácie z rozhovoru

Krajina: SLOVENSKO

Meno INSPIRATION výskumníka:

Dátum rozhovoru:

B. Predstavenie projektu a jeho cieľov (pozrite si predchádzajúce dve úvodné strany)

C. Základné informácie o respondentovi:

1. Meno respondenta (NKS – National Key Stakeholders, Národné kľúčové zainteresované organizácie/záujmové skupiny) s ktorým sa realizoval rozhovor:

2. Inštitúcia:

3. Postavenie v inštitúcii:

4. Inštitúcia v ktorej pracujete (viac možných odpovedí) je:

- Národný - regionálny - lokálny orgán
- Univerzita / výskumný ústav
- Malý alebo stredne veľký podnik (MSP, t.j. < 500 zamestnancov) / konzultant
- Obchod a priemysel
- Mimovládna organizácia
- Zástupca reťazca / vedúci
- Iné, špecifikujte:...

5. Oblasť špecializácie vo vzťahu k problematike efektívneho a udržateľného využitia pôdy / územia (viac možných odpovedí)

- Pôda
- Voda
- Sedimenty

- Urbanizmus/priestorové plánovanie
- Krajinový dizajn (tvorba krajiny)
- Pôdohospodárstvo
- Iné, špecifikujte

6. Financuje vaša organizácia externý výskum v problematike efektívneho a udržateľného využitia pôdy / územia (realizovaný mimo vlastnej inštitúcie)?

- Áno. Prosíme spresniť:
- Nie

D. SRA – Strategický plán výskumu

7.A Aké spoločenské výzvy považujete za dôležité vo vzťahu k problematike efektívneho a udržateľného využitia pôdy / územia?

- Prispieť k potravinovej bezpečnosti a bezpečnosti potravín;
- Zaisťiť bezpečné dodávky pitnej vody;
- Zabezpečiť dodávku a distribúciu energie;
- Znížiť spotrebu primárnych surovín a zdrojov, Zabezpečenie efektívneho využívania prírodných zdrojov.
- Participovať na zmierňovaní klimatických zmien a sociálne prispôsobenie;
- Prispievať k zdravému životnému prostrediu;
- Zabezpečiť bezpečnú infraštruktúru

7.B Pokiaľ je možné, aké ďalšie, iné alebo alternatívne výzvy v problematike efektívneho a udržateľného využitia pôdy/územia považujete za dôležité?

8. Na základe vlastných skúseností aké **konkrétne témy** (potreby skúmať) by mali byť zahrnuté do strategického plánu výskumu v problematike efektívneho a udržateľného využitia pôdy/územia?

Prosíme pre každú Vami uvedenú tému skúste povedať:

8.A. - Kto bude ovplyvnený?

- Kto je zodpovedný?
- Je táto téma témou Vašej organizácie/oddelenia?
- Je to len národná téma, alebo zdieľaná s ďalšími krajinami?
- Kde sme teraz a kde chceme byť o X rokov (výhľadovo/cieľovo) pri riešení tejto témy?
(či vidí nejakú zmenu, podnikli sa kroky na zlepšenie?)
- Ako môžu byť novo získané poznatky efektívne využívané?

8 B. Prosíme pre každú Vami uvedenú tému skúste definovať jej prioritu (Akú prioritu v rámci strategickkej agendy výskumu by ste jej prideliť):

1. Vysoká priorita
2. Čiastočná priorita
3. Neutrálna priorita
4. Nízka priorita
5. Žiadna priorita

- Ak sa s touto problematikou nič neurobí, aké budú podľa Vás následky do budúcnosti?

8.C Prosíme skúste definovať, kto chce/ resp. kto by mal financovať výskum v nasledujúcich oblastiach?

- hodnotenie pôdneho fondu
- potenciálna produktivita územia a pôdy

- dopyt po pôdnych/krajinnych zdrojoch, import a export
- konkurencia vo využívaní územia (konflikty využívania krajiny)
- koncepty pre identifikáciu a kvantifikáciu relevantných dopadov
- výskum nástrojov na zabránenie / minimalizovanie dopadov (spätná väzba na rozhodovací proces)
- možnosti inovatívnych technológií pri využívaní územia
- zdrojovo-orientované systémy hospodárenia s pôdou
- regenerácia pôdy
- sanácia pôdy a spodnej vody

9. V súvislosti s témami, ktoré ste uviedli ako dôležité z Vášho pohľadu ako témy pre výskum problematiky efektívneho a udržateľného využitia pôdy/územia v predošlej otázke (8A) prosíme uveďte:

9.A. Aké sú dôležité / relevantné dokumenty, výskumné programy a agendy podporujúce tieto témy v súčasnosti?

9.B. V súvislosti s týmito agendami a programami: Aké sú časové možnosti ovplyvniť ich agendy (je možné ich ešte ovplyvniť, je možné ich ovplyvniť v ich behu? Periodicky?)

9.C Poskytujete krátkodobé granty vo vzťahu k problematike efektívneho a udržateľného využitia pôdy / územia. Ak áno, aké?

9.D Využili ste vy/vaša inštitúcia tieto krátkodobé granty vo vzťahu k problematike efektívneho a udržateľného využitia pôdy / územia? Ak áno, aké?

E. Veda-politika-vzájomné vzťahy (SPI)

10. Ako by ste definovali "vedecké poznatky"?

11. Na čo používate vedecké poznatky vo svojej práci?

12. Aké zdroje (vedeckých) poznatkov využívate vo svojej práci?

- vedecké články
- konzultanti
- správy
- kolegovia
- skúsenosti / príklady v mojej vlastnej krajine
- skúsenosti / príklady v zahraničí
- denná tlač (noviny)
- televízia
- konferencie, ôčast' na výskumných projektoch
- dáta (databázy)
- webové stránky, ako napr.:
- iné, uveďte:

13. Do akej miery využívate najnovšie/nové vedecké poznatky pri svojej práci?

14. Do akej miery ste schopný ovplyvniť (a ako) smerovanie (nastavenie) vedeckých výskumných politík/agend vo vašej krajine?

15. Do akej miery vaše národné politiky/agendy odzrkadľujú vaše špecifické potreby a priority?

16. Do akej miery boli využité najnovšie vedecké poznatky pri formulovaní existujúcich politík vo vašej krajine?

(ak ste v pozícii zodpovedných za tvorbu politík - keď plánujete politiky, do akej miery Vás ovplyvňuje výskum/výsledky výskumu? Využívate/ aplikujete do tvorby nových politík výsledky najnovšieho výskumu s cieľom vylepšiť existujúce politiky?)

Nasledujúca otázka 17 je iba pre respondentov, ktorí sú k mimo akademického sektora (priemysel, riadenie...)

17. Boli ste už niekedy zapojení do: *(odpovedáte za inštitúciu, možnosť výberu viacerých odpovedí)*

- formulácie otázok vedeckému výskumu?
- robiť vedecký výskum (teda do spoluprevádzania poznatkov)?
- syntetizovanie/integrácia vedeckých poznatkov, napr. preniesť vedu do tvorby politiky, alebo zlepšiť ekonomiku?

Ak áno prosíme posúďte

- Ako úspešné /uspokojujúce to bolo, stupnica od 1-5?

1. Veľmi úspešný/uspokojujúci
2. Úspešné/uspokojujúce
3. Neutrálny
4. Neúspešný/neuspokojivý
5. Veľmi neúspešný/neuspokojivý

- Čo sa podarilo?

- Čo by sa dalo zlepšiť?

- Čoho sa vyvarovať ?

- Ďalšie poznámky?

Nasledujúca otázka 18 je pre respondentov, ktorí majú prehľad o tejto téme (týka sa napr. tých, ktorí financujú výskum)

18. Aký spoločenský dopad má vedecký výskum v oblasti efektívneho a udržateľného využitia pôdy / územia na Slovensku *(do akej miery sú výsledky výskumu aplikované do praxe, politik,...?)*

Prosíme skúste tento dopad aj zhodnotiť

- Ako úspešné/uspokojivé je to na stupnici 1-5?

1. Veľmi úspešný/uspokojujúci
2. Úspešné/uspokojujúce
3. Neutrálny
4. Neúspešný/neuspokojivý
5. Veľmi neúspešný/neuspokojivý

- Aké indikátory sú používané pre hodnotenie spoločenského dopadu? (počet článkov s impact factorom, množstvo podaných a schválených projektov,...)

- Čo vidíte pozitívne v SR v rámci tejto problematiky?

- Čo by sa dalo zlepšiť?

- Čoho sa vyvarovať ?

- Ďalšie poznámky?

19. Ktoré národné dokumenty zamerané na interface/prepojenie medzi politikou



(myslí sa politika v oblastiach praktického života ako napr. politika životného prostredia, politika bytová a pod.) a vedou poznáte alebo môžete ich odporučiť? (RIS) – Regionálna inovačná stratégia, resp. (RVIS) Regionálny výskumná a inovačná stratégia alebo podobné dokumenty, ktoré sa vypracovali pre celé Slovensko.

F. Financovanie

20. Aké skúsenosti a očakávania zo systému financovania (verejné/súkromné) máte vo svojej oblasti, ktoré môžu byť užitočné pre budúci výskum využívania územia/manažmentu územia a súvisiacich vplyvov na systém pôda/sedimenty/voda:

- Vnútroštátne / regionálne?
- Národné?
- Európske [napr. H2020, Interreg, multi-laterálne ako sú iniciatívy spoločného plánovania]
- Medzinárodné? [Belmont Forum, nadácie a pod.]

21. Ako zvýšiť pridanú hodnotu rôznych finančných zdrojov (t.j. dosiahnuť multiplikáciu) pre výskum, ktorý prispieva k potrebám EÚ a národným potrebám (*najmä pre požiadavky výskumu a Inovácií pre krajinu a SSW systém: pôda – sedimenty – voda?*)

22. Existujú oblasti výskumu a inovácií (R&I) pri ktorých ste si vedomí že nie sú (v súčasnosti) zastrešené súčasným mechanizmom financovania a ktoré potrebujú nový/iný spôsob financovania ako v súčasnosti majú?

23. *Integrované prístupy (nutné na riešenie konkrétnych spoločenských výziev spojených s užívaním a hospodárením s územím a súvisiacich vplyvov na systém pôda – sedimenty – voda) sú zvyčajne veľmi komplikovane financovateľné lebo reagujú na rôzne spoločenské výzvy – potreby, ktoré sú sledované rôznymi zodpovednými subjektmi.*

Máte návrhy na vylepšenie integrovaného systému financovania, do ktorého je zapojených viacero oblastí/sektorov a je ťažké rozhodnúť o alokovaní finančných zdrojov jednotlivými subjektmi samostatne? (Akým spôsobom by systém alokovania finančných zdrojov mohol byť transparentnejším, jednoduchším?)

24. Na základe predchádzajúcich skúseností z praxe a podľa vášho názoru: ako najlepšie nastaviť/upraviť možnosti systému financovania strategického výskumu tak, aby boli naplnené spoločenské požiadavky a vedomosti získané realizáciou strategickej agendy výskumu v oblasti efektívneho a udržateľného využívania územia/pôdy boli naozaj využívané?

- Ako by ste hodnotili doterajšie využitie poznatkov z výskumu v tejto oblasti na stupnici 1-5?

1. Veľmi úspešný/uspokojujúci
2. Úspešný/uspokojujúce
3. Neutrálny
4. Neúspešný/neuspokojivý
5. Veľmi neúspešný/neuspokojivý

- Čo sa podarilo/čo vidíte ako pozitívne?

- Čo by sa dalo zlepšiť?

- Čoho sa vyvarovať / nerobiť?

- Ďalšie poznámky?

G. Vaše ďalšie doplnenia (poznámky, námety, príklady)

H. Ukončenie rozhovoru

Ďakujeme, že ste sa zúčastnili tohto rozhovoru. Želáte si byť ďalej informovaný o ďalších výsledkoch projektu INSPIRATION?

1. Chceli by ste navrhnúť ešte niekoho pre takýto rozhovor?
2. Navrhovali by ste ešte nejakú inú otázku/tému, ktorá by mala byť zaradená do informácie pre Európsku komisiu?
3. Akú informáciu ako spätnú väzbu si želáte:
 - Oficiálnu adresovanú inštitúcii
 - Neformálnu, napr. na Váš email
 - Neželáte si spätnú väzbu
 - Celú správu
 - Sumár zo správy
 - Národnú správu
 - Sumár z rozhovorov

Pokiaľ si želáte, aby Vám boli zasielané informácie o priebehu projektu INSPIRATION, vyplývajú z toho pre Vašu inštitúciu výhody ako vytvorenie nových kontaktov, prehľad o aktuálnej situácii výskumu a systéme financovania nielen v SR ale aj v ostatných krajinách EÚ a aká bude ďalšia Agenda strategického výskumu.

Výsledky rozhovoru budú zverejnené za inštitúciu, nie za osobu (pokiaľ si neželáte inak).

Veľmi pekne Vám ďakujeme za Váš čas, ktorý ste venovali vyplneniu vybraných otázok dotazníka.

Za riešiteľský kolektív, ...

Podrobné informácie o projekte INSPIRATION získate na stránkach:

<http://www.inspiration-h2020.eu>

<http://www.spectra-perseus.org/index.php/Projects/INSPIRATION-H2020>

Questionnaire template in English language

A. Interview information

Country:

Name of INSPIRATION Researcher:

Date of Interview:

How does the NKS wish to be referred to:

[Anonymous, personal opinions, company's opinion. Choose when it is a good time to discuss this. In the beginning or later on.]

SHOW the interviewed NKS the ENGAGEMENT CONSENT FORM and ask him/her to fill it out. Please introduce the engagement consent form (available in 'D2.1 MoU' and editable by yourself) and hand a copy to the interviewee to read and fill in – make sure that you take this away with you and keep for your own records]

B. Introductions

[Please introduce your selves, the project and the purpose of the interview. You can use the handout as provided at the end of this template. This can also be sent beforehand to the NKS. Agree on a time span: approximately one and a half hour.]

C. Background information on the interviewee

97. Name of NKS interviewed:

98. Institution:

99. Role:

100. Are you a (multiple answers possible):

- ☐ National-regional-local authority
- ☐ University/research institute
- ☐ Small or Medium sized Enterprise (SME, i.e. < 500 employees) / consultant
- ☐ Business and industry
- ☐ Non-Governmental Organisation (NGO)
- ☐ Network representative / leader
- ☐ Other, specify: ...
- ☐

101. Fields of expertise (multiple answers possible):

[Ask to specify background regarding the selected item(s) in order to understand expertise background of interviewee]

- ☐ Soil
- ☐ Water
- ☐ Sediment
- ☐ Urban / spatial planning
- ☐ Landscape design
- ☐ Land management
- ☐ Other, specify:...

102. Does your organisation provide external research funding?

- ☐ Yes. Please specify: ...
[e.g. as programme holder, public, private, ...]
- ☐ No

D. SRA

103. Which societal challenges do you regard as important?

[If needed, you can use the European Commissions (EC) list of societal challenges here. These EC themes are:]

- Contribute to food security and food safety;
- Ensure secure supplies of safe drinking water;
- Secure energy supply and distribution;
- Reduce raw material and resource consumption, Ensure efficient use of natural resources;
- Contribute to climate change mitigation and societal adaptation;
- Contribute to a healthy living environment;
- Ensure secure infrastructure

[Explain that these challenges may be used as bases for defining of the overarching themes for aggregating the research topics of our SRA.]

f. If applicable, what additional, other or alternative challenges would you suggest/prefer?

[When needed, you can mention challenges as nature conservation, sustainable use of ecosystem services, halting the loss of biodiversity]

104. Starting with your own experience: which specific topics (research needs) should be included in the SRA?
[For each single topic mentioned by the NKS, use the following follow-up questions. The a, b and c sub-questions are mandatory. The other sub-questions are optional]:
- s. Explain – elaborate the topic
 - *Who will be affected?*
 - *Who is responsible?*
 - *Is it a topic of concern of your organisation / department*
 - *Is it only a national topic, or a shared topic by multiple countries?*
 - *Where are we now, where do we want to be in x years (point on the horizon)?*
 - *How can the newly gained knowledge be effectively used?*
 - t. Priority:
 - 31. *High priority*
 - 32. *Some priority*
 - 33. *Neutral priority*
 - 34. *Low priority*
 - 35. *No priority*
 - *What is the urgency, i.e. what goes wrong if we do nothing?*
 - u. Who wants to/should fund this kind of research?

[Optionally: check the following WP3 key-words for relevance, i.e. if they raise any additional topics by the NKS. The key-words can be used as support / check list Be sensible as interviewer if this is needed.]

- *Assessment of land resources*
- *Potential productivity of land and soils*
- *Demand for soil/land resources, imports and exports*
- *Competition between land uses (land-use conflicts)*
- *Concepts to identify and quantify relevant impacts*
- *Instruments to avoid / minimise impacts (feedback to decision-making process)*
- *Opportunities of innovative land-use technologies*
- *Resource-oriented land management systems]*
- *Soil regeneration*
- *Soil and groundwater remediation*

105. Linked to topics mentioned by the NKS:
- a. What are the important / relevant documents, research agendas, research programmes underpinning these topics? (state-of-the-art)
 - b. Related to these agendas and programmes: what are timelines of programming and windows-of-opportunities to influence agendas / programmes?
- [Note: question 9b is input for work package 5]*

E. Science-Policy-Interfacing (SPI)

106. How would you define 'scientific knowledge'?

107.	For what do you use scientific knowledge in your job?												
108.	Which sources of (scientific) knowledge do you use for doing your job? <i>[Open question and you can mention some of the sources underneath as examples]</i> <table border="0"> <tr> <td>☐ scientific paper</td> <td>☐ newspapers</td> </tr> <tr> <td>☐ consultants</td> <td>☐ television</td> </tr> <tr> <td>☐ reports</td> <td>☐ conferences Involvement in research projects</td> </tr> <tr> <td>☐ colleagues</td> <td>☐ data (bases)</td> </tr> <tr> <td>☐ experiences /examples within my own country</td> <td>☐ websites, such as:</td> </tr> <tr> <td>☐ experiences /examples abroad</td> <td>☐ other, specify:</td> </tr> </table>	☐ scientific paper	☐ newspapers	☐ consultants	☐ television	☐ reports	☐ conferences Involvement in research projects	☐ colleagues	☐ data (bases)	☐ experiences /examples within my own country	☐ websites, such as:	☐ experiences /examples abroad	☐ other, specify:
☐ scientific paper	☐ newspapers												
☐ consultants	☐ television												
☐ reports	☐ conferences Involvement in research projects												
☐ colleagues	☐ data (bases)												
☐ experiences /examples within my own country	☐ websites, such as:												
☐ experiences /examples abroad	☐ other, specify:												
109.	To what extent do you use most recent/new scientific knowledge (i.e. state-of-the-art scientific insights/findings) for doing your job?												
110.	To what extent are you able to influence (and how) the setting of scientific research policies/agendas in our country?												
111.	To which extent do our national policies/agendas reflect your specific needs and priorities?												
112.	To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?												
<i>[Questions only for NKS from the non-science sector (business and policy):]</i> 113. Have you ever been involved in: m. the formulation of scientific research questions? n. doing scientific research (i.e. knowledge co-creation)? o. synthesizing/wrapping-up of scientific knowledge, e.g. to feed into policy making or to increase business opportunities? <i>[When yes: Follow-up questions]</i> - How successful/satisfying was this, on a scale of 1-5? 26. Very successful/satisfying 27. Successful /satisfying 28. Neutral 29. Unsuccessful/unsatisfying 30. Very unsuccessful/unsatisfying - What went well - What could be improved? - What to avoid/not to do? - Additional remarks?													
<i>[Question only to NKS who are likely to have insights here (e.g. research funders)]</i> 114. (How) is the societal impact of scientific research related to the scope of													

INSPIRATION being assessed in our country?

[If they know: Follow-up questions:]

- How successful/satisfying is this, on a scale of 1-5?
26. *Very successful/satisfying*
27. *Successful/satisfying*
28. *Neutral*
29. *Unsuccessful/unsatisfying*
30. *Very unsuccessful/unsatisfying*
- What indicators are used?
- What goes well?
- What can be improved?
- What to avoid/not to do?
- Additional remarks?

115. Which national Science-Policy-Interface documents do you know of / can you recommend?

F. Funding

116. Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems:
- Sub-nationally /regionally?
 - Nationally?
 - European? *[e.g. H2020, Interreg, multi-lateral such as the Joint Programming Initiatives]*
 - International? *[e.g. Belmont Forum, Foundations-etc.]*

[For all R&I questions aiming at achieving policy targets in the Land & SSW related system (like e.g. Sustainable Development Goals on soils -to be adopted at UN level in September 2015-, existing EU directives such as the Environmental Liability Directive, etc.) Consider all Public and Private funding sources. Please ask to provide details and give most important references (documents, website) that could be relevant for explaining the answer]

117. How to increase the added value of different financial resources (i.e. achieve a multiplier) for doing research that contributes to EU and national demands, in particular to the R&I demands on Land and the SSW-system?
[CONSTRUCTIONS that (could) work. PP, PPI, etc. Just ask for, as open as possible for suggestions, ideas, experiences, good examples]

118. Are there areas of research and innovation (R&I) that you are aware of that are not (yet) covered by current funding mechanisms and which would need new/different funding schemes / infrastructures?

119. Integrated approaches (necessary for addressing particular societal challenges related to the use and management of land and related impacts to SSW

systems) are usually difficult to fund / get recognised by the research funding communities. What would be necessary to improve this?

120. Based on previous learning experiences that you are aware of: how to best set up / govern funding option(s), so that societal demands will be fulfilled, knowledge resulting from execution of the SRA will be taken up and used; and funders experience that their invested, national Euros are indeed multiplied?

[if they know: Follow-up questions]

- How successful/satisfying was this, on a scale of 1-5?
 - 26. *Very successful/satisfying*
 - 27. *Successful/satisfying*
 - 28. *Neutral*
 - 29. *Unsuccessful/unsatisfying*
 - 30. *Very unsuccessful/unsatisfying*
- What went well
- What could be improved?
- What to avoid/not to do?
- Additional remarks?

G. Other (remarks, suggestions, examples):

H. Ending the interview

Thank you for taking the time to participate in this interview:

- Would you like us to keep you updated about INSPIRATION progress?
- Would you suggest anyone else who we should be interviewed by us?
- Do you have further questions arising from this interview, or would you like to add anything else?
- What information are you interested in, and willing to give feedback on?

[Discuss the feedback mechanism and if they have expressed their opinions as a person or as a representative of their organisation/network. Checklist:]

 - k. Information to exchange / willingness to give feedback on:
 - (complete interview, not recommended)
 - summary of main conclusions
 - national report, national contribution to D2.4
 - complete D2.4, all countries
 - l. Preferred level of feedback:
 - no feedback
 - informal feedback
 - formal feedback (e.g. on behalf of represented organisation)

[Check: have you discussed consent form / how to refer to interviewee]

INSPIRATION acknowledges the received funding from the European Community's HORIZON2020 Framework Programme under grant agreement no 642372



Annex Ib: NKS hand-out: INSPIRATION interview at a glance

INSPIRATION interview at a glance

Aim of INSPIRATION:

The main purpose of the EC-funded INSPIRATION project is to formulate an end-user driven strategic research agenda (SRA) for land-use, land-use changes and the related, impacted compartments of the Soil-Sediment-Water (SSW) system in order to meet current and future societal challenges and needs. Next to that, the project aims to scope out models of implementing the SRA and to prepare a network of public and private funding institutions willing to commonly fund the execution of the SRA.

National Key Stakeholders (NKS):

In a series of NKS interviews across EU nations the “National Focal Points (NFP) gather for nations individually information related to the INSPIRATION scope (land and SSW-system use and management) on:

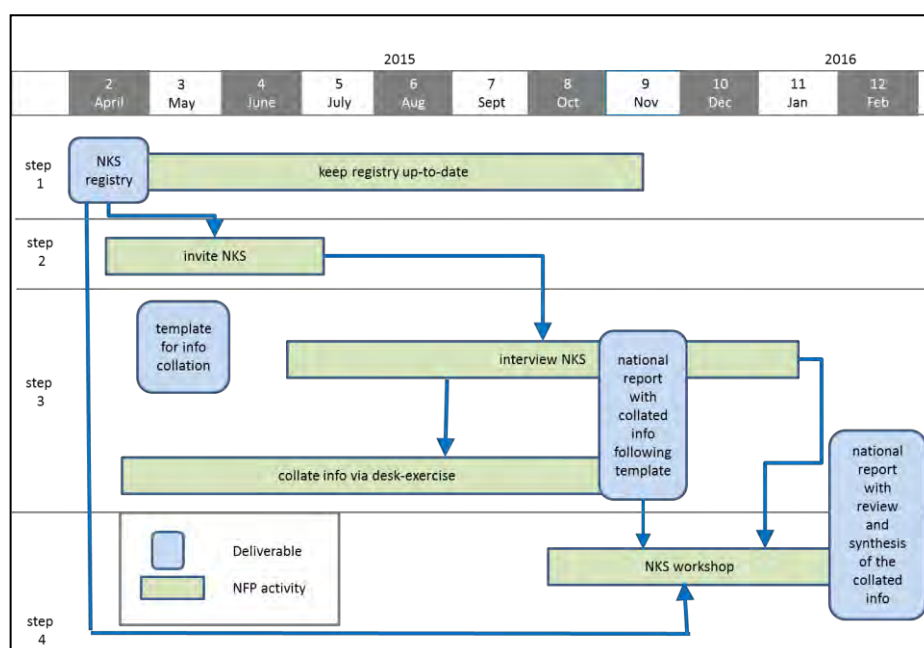
- Research and Innovation (R&I) needs
- Experiences regarding connecting science to policy/practice
- National and transnational funding schemes

In the interviews we focus at NKS – like you – positioned at a strategic level, i.e. leading persons in their field of profession; with a good overview on opportunities; a clear vision on, and insight in knowledge demands (short, middle and long-term). Furthermore, these NKS are well positioned and participate in relevant professional network(s) and may also have potential to become an ambassador for INSPIRATION. We selected NKS to represent different disciplines and institutional backgrounds including: land-use planners; managers; soil, sediment and water experts; researchers, funders and regulators/policy makers.

This interview:

Collecting input from you – an expert in your field – is crucial for the project in order to help us describing the state-of-the-art in our country as input into the European research agenda. In the interview we will go through a series of topics and questions: The interviews of NKS (ca. 20 per nation), together with a desk study on research needs and funding possibilities will be synthesized to a 'national report'. This synthesis will be reviewed in a national workshop, to prioritize the topics for the suggested Strategic Research Agenda (SRA) from our country's point of view. The national reports will finally be used as input for elaborating the European SRA and cross-nation matchmaking (matching research needs to possible funding).

Workflow in first year of INSPIRATION



Example questions:

Research and Innovation (R&I) needs

- Which societal challenges do you regard as important?
- Starting with your own experience: which specific topics (research needs) should be included in the SRA?

Experiences regarding connecting science to policy/practice

- How would you define 'scientific knowledge'?
- To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

National and transnational funding schemes

- Does your organisation provide external research funding?
- Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems

Your benefits from participating:

- A chance to influence the European SRA on land and SSW management in the light of societal challenges and needs;
- Being able to make use of the results of the project: overview of research need and of existing and promising funding schemes on different levels (sub-national, national, European, international) and opportunities for a better connection between science and policy/practice;
- Use the matchmaking opportunity to get in contact with other networks in- and outside our country, and countries learn which shared challenges can be taken up jointly.

Contact and further information:

For general information on the INSPIRATION project visit our website: www.inspiration-h2020.eu

Contact the National Focal Point: <i>[Name]</i> <i>[Address]</i> <i>Tel</i> <i>Email]</i>	Contact the general project coordination: Stephan Bartke FG I3.5 – Coordination INSPIRATION Federal Environment Agency Woerlitzer Platz 1 06844 Dessau-Rosslau Germany stephan.bartke@uba.de

Annex II: Documents used for the SK desk study

1. Akčný plán implementácie Stratégie výskumu a inovácií pre inteligentnú špecializáciu SR na roky 2014 – 2016 marec 2015, Ministerstvo školstva, vedy, výskumu a športu SR a Ministerstvo hospodárstva SR (*Action Plan for implementing research and innovation strategy for smart specialization SR for the years 2014 - 2016 in March 2015, the Ministry of Education, Science, Research and Sport SR and the Ministry of Economy SR*)
2. Aktualizácia dlhodobého zámeru štátnej vednej a technickej politiky do roku 2015 (Stratégia Fénix) (*Updating long-term state science and technology policy to the year 2015*)
3. OPERAČNÝ PROGRAM VÝSKUM A INOVÁCIE 2014-2020, 2014, Ministerstvo školstva, vedy, výskumu a športu SR (*OPERATIONAL PROGRAMME OF RESEARCH AND INNOVATION 2014-2020, 2014, Ministry of Education, Science, Research and Sports SR*)
4. Otvorene o problémoch výskumu na Slovensku, rozhovor s prorektorom UK pre vedeckovýskumnú činnosť a doktorandské štúdium prof. RNDr. Petrom Moczom, DrSc. Publikovaný v časopise Naša Univerzita, Univerzita Komenského v Bratislave, október 2015 (*Openly about the problems of research in Slovakia, interview with Pro-Rector for scientific research and doctoral studies prof. Mgr. Peter Moczo, PhD. Published in the journal Our University, Comenius University in Bratislava, October 2015*)
5. Poznatkami k prosperite - Stratégia výskumu a inovácií pre inteligentnú špecializáciu Slovenskej republiky (RIS3 SK). 13. november 2013 (*Knowledge to prosperity - research and innovation strategy for smart specialization of the Slovak Republic*)
6. Regionálna výskumná a inovačná stratégia Žilinského kraja 2014+ Akčný plán, 31. 5. 2015, VTP Žilina (*Regional Research and Innovation Strategy 2014+ Žilina region, Action Plan*)
7. Regionálna výskumná a inovačná stratégia Žilinského kraja 2014+, február 2015, VTP Žilina (*Regional Research and Innovation Strategy 2014+ Žilina region*)
8. Správa o stave výskumu a vývoja za rok 2014, Ministerstvo školstva, vedy, výskumu a športu SR, Bratislava, september 2015. (*Report on the state of research and development for the year 2014, Ministry of Education, Science, Research and Sport SR, Bratislava, September 2015*)
9. Zákon č. 194/2014, ktorým sa mení a dopĺňa zákon č. 172/2005 Z. z. o organizácii štátnej podpory výskumu a vývoja a o doplnení zákona č. 575/2001 Z. z. o organizácii činnosti vlády a organizácii ústrednej štátnej správy v znení neskorších predpisov (*Act no. 194/2014 amending and supplementing Law no. 172/2005 Coll. on organization of state support for research and development and amendment of Act no. 575/2001 Coll. the organization of government activities and the organization of central state administration as amended*)
10. Zákon č. 23/2015, ktorým sa mení a dopĺňa zákon č. 185/2009 Z. z. o stimuloch pre výskum a vývoj a o doplnení zákona č. 595/2003 Z. z. o dani z príjmov v znení neskorších predpisov (*Act no. 23/2015 amending and supplementing Law no. 185/2009 Coll. Incentives for research and development and amendment of Act no. 595/2003 Coll. on income tax, as amended*)

Annex III:

Critical comment to the state science and research policy management

- The governmental board for science, technology and innovation should be the professional advisory coordination board of the government for science, technology and innovations incl. the innovations in the field of forestry, wood production, biotechnologies, food industry, building materials, and innovations in the health care and agriculture
- But it is a board directly created from the government members incl. the prime minister, and ministers. The only representative of the science is the president of the Slovak Academy of Sciences
-

Source:

<https://www.vedatechnika.sk/SK/VedaATechnikaVSR/Stranky/Riadenie%C5%A1t%C3%A1tn ejatechnickejpolitiky.aspx> (overené 4. 11. 2015)

Critical comment to the Report on state of art of research and development in 2014 (1)

Vice-rector of the Comenius University the largest and oldest university in Slovakia provided broader comment (in addition to the review) to the Report on the state of art of the research and development in the SR in the year 2014. The main comments and critical points are included in the national report. Here the quotations from his statement:

Absencia dôležitých nástrojov a podfinancovanie vedy a výskumu

- Na konci roka 2013 schválila vláda Stratégiu výskumu a inovácií pre inteligentnú špecializáciu Slovenskej republiky (ďalej „RIS3 SK“). **RIS3 SK nie je komplexným dokumentom charakteru formulovania vednej politiky štátu.** Takýto dokument Slovensku zreteľne chýba. Absencia je dôsledkom aj rastúcej falošnej ilúzie vo vzťahu k slobodnému základnému výskumu a výskumu vyžiadanému praxou. Opatrenia v dokumente nie sú dostačujúce pre rozvoj vedy a techniky
- **V politike výskumu a vývoja na Slovensku absentujú viaceré dôležité nástroje.** Chýba vedná politika štátu už na úrovni dokumentu a adekvátna realizácia správne formulovaného programového vyhlásenia vlády.
- **Neskutočné podfinancovanie Agentúry na podporu výskumu a vývoja (APVV) spôsobuje, že APVV prestáva byť nástrojom podpory vedy a výskumu.** Chýba rozumná väzba medzi kvalitou a financovaním univerzít a vysokých škôl. Chýba systémové opatrenie pre post-doktorandov. Celková podpora nie je dostatočná. Poskytovaná podpora nie je rozumne štruktúrovaná a hierarchizovaná.
- **Výskum na Slovensku je dlhodobo významne podfinancovaný – približne 0,5 % HDP je absolútne málo** a aj relatívne málo vzhľadom k výdavkom v ostatných krajinách (priemer v 27 krajinách EÚ je 1,82 % HDP) a vzhľadom k 3 % doporučeným EÚ.
- **Výsledky, dôsledky a aplikácie slobodného základného výskumu a bádania priniesli viac** technického a spoločenského pokroku a **finančného zisku** ako výskum na základe priamej objednávky z priemyslu a poľnohospodárstva. Rastie rozpor medzi mierou podielu výsledkov základného výskumu na každodennom živote jednotlivcov i celej spoločnosti na jednej strane a mierou toho, ako si verejnosť, podnikatelia a politici tento podiel uvedomujú.
- **Chýba dostatočné stabilné (predvídateľné) inštitucionálne financovanie.** Chýba dostatočné stabilné grantové financovanie (prostriedky na prístroje, softvér, služby, mzdy pre doktorandov a post-doktorandov). Zbytočne budú vybudované nové infraštruktúry a vedecké parky zo štrukturálnych fondov, ak nebudú dostatočné grantové prostriedky na výskum v týchto zariadeniach a ak v nich nebudú pracovať špičkoví vedci napríklad preto, lebo odídu do zahraničia.



- **Na financovaní výskumu sa nedostatočne podieľa súkromný sektor.** Súkromný sektor sa primárne zaujíma o krátkodobé finančné aspekty viac ako o perspektívnu a zmysuplnú spoluprácu.
- **Výrazným a bolestivým problémom je verejné obstarávanie.** Reálne znamená zvýšenie nákladov o 20 %, v prípade štrukturálnych projektov až o 50 – 100 %. Verejné obstarávanie je v súčasnej podobe kontraproduktívne aj z pohľadu časovej a administratívnej náročnosti.

Návrhy ako zlepšiť spoluprácu vysokých škôl a verejných organizácií výskumu a vývoja s podnikateľskou sférou

- **Treba začať formulovaním vednej politiky za účasti najlepších vedcov reprezentujúcich základný a aplikovaný výskum** rešpektujúci slobodu bádania, výskum zameraný na priemysel, výskum zameraný na spoločenské výzvy, výskum zameraný na bezpečnosť a ochranu štátu, národne a regionálne orientovaný výskum.
- **Podnikateľská sféra by sa mala orientovať nielen krátkodobo – finančne ale skutočne aj v prospech spoločnosti a dlhodobej perspektívy Slovenska.** Na to je potrebné, aby úlohe, významu a nutnosti všetkých druhov výskumov porozumela.

Source: Otvorene o problémoch výskumu na Slovensku, rozhovor s prorektorom UK pre vedeckovýskumnú činnosť a doktorandské štúdium prof. RNDr. Petrom Moczm, DrSc. Publikovaný v časopise Naša Univerzita, Univerzita Komenského v Bratislave, október 2015 (*Openly about the problems of research in Slovakia, interview with Pro-Rector for scientific research and doctoral studies prof. Mgr. Peter Moczo, PhD. Published in the journal Our University, Comenius University in Bratislava, October 2015*)

Comparison with the EU member states

Porovnanie so zahraničím

Expenditures for research and development 2010-2013 in % from the GDP

Source/ Zdroj: EUROSTAT. Výdavky na výskum a vývoj, 2010–13 (% HDP).



Source: Správa o stave výskumu a vývoja za rok 2014, Ministerstvo školstva, vedy, výskumu a športu SR, Bratislava, september 2015. (Report on the state of research and development for the year 2014, Ministry of Education, Science, Research and Sport SR, Bratislava, September 2015)

Critical comment to the state of art of human resources in the research and development, unbalanced financing of basic and applied research and lacking behind interrelations between science and practice

Based on the data from the Up-date of the long term strategy of state science and technology policy (Stratégia Fénix – source: *OECD, Science, Technology and Innovation Scoreboard, 2009*) Slovakia is the country with largest decrease of the number of researchers in private sector between 1997 and 2007, average 7,5 % yearly. Only in 3 countries was decline and average growth in OECD countries was 3,5 %. Slovakia is one of 5 countries with total decline of the number of employees – 0.5 % yearly. Here some examples of the comparison of the Slovakia and other OECD countries

1.1 Dostupnosť vedcov a technikov

12.06 Availability of scientists and engineers: To what extent are scientists and engineers available in your country? [1 = not at all; 7 = widely available]

krajina	skóre	zmena ²	1	7
Fínsko	6,0	0,1		
Japonsko	5,8	-0,1		
Švédsko	5,8	0,2		
USA	5,7	0,2		
Francúzsko	5,3	-0,3		
Švajčiarsko	5,3	0,1		
Belgicko	5,2	0,1		
Dánsko	5,1	-0,2		
Írsko	5,1	-0,2		
Nórsko	5,1	-0,1		
Grécko	5,0	-0,2		
Holandsko	5,0	0,1		
Nemecko	4,8	-0,1		
Veľká Británia	4,8	0,0		
Rakúsko	4,7	-0,3		
Portugalsko	4,6	0,1		
Česká republika	4,4	-1,0		
Maďarsko	4,4	-0,1		
Litva	4,4	0,2		
Španielsko	4,4	-0,2		
Taliansko	4,3	-0,2		
Rumunsko	4,3	0,0		
Estónsko	4,2	0,1		
Poľsko	4,2	0,1		
Bulharsko	4,0	0,3		
Slovenská republika	4,0	-0,9		
Slovinsko	4,0	0,1		
Luxembursko	3,9	0,0		

1.2 Dostupnosť kvalifikovaných technikov

4.2.15 Qualified engineers: "Qualified engineers are available in your labor market"

krajina	skóre	zmena ¹	0	10
Fínsko	8,46	0,12		
Dánsko	7,94	0,22		
Francúzsko	7,87	-0,03		
USA	7,78	0,03		
Švédsko	7,76	0,21		
Rakúsko	7,65	0,00		
Írsko	7,56	0,07		
Nórsko	7,48	0,07		
Grécko	7,41	0,01		
Japonsko	7,39	0,04		
Litva	7,35	0,52		
Španielsko	7,24	0,04		
Švajčiarsko	7,16	0,02		
Holandsko	7,14	0,12		
Portugalsko	6,98	0,09		
Taliansko	6,88	0,02		
Veľká Británia	6,78	0,07		
Nemecko	6,62	0,00		
Poľsko	6,55	-0,01		
Česká republika	6,55	0,03		
Luxembursko	6,51	0,08		
Belgicko	6,44	0,00		
Slovenská republika	6,16	-0,29		
Maďarsko	6,16	-0,24		
Bulharsko	5,66	-0,07		
Slovinsko	5,57	0,06		
Estónsko	5,16	0,07		
Rumunsko	5,12	-0,32		

1.1: Zdroj: WEF, *The Global Competitiveness Report, 2010* – prieskum názorov manažérov na škále 1 (najhoršie) – 7 (najlepšie)

² Celková zmena počas rokov 2008 – 2010.

1.2: Zdroj: IMD, *World Competitiveness Yearbook, 2010* – prieskum názorov manažérov na škále 0 (najhoršie) – 10 (najlepšie)

¹ Priemerná medziročná zmena počas rokov 2000 – 2010 alebo počas sledovaného obdobia u krajín s dostupnými údajmi za toto obdobie, v prípade Slovenska môže byť počítaná aj za kratšie obdobia.

3. Financovanie výskumu a vývoja

3.1 Celkové výdavky na VaV ako % z HDP

GERD as percentage of GDP, by country
1998 and 2008, or nearest available years

krajina	1998	2008	0	5
Izrael	3,1	4,9		
Švédsko	3,5	3,8		
Fínsko	2,9	3,7		
Japonsko	3,0	3,4		
Južná Kórea	2,2	3,4		
Švajčiarsko	2,7	3,0		
USA	2,6	2,8		
Dánsko	2,0	2,7		
Rakúsko	1,8	2,7		
Singapur	1,8	2,7		
Island	2,0	2,7		
Nemecko	2,3	2,6		
priemer OECD	2,1	2,3		
Francúzsko	2,1	2,0		
Austrália	1,4	2,0		
Belgicko	1,9	1,9		
Kanada	1,8	1,8		
EU-27	1,7	1,8		
Veľká Británia	1,8	1,8		
Holandsko	1,9	1,8		
Slovinsko	1,3	1,7		
Luxembursko		1,6		
Nórsko	1,6	1,6		
Čína	0,7	1,5		
Portugalsko	0,7	1,5		
Česká republika	1,1	1,5		
Írsko	1,2	1,4		
Španielsko	0,9	1,4		
Nový Zéland	1,1	1,2		
Taliansko	1,0	1,2		
Rusko	1,0	1,0		
Maďarsko	0,7	1,0		
Juhoafrická republika	0,6	0,9		
Turecko	0,4	0,7		
Poľsko	0,7	0,6		
Rumunsko	0,5	0,6		
Grécko	0,5	0,6		
Argentína	0,4	0,5		
Slovenská republika	0,8	0,5		
Mexiko	0,3	0,4		

■ 2008 alebo najbližší dostupný rok
□ 1998 alebo najbližší dostupný rok

3.2 Výdavky súkromného sektora na VaV ako % z HDP

BERD intensity, by country
1998 and 2008, or nearest available years

krajina	1998	2008	0	4
Izrael	2,1	3,9		
Švédsko	2,6	2,8		
Fínsko	1,9	2,8		
Japonsko	2,1	2,7		
Južná Kórea	1,6	2,5		
Švajčiarsko	1,9	2,2		
USA	1,9	2,0		
Singapur	1,1	1,9		
Dánsko	1,3	1,9		
Rakúsko	1,1	1,9		
Nemecko	1,5	1,8		
priemer OECD	1,5	1,6		
Island	0,7	1,4		
Belgicko	1,3	1,3		
Luxembursko		1,3		
Francúzsko	1,3	1,3		
Austrália	0,7	1,2		
EU-27	1,0	1,1		
Čína	0,3	1,1		
Veľká Británia	1,2	1,1		
Slovinsko	0,7	1,1		
Kanada	1,1	1,0		
Írsko	0,9	0,9		
Česká republika	0,7	0,9		
Holandsko	1,0	0,9		
Nórsko	0,9	0,9		
Portugalsko	0,1	0,8		
Španielsko	0,5	0,7		
Rusko	0,7	0,7		
Taliansko	0,5	0,6		
Juhoafrická republika	0,3	0,5		
Maďarsko	0,3	0,5		
Nový Zéland	0,3	0,5		
Turecko	0,1	0,3		
Slovenská republika	0,5	0,2		
Poľsko	0,3	0,2		
Mexiko	0,1	0,2		
Rumunsko	0,4	0,2		
Grécko	0,1	0,2		
Argentína	0,1	0,2		

■ 2008 alebo najbližší dostupný rok
□ 1998 alebo najbližší dostupný rok

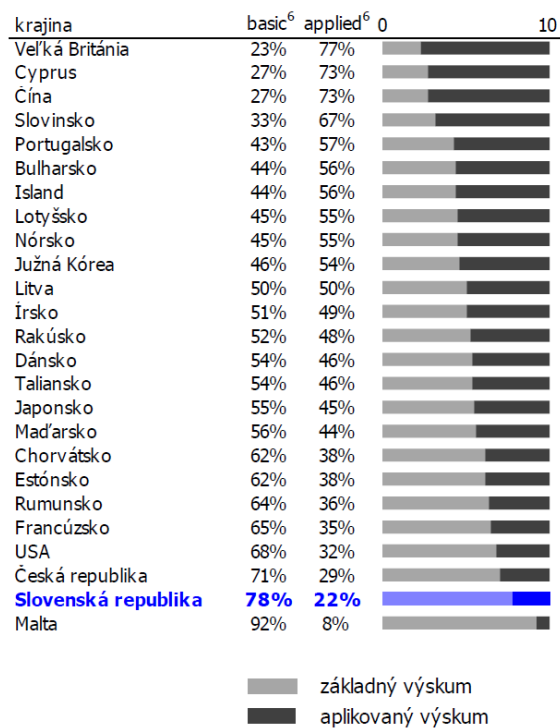
3.1: Zdroj: OECD, *Science, Technology and Innovation Outlook*, 2010, Figure 1.2., strana 25

⁵ Priemerná medziročná zmena výdavkov v percentuálnych bodoch za roky 1998 – 2008 alebo za najbližšie dostupné obdobie.

3.2: Zdroj: OECD, *Science, Technology and Innovation Outlook*, 2010, Figure 1.4., strana 27

3.3 Porovnanie financovania základného a aplikovaného výskumu vo verejnom sektore ako podiel z HDP

Total R&D expenditure (GERD) by sectors of performance and type of R&D activity, Basic research / Applied research
in Government + Higher education sector



3.3: Zdroj: European Commission, Eurostat, Science and technology database,
http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=rd_e_gerdact&lang=en

⁶ Priemerný podiel daného typu VaV vo verejnom sektore za roky
2003 – 2008 alebo za najbližšie dostupné obdobie

5. Spolupráca vysokých škôl s praxou a transfer poznatkov

5.1 Spolupráca v oblasti VaV medzi univerzitami a súkromnou sférou

12.04 University-industry collaboration in R&D: To what extent do business and universities collaborate on research and development (R&D) in your country? [1 = do not collaborate at all; 7 = collaborate extensively]

krajina	skóre	zmena ²	1	7
USA	5,8	0,0		
Švajčiarsko	5,7	0,1		
Fínsko	5,6	0,1		
Veľká Británia	5,6	0,5		
Švédsko	5,5	-0,1		
Dánsko	5,3	0,0		
Belgicko	5,2	0,0		
Nemecko	5,2	-0,2		
Holandsko	5,2	0,1		
Luxembursko	5,1	1,2		
Írsko	5,0	0,1		
Rakúsko	4,9	-0,1		
Japonsko	4,9	0,3		
Nórsko	4,9	0,0		
Česká republika	4,5	0,3		
Portugalsko	4,5	0,9		
Maďarsko	4,3	0,3		
Estónsko	4,2	0,2		
Litva	4,2	0,7		
Slovinsko	4,2	0,3		
Francúzsko	4,0	0,1		
Španielsko	4,0	0,4		
Poľsko	3,6	0,6		
Taliansko	3,5	0,4		
Slovenská republika	3,3	-0,1		
Rumunsko	3,1	0,0		
Bulharsko	3,0	0,1		
Grécko	3,0	0,1		

5.1: Zdroj: WEF, The Global Competitiveness Report, 2010 – prieskum názorov manažérov na škále 1 (najhoršie) – 7 (najlepšie)

² Celková zmena počas rokov 2008 – 2010.

5.2 Transfer poznatkov medzi podnikmi a univerzitami

4.3.22 Knowledge transfer: "Knowledge transfer is highly developed between companies and universities"

krajina	skóre	zmena ¹	0	10
Švajčiarsko	7,66	0,19		
USA	7,60	0,11		
Švédsko	6,93	0,13		
Fínsko	6,83	-0,01		
Rakúsko	6,78	0,20		
Nemecko	6,65	0,13		
Dánsko	6,63	0,18		
Holandsko	6,57	0,06		
Veľká Británia	6,39	0,20		
Írsko	6,27	0,09		
Belgicko	6,15	0,11		
Japonsko	5,86	0,19		
Nórsko	5,84	0,13		
Luxembursko	5,28	0,11		
Estónsko	4,96	0,14		
Francúzsko	4,68	0,03		
Česká republika	4,56	0,15		
Litva	4,56	-0,03		
Maďarsko	4,16	-0,06		
Rumunsko	3,82	0,04		
Portugalsko	3,80	0,08		
Taliansko	3,79	0,09		
Španielsko	3,76	0,05		
Slovinsko	3,55	0,11		
Poľsko	3,39	-0,08		
Grécko	3,33	0,02		
Slovenská republika	2,70	-0,21		
Bulharsko	2,63	-0,27		

5.2: Zdroj: IMD, World Competitiveness Yearbook, 2010 – prieskum názorov manažérov na škále 0 (najhoršie) – 10 (najlepšie)

¹ Priemerná medziročná zmena počas rokov 2000 – 2010 alebo počas sledovaného obdobia u krajín s dostupnými údajmi za toto obdobie, v prípade Slovenska môže byť počítaná aj za kratšie obdobia.

Source: Aktualizácia dlhodobého zámeru štátnej vednej a technickej politiky do roku 2015 (Stratégia Fénix) (Updating long-term state science and technology policy to the year 2015)

13. Slovenia

Report by Boštjan Cotič, Barbara Mušič, Ina Šuklje Erjavec, Matej Nikšič

13.1 Introduction

This national report (i.e. INSPIRATION deliverable 2.4) reports the information collated for Slovenia. The information was collated in accordance with INSPIRATION D2.3 “Template for national information collation”. In Slovenia, 12 NKS were interviewed. Details on these NKS are provided in Annex I. The desk study was based on documents as suggested by NKS. These are listed in Annex II.

13.2 Research and Innovation (R&I) needs

Topic a: Demand-driven* suggestions for the Strategic Research Agenda (SRA), i.e. suggestions from the perspective of industry, end-users and funders.
Related key question to be answered: **What (new) knowledge do these parties need to tackle societal challenges including the increase of job opportunities)?**

****Demand-driven** in INSPIRATION means focusing on the demands of those who are responsible or feel committed to tackle the societal challenges related to the INSPIRATION scope and themes, i.e. industry, end-users and funders. These parties could improve their business opportunities and/or take better informed decisions on what measures to take and execute in order to tackle other societal challenges if they would (be enabled to) use the knowledge as resulting from execution of the INSPIRATION SRA.

13.2.1. Societal challenges and needs

- A general observation was that almost all interviewees expressed opinion, that all topics are important, but if they had to choose just three, most of them decided for climate change mitigation and societal adaptation.
- However they pointed out some topics that seem more relevant, most often linked to their mission and work, such as: drinking water supply,
- The National Research Agency has not defined any priority societal challenges to be addressed in the national research agenda. They fund topics that come entirely from the research institutions themselves (bottom-up approach).

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.

They proposed some additional challenges such as “good water status”, flood risk reduction, land use and spatial planning governance, eco systems services conservations, urban renewal, regeneration and rehabilitation, effective balance of the level of regulations,

13.2.2. Topics / research needs to include in the SRA

SI-1: Importance of bottom up initiatives in land use and spatial planning

There is a strong trend of bottom up activities that is also supported on declarative level but we do not have enough knowledge and understanding about the reasons and backgrounds for their development nor about the long term consequences.

SI-2 Spatial development coordination of public management/governance

We have too little knowledge of how does the coordination of spatial development of services of general interest and governance work, when and how to actually set up efficient coordination between different levels and what are the reasons that the process is not successful? It is important to determine what the effective mechanisms are and what are the obstacles and problems.

SI-3 Understanding possible roles, benefits, levels and types of regulation for comprehensive development

For effective and balanced planning and management of development regulative approach has an important role that many times is not adequately understood and taken into consideration within Slovenian planning system. Different levels and types of public authorities use different approaches that are many times not effective and may even oppose each other. That causes great inconsistency and chaotic situation on the level of implementation of different development documents on different levels.

SI-4 Comprehensive understanding of the concept of healthy living environment

There is a lack of comprehensive understanding what the healthy living environment is, how it is related to the spatial, social and other contexts and, what are the aspects and relationship between urban development and health/wellbeing.

SI-5 Reasons and backgrounds for the gap between declarative standpoints and practical solutions – research to better understand all the circumstances that cause the gap between strategy (vision) and implementation of the proposed solutions.

SI-6 Interrelationship between flooding processes and erosion / landslides

For the effective and suitable land use management spatial planning it is very important to better understand the process of floods erosion and landslides. As a frequent natural process it should be better researched and taken into consideration when planning and deciding about the development. The knowledge should be used for Flood risk management plans as important starting points for better living quality and safety on all levels.

SI-7 Interface of abiotic and biotic environment

There is still not enough knowledge about many important aspects how abiotic and biotic interface and thus how different, specific ecosystems react and respond to different, particular impacts.

SI-8 Methods of effective communication and public and political awareness

It is very important to present scientific knowledge and achievements to the end user in a way that convinces the relevance of scientific research for better solutions.

**SI-9: problem of fragmentation of GIS data**

Beside official state agency there are many stakeholders who collect GIS data on national and EU level. Many of them, even if funded by state or EU are difficult to access. Researchers don't have enough accurate data, there is no added value for this data. How to change the approach of data owners to seek for added value of their data, how to sync different databases

SI-10:neglection of terraced landscapes

Terraces, which are a characteristic Mediterranean landscape element, occur in all landscape types, but they vary in terms of density, purpose, and current function. Agricultural terraces are older; with the declining role of agriculture, increased social mobility, and an ageing and insufficient agricultural workforce, these terraces have lost their former role and their former fields are now almost entirely replaced by meadows. How to activate those land uses in particular form.

SI-11: Fragmentation and no or low data exchange in Slovenia and Europe -

it is necessary to establish a methodology for the exchange of information and data! The problem is that each one builds its own database and it is very difficult to access the data although many data collection and measurements are carried out, even funded by public money. There are also different metering systems, which are not harmonized. This affects the entire country and Europe in general and makes it less competitive, data maintenance is expensive, also affects the safety of people.. The responsibility is on the owners and funders of data and databases. If you will not do anything, will reduce competitiveness. The themes to be funded by the EU, partly Slovenia.

SI-12: Inefficient procurement system in Slovenia using the method pf the lowest price instead of quality-

a problem has more national character, but may be faced with similar problems elsewhere. The situation is very problematic and therefore has its solving high priority. It affects the quality of research, including in the context of monitoring which seeks to introduce qualitative criteria. The consequences are the decline in quality, loss of competitiveness, lengthy procedures and high consumption of time, additional costs for correcting bad performances. Topic to be financed by Slovenia, but also the EU.

13.3 Experiences regarding connecting science to policy/practice

Topic b: *Experiences regarding the exploitation of scientific knowledge to improve business opportunities and/or tackle other societal challenges.*

*Related key question to be answered: **Where to improve the science-policy interface so that (new) knowledge can and will be more effectively exploited by the demand side?***

13.3.1. Use of knowledge

Definition of scientific knowledge, use of scientific knowledge and the usefulness in their work differs by the field of interviewees daily work. Those who are involved in the scientific work, use scientific results more and value the available results, while interviewees that work in practice estimate, that scientific results are not directly applicable to their needs, difficult to understand and that there is a need for some kind of “translation” to become useful in the implementation level in real life.

Similar division goes to the use of sources of the scientific knowledge, where those who work in the scientific field use all of the sources except newspapers and television, while practitioners use mostly reports, consultants, newspapers, websites, examples and experienced from Slovenia and abroad.

Good example of a policy, that effectively used scientific research to prepare a policy (listed by several interviewees) is a Spatial development strategy of Slovenia.

13.3.2. Possibilities to set the agenda

Most of the answers indicated that it is very difficult to influence the setting of the scientific research policies/agendas in Slovenia. The funding mechanism of the National research agency is not based on the strategic research agenda, but they distribute funds according to the expressed research interest via public tenders. Researchers that fulfil strict entrance criteria based on previous research work and publicity can win funding. Others don't have much influence on the research topics. That narrows the scope of research topics.

13.3.3. Science – policy – practice

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), but they mostly indicated that they are synthesizing /wrapping-up of scientific knowledge in order to fit their working processes. They evaluated technical topics related to investment are successfully covered in research, while issues related to social networking and empowerment are not.

Most answers indicated that in Slovenia, there is no document that would prescribe the process from Science to policy or vice versa transfer. However, one respondent indicated, that Strategy for Smart specialization of Slovenia could be interpreted as such document.

13.4 National and transnational funding schemes

Topic c: *Predominant, current as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination.*

Related key question to be answered: *How to get with one Euro of national/regional funding a multitude of Euro's (from all sources) worth of knowledge in return contributing to EU and national demands? Or even how to get with one euro of EU funding a multitude of euro's (from national, regional, local, and private sector) worth of knowledge in return contributing to the R&I demands on Land and the Soil-Sediment-Water system.*

Topic d: *Experiences regarding the use of any trans-national, common budget for scientific knowledge production related to the scope of INSPIRATION.*

Related key question to be answered: *How to set up/govern the appropriate funding option(s) resulting from INSPIRATION – based on previous learning experiences – so that: (1) the above demands will be fulfilled, (2) knowledge resulting from implementation of the SRA will be taken up and used and (3) funders experience that their invested, national Euros are indeed multiplied?"*

13.4.1. Funding schemes and possibilities for research funding

The main national funder of basic and applicative scientific research recognised by respondents is ARRS (Javna agencija za raziskovalno dejavnost Republike Slovenije/ Slovenian research agency). They have different funding schemes, which can be used for research of INSPIRATION topics. Three most important are basic, applicative and bilateral research programmes. Also some ministries co-finance specific topics in collaboration with the Slovenian research agency in the form of Targeted research projects.

On the subnational level there is no systematic funding detected. The only funders that occasionally finance INSPIRATION related topics are bigger municipalities, but also in this case it is usually connected with the specific problems and not planned in advance.

The second most important source of funding for companies and organisations from Slovenia are different EU funded programmes, e.g. Horizon 2020, 7FP, Interreg programmes, ESPON, etc. For some scientific stakeholders this are even the most important source of funding.

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. The results of many EU and national projects should be better disseminated and used in practice on both national and local levels even after the end of the projects. Project results should be "translated" into user friendly language and form (simplification for general public).

To best set up and govern funding options, different sectors should better co-operate and co-ordinate research needs. This is especially important for interdisciplinary research needs, since no sector by its own really detects cross-sectoral topics and is therefore not willing to finance. Several contributors see Spatial planning as a tool for effective interdisciplinary approach and space as a framework for cross-sectoral co-operation



13.4.2. Gaps in financial resources for resource

Areas of research and innovation are not yet covered by current funding mechanisms that respondents indicated are: Incorporating weather info decision making systems (for floods, traffic, etc.) Land use topology, building typology, linking risks and responsibilities in mayor unplanned events. It is indicated that the whole range of spatial development topics is neglected mostly on higher administrative levels (regional and sub-regional levels in Slovenia). Karst specific processes and behaviours were mentioned, too. Connection between space and health issues, healthy aging and demographic issues.

For integrated approaches, different sectors should better co-operate and co-ordinate research needs. This is especially important for interdisciplinary research needs, since no sector by it's own really detects cross-sectoral topics and is therefore not willing to finance. Several contributors see Spatial planning as a tool for effective interdisciplinary approach and space as a framework for cross-sectoral co-operation.

13.5 Other remarks made by interviewees

There were remarks regarding the complicated process for new projects application. The low percentage of acceptance of project proposals is an indicator especially for SME to rather focus on core business and not to participate in EU research projects, even if the experience in those who already participated is good. There was a suggestion to implement a two stage process, where the first stage would be just content oriented.

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



13.6 Annexes

1a: NKS interviews in Slovenia

NFP		URBANISTICNI INSTITUT REPUBLIKE SLOVENIJE (UIRS)	Slovenia															
Stakeholder organisation					Profile INSPIRATION													
nr	Date of Interview	Name of the entity	Country	Contact person	funder	end user	knowledge provider	national- regional- local authority	university/r research institute	SME /consultant	business and industry	NGO	network	other	soil	sediment	water	land use- managemen t
1	20.11.2015	Town and Spatial Planning Association of Slovenia	SI	dr. Liljana Jankovič Grobeljšek		1	1					1	1					1
2	10.11.2015	ARRS - Slovenian Research Agency	SI	Tina Vuga	1			1							1	1	1	1
3	15.9.2015	Ministry of Environment and Spatial Planning, directorate for spatial planning and housing	SI	Tomaž Miklavčič	1	1	1	1										1
4	9.9.2015	University of Ljubljana - Faculty of Architecture	SI	dr. Alenka Fikfak		1	1		1									1
5	4.11.2015	Institute for Water of the Republic of Slovenia	SI	dr. Aleš Bizjak		1	1		1								1	
6	21.10.2015	Lasscan d.o.o.	SI	dr. Lucija Ažman Momirski		1	1			1								1
7	14.9.2015	Urbana Regeneracija d.o.o.	SI	mag. Igor Cotič		1				1								1
8	23.10.2015	City of Ljubljana	SI	Ivan Stanič	1	1	1	1										1
9	8.9.2015	City of Kranj	SI	Janez Ziherl	1	1	1	1										1
10	19.11.2015	Inštitut za politike prostora	SI	Marko Peterlin		1	1					1						
11	16.10.2015	Urbanistični inštitut Republike Slovenije	SI	dr. Barbara Goličnik Marušič		1	1		1									
12	19.11.2015	Zbornica za arhitekturo in prostor	SI	dr. Aleš Mlakar														
13	5.11.2015	CGS plus d.o.o.		dr. Alenka Šajn														
14	14.10.2015	Inštitut za krasoslovje	SI	dr. Nataša Ravbar														
					4	10	9	4	3	2	0	2	1	0	1	1	2	8



Annex Ib: NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training on 22nd – 23rd June 2015.

[Note: this questionnaire template is meant to help National Focal Points (NFPs) to facilitate the interview/conversation with the National Key Stakeholders (NKS). Some questions are relevant to one NKS, other questions to another NKS. Hence, not all questions are relevant to each single NKS. The NFPs are required to adapt the template accordingly – keeping in it as many as possible of the issues to be addressed. If needed, the NFPs also translate the questionnaire into their national language.]

The questionnaire (see next pages) has the following outline:

Interview information:

To be filled out by the interviewer

Introduction:

That the interviewer can use to start the NKS interview

Background information of the NKS interviewed:

Mostly 'tick-boxes'

Strategic Research Agenda (SRA):

NKS preferred topics, overarching themes and scope for the SRA and national state-of-the-art on research agendas that the NKS is aware of

Science-Policy-Interface:

NKS experiences regarding the exploitation of scientific knowledge to: improve business opportunities; tackle other societal challenges; assist policy-implementation and/or policy revision

Funding:

Predominantly used as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination that the NKS is aware of

Other:

At the end there is some time advised to let the NKS give us their advice, some nice quotes (that we can use anonymously in our communications), examples etc.

Ending the interview:

Explain follow up and if/how NKSs will be involved in the next steps of INSPIRATION

Questionnaire template (we used English version)

A. Interview information
Country: Name of INSPIRATION Researcher: Date of Interview: How does the NKS wish to be referred to: <i>[Anonymous, personal opinions, company's opinion. Choose when it is a good time to discuss this. In the beginning or later on.]</i> <i>SHOW the interviewed NKS the ENGAGEMENT CONSENT FORM and ask him/her to fill it out. Please introduce the engagement consent form (available in 'D2.1 MoU' and editable by yourself) and hand a copy to the interviewee to read and fill in – make sure that you take this away with you and keep for your own records]</i>
B. Introductions
<i>[Please introduce your selves, the project and the purpose of the interview. You can use the handout as provided at the end of this template. This can also be sent beforehand to the NKS. Agree on a time span: approximately one and a half hour.]</i>
C. Background information on the interviewee
Name of NKS interviewed: Institution: Role:
Are you a (multiple answers possible): National-regional-local authority University/research institute Small or Medium sized Enterprise (SME, i.e. < 500 employees) / consultant Business and industry Non-Governmental Organisation (NGO) Network representative / leader Other, specify: ...
Fields of expertise (multiple answers possible): <i>[Ask to specify background regarding the selected item(s) in order to understand expertise background of interviewee]</i> Soil

Water

Sediment

Urban / spatial planning

Landscape design

Land management

Other, specify:

Does your organisation provide external research funding?

Yes. Please specify: ...

[e.g. as programme holder, public, private, ...]

No

D. SRA

Which societal challenges do you regard as important?

[If needed, you can use the European Commissions (EC) list of societal challenges here. These EC themes are:]

Contribute to food security and food safety;

Ensure secure supplies of safe drinking water;

Secure energy supply and distribution;

Reduce raw material and resource consumption, Ensure efficient use of natural resources;

Contribute to climate change mitigation and societal adaptation;

Contribute to a healthy living environment;

Ensure secure infrastructure

[Explain that these challenges may be used as bases for defining of the overarching themes for aggregating the research topics of our SRA.]

If applicable, what additional, other or alternative challenges would you suggest/prefer?

[When needed, you can mention challenges as nature conservation, sustainable use of ecosystem services, halting the loss of biodiversity]

Starting with your own experience: which specific topics (research needs) should be included in the SRA?

[For each single topic mentioned by the NKS, use the following follow-up questions. The a, b and c sub-questions are mandatory. The other sub-questions are optional]:

Explain – elaborate the topic

Who will be affected?

Who is responsible?

Is it a topic of concern of your organisation / department

Is it only a national topic, or a shared topic by multiple countries?

Where are we now, where do we want to be in x years (point on the horizon)?

How can the newly gained knowledge be effectively used?

Priority:

High priority

Some priority

Neutral priority

Low priority

No priority

What is the urgency, i.e. what goes wrong if we do nothing?

Who wants to/should fund this kind of research?

[Optionally: check the following WP3 key-words for relevance, i.e. if they raise any additional topics by the NKS. The key-words can be used as support / check list

Be sensible as interviewer if this is needed.]

Assessment of land resources

Potential productivity of land and soils

Demand for soil/land resources, imports and exports

Competition between land uses (land-use conflicts)

Concepts to identify and quantify relevant impacts

Instruments to avoid / minimise impacts (feedback to decision-making process)

Opportunities of innovative land-use technologies

Resource-oriented land management systems]

Soil regeneration

Soil and groundwater remediation

Linked to topics mentioned by the NKS:

What are the important / relevant documents, research agendas, research programmes underpinning these topics? (state-of-the-art)

Related to these agendas and programmes: what are timelines of programming and windows-of-opportunities to influence agendas / programmes?

[Note: question 9b is input for work package 5]

E. Science-Policy-Interfacing (SPI)

How would you define 'scientific knowledge'?

For what do you use scientific knowledge in your job?

Which sources of (scientific) knowledge do you use for doing your job?

[Open question and you can mention some of the sources underneath as examples]

<i>scientific paper</i>	<i>newspapers</i>
<i>consultants</i>	<i>television</i>
<i>reports</i>	<i>conferences</i>
<i>colleagues</i>	<i>Involvement in research projects</i>
<i>experiences /examples within my own country</i>	<i>data (bases)</i>
	<i>websites, such as:</i>
<i>experiences /examples abroad</i>	<i>other, specify:</i>

To what extent do you use most recent/new scientific knowledge (i.e. state-of-the-art scientific insights/findings) for doing your job?

To what extent are you able to influence (and how) the setting of scientific research policies/agendas in our country?

To which extent do our national policies/agendas reflect your specific needs and priorities?

To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

[Questions only for NKS from the non-science sector (business and policy):]

Have you ever been involved in:

the formulation of scientific research questions?

doing scientific research (i.e. knowledge co-creation)?

synthesizing/wrapping-up of scientific knowledge, e.g. to feed into policy making or to increase business opportunities?

[When yes: Follow-up questions]

How successful/satisfying was this, on a scale of 1-5?

Very successful/satisfying

Successful /satisfying

Neutral

Unsuccessful/unsatisfying

Very unsuccessful/unsatisfying

What went well

What could be improved?

What to avoid/not to do?

Additional remarks?

[Question only to NKS who are likely to have insights here (e.g. research funders)]

(How) is the societal impact of scientific research related to the scope of INSPIRATION being assessed in our country?

[If they know: Follow-up questions:]

How successful/satisfying is this, on a scale of 1-5?

Very successful/satisfying

Successful/satisfying

Neutral

Unsuccessful/unsatisfying

Very unsuccessful/unsatisfying

What indicators are used?

What goes well?

What can be improved?

What to avoid/not to do?

Additional remarks?

Which national Science-Policy-Interface documents do you know of / can you recommend?

F. Funding

Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems:

Sub-nationally /regionally?

Nationally?

European? *[e.g. H2020, Interreg, multi-lateral such as the Joint Programming Initiatives]*

International? *[e.g. Belmont Forum, Foundations-etc.]*

[For all R&I questions aiming at achieving policy targets in the Land & SSW related system (like e.g. Sustainable Development Goals on soils -to be adopted at UN level in September 2015-, existing EU directives such as the Environmental Liability Directive, etc.) Consider all Public and Private funding sources. Please ask to provide details and give most important references (documents, website) that could be relevant for explaining the answer]

How to increase the added value of different financial resources (i.e. achieve a multiplier) for doing research that contributes to EU and national demands, in particular to the R&I demands on Land and the SSW-system?

[CONSTRUCTIONS that (could) work. PP, PPI, etc. Just ask for, as open as possible for suggestions, ideas, experiences, good examples]

Are there areas of research and innovation (R&I) that you are aware of that are not (yet) covered by current funding mechanisms and which would need new/different funding schemes / infrastructures?

Integrated approaches (necessary for addressing particular societal challenges related to the use and management of land and related impacts to SSW systems) are usually difficult to fund / get recognised by the research funding communities. What would be necessary to improve this?

Based on previous learning experiences that you are aware of: how to best set up / govern funding option(s), so that societal demands will be fulfilled, knowledge resulting from execution of the SRA will be taken up and used; and funders experience that their invested, national Euros are indeed multiplied?

[if they know: Follow-up questions]

How successful/satisfying was this, on a scale of 1-5?

Very successful/satisfying

Successful/satisfying

Neutral

Unsuccessful/unsatisfying

Very unsuccessful/unsatisfying

What went well

What could be improved?

What to avoid/not to do?

Additional remarks?

G. Other (remarks, suggestions, examples):

H. Ending the interview

Thank you for taking the time to participate in this interview:

Would you like us to keep you updated about INSPIRATION progress?

Would you suggest anyone else who we should be interviewed by us?

Do you have further questions arising from this interview, or would you like to add anything else?

What information are you interested in, and willing to give feedback on?

[Discuss the feedback mechanism and if they have expressed their opinions as a person or as a representative of their organisation/network. Checklist:]

Information to exchange / willingness to give feedback on:

(complete interview, not recommended)

summary of main conclusions

national report, national contribution to D2.4

complete D2.4, all countries

Preferred level of feedback:

no feedback

informal feedback

formal feedback (e.g. on behalf of represented organisation)

[Check: have you discussed consent form / how to refer to interviewee]

INSPIRATION acknowledges the received funding from the
European Community's HORIZON2020 Framework Programme
under grant agreement no 642372



Annex Ib: NKS hand-out: INSPIRATION interview at a glance

INSPIRATION interview at a glance

Aim of INSPIRATION:

The main purpose of the EC-funded INSPIRATION project is to formulate an end-user driven strategic research agenda (SRA) for land-use, land-use changes and the related, impacted compartments of the Soil-Sediment-Water (SSW) system in order to meet current and future societal challenges and needs. Next to that, the project aims to scope out models of implementing the SRA and to prepare a network of public and private funding institutions willing to commonly fund the execution of the SRA.

National Key Stakeholders (NKS):

In a series of NKS interviews across EU nations the “National Focal Points (NFP) gather for nations individually information related to the INSPIRATION scope (land and SSW-system use and management) on:

Research and Innovation (R&I) needs

Experiences regarding connecting science to policy/practice

National and transnational funding schemes

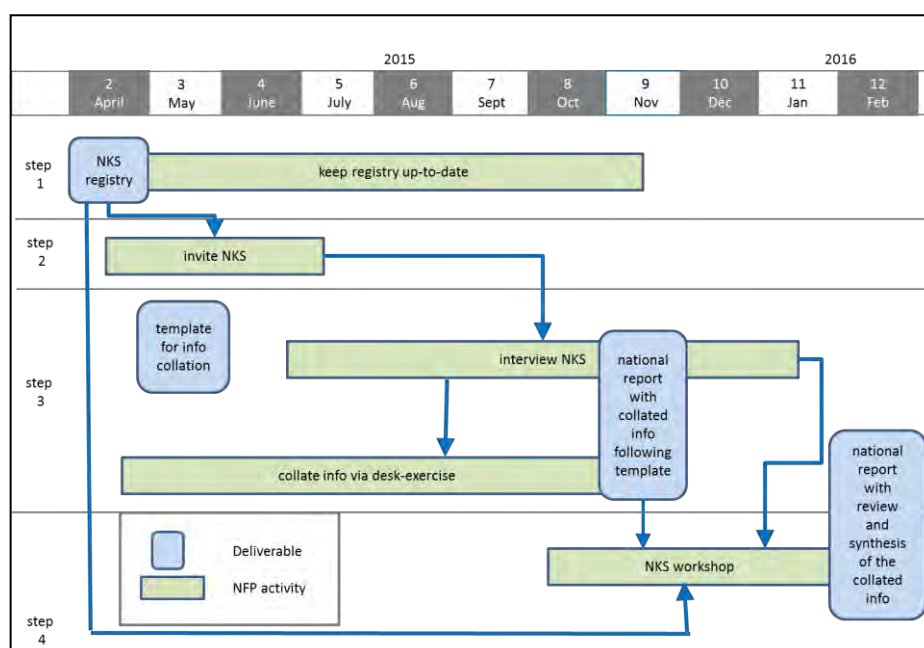
In the interviews we focus at NKS – like you – positioned at a strategic level, i.e. leading persons in their field of profession; with a good overview on opportunities; a clear vision on, and insight in knowledge demands (short, middle and long-term). Furthermore, these NKS are well positioned and participate in relevant professional network(s) and may also have potential to become an ambassador for INSPIRATION. We selected NKS to represent different disciplines and institutional backgrounds including: land-use planners; managers; soil, sediment and water experts; researchers, funders and regulators/policy makers.

This interview:

Collecting input from you – an expert in your field – is crucial for the project in order to help us describing the state-of-the-art in our country as input into the European research agenda. In the interview we will go through a series of topics and questions:

The interviews of NKS (ca. 20 per nation), together with a desk study on research needs and funding possibilities will be synthesized to a 'national report'. This synthesis will be reviewed in a national workshop, to prioritize the topics for the suggested Strategic Research Agenda (SRA) from our country's point of view. The national reports will finally be used as input for elaborating the European SRA and cross-nation matchmaking (matching research needs to possible funding).

Workflow in first year of INSPIRATION



Example questions:

Research and Innovation (R&I) needs

Which societal challenges do you regard as important?

Starting with your own experience: which specific topics (research needs) should be included in the SRA?

Experiences regarding connecting science to policy/practice

How would you define 'scientific knowledge'?

To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

National and transnational funding schemes

Does your organisation provide external research funding?

Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems

Your benefits from participating:

A chance to influence the European SRA on land and SSW management in the light of societal challenges and needs;

Being able to make use of the results of the project: overview of research need and of existing and promising funding schemes on different levels (sub-national, national, European, international) and opportunities for a better connection between science and policy/practice;

Use the matchmaking opportunity to get in contact with other networks in- and outside our country, and countries learn which shared challenges can be taken up jointly.

Contact and further information:

For general information on the INSPIRATION project visit our website: www.inspiration-h2020.eu

Contact the National Focal Point: <i>[Name]</i> <i>[Address]</i> <i>Tel</i> <i>Email]</i>	Contact the general project coordination: Stephan Bartke FG I3.5 – Coordination INSPIRATION Federal Environment Agency Woerlitzer Platz 1 06844 Dessau-Rosslau Germany stephan.bartke@uba.de

Localised version in Slovenian language

Namen intervjujev ključnih nacionalnih deležnikov (NKD) projekta INSPIRATION

Namen projekta INSPIRATION:

Glavni namen projekta INSPIRATION, ki ga finančno podpira Evropska komisija, je oblikovati strateške razvojne agende/ programe (SRA) za končne uporabnike na področju rabe zemljišč, sprememb rabe zemljišč ter za vplivne dele sistema prst - sedimenti - voda, ki bi bili v pomoč pri uspešnem soočanju se z izzivi in potrebami družbe. Poleg strateške razvojne agende (SRA) je cilj projekta tudi oblikovati metodologijo za njeno uspešno izvajanje ter vzpostaviti mrežo javnih in zasebnih ustanov, ki bi finančno podprle izvedbo SRA.

Ključni nacionalni deležniki (KND)

V nizu intervjujev s ključnimi nacionalnimi deležniki (KND), ki se bodo izvajali širom Evrope, bodo nacionalne kontaktne točke (NKT) v svojih državah zbirale podatke o raziskovalnih potrebah s področja projekta INSPIRATION, in sicer za področje upravljanja z zemljišči in sistemi, ki povezujejo tipe tal(prst), sedimente in vodo, o:

potrebah s področja raziskav in inovacij,

izkušnjah pri povezovanju znanosti in ukrepov/ prakse,

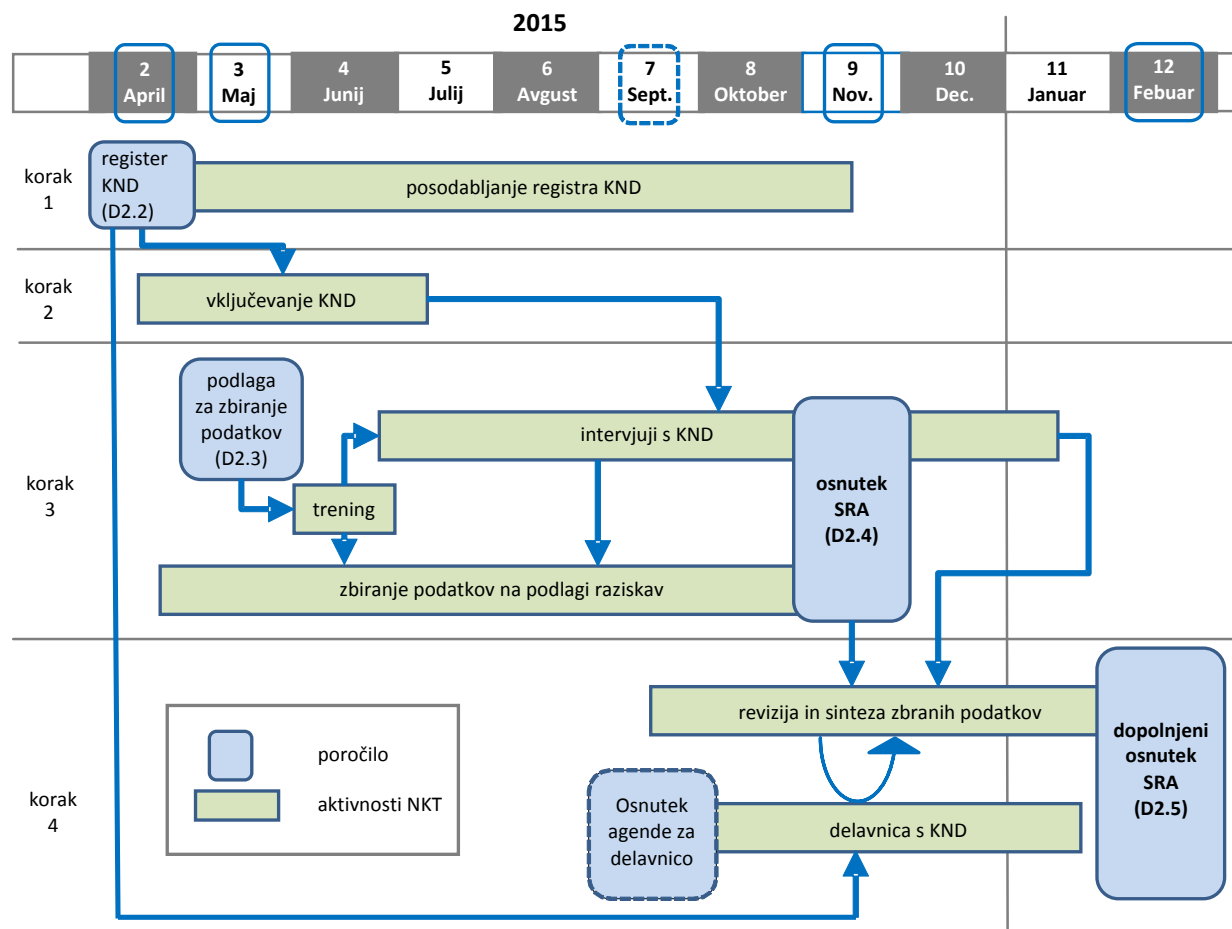
nacionalnih in mednarodnih finančnih shemah za področje raziskav.

V intervjujih se bodo nacionalne kontaktne točke (NKS) osredotočale na strateško pomembne institucije oziroma vodilne osebe z jasno vizijo in dobrim vpogledom v priložnosti s poudarkom na potrebe po novih znanjih (na kratki, srednji in dolgi rok) s svojega področja. Izbrani KND zastopajo različna strokovna/ znanstvena področja in vključujejo tako prostorske načrtovalce kot managerje, strokovnjake za prst, sedimente, vode in druge. Ti lahko delujejo v okviru raziskovalnih organizacij, kot finančne institucije ali kot načrtovalci ukrepov. KND so običajno vključeni v pomembna strokovna združenja in mreže, kjer lahko postanejo ambasadorji projekta INSPIRATION.

Postopek zbiranja podatkov

Zbiranje podatkov s pomočjo KND, strokovnjakov z različnih področij, je ključnega pomena tako za Slovenijo kot projekt INSPIRATION v celoti. Na ta način se bomo seznanili s stanjem s področja upravljanja z zemljišči in sistemi, ki povezujejo tipe tal(prst), sedimente in vodo v Sloveniji, zbrani podatki pa bodo služili kot podlaga za oblikovanje evropske raziskovalne agende. Na podlagi najmanj 20 intervjujev in preliminarne analize stanja tako razpisov kot finančnih virov, se bodo pripravila nacionalna poročila kot nacionalne strateške razvojne agende za vsako državo posebej. Osnutek nacionalne strateške razvojne agende bo predstavljen na nacionalni delavnici, kjer se bodo dodatno zbirale pripombe in predlogi ter poskušalo izpostaviti prioriteta področja raziskav v Sloveniji. Na podlagi pripomb in predlogov se bo izdelala nacionalna strateška agenda Slovenije, ki bo predstavljala podlago za izdelavo skupne evropske raziskovalne agende.

Grafični prikaz poteka projekta INSPIRATION v časovnem obdobju enega leta



Primeri vprašanj izpostavljenih na intervjujih z različnih področij:

Potrebe s področja raziskav in inovacij

Kateri družbeni izzivi so za vas pomembni?

Glede na vaše izkušnje: katere tematike / področja (z vidika raziskav) bi bilo potrebno vključiti v SRA?

Izkušnje pri povezovanju znanosti s prakso

Kako bi definirali znanstvena spoznanja (angl. 'scientific knowledge')?

V kolikšni meri so se na podlagi analiz obstoječega stanja znanstvenih raziskav v Sloveniji oblikovale obstoječe politike?

Nacionalne in mednarodne finančne sheme s področja raziskav

Ali vaša organizacija zagotavlja finančne vire zunanjih raziskav?

Kakšne izkušnje in pričakovanja glede finančnih shem (javnih / zasebnih), ki predstavljajo priložnosti za nadaljne raziskave s področja rabe zemljišč in upravljanja ter vplivov na dele sistema prst - sedimenti – voda, imate s svojega področja?

Prednosti vašega sodelovanja:

Priložnost vplivanja na evropsko SRA na področju upravljanja z zemljišči in vplivnimi deli sistema prst - sedimenti – voda v luči družbenih izzivov in potreb

Možnost uporabe rezultatov projekta med katerimi je pregled raziskovalnih potreb obstoječih in predvidenih shem financiranja na različnih nivojih (regionalnih, nacionalnih, evropskih, mednarodnih) in izkoristiti priložnost za boljše povezovanje med znanostjo in politiko ter prakso.

Povezati se z drugimi mrežami znotraj in izven Slovenije, kjer se lahko bodisi z izmenjavo znanj iz drugih držav soočimo z družbenimi izzivi, bodisi s skupnim pristopom reševati skupne problem.

Kontaktne podatki:

Informacije o projektu INSPIRATION so dostopne na spletni strani:

Kontaktne podatki nacionalne kontaktne točke:

Kontaktne podatki koordinatorja projekta:

Boštjan Cotic



Stephan Bartke

FG I3.5 – Coordination INSPIRATION

Federal Environment Agency

Woerlitzer Platz 1

06844 Dessau-Rosslau

Germany

stephan.bartke@uba.de

Tel: +386 1 420 12 25

E-mail: bostjan.cotic@uirs.si



Annex II: Documents used for the SI desk study

Strategija pametne specializacije (2015) Službe vlade Republike Slovenije za razvoj in evropsko kohezijsko politiko

Gajšek M., Stanič I., Grilc U., Premič M., (2015), Trajnostna urbana strategija Mestne občine Ljubljana, Mestna občina Ljubljana,

Resolucija o raziskovalni in inovacijski strategiji Slovenije 2011–2020 (ReRIS11-20), (2011), Uradni list RS, št. 43/2011

Zakon o raziskovalni in razvojni dejavnosti, Uradni list RS, št. 96/02 z dopolnitvami: Zakon o spremembi Zakona o raziskovalni in razvojni dejavnosti -ZRRD-A (Uradni list RS, št. 115/05, Zakon o spremembah in dopolnitvah Zakona o raziskovalni in razvojni dejavnosti - ZRRD-B (Uradni list RS, št. 112/07, Zakon o spremembah in dopolnitvah Zakona o raziskovalni in razvojni dejavnosti – ZRRD-C Uradni list RS, št. 9/11, Zakon o spremembah in dopolnitvah Zakona o podpornem okolju za podjetništvo -ZPOP-1A (Uradni list RS, št. 57/2012

Načrt razvoja raziskovalnih infrastruktur 2011–2020, (2011), Vlada Republike Slovenije
<http://www.mizs.gov.si/fileadmin/mizs.gov.si/pageuploads/Znanost/pdf/Zakonodaja/NRRI.pdf>

Uredba o normativih in standardih za določanje sredstev za izvajanje raziskovalne dejavnosti, financirane iz Proračuna Republike Slovenije (Uradni list RS, št. 103/11, 56/12 in 15/14)

14. Spain

Report by Pierre Menger, Gemma Garcia-Blanco, Efrén Feliu

14.1 Introduction

This national report (i.e. INSPIRATION deliverable 2.4) reports the information collated for Spain. The information was collated in accordance with INSPIRATION D2.3 “Template for national information collation”. In Spain, the aim is to interview a total number of 20 NKS from different areas of expertise and different types of institutions. Status quo of interviews when compiling this draft report is of 4 interviews. Details on these NKS are provided in Annex I. The desk study was based on documents as suggested by NKS. These are listed in Annex II.

14.2 Research and Innovation (R&I) needs

Topic a: Demand-driven* suggestions for the Strategic Research Agenda (SRA), i.e. suggestions from the perspective of industry, end-users and funders.

Related key question to be answered: **What (new) knowledge do these parties need to tackle societal challenges including the increase of job opportunities)?**

****Demand-driven** in INSPIRATION means focusing on the demands of those who are responsible or feel committed to tackle the societal challenges related to the INSPIRATION scope and themes, i.e. industry, end-users and funders. These parties could improve their business opportunities and/or take better informed decisions on what measures to take and execute in order to tackle other societal challenges if they would (be enabled to) use the knowledge as resulting from execution of the INSPIRATION SRA.

14.2.1. Societal challenges and needs

Based on the NKS interviews carried out until report compilation, there is no specific trending topic to be identified in terms of priority societal challenges. Moreover, as it could be expected, the priorities and issues of interest among societal challenges vary greatly depending on the NKS identity, i.e. research institution, funding organization etc. However, one issue that finds high interest by almost all NKS is Climate change (nuances can be found in the sense that some NKS may prioritize mitigation, others adaptation). It is commented that adaptation may entail major needs of RTD than mitigation.

Other issues of interest are:

- Food security and safety
- Secure supplies of safe drinking water
- Contribute to a healthy environment with a specific attention to the protection of biodiversity.
- Society empowerment (and co-responsibility) in conservation and land management/spatial planning.

One NKS (RTD organization) stresses the need for better consideration of soil as a resource and key element to be protected and its conservation promoted. It is commented soil is the forgotten part of natural sciences. Society is lacking awareness about its importance.



14.2.2. Topics / research needs to include in the SRA

Among the interviewed NKS the major topics (research needs) mentioned are the following:

- EU-1. Effects of multiple stressors on soil and more generally on biodiversity (risks, resilience, interactions between stressors etc.). This issues would be closely linked to impact on water resources as well
- EU-2. Climate change mitigation and adaptation
 - o Sustainable management of ecosystem services (link to possible climate adaptation actions based on nature based solutions)
- EU-3. Landscape planning and management: integrated approach to land use planning and management
- EU-4. Sustainable spatial planning and society empowerment.

Relevant documents, research agendas, research programmes underpinning these topics? (state-of-the-art)

- **European level**
 - o The European Territorial Strategy (ETE), seems to be nowadays an interesting umbrella with regard to land use and spatial planning issues, which unfortunately has not been able to be transferred into tangible policies
 - o The European Landscape Convention (ELC) addresses all transversal societal challenges defined by the European Commission.
 - o Horizon 2020, the EU Framework Programme for Research and Innovation (still lacking an appropriate coverage of environmental as well as demographic and social research themes).
- **National level and regional level**
 - o MINECO: National Program of R&I oriented towards Societal Challenges within the State Plan for Technical and Scientific Research 2013-2016. This Program contains several sub-programs. As an example, one of these sub-programs is oriented towards the food quality and security, sustainable agricultural practices, natural resources, marine and maritime research
 - o INIA: National Institute for Agronomic and Food Research and Technologies. Inside the national fundamental research program, INIA manages the subprogram of fundamental oriented research project in the field of agronomic resources and technologies y coordination with autonomic regions and complementary actions.
 - o At the level of the Basque country the NKS signals the importance of the newly developed PCTI (Plan de Ciencia Tecnologia e Innovation 2020, i.e. Plan for Science, Technology and Innovation of the Basque Country 2016-2020).
 - o Environmental Framework Program 2020
 - o Basque Strategy for Climate Change 2050

EU-1: Multiple stressors on soil systems

In the field of environmental and especially soil ecosystem impacts there is yet not much knowledge about the understanding and evaluation of effects of multiple stressors or sources of perturbation, their interactions and interdependencies and their overall impact on biodiversity, functions of ecosystems and the resilience of these against multiple and simultaneous stressors. Generally impacts are assessed for a specific perturbation (i.e. contamination) but not for the overall impact of multiple sources of perturbation (i.e. simultaneous effects of contamination, drought, compaction, defertilization etc.).

Specific research questions (in prep.):



- Mechanisms of impacts of multiple stressors on soils need to be better understood
- Multiple risks assessment methods need to be developed as means for better management of soil resources and better design and prioritize corrective actions
- Resilience capacities of soil systems need to be better understood and evaluated in order to integrate natural responses as part of the solution

Why: Degradation of soils occurs rapidly, we need support for a better design of prevention and response strategies.

EU-2: Climate change – (overarching topic which is linked with others, i.e. ecosystem services, spatial planning, natural resources)

Research on adaptation to climate change is crucial to better inform and support the development and implementation of adaptation policies and related action programs at international, European and Member State level. It is well known that the local effects of climate change and the costs and benefits of adaptation vary greatly. Policy makers need to better integrate strategies for dealing with climate change into their development plans, rather than leaving them isolated as stand-alone policies and projects.

Specific research questions (in prep.):

- Formulate criteria on mitigation and adaptation for its integration y spatial planning Hence, improve capacities for assessing vulnerability of specific systems, i.e. water resources, coastal zones, marine resources and ecosystems, terrestrial ecosystems and urban areas to climate change in relation with climate scenarios and support decision making (i.e. for example in the area of spatial planning)
- Investigate the links between climate change and the formation, depletion and exploitation of natural reserves of biotic and abiotic resources
- Understand better the role of ecosystem services as both mitigation (i.e. carbon uptake and storage) and adaptation (i.e. nature based solutions as measures for storm and flood regulation, impacts on water supply and food production) means.

EU- 3: Landscape planning and management: integrated approach to land use planning and management

Landscape planning and management is an ambitious concept. Considering all its components (diagnosis, evaluation, planning, and management, with a social, environmental, economic, institutional perspective) and its integrated approach to territory, is a topic/ research area, capable to enclose/encompass and cope with most of the EU societal challenges that have been defined by the EC.

The European Landscape Convention is the reference framework at EU level. At regional level, there is a wide range of applied research on landscape planning although complementary research is still needed, particularly the linkages with management and the design of adequate management instruments and definition of determinations.

Specific research questions (in prep.):

- It is perceived that the current policies and research programs and agendas are not adequately covering: landscape planning, governance, territorial balance and cohesion and equitable distribution of wealth and resources.



- There is a need to investigate on the link between renewal energies and territorial development: production, distribution and impact on urban networks;
- There is a need for deeper understanding of accessibility to infrastructures and its influence in the territorial tissue.
- Demographic dynamics and human migration processes related to climate and environmental changes require serious research in order to face the societal challenges and if needed, define new ones.

EU- 4: Sustainable spatial planning and society empowerment.

What does it implies?

- Local perspective/ but action with a multi-scale approach.
- Multi-functionality approach to land uses: i.e. urban food production. Empowerment and utilization of public spaces and abandoned or disused spaces, in a multifunctional way.
- Inclusive decision making. Stronger implication of society in land use management.
- Social Agora- towards greener, more intelligent and sustainable spatial planning and management.
- Local agro-food policies and spatial/ and urban policies that include and reflect the multifunctional uses of land (i.e. urban food production) and have specific actions and resources to make it operational (not only words but action).
- New ways of land management (i.e. land Stewardship)

Specific research questions (in prep.):

- Integrated approach to food sovereignty and the role of urban and peri-urban agriculture with implications in resources management soil-land-water and in societal challenges. From a whole range of disciplines— geography, agronomy, spatial planning, urbanism, landscape design, social sciences.
- There is a need for research in governance: coherence between concepts, approaches and policies
- Inclusive decision making and social empowerment. Exploring new or improved ways to achieve real participation of society in the decision including (academia, general public, NGO, experts, practitioners and whatever other actor with interest in land use and resource management). There is still a need for a multidisciplinary approach. Today there is still too much political weight and persistence in the decision making with regards to land use and resource (soil/water) management.
- Research on better ways of knowledge diffusion and communication to effective translation of sciences to society (in order to this empowerment to be effective).
- Monitoring. a) Very important to include society in monitoring- land uses, state of soil/water in order to acknowledge the territorial reality. b) Boosting observatories, reinforcement of public involvement and launching specific projects which encourage multiple parties to work together.

14.3 Experiences regarding connecting science to policy/practice

Topic b: *Experiences regarding the exploitation of scientific knowledge to improve business opportunities and/or tackle other societal challenges.*

*Related key question to be answered: **Where to improve the science-policy interface so that (new) knowledge can and will be more effectively exploited by the demand side?***

14.3.1. Use of knowledge

Scientific knowledge is defined as knowledge produced by scientific methodology. It is also conceived as a “dynamic process” which implies collection of data, analysis, methods but also ways of working, validation and contrasting, sharing, interacting and discussing with others.

The use made of scientific knowledge varies greatly depending on the nature of the NKS; i.e. it could be used for incrementing foreground needed to support further developments and new generation of knowledge, helping providing responses to specific societal questions and challenges or for the development of communication materials (to experts and non-expert public), technical guidance, legislation and eventually policies and other instruments (i.e. limits/ thresholds, taxation)

In relation to the extent to which state of the art scientific research is used for the formulation of policies, answers may vary greatly, depending on the perspective of the interviewed NKS, hence, if the NKS rather represents a knowledge producer or user/financer. From the perspective of knowledge producer it is believed the uptake of knowledge and its valorisation for policy making is quite weak and it is estimated there is a gap to be addressed. It is estimated improving the up-take of scientific knowledge for policy making would require the involvement of all key actors, namely policy makers, universities, RTD centres, practitioners, private sector, NGOs and also citizens. From the perspective of policy makers the opinion may be different, highlighting some successful experiences in the use of scientific knowledge in the areas of soil and fishery policy making (example of the Basque Country) and in spatial planning (example of the Territorial Observatory of Navarra).

14.3.2. Possibilities to set the agenda

Among the interviewed NKS, a majority is involved in the setting of scientific research agendas, though at different levels. Hence this could consist in sharing initial ideas or in deciding on the final RTD priorities. From the perspective of RTD centre there are good opportunities for some specific needs to be addressed through fundamental non-oriented research programs. However, specific needs may not be specifically addressed in program calls.

There are still great shortcomings in the main national policies/ agendas (i.e. National Parks, Ministry of Economy and Competitiveness- Secretary of Research, Development and Innovation, INIA-National Institute of Food and Agriculture Research and Technology). Funding still goes to projects with obsolescent approaches and themes.

Lately, a number of interesting research projects are funded by private entities such as MAPHRE (insurance company), BBVA (bank), Fundación Botín (private foundation) which



manage to be at the top – edge research. The funding came in form of awards to companies for good performance.

14.3.3. Science – policy – practice

NKS interviewed have experience in the formulation of scientific research questions and some experiences have been mentioned also in synthesizing scientific knowledge. In relation to the means for assessing societal impacts of scientific research there seems to be a shared estimation that this is unfortunately very weak in Spain. Although potential societal impacts are addressed at the time of elaborating project proposals, these are not assessed afterwards. Some NKs makes reference to instruments aimed at boosting innovation by creating demand for specific innovative solutions from the public sector, i.e. public innovative procurement.

The key themes are included -as the big words - in the definition of policies but are barely visible in their implementation: quality of life, healthy environment, climate change, cohesion, etc. The problem here is that there are lobbies which take advantage of the undefined determinations in the policies. The uncontrolled urbanisation processes and unprecedented irresponsible use of resources in the last decades, has been consequence of this blur and lack of definition.

14.4 National and transnational funding schemes

Topic c: *Predominant, current as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination.*

Related key question to be answered: *How to get with one Euro of national/regional funding a multitude of Euro's (from all sources) worth of knowledge in return contributing to EU and national demands? Or even how to get with one euro of EU funding a multitude of euro's (from national, regional, local, and private sector) worth of knowledge in return contributing to the R&I demands on Land and the Soil-Sediment-Water systems.*

Topic d: *Experiences regarding the use of any trans-national, common budget for scientific knowledge production related to the scope of INSPIRATION.*

Related key question to be answered: *How to set up/govern the appropriate funding option(s) resulting from INSPIRATION – based on previous learning experiences – so that: (1)the above demands will be fulfilled, (2) knowledge resulting from implementation of the SRA will be taken up and used and (3) funders experience that their invested, national Euros are indeed multiplied?"*

14.4.1. Funding schemes and possibilities for research funding

Regional research centre reports on good success quotes in the participation on regional and national calls. In terms of expectations, it is reported it would be beneficial if EU funds would be managed at local level (national or regional) in order to bridge the gap between societal needs (very clear at local level) and the implication of RTD centres for meeting these needs. Hence local agencies (EU member states, or EU regional administration would manage the EU resources and edit topic calls corresponding to the need sat local level).

RTD centres know the needs at local level, but often lack sufficient funds to respond to the needs, i.e. regional funding is scarce. The EU could delocalise part of the funds to regional



level focusing these on specific needs and consequently deliver higher impacts. Networking should be supported for better sharing of efforts and outcomes.

It is believed, there is a need for better communication about needs. The knowledge (or product) that is needed has to be better defined and priorities better identified. There is a need for improved and active dialogue between stakeholders. Possibly teams and stakeholders would need some reform. Outcomes of R&I should be better evaluated and responsibilities defined, i.e. there should be consequences if objectives and impacts are not met. This needs adequate structures for decision making and evaluation

It has been suggested to create forums where politicians, RTOs, academia, industries and society meet to exchange on RTD needs and RTD project outcomes. In addition to multidisciplinary congresses create the platforms for multi-stakeholder engagement. The parties concerned by RTD and its fruits must know each other and understand the capacities and needs of each other. Society is too much detached from the policy making and RTD world. Decision making structures need reforms so that citizens would be more implicated with the RTD.

Monitoring has been highlighted to an important issue to improve funding schemes: reinforcing the research evaluation systems, and also monitoring performance indicators for measuring the impact of research on policies on the basis of the research objectives.

A suggestion was made to introduce a bonus-malus system (i.e. tax?) to which research and technology centres could be submitted to. This system would be coupled to the degree of success of R&D projects and the impacts of their outcomes on the market, i.e. companies. Venture capital should also be promoted for financing R & D as an incentive to generate added value (more market driven R&D). The knowledge generated (i.e. assets, products) should be supported by long term business plans in order to attract investors.

The need for a more flexible access to funding has been also pointed out particularly in favour of compatibility among different funding mechanisms: patronage, crowd- funding, PPP, etc.

14.4.2. Gaps in financial resources for resource

It has been commented there is a huge amount of scientific knowledge available, what is lacking is to bring this knowledge to market and generate impact. Focusing on instruments that would enhance funding schemes; i.e. it is estimated pre-commercial support projects would help R&I to better access markets, hence funds should be dedicated to boost innovation. Fiscal instruments associated to R&I would help boosting R&I.

If R&I topics would be formulated in terms of general objectives (i.e. challenges) rather than by scientific areas it is believed it would boost integrated approaches. Responsibilities should be defined for the development of R&I programs and their overall impacts, so that consequences could be assigned if those objectives/impacts are not reached.

The creation of forums where the scientific community together could have the chance to debate with funding institutions on the RTD priorities and the complexity of the system could be a step forward for integrated approaches. It is commented that often decision makers think on short term and do not have sufficient perspective of broader and more complex issues (i.e. climate change). It is estimated that if politicians and funding communities would be better educated/informed on sciences and the importance of certain issues, they could make better use of evidence based information rather than lobbyist and consultants information.



ESPON has been pointed out as an example of good practice, although with relatively low visibility on society out of the political and specialized landscapes.

14.5 Other remarks made by interviewees

In general the NKS appreciate very much this type of consultation as they feel they take part in an ambitious objective which needs the involvement of multiple actors from different fields of expertise and from different countries. The mix of scientific, politic and financial issues addressed is appreciated as these need to be approached together in order to maximize impacts of RTD generated at national and international level.

It is commented there are no monitoring networks for soil in Spain. This is a big gap for designing some ambitious RTD programs, would enable to measure the impacts of contamination and human activities



Ia: NKS interviews in Spain

[illegible]

Annex Ib: NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training on 22nd – 23rd June 2015.

[Note: this questionnaire template is meant to help National Focal Points (NFPs) to facilitate the interview/conversation with the National Key Stakeholders (NKS). Some questions are relevant to one NKS, other questions to another NKS. Hence, not all questions are relevant to each single NKS. The NFPs are required to adapt the template accordingly – keeping in it as many as possible of the issues to be addressed. If needed, the NFPs also translate the questionnaire into their national language.]

The questionnaire (see next pages) has the following outline:

UUU. Interview information:

To be filled out by the interviewer

VVV. Introduction:

That the interviewer can use to start the NKS interview

WWW. Background information of the NKS interviewed:

Mostly 'tick-boxes'

XXX. Strategic Research Agenda (SRA):

NKS preferred topics, overarching themes and scope for the SRA and national state-of-the-art on research agendas that the NKS is aware of

YYY. Science-Policy-Interface:

NKS experiences regarding the exploitation of scientific knowledge to: improve business opportunities; tackle other societal challenges; assist policy-implementation and/or policy revision

ZZZ. Funding:

Predominantly used as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination that the NKS is aware of

AAAA. Other:

At the end there is some time advised to let the NKS give us their advice, some nice quotes (that we can use anonymously in our communications), examples etc.

BBBB. Ending the interview:

Explain follow up and if/how NKSs will be involved in the next steps of INSPIRATION

Questionnaire template in spanish

A. Información entrevistas
País: Nombre de la persona representando INSPIRATION: Fecha de entrevista: Como desea el entrevistado ser citado?: <i>[Anónimo, opinión personal, opinión de la empresa/organización].</i>
B. Introducciones
C. Información sobre el NKS
52. Nombre-Apellido: 53. Nombre legal de la Organización: 54. Cargo/posición en la organización:
55. Tipo de organización (múltiples respuestas posibles) ☐ Autoridad nacional – regional - local ☐ Universidad / Centro de Investigación ☐ PYME (i.e. < 500 empleados) / consultora ☐ Industria ☐ ONG ☐ Representación de una red ☐ Otro - especificar: ...
56. Áreas de expertise (múltiples respuestas posibles): <i>[preguntar por experiencia específica en los diferentes temas]</i> ☐ Suelo ☐ Agua ☐ Sedimentos ☐ Planificación urbana / planificación territorial-espacial ☐ Diseño de paisajes ☐ Gestión del suelo – gestión del territorio ☐ Otros, especificar:
57. Vuestra organización financia investigación a terceros? ☐ Si. Por favor, especificar: ... <i>[e.g. como gestor del programa, público, privado, ...]</i> ☐ No
D. SRA

58. Cuáles son los retos de la sociedad que usted valora como importantes?

[retos de la sociedad definidos por la Comisión Europea. Estos son:]

- Contribuir a la seguridad alimentaria
- Asegurar un suministro seguro de agua potable
- Asegurar un suministro y distribución de energía seguros
- Reducir el consumo de recursos y materias primas
- Asegurar el uso eficiente de los recursos naturales
- Contribuir a la mitigación del cambio climático y la adaptación de la sociedad
- Contribuir a un entorno de vida saludable
- Asegurar infraestructuras seguras.

-

[estos retos servirán para definir los temas estratégicos que servirán para agregar los topics de investigación de la futura SRA.]

g. Si aplica, cuáles serían otros retos sociales importantes a considerar?

[i.e. conservación de los espacios naturales, uso sostenible de los servicios de los ecosistemas, mitigar la pérdida de biodiversidad etc.]

59. En base a vuestra experiencia: qué temas específicos (necesidades de I+D) deberían ser incluidos en la SRA?

[Para cada tema, seguir con las sub-preguntas a. b. y c. Estas sub-preguntas son mandatorias, las demás sub-preguntas son opcionales.]:

v. Explicar la razón de incluir este tema

- *Qué ámbitos estarían afectados? Quién estaría afectado (en la sociedad)?*
- *Quién sería responsable de llevar este tema adelante?*
- *Sería este tema de interés para vuestra organización / departamento?*
- *Se trata de un tema fundamentalmente de interés nacional o sería este tema de interés para varios países?*
- *En qué punto se encuentra la ciencia en este tema – estatus quo- cuáles serían los objetivos a medio/largo plazo?*
- *En qué/como podría el conocimiento generado ser utilizado eficientemente?*

w. Prioridad:

36. *Prioridad muy alta*

37. *Prioridad alta*

38. *Prioridad media*

39. *Prioridad baja*

40. *Poca/ninguna prioridad*

41. *Cuál es la urgencia de trabajar en este tema? i.e. qué pasaría si este tema siguiera siendo ausente/minoritario en los programas de I+D?*

x. Qué instituciones se deberían responsabilizar de financiar la investigación en este tema?

Otros temas adicionales ¿

- *Estimación de los recursos de suelo*
- *Productividad potencial del suelo*
- *Demanda de recursos suelo/terrenos, importación and exportación*
- *Competencia entre usos de suelo (conflictos en usos de suelo)*
- *Conceptos para identificar y cuantificar impactos relevantes*
- *Instrumentos para mitigar/evitar impactos (útiles en procesos de toma de decisión)*
- *Oportunidades para nuevas tecnologías de gestión de usos de suelo*
- *Sistemas de gestión de suelos orientados a la gestión de recursos*
- *Regeneración de suelos*
- *Recuperación de suelos y aguas subterráneas*

60. En relación a los temas mencionados por los NKS:

- a. Cuáles son los documentos importantes / relevantes, agendas de I+D, programas de I+D que sostengan estos temas? (estado del arte)
- b. En relación a estas agendas y programas: cuales son las cronologías de los programas y las oportunidades de poder influir en estas agendas / programas?

E. Interrelación Ciencia-política - Science-Policy-Interfacing (SPI)

61. Cómo definiría usted “conocimiento científico”?

62. Con qué fines utiliza usted el conocimiento científico en su trabajo?

63. Qué fuentes de conocimiento (científico) utiliza usted en el marco de su trabajo?

[Pregunta abierta, se pueden mencionar las fuentes siguientes como ejemplos]

○ <i>Publicaciones científicas</i>	○ <i>periódicos</i>
○ <i>consultores</i>	○ <i>televisión</i>
○ <i>informes</i>	○ <i>conferencias, participación en proyectos de investigación</i>
○ <i>colegas</i>	○ <i>bases de datos</i>
○ <i>experiencias / ejemplos en mi país</i>	○ <i>páginas web, por ejemplo:</i>
○ <i>experiencias/ejemplos en otros países</i>	○ <i>otros, especificar:</i>

64. En qué medida utiliza usted conocimiento científico puntero para el desempeño de vuestro trabajo? (estado del arte en ciencia, descubrimientos etc.)

65. En qué medida tiene usted la posibilidad de influir (precisar de qué forma) en la definición de políticas/agendas de investigación en vuestro país?

66. En qué medida nuestras políticas y programas nacionales de investigación reflejan vuestras necesidades específicas de I+D y prioridades?

67. Según vuestras experiencias, en qué medida se ha aprovechado el conocimiento científico para la definición de las políticas existentes en España?

[Preguntas para NKS ajenos a instituciones científicas, i.e. sectores políticos, industria/mercado]

68. Alguna vez ha sido usted implicado en:

- g. La formulación de preguntas/programas científicos?
- h. Investigación científica? (i.e. co-creación de conocimiento)?
- i. síntesis/compilación de conocimiento científico? , e.g. para alimentar procesos de elaboración de políticas, crear y mejorar oportunidades de negocios?

[Si la respuesta es "SI": preguntas adicionales]

- Qué grado de éxito ha tenido el proceso? Qué satisfacción ha tenido usted de esta experiencia? Especificar en una escala de 1-5?
 - 31. *Muy exitoso / muy satisfactorio*
 - 32. *exitoso / satisfactorio*
 - 33. *Neutral*
 - 34. *Sin éxito / sin satisfacción*
 - 35. *Muy mala experiencia*
- Cuales han sido los aspectos más exitosos/positivos?
- Cuales han sido los aspectos mejorables?
- Qué se debería evitar?
- Otros comentarios?

[Preguntas para NKS que pueden tener entendimiento/conocimiento en el área, i.e. financiadores de la investigación]

- En qué forma está evaluado el impacto social de la investigación en los temas de interés de INPIRATION en nuestro país?

[Si pueden responder a la pregunta anterior; preguntas adicionales]

- Qué grado de éxito tiene el sistema de evaluación en una escala de 1-5?
 - 1. *Muy exitoso / muy satisfactorio*
 - 2. *exitoso / satisfactorio*
 - 3. *Neutral*
 - 4. *Sin éxito / sin satisfacción*
 - 5. *Muy mala experiencia*
- Qué indicadores se utilizan?
- En qué aspectos el sistema parece ser muy eficiente?
- Qué aspectos podrían ser mejorados?
- Qué se debería evitar?
- Otros comentarios?

69. Existen a nivel nacional referencias y/o instrumentos de apoyo (documentos escritos, webs, grupos de soporte, plataformas etc.) enfocados en las interrelaciones "ciencia-política"? Podría usted recomendar alguna referencia?

F. Financiación

70. Qué experiencias y qué expectativas tiene usted en relación a esquemas de financiación (públicos/privados) en vuestro área de especialización y que podrían ofrecer oportunidades de investigación en temas de uso y gestión del suelo y los impactos en el sistema suelo-sedimento- agua:

- A nivel sub-nacional / regional?
- A nivel nacional?
- A nivel Europeo? *[e.g. H2020, Interreg, multi-lateral como el Joint Programming Initiatives]*
- Internacional? *[e.g. Belmont Forum, Fundaciones etc.]*

[Para todas For all R&I questions aiming at achieving policy targets in the Land & SSW related system (like e.g. Sustainable Development Goals on soils -to be adopted at UN level in September 2015-, existing EU directives such as the Environmental Liability Directive, etc.) Consider all Public and Private funding sources. Please ask to provide details and give most important references (documents, website) that could be relevant for explaining the answer]

71. Como mejorar el valor añadido generado por los resultados/impactos de diferentes programas de financiación (i.e. aumentar el efecto multiplicador) para una investigación que responda a las necesidades nacionales y de la Unión Europea, en particular las necesidades en I+D en los temas relevantes en INSPIRATION (i.e. territorio, y el sistema suelo-sedimento-agua)

[ejemplos podrían ser: PP, PPI, etc. ...preguntar de forma abierta, sugerencias, ideas, experiencias, buenas practicas etc.]

72. Sabe usted si existen áreas de I+D+i que no estén todavía contemplados en los esquemas de financiación actuales y para los cuales nuevos y diferentes mecanismos de financiación deberían estar puesto en marcha?

73. Enfoques científicos integrados (especialmente relevantes para abordar los retos de la sociedad vinculados con el uso y gestión del suelo y el sistema suelo-sedimento-agua) son generalmente difícil de financiar o ser reconocidos por parte de las comunidades de financiadores de la investigación. Qué acciones/programas serían necesarios para mejorar esta situación?

74. En base a experiencias previas de programas de financiación, cuales serían las buenas practicas para diseñar y gobernar/gestionar instrumentos de financiación de tal forma que i) los resultados de la I+D pudieran satisfacer las necesidades de la sociedad, ii) el conocimiento generado por la ejecución de la SRA sea absorbido y utilizado en la economía y iii) el dinero invertido por los financiadores/inversores sea remunerado (con efecto multiplicador)

[si se proporcionan respuestas a la pregunta anterior: preguntas adicionales]

- Qué grado de éxito tiene el sistema de evaluación en una escala de 1-5?
 6. *Muy exitoso / muy satisfactorio*
 7. *exitoso / satisfactorio*
 8. *Neutral*

9. Sin éxito / sin satisfacción

10. Muy mala experiencia

- Cuales son los elementos positivos de estos programas, i.e. en qué aspectos el sistema parece ser especialmente eficiente?
- Qué aspectos podrían ser mejorados?
- Qué se debería evitar?
- Otros comentarios?

G. Otros aspectos (comentarios, sugerencias, ejemplos):

H. Finalizar la entrevista

Hay interés para recibir información sobre los avances de INSPIRATION?

Sugerencias para entrevistar otras personas?

Preguntas / comentarios relativos a la entrevista?

En qué tipo de información está interesado y estaría dispuesto a dar Feedback?

m. Tipo de información e interés para dar feedback

- o Entrevista completa
- o Resumen de las conclusiones más relevantes
- o Informe nacional, contribución nacional a D2.4
- o Informe completo D2.4, con las aportaciones de todos los países

n. Tipo/Nivel de feedback:

- o no feedback
- o feedback informal
- o feedback formal (e.g. por parte de la organización representada)

INSPIRATION acknowledges the received funding from the
European Community's HORIZON2020 Framework Programme
under grant agreement no 642372



A. Interview information

Country:

Name of INSPIRATION Researcher:

Date of Interview:

How does the NKS wish to be referred to:

[Anonymous, personal opinions, company's opinion. Choose when it is a good time to discuss this. In the beginning or later on.]

SHOW the interviewed NKS the ENGAGEMENT CONSENT FORM and ask him/her to fill it out. Please introduce the engagement consent form (available in 'D2.1 MoU' and editable by yourself) and hand a copy to the interviewee to read and fill in – make sure that you take this away with you and keep for your own records]

B. Introductions

[Please introduce your selves, the project and the purpose of the interview. You can use the handout as provided at the end of this template. This can also be sent beforehand to the NKS. Agree on a time span: approximately one and a half hour.]

C. Background information on the interviewee

121. Name of NKS interviewed:

122. Institution:

123. Role:

124. Are you a (multiple answers possible):

- ☐ National-regional-local authority
- ☐ University/research institute
- ☐ Small or Medium sized Enterprise (SME, i.e. < 500 employees) / consultant
- ☐ Business and industry
- ☐ Non-Governmental Organisation (NGO)
- ☐ Network representative / leader
- ☐ Other, specify: ...

125. Fields of expertise (multiple answers possible):

[Ask to specify background regarding the selected item(s) in order to understand expertise background of interviewee]

- ☐ Soil
- ☐ Water
- ☐ Sediment
- ☐ Urban / spatial planning
- ☐ Landscape design
- ☐ Land management
- ☐ Other, specify:

126. Does your organisation provide external research funding?

- Yes. Please specify: ...
[e.g. as programme holder, public, private, ...]
- No

D. SRA

127. Which societal challenges do you regard as important?

[If needed, you can use the European Commissions (EC) list of societal challenges here. These EC themes are:]

- Contribute to food security and food safety;
- Ensure secure supplies of safe drinking water;
- Secure energy supply and distribution;
- Reduce raw material and resource consumption, Ensure efficient use of natural resources;
- Contribute to climate change mitigation and societal adaptation;
- Contribute to a healthy living environment;
- Ensure secure infrastructure

[Explain that these challenges may be used as bases for defining of the overarching themes for aggregating the research topics of our SRA.]

h. If applicable, what additional, other or alternative challenges would you suggest/prefer?

[When needed, you can mention challenges as nature conservation, sustainable use of ecosystem services, halting the loss of biodiversity]

128. Starting with your own experience: which specific topics (research needs) should be included in the SRA?

[For each single topic mentioned by the NKS, use the following follow-up questions. The a, b and c sub-questions are mandatory. The other sub-questions are optional]:

y. Explain – elaborate the topic

- *Who will be affected?*
- *Who is responsible?*
- *Is it a topic of concern of your organisation / department*
- *Is it only a national topic, or a shared topic by multiple countries?*
- *Where are we now, where do we want to be in x years (point on the horizon)?*
- *How can the newly gained knowledge be effectively used?*

z. Priority:

- 42. *High priority*
- 43. *Some priority*
- 44. *Neutral priority*
- 45. *Low priority*
- 46. *No priority*

- *What is the urgency, i.e. what goes wrong if we do nothing?*

aa. Who wants to/should fund this kind of research?

[Optionally: check the following WP3 key-words for relevance, i.e. if they raise any additional topics by the NKS. The key-words can be used as support / check list Be sensible as interviewer if this is needed.]

- *Assessment of land resources*
- *Potential productivity of land and soils*
- *Demand for soil/land resources, imports and exports*

- *Competition between land uses (land-use conflicts)*
- *Concepts to identify and quantify relevant impacts*
- *Instruments to avoid / minimise impacts (feedback to decision-making process)*
- *Opportunities of innovative land-use technologies*
- *Resource-oriented land management systems]*
- *Soil regeneration*
- *Soil and groundwater remediation*

129. Linked to topics mentioned by the NKS:

- a. What are the important / relevant documents, research agendas, research programmes underpinning these topics? (state-of-the-art)
 - b. Related to these agendas and programmes: what are timelines of programming and windows-of-opportunities to influence agendas / programmes?
- [Note: question 9b is input for work package 5]*

E. Science-Policy-Interfacing (SPI)

130. How would you define 'scientific knowledge'?

131. For what do you use scientific knowledge in your job?

132. Which sources of (scientific) knowledge do you use for doing your job?

[Open question and you can mention some of the sources underneath as examples]

○ <i>scientific paper</i>	○ <i>newspapers</i>
○ <i>consultants</i>	○ <i>television</i>
○ <i>reports</i>	○ <i>conferences Involvement in research projects</i>
○ <i>colleagues</i>	○ <i>data (bases)</i>
○ <i>experiences /examples within my own country</i>	○ <i>websites, such as:</i>
○ <i>experiences /examples abroad</i>	○ <i>other, specify:</i>

133. To what extent do you use most recent/new scientific knowledge (i.e. state-of-the-art scientific insights/findings) for doing your job?

134. To what extent are you able to influence (and how) the setting of scientific research policies/agendas in our country?

135. To which extent do our national policies/agendas reflect your specific needs and priorities?

136. To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

[Questions only for NKS from the non-science sector (business and policy):]

137. Have you ever been involved in:
- p. the formulation of scientific research questions?
 - q. doing scientific research (i.e. knowledge co-creation)?
 - r. synthesizing/wrapping-up of scientific knowledge, e.g. to feed into policy making or to increase business opportunities?

[When yes: Follow-up questions]

- How successful/satisfying was this, on a scale of 1-5?
36. *Very successful/satisfying*
37. *Successful /satisfying*
38. *Neutral*
39. *Unsuccessful/unsatisfying*
40. *Very unsuccessful/unsatisfying*
- What went well
- What could be improved?
- What to avoid/not to do?
- Additional remarks?

[Question only to NKS who are likely to have insights here (e.g. research funders)]

138. (How) is the societal impact of scientific research related to the scope of INSPIRATION being assessed in our country?

[If they know: Follow-up questions:]

- How successful/satisfying is this, on a scale of 1-5?
31. *Very successful/satisfying*
32. *Successful/satisfying*
33. *Neutral*
34. *Unsuccessful/unsatisfying*
35. *Very unsuccessful/unsatisfying*
- What indicators are used?
- What goes well?
- What can be improved?
- What to avoid/not to do?
- Additional remarks?

139. Which national Science-Policy-Interface documents do you know of / can you recommend?

F. Funding

140. Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems:
- Sub-nationally /regionally?
 - Nationally?
 - European? *[e.g. H2020, Interreg, multi-lateral such as the Joint Programming Initiatives]*
 - International? *[e.g. Belmont Forum, Foundations-etc.]*

[For all R&I questions aiming at achieving policy targets in the Land & SSW related system (like e.g. Sustainable Development Goals on soils -to be adopted at UN level in September 2015-, existing EU directives such as the Environmental Liability Directive, etc.) Consider all Public and Private funding sources. Please ask to provide details and give most important references (documents, website) that could be relevant for explaining the answer]

141. How to increase the added value of different financial resources (i.e. achieve a multiplier) for doing research that contributes to EU and national demands, in particular to the R&I demands on Land and the SSW-system?
[CONSTRUCTIONS that (could) work. PP, PPI, etc. Just ask for, as open as possible for suggestions, ideas, experiences, good examples]

142. Are there areas of research and innovation (R&I) that you are aware of that are not (yet) covered by current funding mechanisms and which would need new/different funding schemes / infrastructures?

143. Integrated approaches (necessary for addressing particular societal challenges related to the use and management of land and related impacts to SSW systems) are usually difficult to fund / get recognised by the research funding communities. What would be necessary to improve this?

144. Based on previous learning experiences that you are aware of: how to best set up / govern funding option(s), so that societal demands will be fulfilled, knowledge resulting from execution of the SRA will be taken up and used; and funders experience that their invested, national Euros are indeed multiplied?

[if they know: Follow-up questions]

- How successful/satisfying was this, on a scale of 1-5?
31. Very successful/satisfying
32. Successful/satisfying
33. Neutral
34. Unsuccessful/unsatisfying
35. Very unsuccessful/unsatisfying
- What went well
- What could be improved?
- What to avoid/not to do?
- Additional remarks?

G. Other (remarks, suggestions, examples):

H. Ending the interview

Thank you for taking the time to participate in this interview:

- Would you like us to keep you updated about INSPIRATION progress?
- Would you suggest anyone else who we should be interviewed by us?
- Do you have further questions arising from this interview, or would you like to add anything else?
- What information are you interested in, and willing to give feedback on?
[Discuss the feedback mechanism and if they have expressed their opinions as a person or as a representative of their organisation/network. Checklist:]
 - o. Information to exchange / willingness to give feedback on:
 - (complete interview, not recommended)
 - summary of main conclusions
 - national report, national contribution to D2.4
 - complete D2.4, all countries
 - p. Preferred level of feedback:
 - no feedback
 - informal feedback
 - formal feedback (e.g. on behalf of represented organisation)

[Check: have you discussed consent form / how to refer to interviewee]

INSPIRATION acknowledges the received funding from the
European Community's HORIZON2020 Framework Programme
under grant agreement no 642372



Annex Ib: NKS hand-out: INSPIRATION interview at a glance

INSPIRATION interview at a glance – (Spanish version)

Información y antecedentes del proyecto INSPIRATION

Objetivo de INSPIRATION:

El objetivo principal del proyecto INSPIRATION es la formulación de una agenda de investigación estratégica (SRA) definida a partir de las necesidades de los usuarios finales. La SRA estará enfocada en los ámbitos del uso del suelo y los compartimentos afectados con cambios de uso, i.e. el sistema suelo-sedimentos-agua. La SRA persigue el objetivo de sentar las bases de las respuestas a los retos y necesidades de la sociedad actual y futura¹⁷. Además, el proyecto tiene como objetivo de definir los modelos de aplicación de la SRA y preparar una red de instituciones públicas y privadas de financiación dispuestas a financiar comúnmente la ejecución de la SRA.

Agentes Claves Nacionales – (i.e. National Key Stakeholders -NKS):

En una serie de entrevistas con agentes claves nacionales (i.e. en inglés National Key Stakeholders .- NKS) los "Puntos Focales Nacionales (i.e. en inglés National Focal Points, NFP) socios de INSPIRATION colectan información nacional relacionada con el alcance de INSPIRATION (i.e. uso y gestión del suelo, sistema suelo-sedimentos-agua) desde las perspectivas siguientes:

- Necesidades de Investigación e Innovación (I + i)
- Experiencias en relación con la conexión entre ciencia y política/práctica
- Planes de financiación nacionales y transnacionales

Las entrevistas están dirigidas a personas que tengan una visión general sobre oportunidades y demandas de conocimiento (a corto, medio y largo plazo). Se valora que los NKS estén participando en redes profesionales pertinentes, idealmente con el fin de poder actuar como embajadores de INSPIRATION en el futuro.

Los NKS elegidos representan diferentes disciplinas y procedencias institucionales, incluyendo: gestión del uso del suelo, planificadores; gerentes; expertos de suelos, sedimentos y agua; investigadores, financiadores y reguladores / responsables políticos

Las entrevistas:

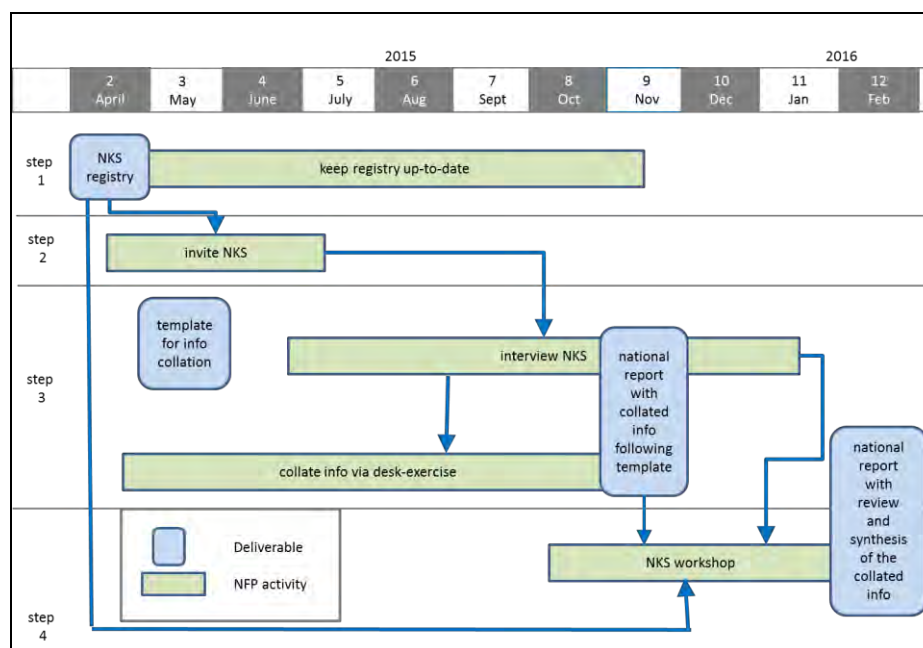
Vuestras contribuciones son una parte clave para la ejecución del proyecto ya que permitirán describir el estatus quo en materia de I+D en nuestro país y sentar las bases de una nueva agenda de investigación europea. Las entrevistas se estructuran en una serie de temas y preguntas: Los resultados de las entrevistas de NKS (aproximativamente 20 por país) y de la recopilación de

¹⁷ En el contexto de INSPIRATION, reconocemos los retos de la sociedad tal como se define en el contexto del programa HORIZONTE 2020. INSPIRATION derivará una SRA para abordar estos retos a través de usos del suelo más sostenibles y eficientes y una gestión basada en una comprensión más profunda de los compartimentos afectados del sistema Suelo-sedimento-agua (SSA). Estos retos son los siguientes:

- Contribuir a la seguridad alimentaria;
- Asegurar un suministro seguro de agua potable;
- Asegurar un suministro y distribución de energía seguros;
- Reducir el consumo de recursos y materias primas;
- Asegurar el uso eficiente de los recursos naturales;
- Contribuir a la mitigación del cambio climático y la adaptación de la sociedad;
- Contribuir a un entorno de vida saludable;
- Asegurar infraestructuras seguras.

bibliografía sobre las necesidades de investigación y las posibilidades de financiación serán sintetizados en un "informe nacional". Esta síntesis será objeto de revisión en el marco de un taller nacional que se celebrará en el cuarto trimestre de 2015. El objetivo de este taller nacional será de identificar los temas prioritarios para ser considerados en la Agenda Estratégica de Investigación sugerido (SRA) desde el punto de vista de España. Los informes nacionales servirán de base para la elaboración de la SRA Europea y puesta en común entre las naciones para identificar sinergias en necesidades de I+D y posibles mecanismos de financiación.

Plan de trabajo en el primer año de INSPIRATION



Ejemplos de preguntas:

Necesidades de I+D

- Cuáles son los retos sociales que consideréis como importantes?
- Empezando por vuestra propia experiencia: cuales son los temas (necesidades de I+D) que deberían estar incluidos en la SRA?

Experiencias relacionadas con conectar ciencia y política/práctica:

- Cómo definiría usted "conocimiento científico"?
- Según usted, en qué medida la formulación de políticas se basa en los resultados y el estado del arte de la ciencia en nuestro país?

Esquemas de financiación nacionales y transnacionales

- Vuestra organización financia I+D? (no internamente, pero a terceros)
- Qué experiencias y expectativas tenéis en términos de esquemas de financiación (publicos / privados) en vuestro campo de expertise que podrían ofrecer oportunidades para una futura investigación en los temas de uso y gestión del suelo y el sistema suelos-sedimentos-agua.

Vuestros beneficios en participar en el proyecto:

- Una oportunidad para influir en la SRA Europea sobre la gestión del territorio y del sistema suelo-sedimento-agua en relación con las necesidades y los retos de la sociedad
- Una información directa sobre los avances y resultados del Proyecto para su valorización: visión global sobre las necesidades de I+D así que sobre mecanismos de financiación

existentes y futuros en diferentes niveles (i.e. sub-nacional, nacional, europeo e internacional); conocimiento sobre mejores prácticas y oportunidades de vinculación entre ciencias y políticas/practica/mercado

- Aprovechar la dimensión internacional del proyecto para entrar en contacto con otras redes y organizaciones e identificar retos comunes para compartir esfuerzos y crear alianzas.

Contactos e información:

Para información general del proyecto INSPIRATION consulte la pagina web: www.inspiration-h2020.eu

Contacto del Punto Focal Nacional TECNALIA Parque Tecnológico de Bizkaia c/ Geldo, edificio 700 E-48160 Derio Bizkaia <i>Pierre Menger</i> pierre.menger@tecnalia.com <i>Gemma Garcia Blanco</i> gemma.garcia@tecnalia.com <i>Efrén Feliu</i> efren.feliu@tecnalia.com	Contacto del coordinador de proyecto: Stephan Bartke FG I3.5 – Coordination INSPIRATION Federal Environment Agency Woerlitzer Platz 1 06844 Dessau-Rosslau Germany stephan.bartke@uba.de

Annex II: Documents used for the Spanish desk study

National Program of R&I oriented towards Societal Challenges:
<http://www.idi.mineco.gob.es/portal/site/MICINN/menuitem.7eeac5cd345b4f34f09dfd1001432ea0/?vgnextoid=a2b1453bb9a8c310VgnVCM1000001d04140aRCRD>

State Plan for Technical and Scientific Research 2013-2016

Spanish Strategy of Science Technology and Innovation 2013-2020

RIS3 Strategy 2020, Basque Country

Plan for Science, Technology and Innovation of the Basque Country 2016-2020. (PCTI Plan de Ciencia Tecnología e Innovación 2020)

Environmental Framework Program 2020, Basque Country

Basque Strategy for Climate Change 2050

INIA Strategic Plan 2014-2017

Planetary boundaries: Guiding human development on a changing planet Will Steffen et al. 2015. ScienceExpress. <http://www.sciencemag.org/content/early/recent>

Annex III: Eg. Complete list of societal challenges and related questions as mentioned in the interviews

- Contribute to food security and food safety;
 - Ensure secure supplies of safe drinking water;
 - Secure energy supply and distribution;
 - Reduce raw material and resource consumption,
 - Ensure efficient use of natural resources;
 - Contribute to climate change mitigation and societal adaptation. (It is commented the major potentials of RTD developments are in the field of adaptation rather than mitigation).
 - Contribute to a healthy living environment;
 - Sustainable spatial planning,
 - Sustainable management of ecosystems
-
- Soil as a resource must be protected and its conservation promoted. soil is the forgotten part of natural sciences. society is lacking awareness about its importance

15. Sweden

Report by Yvonne Ohlsson, Lisa van Well

15.1 Introduction

This national report (i.e. INSPIRATION deliverable 2.4) reports the information collated for Sweden. The information was collated in accordance with INSPIRATION D2.3 “Template for national information collation”. In Sweden, 11 NKS had been interviewed when the report was published and 2 more interviews were planned for and the report will be up-dated based on additional input from these stakeholders. The updated report will be the basis for the stakeholder workshop planned for Jan 14, 2016. Details on these NKS are provided in Annex I. Furthermore, The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Formas) was commissioned by the Swedish Government in 2014 to analyze Swedish research. In order to fulfil this commission Formas has produced several background reports. The process with high stakeholder interaction and a focus on research based on societal challenges is to a great extent similar to that of inspiration and the reports therefor represent a synthesis of several experts opinions.

The desk study was based on documents as suggested by NKS and by a literature survey performed. These are listed in Annex II.

15.2 Research and Innovation (R&I) needs

15.2.1. Societal challenges and needs

Several NKS mention that the EC challenges, although important, appear biased towards the human perspective. Headline challenges should also reflect the value and protection of nature as such. Aspects mentioned as important and potentially relevant “headings” are **conservation and restoration of nature and biodiversity and sustainable use of ecosystem services**.

Contribute to a healthy living environment, Contribute to food security and food safety and **Ensure secure supplies of safe drinking water** are all mentioned as highly important, but closely related to each other. Drinking water could be considered as “food”, and **food security and food safety** could be subjects under **Contribute to a healthy living environment**. The three EU challenges are all highly rated.

One suggestion is that **Contribute to a safe chemical environment** could provide a better challenge “headline” than **Contribute to a healthy living environment** for the INSPIRATION context (land/land management and the SSW-system).

Another view is that one of the major global threats to society and the environment is **overconsumption**. From this angle, **Sustainable and reduced resource consumption** would be a priority challenge (similar to the EC-challenge **Reduce raw material and resource consumption**).

The one challenge that almost all respondents mention being of high importance is **Climate change mitigation and social adaption**. Several NKS express that this is not necessarily a “headline of its own” in an SRA, but a component of all the others. One stakeholder stresses that this challenge deserves a headline of its own as one of highest priority challenges.

Also mentioned as highly important are migration and other demographic challenges (ageing population, migration to cities, ensuring developments in peripheral areas). The migration



challenge is rapidly becoming urgent, and other challenges follow, food and water challenges being the most evident.

15.2.2. Topics / research needs to include in the SRA

Contamination – soil, water, sediment

Contamination is related to *several* of the EC-challenges. Several research agendas and other documents deal with contamination, e.g. the BONUS strategic research agenda 2011–2017, the SGI surveys on contaminated areas, VR1550 (2015), Background analysis and recommendations to the governmental bill on research and innovation. Several documents stress that more “solutions oriented” research on environmental pollution is needed:

A) “New”/emerging contaminants and cocktail effects

The threat from “New” toxic substances need to be tackled on several levels

- a. Instruments to avoid large scale releases (asbestos, plastics, PFAS etc) based on historical experience and science based regulatory tools and frameworks
- b. Research on best practices in development of “new” products and the use of chemical substances in products
- c. Research on sources, fate and transport of “new” contaminants.
- d. How food production and consumption habits affects contamination in ground- and surface water

B) The connection land-water-sediment, a holistic view on the effect and distribution of environmental contaminants.

To efficiently deal with these challenges we need to better understand the effects and impacts in relation to each other. Point sources are dealt with, but climate change effects (extreme climate, erosion etc) also affect secondary sources and a “soil problem” may become a marine problem. No “climate call” has so far dealt with integrated issues including all compartments (land-water-sediment).

- a. Tools for prioritization
- b. Mixture/mixture toxicity
- c. Understanding of the interaction between compartments
- d. Secondary sources (as primary sources are dealt with, secondary sources become more important)
- e. Diffuse sources/sum of contribution from many “small” sources

C) Contaminated sediments

Contaminated sediment poses a threat to Swedish lakes and the Baltic Sea, resulting in high concentrations of pollutants in fish as well as in ecosystem effects. Remediation measures are costly and complicated:

- a) Cost effective methods for characterization, risk assessment and remediation together with tools for long term monitoring to feed back to, and improve, methods.
- b) Indicators and descriptors of concentrations and effects of contaminants
- c) Tools for measuring and assessing bioavailability of contaminants
- d) Understanding, assessing and modeling contaminant “source to sea” and in-situ transfer (flux) between and within (including bioavailability) compartments (sediment, biota, open water). Biomimetic methods etc. Useful Tier 1 (or 2) methods (quick and inexpensive).

- e) Sediment processes such as in-situ natural attenuation, compound transformation, natural capping/burial

D) Safe drinking water supply from water source to tap

The challenge and research needs area elaborated on in “A vision for water research and innovation agenda for the water sector in Sweden” (The Swedish Water & Wastewater Association (2014)). Examples of issues highlighted are microbial risks and chemical risks:

- A) Knowledge on materials in contact with water (potentially) affecting water quality
- B) Knowledge on contaminants in surface water and groundwater affecting the cleaning process. (PFAS-substances, fertilizers, pharmaceuticals, unknowns)
- C) "Research based" preparedness for emerging substances. Research on how legislative measures taken have (or have not) prevented "new" substances from affecting drinking water or sources for drinking water.
- D) Treatment techniques in general and specifically for pharmaceuticals

Climate change effects and adaption

The subject is elaborated on in several documents e.g. The Swedish Background report: Checkpoint 2015 on climate change adaptation. Below some specific research issues:

- E) Climate change effects on society and the environment
- F) How does a changing climate affect ground stability, increased risk for landslides and a safe infrastructure?
- G) How does climate change affect provision of drinking water, water resources for agriculture, Ecosystem services.
- H) Effect of climate change on the risks related to contaminated land
- I) Climate change adaption
 - i) How to adapt urban environment (planning, ground levels, green areas etc)
 - ii) Trans-sectoral research (Socio/cultural values, Reliability/credibility, Communication)
 - iii) Long term monitoring and evaluation of actions in order to prioritize measures.

The built environment

This research area deals with several of the societal challenges. The government has a responsibility in the funding, as well as in instructions to authorities, to prioritize and include all relevant actors (like civil society and the private sector) in research and implementation:

- A) Innovation and quality in the built environment - in order to deal with the challenges of climate change and migration. Need to build in a sustainable manner
- B) Effects of a changing climate on ground stability, risk for landslides and a safe infrastructure
- C) Climate and environmentally adapted storm water management for an attractive urban landscape. (*The Swedish Water & Wastewater Association (2014)*).
- D) Climate- and resource-efficient wastewater systems for a good environment (*The Swedish Water & Wastewater Association (2014)*).
- E) Research on the *barriers for sustainable development* in the built environment, identified by all stakeholders (insurance, industry, authorities etc)
- F) Strategies for improved collaboration including how to avoid conflicts of interests

Communication and implementation, societal reach and impact



Research *on* societal reach and impact should be of interest to funders as well as researchers as reach and impact are becoming more and more important in motivating official and private funding and in evaluations, which is also mentioned by several NKS. It would be a good investment to allocate some funding on this research from research budgets within the scope of INSPIRATION (land/land use, soil-water-sediment). Examples identified are listed below:

- A) Cost/benefit of different communication approaches/techniques/strategies/activities
- B) Tools and processes, novel possibilities related to Information Technology
- C) How to formulate research questions from stakeholder needs
- D) How to adapt results to user group needs

Miscellaneous (socio-economic related)

- A) Research on driving forces, motivation, social and psychological effects,
- B) Research related to the “risk concept”: probability and consequences, what are acceptable levels of risk, how can we live with risk?
- C) Intrinsic value of the environment – e.g. the value of nature in areas of low population (today) in comparison to highly populated areas.
- D) Individual or societal level view in risk assessment related to contamination.
- E) Environmental ethics and taking long term responsibility for “new” solutions – in the light of history
- F) Research on cost-benefit analysis
- G) Steering and governance

15.3 Experiences regarding connecting science to policy/practice

15.3.1. Use of knowledge

Defining scientific knowledge

Interviewees found it hard to judge how scientific knowledge differs from other types of knowledge, such as that possessed by stakeholders, consultants and other actors. These other types of knowledge are also very useful in addressing societal problems. Scientific research is not just delivered by universities and research institute, but even by consultants or national and regional authorities, who can have a deep knowledge of an area. One interviewee stated that the key terms associated with scientific knowledge were knowledge that is both *new* and *deep*.

Use of scientific knowledge

Most of the national and regional authorities interviewed regularly used scientific knowledge (almost daily) in their work, either as users and/ or producers of such knowledge. It is important for authorities to also have sufficient knowledge capacity to pose the right follow-up questions to researchers and to themselves look for further possibilities to employ knowledge. They stressed the importance of policy-relevant and applied research, even though scientific peer-reviewed research is seen as a very important quality assurance. All of the non-knowledge provider interviewees saw their role in distributing scientific research further, for instance to branch organization members, or to municipalities, and other users. The term “knowledge broker” is being used more and more in Sweden. These brokers aid in the process of translating societal needs to research questions and in transforming research



results to new forms of information useful and societally relevant. The Swedish Background report: Checkpoint 2015 on climate change adaptation concluded that there is not necessarily a lack of climate adaptation research, but rather a gap in how the research is being packaged to reach the user-community. “Packaging” research from basic research to applied research and then in a form that can be used by decision-makers was seen as an important task. Thus the trick is to make research seen and heard by user groups. However sometimes this packaging can be misleading and you only hear from the “rock stars” of research because they are best at promoting their research. But what about others that may do more robust research but don’t have the channels in to the users? A lack of understanding on quality requirements in provided data (eg. In risk assessment of chemicals) makes it hard for authorities to make use of existing data from research, even though the use by authorities is referred to in motivation societal impact in research applications.

Sources of scientific knowledge

Swedish interviewees from all areas were largely in agreement about the main sources of scientific knowledge they used. There types were mainly scientific papers, reports and web-sites (such as the Swedish portal for climate change adaptation portal: www.klimatanpassning.se). But most also stated that exchange of best-practices, both national and abroad were great sources of practical scientific knowledge. Interviewees also noted that one of the best forums for exchange of information between knowledge providers, knowledge funders and knowledge users was conferences where scientific information was presented in a policy-relevant way to both users and funders.

Use of state-of-the-art research findings

One regional authority interviewee stated that sometimes there is a grey zone between “basic research” and research that has been surveyed or collated. It is hard to be sure that the “research” used or “ordered” from research institutes is really state-of-the-art - if it represents a thorough survey of all research or if it is just a cursory survey or only represents the research of some. Often the methods used to do the research are not shown, and it is hard to use it to make a policy decision based on this.

Good examples of state-of-the-art knowledge are the “Governmental investigation on climate change and provision of drinking water (SOU 2015:51)” where the investigators were careful to include all existing knowledge and the governmental report “ Sweden facing climate change - threats and opportunities” (SOU 2007:60), which is still seen as an important synthesis today and has influenced policy.

It is more difficult to judge to what extent state-of-the-art research has been used in the formulation of policies. While state-of-the art research was considered to be quite good in Sweden, there are ways that this type of research can have a greater utility for society. One way that state-of-the-art research can have a better impact is if individuals rotate in positions between several areas of the triple helix model. An important comment is that internationally research institute coupled to relevant authorities is more common than in Sweden, and that targeted and long term research based on policy needs are easier to accomplish when this is the case.

15.3.2. Possibilities to set the agenda

Respondents felt that they had some modest possibilities to help set the national research agenda in Sweden. Regional authorities feel they have possibilities for the research agenda in a number of ways. One way is by responding the questionnaires sent by universities and national authorities that do research. In this manner it is possible to lift pertinent questions up to the research agenda. Other ways to influence the research agenda are to be on various reference groups or policy advisors for investigations or research projects. For specific



issues of high societal interest or attention (e.g. PFAS) groups are initiated comprising researchers, consultants authorities etc and the attention also result in some attention in agendas and in funding.

National policies/agendas sometimes reflect specific needs of stakeholders, but not always. For instance stakeholders feel there is no national climate adaptation strategy in Sweden that would help their work. The government has power via financing to universities and authorities that do research, but most of the financing to national authorities is not long term. Thus more long-term permanent research solutions are needed in e.g. climate adaptation for knowledge dissemination and for funding of adaptation measures. In another case, some of the Swedish environmental goals are not well thought out and hard to implement. There is also a need for research financing authorities to *better link national goals with allocating of funding*. Governance processes at all policy levels in e.g. the remediation of contaminated soils area are often dependent on specific persons and more works should be done to make these processes more transparent and institutionalized.

15.3.3. Science – policy – practice

Involvement in research

Many national authorities in Sweden also do their own research in the areas covered by INSPIRATION – soil management, land use, water, spatial planning and climate change adaptation and thus they are often involved directly in research applications in Sweden. Regional authorities have also occasionally involved directly in research applications, i.e. as a stakeholder partner responsible for communication and have contributed with work-in-kind. Some private organizations and NGOs work with facilitating the science-policy interface in communication of research results, promoting the “triple helix model” and in syntheses of research and organizing match-making events.

In general, interviewees thought that the earlier stakeholders (like regional authorities) can be involved in research projects, the better, and for some it is a pre-requisite to be able to take part in the formulation of research questions to take part in the project. This helps to anchor the project in reality as it is at the problem formation stage that users can influence the research agendas. A good example mentioned is the requirement that Ph.D-students actually spend time and perform research at the involved authority or institute. Another way for users be involved in research is to suggest case study sites and be involved in matchmaking meetings like those that preceded the Tuffo-Formas call “Efficient Remediation of Contaminated Sites”¹⁸.

One of the challenges is that research should not be considered as finalized after a scientific publication. Some of the branch organizations and authorities see this as just the beginning of the process. While peer-reviewed publications are important in order to ensure scientific excellence, most users of the knowledge rarely read scientific journals and publications as they often end up in expensive and non-accessible publications. Thus the research is hardly used in implementation of dealing with the societal challenges. Both basic research and applied research are both important for Sweden and all funded projects should have elements of both, this ensures a learning process for “everyone”. An example of this in Sweden is the strategic research programme for MistraPharma which is a tool to develop important tools for the users and the policy process.

How is societal impact being assessed?

Sweden is currently in the process of exploring how the societal impact of scientific knowledge can be assessed and evaluated. A list of indicators is provided in Annex III.

¹⁸ <http://www.swedgeo.se/sv/vagledning--verktyg/fororenade-omraden/forskning-och-teknikutveckling/tuffo1>



Interviewees mentioned that Formas has societal impact criteria for evaluating societal impact *in research applications*, and several on the assessment groups are from the policy fields with knowledge on what has relevance and what does not when judging a research proposal. Others stress that societal impact criteria in the review process in practice still have little effect on the final recommendation for funding. If panel members believe the research is good, communication, implementation etc is often given high marks even if there is little attention to it presented in the application. Still, it is believed that societal impact is stressed by the funder Formas and that it is the expert reviewers that do not follow the recommendations or intentions fully.

In 2015, (Swedish Research Council (2015)) following a national decision to fund 10 Strategic Research Areas, four research councils evaluated¹⁹ the impact of the strategy addressing the questions: 1) How has the research been planned and steered ('strategic management')? 2) What is the quality, results and effects of the research? 3) What has been the strategic significance of the initiative for society and for the business sector? 4) What is the state of collaboration between universities and with other stakeholders? 5) What is the state of the link between the strategic research and education? The main strengths of the strategic research investment has been its long-term focus. Shortcomings were mentioned in linking the strategic areas to the needs of society and the development of undergraduate programmes and courses. Around 20 per cent of the strategic research environments was facing challenges, both in respect of their research quality and their strategies.

Formas has been commissioned to analyse how Swedish research funding has made an impact in meeting societal challenges in the areas of Environmental Sciences, Climate Sciences, Agricultural Sciences, and Building and Planning Sciences. The Formas analysis performed by a Nordic expert group was based on *case studies* provided by universities (Formas 2015).

Mistra (www.mistra.org) does stakeholder investigations in parallel with research projects and the MistraPharma is often mentioned as a good example. In the water sector there are a number of reports/evaluations on how scientific knowledge is used.

In a survey and analysis of Swedish research institutes (Kontigo (2015)) the Institutes and their effect on Impact and Reach of research was evaluated. Several indicators of societal impact were identified.

Recommended documents for science-policy interface (Se also Annex II)

Langfeldt, L; Scordato L. (2015), Assessing the broader impacts of research. A review of methods and practices. Nordic Institute for Studies in Innovation, Research and Education (NIFU). Working Paper 8/2015 Ett uppdrag åt Formas - Forskningsrådet för miljö, areella näringar och samhällsbyggande

15.4 National and transnational funding schemes

15.4.1. Funding schemes and possibilities for research funding

Experiences and expectations

A positive trend experienced is that several national funders have opened up for research and innovation on solutions to societal challenges and also included a focus on the national environmental goals. The VINNOVA calls "Challenge driven innovation" and Formas Sustainable development of the built environment are mentioned as good examples. Also BIG ("Branschsamverkan i grunden" or "Industry Collaboration In The foundation www.big-

¹⁹ <https://publikationer.vr.se/produkt/evaluation-of-the-strategic-research-area-initiative-2010-2014/>



geo.se/) is mentioned as a good example, especially with its intention to last as a programme for 10 years. BIG focuses on the efficient and secure foundation of transport infrastructure.

Swedish Water Development (SVU) is the local authorities' own R&D program on municipal Water & Wastewater technology. The business is predominantly focused on applied research and development in the interest of Swedish Water members. The SVU has continuous calls relates to the Soil-/Sediment-/Water-system. The demand for stakeholder involvement and dissemination is high, and this funder offers good opportunities for future research within the scope of INSPIRATION.

Internationally The **SNOWMAN Network** (www.snowmannetwork.com) concept is mentioned as a good example of transnational calls. The added value compared to other calls is the focus on interaction and dissemination, not only with respect to stakeholders but also between funded projects. In joint meetings possibilities for interaction and added values are addressed, there has been continuous follow up on dissemination activities by a Knowledge Dissemination Group which has also actively supported dissemination activities and as a result even more dissemination than anticipated and initially planned for is the case. Another added value of the meetings has been that they also served as matchmaking meetings between researcher and new constellations were formed for future transnational calls. Swedish researchers also have high expectations in the **BONUS** program (Currently The Blue Baltic call, due March 10, 2016) and the **Water JPI**.

In a Nordic perspective, **Nordic Innovation** (www.nordicinnovation.org) and **Nordforsk** (www.nordforsk.org/en?set_language=en) offer possibilities. Nordic Innovation is a Nordic institution working to promote cross-border trade and innovation. Nordforsk is an organisation that facilitates and provides funding for Nordic research cooperation and research infrastructure.

Swedish researchers have also been very successful and have expectations for the future in the **ESPON (European Territorial Observatory Network)** (www.espon.eu) where transnational consortium provide applied research on subjects such as land-use, climate change adaptation, demographic issues and territorial governance

Expectations for strategic research within climate change adaptation research are that funder should expect that projects have a plan as to how the produced research can live on even after the end of the project and for how it can be extrapolated to be used for other areas. This would ensure more continuity in the projects:

- Packaging
- Reference groups for users
- Users are co-applicants who participate in the final stages and ensure that the results are usable, simple and adapted to the use
- Research ON topics, e.g. climate adaptation - what happens, what is being done, how to make research on adaptation useful
- Research FOR actions, e.g. climate adaptation: i.e. evaluate the impacts of various measures

How to increase added value of financial resources?

Possibilities to build on existing and new constellations of public and private actors in sectors such as water, contaminated areas or climate give better conditions for co-financing. These constellations tend to be successful as such. A mix is, however, often needed to ensure that certain problem-based questions do not fall between the cracks of different funders, or calls. But not all research funders in Sweden set the same conditions or demands for such constellations. Some make co-financing a prerequisite while others make such co-financing or even coordination of use of different funds, difficult.



Keywords for taking on the challenges are interdisciplinarity, holistic approaches, transnational collaboration, needs-based and solutions-oriented research and stakeholder interaction and involvement from start to end. To allow for both excellent research AND the other key aspects there are several possibilities.

One solution to allow for this may be to nationally identify all “small” funding sources and gather them in large national calls. This could allow for larger budgets for each project funded, but could also result in more projects that are funded. The risk with this approach is that there may be research questions that do not fit in, are not covered or cannot compete (although important). Therefore, several NKS express the need to maintain a mix of funding mechanisms and that the advantages of a national mix (sometimes referred to as a “scattered” funding landscape) outweigh the advantageous of a few mechanisms with large financial means. Furthermore, the trend in research funding is to secure and ensure the societal impact of research, and the various funders try out different ways to achieve this. This provides a national portfolio of good examples and stepwise improvements in funding research that effectively contributes to solutions to societal challenges.

Several NKS mention the positive effects of “seed-money” or step-wise calls in which money is invested in the process of developing a project idea and concept and in building competitive consortia. These projects tend to be developed and performed in closer collaboration between stakeholders and researchers. It is also advantageous for international collaborations where the building of research consortia and the involvement of stakeholders are even more time difficult and consuming.

Best ways to govern funding options so that societal demands will be fulfilled

All applications for research funding need to show how they deal with the “third task” to make their results accessible. However, it is necessary to raise the value of greater efforts on interaction with stakeholders and implementation of results to more than a minimum acceptance level. In order to achieve this, funders should put even more weight on the societal relevance, users’ needs and how results will be communicated and implemented efficiently in the applications. Or, *the interaction could be a pre-requisite*. An example is the **Swedish Water project program** which works to link together different problem-based topics and research constellations. This has also lead to better conditions of co-financing and a sufficiently cross-sectoral approach. Another example is the SNOWMAN network calls, with specific attention to communication throughout the projects.

To ensure that funding governing funding works as intended, the projects funded need to be followed up or assessed after the projects are finalized (longer term perspective) as well as during the project. There should also be a plan to change the governing accordingly. MISTRA has succeeded in this, and has e.g. reported the experiences from the MISTRAPHARMA-project.

Another way to deal with the science-policy gap is for national funders to reserve a portion of their budgets for longer-term strategic research programmes which can be sought by universities and research institutes, while the rest of the funding is earmarked for shorter-term applied research that is open to all categories of applicants.

In order to increase the overall success rate in applied science applications there is a need to raise the academic status of applied research and ensure that research projects are clear as to the user groups and how the product is developed.

15.4.2. Gaps in financial resources for research

Areas of R&I that are not yet covered by financing schemes



- One area falling behind is pipeline construction and maintenance. Several topics in this area deal with questions that do not fit in to Vinnova's funding scheme, even though they deal with competitiveness and export. Innovation procurement was also moved from Vinnova's responsibility and thus efforts there were ended. These could be pursued with EU-funding.
- The interface between land use and beach limnology also seems to have fallen between the cracks in funding opportunities.
- More research on the processes and the connection between knowledge and its use in planning and policy. 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.
- Polluted areas have been seen as topics in Nordic and EU calls (e.g. SNOWMAN). Formas supports environmental research nationally in open and targeted calls, but the success rate is limited due to the applied nature of the subject and targeted calls are short-term. No one really has specific responsibility for the funding of the soil-water-sediment field in relation to contamination and specifically solutions oriented research.

Integrated approaches

Integrated approaches could be facilitated by targeted calls where both social sciences and humanities are to be integrated (such as the Formas 2015 call for Sustainable Planning and Building). But a problem is that Formas has a low maximum amount of funding for these applications, which works against the trans-disciplinary approach. It is also difficult to reach the researchers in humanities with such calls. However a good mix of different disciplines and stakeholders in research projects will continue to be important. Flooding/storm water programmes are examples of research topics that force actors to work together but there is still a lack of competence in certain areas.

In order to perform research in a more trans-disciplinary way it is important to start working like this early, already in the stage of PhD writing. Trans-disciplinary courses are available now, but it takes time to get used to. It is important that persons within preparatory panels recognize the added value of this approach. Targeted calls often succeed better with this and even international funding opportunities, such as ERA-NET e.g. SNOWMAN and JPI. But additional platforms are needed and it is important that the different disciplines can understand one another already at the beginning of the project application stage. A trans-disciplinary approach is also difficult to implement in smaller projects. Both writing the funding applications and implementing the projects demand more time, and thus more funding than a single disciplinary project.

Other trans-disciplinary topics are the bio-economy, especially linked to innovation and resource recycling where systems analysis and environmental economists are needed. But these types of applications take time to write. Both natural scientists and social scientists need to "own" the questions.

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



15.5 Annexes

1a: NKS interviews in Sweden

Date of interview	Organisation	Interview	funder	end user	knowledge provider	Nat.reg.loc . authority	Univ./ research inst	SME /consultant	business & industry	NGO	network	other	soil	sediment	water	land use- management
15-11-11 ²⁰	Stockholm University	Jonas Gunnarsson			1		1						1	1	1	
15-11-05	The Swedish Centre for Innovation and Quality in the Built Environment (IQ samhällsbyggnad)	Eva Schelin	1							1	1					1
15-10-20	The Swedish Research Council, FORMAS	Elisabet Göransson, Lisa Granelli	1			1							1	1	1	1
15-11-09	Stockholm county adm board	Karin Willis		1												1
15-11-05	Swedish Forest Agency	Hillevi Eriksson		1		1							1			1
15-10-22	Repr of all Sw County Adm boards on behalf of EPA	Klas Köhler		1		1							1	1	1	
15-10-27	Nordregio	Kjell Nilsson	1		1		1								1	1
15-10-23	Umeå University	Mats Tysklind			1		1				1			1	1	1
15-10-21	Swedish Geotechnical Institute	Charlotte Cederbom		1	1								1			1
15-10-28	The Swedish Water & Wastewater Association	Daniel Hellström	1		1				1		1		1	1	1	1
15-11-27	National Agency, Sweden	²¹		1	1	1									1	
15-12-04	Swedish National Authority	⁷	1	1		1							1	1	1	1
15-12-03	Consultant	⁷		1				1					1	1	1	1

²⁰ The interview was interrupted and will be completed in the beginning of December

²¹ Not yet stated how the stakeholder which to be referred to

Annex Ib: NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training on 22nd – 23rd June 2015.

[Note: this questionnaire template is meant to help National Focal Points (NFPs) to facilitate the interview/conversation with the National Key Stakeholders (NKS). Some questions are relevant to one NKS, other questions to another NKS. Hence, not all questions are relevant to each single NKS. The NFPs are required to adapt the template accordingly – keeping in it as many as possible of the issues to be addressed. If needed, the NFPs also translate the questionnaire into their national language.]

The questionnaire (see next pages) has the following outline:

CCCC. Interview information:

To be filled out by the interviewer

DDDD. Introduction:

That the interviewer can use to start the NKS interview

EEEE. Background information of the NKS interviewed:

Mostly 'tick-boxes'

FFFF. Strategic Research Agenda (SRA):

NKS preferred topics, overarching themes and scope for the SRA and national state-of-the-art on research agendas that the NKS is aware of

GGGG. Science-Policy-Interface:

NKS experiences regarding the exploitation of scientific knowledge to: improve business opportunities; tackle other societal challenges; assist policy-implementation and/or policy revision

HHHH. Funding:

Predominantly used as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination that the NKS is aware of

IIII. Other:

At the end there is some time advised to let the NKS give us their advice, some nice quotes (that we can use anonymously in our communications), examples etc.

JJJJ. Ending the interview:

Explain follow up and if/how NKSs will be involved in the next steps of INSPIRATION

Questionnaire template

A. Interview information	
Country:	
Name of INSPIRATION Researcher:	
Date of Interview:	
How does the NKS wish to be referred to:	
<i>[Anonymous, personal opinions, company's opinion. Choose when it is a good time to discuss this. In the beginning or later on.</i> <i>SHOW the interviewed NKS the ENGAGEMENT CONSENT FORM and ask him/her to fill it out. Please introduce the engagement consent form (available in 'D2.1 MoU' and editable by yourself) and hand a copy to the interviewee to read and fill in – make sure that you take this away with you and keep for your own records]</i>	
B. Introductions	
<i>[Please introduce your selves, the project and the purpose of the interview. You can use the handout as provided at the end of this template. This can also be sent beforehand to the NKS. Agree on a time span: approximately one and a half hour.]</i>	
C. Background information on the interviewee	
145.	Name of NKS interviewed:
146.	Institution:
147.	Role:
148.	Are you a (multiple answers possible): ☐ National-regional-local authority ☐ University/research institute ☐ Small or Medium sized Enterprise (SME, i.e. < 500 employees) / consultant ☐ Business and industry ☐ Non-Governmental Organisation (NGO) ☐ Network representative / leader ☐ Other, specify: ...
149.	Fields of expertise (multiple answers possible): <i>[Ask to specify background regarding the selected item(s) in order to understand expertise background of interviewee]</i> ☐ Soil ☐ Water ☐ Sediment ☐ Urban / spatial planning ☐ Landscape design ☐ Land management

Other, specify:
150. Does your organisation provide external research funding? - Yes. Please specify: ... <i>[e.g. as programme holder, public, private, ...]</i> - No
D. SRA
151. Which societal challenges do you regard as important? <i>[If needed, you can use the European Commissions (EC) list of societal challenges here. These EC themes are:]</i> - Contribute to food security and food safety; - Ensure secure supplies of safe drinking water; - Secure energy supply and distribution; - Reduce raw material and resource consumption, Ensure efficient use of natural resources; - Contribute to climate change mitigation and societal adaptation; - Contribute to a healthy living environment; - Ensure secure infrastructure <i>[Explain that these challenges may be used as bases for defining of the overarching themes for aggregating the research topics of our SRA.]</i> i. If applicable, what additional, other or alternative challenges would you suggest/prefer? <i>[When needed, you can mention challenges as nature conservation, sustainable use of ecosystem services, halting the loss of biodiversity]</i>
152. Starting with your own experience: which <u>specific topics</u> (research needs) should be included in the SRA? <i>[For each single topic mentioned by the NKS, use the following follow-up questions. The a, b and c sub-questions are mandatory. The other sub-questions are optional]:</i> bb. Explain – elaborate the topic - Who will be affected? - Who is responsible? - Is it a topic of concern of your organisation / department - Is it only a national topic, or a shared topic by multiple countries? - Where are we now, where do we want to be in x years (point on the horizon)? - How can the newly gained knowledge be effectively used? cc. Priority: 47. High priority 48. Some priority 49. Neutral priority 50. Low priority 51. No priority - What is the urgency, i.e. what goes wrong if we do nothing? dd. Who wants to/should fund this kind of research? <i>[Optionally: check the following WP3 key-words for relevance, i.e. if they raise any additional topics by the NKS. The key-words can be used as support / check list Be sensible as interviewer if this is needed.]</i> - Assessment of land resources

- *Potential productivity of land and soils*
- *Demand for soil/land resources, imports and exports*
- *Competition between land uses (land-use conflicts)*
- *Concepts to identify and quantify relevant impacts*
- *Instruments to avoid / minimise impacts (feedback to decision-making process)*
- *Opportunities of innovative land-use technologies*
- *Resource-oriented land management systems]*
- *Soil regeneration*
- *Soil and groundwater remediation*

153. Linked to topics mentioned by the NKS:

- a. What are the important / relevant documents, research agendas, research programmes underpinning these topics? (state-of-the-art)
- b. Related to these agendas and programmes: what are timelines of programming and windows-of-opportunities to influence agendas / programmes?

[Note: question 9b is input for work package 5]

E. Science-Policy-Interfacing (SPI)

154. How would you define 'scientific knowledge'?

155. For what do you use scientific knowledge in your job?

156. Which sources of (scientific) knowledge do you use for doing your job?

[Open question and you can mention some of the sources underneath as examples]

○ <i>scientific paper</i>	○ <i>newspapers</i>
○ <i>consultants</i>	○ <i>television</i>
○ <i>reports</i>	○ <i>conferences Involvement in research projects</i>
○ <i>colleagues</i>	○ <i>data (bases)</i>
○ <i>experiences /examples within my own country</i>	○ <i>websites, such as:</i>
○ <i>experiences /examples abroad</i>	○ <i>other, specify:</i>

157. To what extent do you use most recent/new scientific knowledge (i.e. state-of-the-art scientific insights/findings) for doing your job?

158. To what extent are you able to influence (and how) the setting of scientific research policies/agendas in our country?

159. To which extent do our national policies/agendas reflect your specific needs and priorities?

160. To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

[Questions only for NKS from the non-science sector (business and policy):]

161. Have you ever been involved in:
- s. the formulation of scientific research questions?
 - t. doing scientific research (i.e. knowledge co-creation)?
 - u. synthesizing/wrapping-up of scientific knowledge, e.g. to feed into policy making or to increase business opportunities?

[When yes: Follow-up questions]

- How successful/satisfying was this, on a scale of 1-5?
 - 41. *Very successful/satisfying*
 - 42. *Successful /satisfying*
 - 43. *Neutral*
 - 44. *Unsuccessful/unsatisfying*
 - 45. *Very unsuccessful/unsatisfying*
- What went well
- What could be improved?
- What to avoid/not to do?
- Additional remarks?

[Question only to NKS who are likely to have insights here (e.g. research funders)]

162. (How) is the societal impact of scientific research related to the scope of INSPIRATION being assessed in our country?

[If they know: Follow-up questions:]

- How successful/satisfying is this, on a scale of 1-5?
 - 36. *Very successful/satisfying*
 - 37. *Successful/satisfying*
 - 38. *Neutral*
 - 39. *Unsuccessful/unsatisfying*
 - 40. *Very unsuccessful/unsatisfying*
- What indicators are used?
- What goes well?
- What can be improved?
- What to avoid/not to do?
- Additional remarks?

163. Which national Science-Policy-Interface documents do you know of / can you recommend?

F. Funding

164. Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems:
- Sub-nationally /regionally?
 - Nationally?
 - European? *[e.g. H2020, Interreg, multi-lateral such as the Joint Programming Initiatives]*

- International? [e.g. *Belmont Forum, Foundations.*]

[For all R&I questions aiming at achieving policy targets in the Land & SSW related system (like e.g. Sustainable Development Goals on soils -to be adopted at UN level in September 2015-, existing EU directives such as the Environmental Liability Directive, etc.) Consider all Public and Private funding sources. Please ask to provide details and give most important references (documents, website) that could be relevant for explaining the answer]

165. How to increase the added value of different financial resources (i.e. achieve a multiplier) for doing research that contributes to EU and national demands, in particular to the R&I demands on Land and the SSW-system?
[CONSTRUCTIONS that (could) work. PP, PPI, etc. Just ask for, as open as possible for suggestions, ideas, experiences, good examples]

166. Are there areas of research and innovation (R&I) that you are aware of that are not (yet) covered by current funding mechanisms and which would need new/different funding schemes / infrastructures?

167. Integrated approaches (necessary for addressing particular societal challenges related to the use and management of land and related impacts to SSW systems) are usually difficult to fund / get recognised by the research funding communities. What would be necessary to improve this?

168. Based on previous learning experiences that you are aware of: how to best set up / govern funding option(s), so that societal demands will be fulfilled, knowledge resulting from execution of the SRA will be taken up and used; and funders experience that their invested, national Euros are indeed multiplied?

[if they know: Follow-up questions]

- How successful/satisfying was this, on a scale of 1-5?
36. *Very successful/satisfying*
37. *Successful/satisfying*
38. *Neutral*
39. *Unsuccessful/unsatisfying*
40. *Very unsuccessful/unsatisfying*
- What went well
- What could be improved?
- What to avoid/not to do?
- Additional remarks?

G. Other (remarks, suggestions, examples):

H. Ending the interview

Thank you for taking the time to participate in this interview:

- Would you like us to keep you updated about INSPIRATION progress?
- Would you suggest anyone else who we should be interviewed by us?
- Do you have further questions arising from this interview, or would you like to add anything else?
- What information are you interested in, and willing to give feedback on?

[Discuss the feedback mechanism and if they have expressed their opinions as a person or as a representative of their organisation/network. Checklist:]

q. Information to exchange / willingness to give feedback on:

- (complete interview, not recommended)
- summary of main conclusions
- national report, national contribution to D2.4
- complete D2.4, all countries

r. Preferred level of feedback:

- no feedback
- informal feedback
- formal feedback (e.g. on behalf of represented organisation)

[Check: have you discussed consent form / how to refer to interviewee]

INSPIRATION acknowledges the received funding from the
European Community's HORIZON2020 Framework Programme
under grant agreement no 642372



Annex Ib: NKS hand-out: INSPIRATION interview at a glance

INSPIRATION interview at a glance

Aim of INSPIRATION:

The main purpose of the EC-funded INSPIRATION project is to formulate an end-user driven strategic research agenda (SRA) for land-use, land-use changes and the related, impacted compartments of the Soil-Sediment-Water (SSW) system in order to meet current and future societal challenges and needs. Next to that, the project aims to scope out models of implementing the SRA and to prepare a network of public and private funding institutions willing to commonly fund the execution of the SRA.

National Key Stakeholders (NKS):

In a series of NKS interviews across EU nations the “National Focal Points (NFP) gather for nations individually information related to the INSPIRATION scope (land and SSW-system use and management) on:

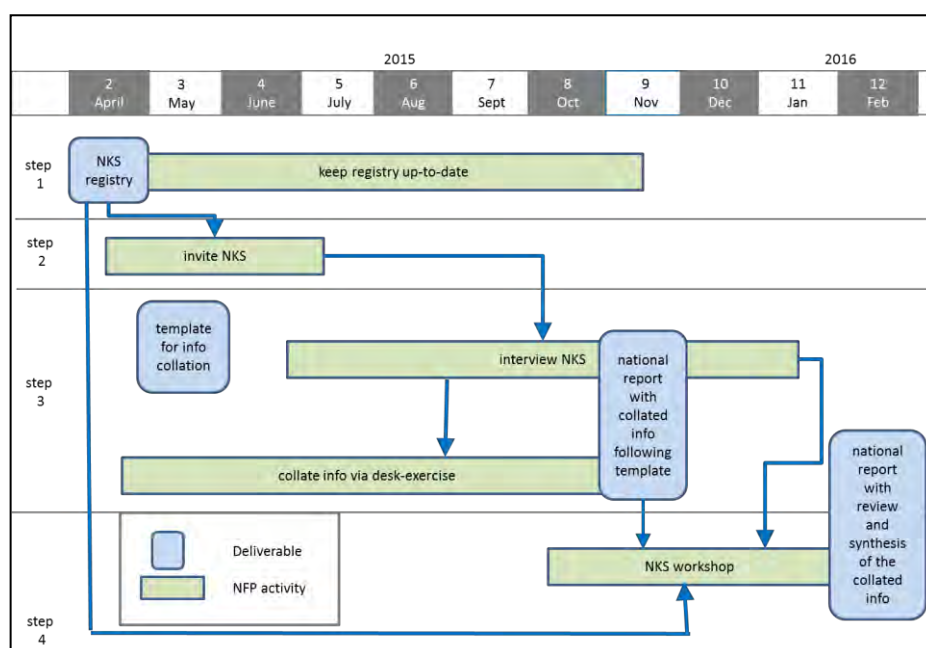
- Research and Innovation (R&I) needs
- Experiences regarding connecting science to policy/practice
- National and transnational funding schemes

In the interviews we focus at NKS – like you – positioned at a strategic level, i.e. leading persons in their field of profession; with a good overview on opportunities; a clear vision on, and insight in knowledge demands (short, middle and long-term). Furthermore, these NKS are well positioned and participate in relevant professional network(s) and may also have potential to become an ambassador for INSPIRATION. We selected NKS to represent different disciplines and institutional backgrounds including: land-use planners; managers; soil, sediment and water experts; researchers, funders and regulators/policy makers.

This interview:

Collecting input from you – an expert in your field – is crucial for the project in order to help us describing the state-of-the-art in our country as input into the European research agenda. In the interview we will go through a series of topics and questions: The interviews of NKS (ca. 20 per nation), together with a desk study on research needs and funding possibilities will be synthesized to a 'national report'. This synthesis will be reviewed in a national workshop, to prioritize the topics for the suggested Strategic Research Agenda (SRA) from our country's point of view. The national reports will finally be used as input for elaborating the European SRA and cross-nation matchmaking (matching research needs to possible funding).

Workflow in first year of INSPIRATION



Example questions:

Research and Innovation (R&I) needs

- Which societal challenges do you regard as important?
- Starting with your own experience: which specific topics (research needs) should be included in the SRA?

Experiences regarding connecting science to policy/practice

- How would you define 'scientific knowledge'?
- To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

National and transnational funding schemes

- Does your organisation provide external research funding?
- Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems

Your benefits from participating:

- A chance to influence the European SRA on land and SSW management in the light of societal challenges and needs;
- Being able to make use of the results of the project: overview of research need and of existing and promising funding schemes on different levels (sub-national, national, European, international) and opportunities for a better connection between science and policy/practice;
- Use the matchmaking opportunity to get in contact with other networks in- and outside our country, and countries learn which shared challenges can be taken up jointly.

Contact and further information:

For general information on the INSPIRATION project visit our website: www.inspiration-h2020.eu

Contact the National Focal Point: Yvonne Ohlsson Swedish Geotechnical Institute Kornhamnstorg 61 111 27 STOCKHOLM +46 709 730166 Yvonne.Ohlsson@swedgeo.se	Contact the general project coordination: Stephan Bartke FG I3.5 – Coordination INSPIRATION Federal Environment Agency Woerlitzer Platz 1 06844 Dessau-Rosslau Germany stephan.bartke@uba.de

Annex II: Documents used for the Swedish desk study

Andersson L., Bohman A., van Well L., Jonsson A., Persson G. och Farelus J. (2015). Underlag till kontrollstation 2015 för anpassning till ett förändrat klimat. SMHI Klimatologi Nr 12, SMHI, SE-601 76 Norrköping, Sverige

Ares(2009)326974 - 17/11/2009 Guidance for assessing Social Impacts within the Commission Impact Assessment system.

BONUS strategic research agenda 2011–2017, update 2014 - [http://www.bonusportal.org/files/2974/BONUS Briefing 22 SRA2014 update.pdf](http://www.bonusportal.org/files/2974/BONUS_Briefing_22_SRA2014_update.pdf)

Effektiv energianvändning (2014) - Forsknings- och innovationsagenda för effektiv energianvändning

EU Baltic Sea Strategy - <http://www.balticsea-region-strategy.eu/>

Formas (2012). Forsknings- och innovationsstrategi för en biobaserad samhällsekonomi. Rapport utarbetad på uppdrag av regeringen av Formas i samråd med VINNOVA och Energimyndigheten Rapport: R2:2012 ISBN 978-91-540-6067-2

Formas (2011). Analys av miljöforskningen och förslag till forskningsstrategi 2011–2016 Rapport: R4:2011 ISBN 978-91-540-6058-0, ISSN 1653-3003

Hållbar Sanering (2009a). Sammanfattning av kunskapsluckor identifierade inom Hållbar Sanering Beredningsgruppen för Hållbar Sanering

Hållbar Sanering (2009b). Har kunskapsluckorna bearbetats och täckts av projekt inom Hållbar Sanering?

The Swedish metals-producing Industry's associations (2013) National action for metallic materials - A STRATEGIC RESEARCH AND INNOVATION AGENDA

Kontigo (2015). Svenska forskningsinstitut inom Formas ansvarsområden. Kartläggning och analys. Sthlm 15-10-16

Langfeldt, L; Scordato L. (2015), Assessing the broader impacts of research. A review of methods and practices. Nordic Institute for Studies in Innovation, Research and Education (NIFU). Working Paper 8/2015 Ett uppdrag åt Formas - Forskningsrådet för miljö, areella näringar och samhällsbyggande



Naturvårdsverket (2002). Kunskapsförsörjning inom efterbehandling av förorenade områden. Rapport 5252

SGI Publikation 12 (2014) Förorenade områden – Inventering av effektivitetshinder och kunskapsbehov 2013

SGI Publikation 17 (2015) Förorenade områden – Inventering av effektivitetshinder och kunskapsbehov 2014 Förorenade områden i den fysiska planeringen

SGI VARIA 620 (2011) Förorenade områden - Inventering av effektivitetshinder och kunskapsbehov, 2010

SGI VARIA 629 (2012) Förorenade områden – Inventering av effektivitetshinder och kunskapsbehov 2011

Svenskt vatten (2013). A vision for water research and innovation agenda for the water sector in sweden (published in English in September 2014)

The Research and Innovation Agenda – “Resource-Efficient Material Utilization: Renewing Swedish Excellence” (2014). RESURSSMART MATERIALANVÄNDNING– så förnyar vi svenska styrkeområden

Research Excellence Framework: Impact pilot exercise. Example case studies from Earth Systems and Environmental Sciences. November 2010

Svenskt vatten (2015). Svenskt Vattens inspel till regeringens förestående forskningspolitiska proposition

Swedish Research Council (2015). Evaluation of the strategic research area initiative 2010-2014.) <https://publikationer.vr.se/produkt/evaluation-of-the-strategic-research-area-initiative-2010-2014/>

The joint Baltic Sea research and development programme, Strategic research agenda, 2011-2017 – update. Publication 14.
http://www.bonusportal.org/files/2981/Publication_No._14_update.pdf

The European Technology Platform for Water (2010) WssTP Strategic Research Agenda, A common vision for water innovation.

VR1550 (2015). ANALYS OCH FÖRSLAG TILL REGERINGENS FORSKNINGS- OCH INNOVATIONSPROPOSITION. Redovisning av regeringsuppdrag (U2015/1362/F) – gemensam analys från Energimyndigheten, Formas, Forte, Rymdstyrelsen, Vetenskapsrådet och VINNOVA.

Annex III: Indicators of societal reach and impact

Table. Examples of potential indicators of societal reach and impact

Examples of indicators
Number of/average number of stakeholders involved in R&I-projects
Fraction of R&I-projects that involve stakeholders
Fraction of R&I-projects (of a portfolio, can be applied to a university, a department etc) whose results can directly be implemented in consulting/policy/or other relevant implementation route
Number of reports and guidance/guidelines downloaded
Number of R&I-projects that involve cooperation outside the group/institute/department (cooperation with other research institutes, universities etc)
Fraction of research performed in cooperation with SMEs
Fraction of projects or applications in which research institutes support application by joining on its own expense for its own research, and sharing its network of stakeholders as well as creating bigger research platforms.
Number or fraction of R&I-projects or R&I-applications in which Institutes bring in relevant channels for communication and implementation
The extent to which test beds or other research infrastructure is used (by researchers outside the institute/university possessing the test bed)
Use of library services (by researcher outside the institute/university possessing the service)
Serve as host to final research reports, tools and results also for external researchers within a research institutes field of interest.
Fraction of/number of research projects that result in/are implemented in courses to students/industry/authorities etc.
Degree to which "stakeholders" can participate in formulation of research questions
New businesses started as a result of research
"Mobility", within or between sectors

Annex IV: List of challenges

Table. A list of challenges mentioned by stakeholders in interviews. When similar, they are grouped together. The first five groups are the ones reflected by section 2.1 i.e. the most pronounced challenges in the view of all stakeholder interviews performed.

Group	Challenges ²²	comments
1a	Pressure on natural environments, resources and ecosystems and loss of biodiversity	
1b	Conservation and restoration of nature and biodiversity and sustainable use of ecosystem services	
1c	Nature preservation & biological diversity, halting the loss of biodiversity	
2a	A healthy living environment	
2b	A safe chemical environment	Alternative to "healthy living environment"
2c	Food security and food safety	could be included under 2a or 2b
2d	Safe drinking water	could be included under 2a or 2b
3a	Sustainable and reduced resource consumption	
3b	Transition to sustainable consumption and production patterns	
3c	Securing sustainable agricultural production chains	
4a	Climate change mitigation and social adaption	Could also be part of other challenges, not necessarily one of its own.
4b	Climate research - governance across different levels and sectors	
4c	Effects on climate change to ecosystems	
4e	Emission of greenhouse gases	
5a	Rapid urbanization	
5b	Aging built environment	
5c	A sustainable Building Sector	
5d	Green and blue-green infrastructure	
5e	Migration and other demographic challenges	ageing population, migration to cities, ensuring developments in peripheral areas
6a	Accessibility to affordable, reliable, sustainable and modern energy	
6b	A biobased economy	
6c	Developing a circular economy	
7a	Decision making under uncertainty	
7b	Societal policy change barriers	

²² Since several stakeholders mention challenges of similar nature, but not with the exact same words the authors have suggested a synthesis of the challenges. The list is subject to change at the stakeholder WS.

16. Switzerland

Report by Marco Pütz, Regula Brassel

16.1 Introduction

This national report (i.e. INSPIRATION deliverable 2.4) reports the information collated for Switzerland. The information was collated in accordance with INSPIRATION D2.3 “Template for national information collation”. From August 2015 till the end of September 2015, we conducted interviews with 19 NKS and recorded them in writing. Details on these NKS are provided in Annex I. In a next step we analysed the results of the interviews by coding them according to the questions of our questionnaire and according to their content. To grasp all of the relevant information, we developed a code system of more than 100 codes and subcodes. In the following report we give an overview on the results from the interviews in Switzerland. The desk study was mainly based on documents suggested by the NKS. However, it has been extended by further important documents. All documents of our deskwork are listed in Annex II.

16.2 Research and Innovation (R&I) needs

Topic a: Demand-driven* suggestions for the Strategic Research Agenda (SRA), i.e. suggestions from the perspective of industry, end-users and funders.
Related key question to be answered: *What (new) knowledge do these parties need to tackle societal challenges including the increase of job opportunities?*

****Demand-driven** in INSPIRATION means focusing on the demands of those who are responsible or feel committed to tackle the societal challenges related to the INSPIRATION scope and themes, i.e. industry, end-users and funders. These parties could improve their business opportunities and/or take better informed decisions on what measures to take and execute in order to tackle other societal challenges if they would (be enabled to) use the knowledge as resulting from execution of the INSPIRATION SRA.

16.2.1. Societal challenges and needs

In the Swiss interviews a broad variety of different societal challenges were named. We grouped them thematically and ended up with seven superordinate topics, which describe the societal challenges Switzerland is facing today in the fields of spatial planning, land use and soil management:

- Renewable energy (implementing nuclear phase-out and finding of sites for renewable energy)
- Climate change (handling the impacts of climate change)
- Joint solutions (finding joint solutions and compromises in spatial planning, land use and soil management)
- Demographic change (finding solutions on the impacts of demographic change onto space and bridging gaps between population groups)
- Constructional change (finding ways to foster high-density housing and to deal with alpine emigration zones)
- Protection of nature and of agricultural land (protecting ecosystems and the agricultural land from degradation and constructional sealing; preserving food security and the multifunctionality of the land)
- Protection of the landscape (protecting the visual quality of landscape)



16.2.2. Topics / research needs to include in the SRA

In the following we first list existing research programmes and research agendas in Switzerland that formulate research questions in the fields of spatial planning, land use and soil management. After that we present the Strategic research agenda Switzerland, which comprises the research needs and knowledge gaps named in the interviews.

2.2.1. National Research Programmes of the Swiss National Science Foundation

The National Research Programmes (NRPs) of the Swiss National Science Foundation (SNSF) are a funding instrument aiming to solve the most urgent societal problems in Switzerland (for more on the funding schemes of the SNSF, see Chapter 4.1.1). Each NRP is dedicated to a specific problem, addressing pressing societal, political and economic issues. New topics for NRPs can be proposed every two to three years to the State Secretariat for Education, Research and Innovation (SERI) by Swiss Federal Offices, research institutes, research groups, other institutions or individuals. The final decision on NRP topics lies with the Swiss Federal Council (Swiss National Science Foundation (SNSF), 2011; Swiss National Science Foundation (SNSF), 2015b).

Running NRPs in the fields of spatial planning, land use and soil management

- NRP 70 "Energy Turnaround"
- NRP 69 "Healthy Nutrition and Sustainable Food Production"
- NRP 68 "Sustainable Use of Soil as a Resource"
- NRP 66 "Resource Wood"
- NRP 65 "New Urban Quality"

Concluded NRPs in the fields of spatial planning, land use and soil management

- NRP 61 "Sustainable Water Management"
 - NRP 54 "Sustainable Development of the Built Environment"
 - NRP 48 "Landscapes and Habitats of the Alps"
 - NRP 41 "Transport and Environment: Interactions Switzerland / Europe"
- (Swiss National Science Foundation (SNSF), 2015b)

2.2.2. Research agendas by Federal Offices and others

- Forschungskonzept Land- und Ernährungswirtschaft 2013-2016: (Bundesamt für Landwirtschaft (BLW), 2012) Research agenda on agriculture and nutrition economy of the Federal Office for Agriculture (FOAG)
- Forschungskonzept Nachhaltige Raumentwicklung und Mobilität 2013-2016: (Bundesamt für Raumentwicklung (ARE), 2012) Research agenda on sustainable spatial development and mobility of the Federal Office for Spatial Development (ARE)
- Forschungskonzept Nachhaltiger Verkehr 2013-2016: (Bundesamt für Strasse (ASTRA) & Bundesamt für Verkehr (BAV), 2012) Research agenda on sustainable transport of the Federal Office of Transport (FOT)
- Forschungskonzept Umwelt für die Jahre 2013-2016. Schwerpunkte, Forschungsbereiche und prioritäre Forschungsthemen: (Miranda; Jacquat et al., 2012) Master plan on environmental research of the Federal Office for the Environment (FOEN)
- Wohnforschung 2012-2015. Forschungsprogramm des Bundesamtes für Wohnungswesen: (Bundesamt für Wohnungswesen (BWO), 2012) Research agenda on habitation of the Federal Office of habitation (BWO)



- Arbeitsprogramm Agroscope 2014-2017: (Agroscope, 2014) Work plan of Agroscope (Swiss centre of excellence for agricultural research)
- Herausforderungen der Landschaftsentwicklung - Aktuelle Forschungstrends und zukünftiger Forschungsbedarf in der Schweiz: (Degenhardt & Hunziker, 2011) Research agenda on landscape development
- Bodenkartierung Schweiz. Entwicklung und Ausblick: (Borer & Knecht, 2014) Developments and perspectives in Swiss soil mapping, including the formulation of research fields
- Schwerpunkte der Eawag-Forschung von 2013 bis 2016: (Eawag, 2011) Focus areas Eawag, Swiss Federal Institute of Aquatic Science and Technology
- Themenspeicher: (Forum Früherkennung Biodiversität und Landschaft, 2011) Collection of topics in the fields of biodiversity and landscape that will be relevant in the future
- Strategie Antibiotikaresistenzen Schweiz: (Schweizerischer Bundesrat, 2015) Swiss strategy on antibiotic resistance, including the formulation of research topics on antibiotics in ecosystems
- Kompetenzzentrum Boden: Servicestelle für Kantone und Bund: (Keller; Meuli et al., 2014) Collection of tasks a „Soil Competence Centre“ (not yet existing) could be responsible for, including fields where further research is needed

2.2.3. Strategic research agenda Switzerland

Research field 1: Legal framework

Research topic CH 1.1: Zone concept and rural land rights

Relevance of the issue and justification of the need for research

In Switzerland, land in the agricultural zone has long ceased to be used solely for farming purposes. Such land is being built on (e.g. high-voltage lines, conversions of agricultural buildings into dwellings), it includes ecologically protected areas, special-use areas (e.g. landfill sites) and also agricultural superstructure works. Some 25% of all buildings in Switzerland are constructed outside of the building zone, which strongly questions the concept of separating between agricultural land and building areas. As a result, planning legislation should not only deal with the actually cultivated land but with the agricultural zone as a whole. Moreover, there is a discrepancy between the Federal act on rural land rights (Bundesgesetz über das bäuerliche Bodenrecht, BGBB), under which only farmers are allowed to acquire farmland, and the actual highly diverse use of such land.

Specific research topics:

- **Develop a new zone concept:** Develop new spatial planning concepts which could replace the concept of agricultural zone and building zone and provide a more faithful reflection of the current situation (e.g. by introducing a cultivated land zone).
- **Update the rural land rights:** Develop new legal solutions that could supplement or replace the rural land rights, and take better account of the diverse use of farmland.

Documents:

- Publication on building outside of the building zone: Institut für Wirtschaftsstudien Basel (2015)
- Website on the Project Raum+: ETH Zurich (2015)
- Journal of the Association for Environmental Law: „Umweltrecht in der Praxis“
- Magazines of VLP-ASPAN, Swiss Association for Spatial Planning: „INFORAUM“ und „Raum & Umwelt“

Stakeholders:

- NGO, network

Research topic CH 1.2: Environmental qualities and land rights of the residential areas

Relevance of the issue and justification of the need for research:

To a certain extent, the environmental qualities of land and soil are included in the rural land rights. This is not the case for the land rights of the residential areas. However, it is essential that the land in residential areas is not accorded a purely economic character. Unfortunately, researchers in environmental law that deal with this land issue are missing in Switzerland.

Specific research topics:

- **Integrate environmental qualities in the land rights of residential areas:** Show how environmental qualities can be integrated into the land rights of residential areas, so that the land there is not accorded a purely economic character.

Stakeholders:

- Network, SME/consultant

Research topic CH 1.3: Right of ownership

Relevance of the issue and justification of the need for research:

The right of ownership is very deeply entrenched in Swiss law. At the same time, the new Spatial Planning Act (Raumplanungsgesetz, RPG) demands for internal development and compact building. The internal development of residential areas poses a daunting challenge because often solutions have to be sought in consultation with many private landowners, which may block the project.

Specific research topics:

- **Reconsider the right of ownership:** Show how the right of ownership in Switzerland could be reviewed, ensuring the feasibility of the mission set out by the Spatial Planning Act when it comes to building densification and internal development.

Stakeholders:

- Network, SME/consultant, national/regional/local authority

Research field 2: Spatial planning and development

Research topic CH 2.1: Visions for spatial development

Relevance of the issue and justification of the need for research:

Until now, scenarios have been designed that show how the use of land will develop in future and how Swiss spatial planning could react to these developments. However, this is not enough – visions for what the future situation *should be like* are needed to be able to actively influence future developments. The Swiss concept of spatial planning (Raumkonzept Schweiz) already takes this line but must now be developed further.

Specific research topics:

- **Develop visions for spatial planning:** Develop visions of how land in Switzerland is to be used in future, how cities and municipalities are to be planned, how the landscape in Switzerland is to be developed, and how mobility in the country is to be refined.

Documents:

- Swiss concept of spatial planning (Raumkonzept Schweiz): Schweizerischer Bundesrat; Konferenz der Kantonsregierungen (KdK) et al. (2012)
- Switzerland – an urbanistic portrait: Diener; Herzog et al. (2006)

Stakeholders:

- National/regional/local authority, network, NGO



Research topic CH 2.2: Inner development of residential areas

Relevance of the issue and justification of the need for research:

Inner development and compact building are laid down as requirements in the new Spatial Planning Act. However, compact building must not damage the quality of life of the inhabitants. Dense residential areas must therefore be well designed and should include attractive open spaces and recreation areas. Many inhabitants have a "not in my backyard" mentality. This makes research on the acceptance of compact building very important. Moreover, the question arises which residential areas shall still be allowed to grow outwards and which shall be slated for internal development only. The concrete implementation of compact building also poses a challenge.

Specific research topics:

- **Inner development and preservation of the quality of life:** Show how a residential area can be developed internally without damaging the quality of life of the inhabitants.
- **Acceptance of compact building:** Understand why the acceptance of compact building is higher in certain areas and where those areas are. Show how internal development must be planned so as to be accepted by the population.
- **Decision criteria for inner development:** Define decision criteria which help to decide where compact building is and where it is not to take place. Show how to decide fairly which residential areas have to limit themselves to inner development in the future (developing approaches on burden sharing).
- **Implementation of inner development:** Develop instruments and examples that demonstrate how compact building can be carried out. Municipalities and cantons lack information on how particularly rural detached-housing areas can be made denser. Better support for municipalities and cantons, rather than research, is needed in this case.

Documents:

- Website of New Urban Quality, National Research Programme NRP 65 (running): Swiss National Science Foundation (SNSF) (2015a)
- Publication on promotion of health and landscape design: Stiftung Landschaftsschutz Schweiz & naturaqua PBK (2015)
- Website on Model Development Plans of ARE: Bundesamt für Raumentwicklung (ARE) (2015)
- Publication on Model Development Plans on sustainable spatial planning: Bundesamt für Raumentwicklung (ARE) (2013)
- Spatial Planning Act (Raumplanungsgesetz, RPG): Bundesversammlung der Schweizerischen Eidgenossenschaft (2014)
- Website on the Project Raum+: ETH Zurich (2015)

Stakeholders:

- network, national/regional/local authority, NGO, business/industry

Research topic CH 2.3: Transport and mobility

Relevance of the issue and justification of the need for research:

The Swiss Plateau will be one big conurbation by 2050. To function properly, this conurbation will need appropriate infrastructure. In the future, Swiss roads will be characterised by self-driving vehicles, which will transform mobility completely. It is vital to think about such future developments already and to plan accordingly. Required transport developments such as cycling lanes should also be promoted.

Specific research topics:

- **Design the future development of transport:** Develop concepts showing how transport can be tailored to the developments of compact building and how automated vehicles can be

integrated into the overall traffic. Research and also new planning instruments are needed for this purpose.

- **Make cycle lanes more attractive:** Show how cycle lanes can be made more attractive.

Documents:

- Publication on overall traffic in Switzerland: (Haefeli, 2006)

Stakeholders:

- Network, national/regional/local authority, business/industry

Research topic CH 2.4: Protection of cultivated land

Relevance of the issue and justification of the need for research:

Cultivated land is under pressure in Switzerland. While the best cultivated land is preserved by the Sectoral Plan for Cropland Protection, other cultivated areas are built over. In addition to construction on cultivated land in the building zone, a great deal of cultivated land is lost in the agricultural zone to agricultural structures (e.g. mast facilities, refrigeration buildings). The agricultural zone has been turned into the “building zone” of farmers.

Specific research topics:

- **Steering measures to limit building development:** Develop economic concepts that will help preserve cultivated land and its multifunctional aspect in the long term. Develop approaches that pass the social costs for the loss of land to construction to the party responsible. Develop support measures and economic incentives for farmers to prevent them to build agricultural structures on agricultural land.
- **Steering measures to limit land speculation:** Develop instruments to call a halt to land speculation.

Documents:

- Sectoral Plan for Cropland Protection (Sachplan Fruchtfolgeflächen, SP FFF): Eidgenössisches Justiz und Polizeidepartement (EJPD); Bundesamt für Raumplanung (BRP) et al. (1992)
- Evaluation and proposed reform of Swiss agricultural policy: Bosshard; Schläpfer et al. (2011)
- Press releases of the Swiss Foundation for Landscape Conservation

Stakeholders:

- National/regional/local authority, NGO, SME/consultant

Research topic CH 2.5: Landscape protection

Relevance of the issue and justification of the need for research:

The European Landscape Convention entered into force in Switzerland in 2013. As a result, Switzerland is required to improve its knowledge of its landscapes. However, a lot of basic knowledge is still missing. Today superordinate interests are emerging in sectoral areas (mining of hard stone, renewable energies, transport infrastructure, high-voltage lines, etc.) that require space. If the quality and development goals for the Swiss landscapes are unknown and the subjects of landscape protection are not identified, valuable landscapes will not be protected sufficiently and sites for the use of superordinate interests cannot be selected reasonably.

Specific research topics:

- **Landscape-development goals and identification of landscape protection sites:** Define quality and development goals for landscapes in Switzerland and determine where the subjects of landscape protection are located (task of the cantons).
- **Landscape-protection instruments:** Develop instruments for the protection of landscapes, e.g. a landscape strategy (some instruments, such as structure plans and a landscape typology, already exist, but are insufficient).



- **Concepts for the protection of open spaces and everyday landscapes:** Develop concepts that show how everyday landscapes, open spaces and quiet areas can be protected better. Make sure that these concepts are integrated into spatial planning.

Documents:

- Typology of Swiss landscapes, part 1: Bundesamt für Raumentwicklung (ARE); Bundesamt für Umwelt (BAFU) et al. (2011a)
- Typology of Swiss landscapes, part 2: Bundesamt für Raumentwicklung (ARE); Bundesamt für Umwelt (BAFU) et al. (2011b)
- Publications by Silvia Tobias (WSL) on ecosystems in urban regions, e.g.: Tobias (2013)
- Free space development in agglomerations: Bundesamt für Raumentwicklung (ARE) & Bundesamt für Wohnungswesen (BWO) (2014)
- Publication on promotion of health and landscape design: Stiftung Landschaftsschutz Schweiz & naturaqua PBK (2015)

Stakeholders:

- NGO, network, national/regional/local authority

Research topic CH 2.6: Mountain regions

Relevance of the issue and justification of the need for research:

Switzerland's mountain regions are under pressure from a host of minor changes, which however add up when put together. The question arises whether the quality of the mountain regions (retreat area, identification area, economic zone, social space, natural space, landscape area) can be maintained in the long-term under the prevailing conditions. The recultivation of construction sites in mountain regions for agricultural production purposes has been cited as a challenge. In this field, adequate implementation guidelines are missing.

Specific research topics:

- **Challenges in mountain regions:** Develop integral planning approaches to define and steer the desired aims of development, and to preserve the qualities of the mountain regions. This requires new knowledge in the following fields:
 - Develop approaches to deal with emigration from mountain regions; show how an organised, planned retreat from emigration areas can be implemented and how forestation (advance of trees onto agricultural land) can be countered.
 - Develop strategies to tackle the effects of climate change in mountain regions.
 - Show how tourism which has taken root in mountain regions can be dealt with.
 - Find solutions regarding how to organise supply and infrastructure in mountain regions.
- **Guidelines for the recultivation of construction sites in mountain regions:** Develop guidelines on how to recultivate construction sites in mountain regions (rules, manuals).

Documents:

- Existing cantonal guidelines on the recultivation of construction sites in the alps
- Soil and construction. State of the art and practice: Bellini (2015)

Stakeholders:

- National/regional/local authority, university/research institute, network

Research topic CH 2.7: Geological underground sites

Relevance of the issue and justification of the need for research:

Geological underground sites are not used optimally in Switzerland, because the country has no underground planning. Currently, the principle "first come, first served" is applied. In Switzerland the geological underground belongs to the landowners down to the depth which they use. As a result, it is increasingly used by private individuals (e.g. by geothermal probes) and there is no room left for

superordinate interests. In addition, it has become difficult to mine gravel, sand and other geological raw materials in Switzerland, because the easily accessible deposits are depleted. Overlapping uses such as residential areas, forests or protection areas prevent the further mining of existing deposits.

Specific research topics:

- **Consideration of underground land-use claims:** Develop criteria, tools and instruments to weigh up different underground land-use claims. Revise the legal framework for assessing underground land-use claims so that society can gain the maximum possible benefit from the use of the geological underground.
- **Scarce geological raw materials:** Find new deposits and resolve conflicting uses of the land and the geological underground so that known deposits can be mined.

Documents:

- Raw material security concept (Rohstoffsicherungskonzept, RoSiK) (under progress)
- Publication on the subsoil in Swiss law: Carrel (2014)
- Publication on the use of the geological subsoil in Switzerland: CHGEOL (2012)
- Project KiRoSt (Concept on the exploration, evaluation and documentation of geological gravel occurrences): Netzwerk Mineralische Rohstoffe Schweiz (NEROS) (2014)
- Report on potential hard rock pits: Verband Schweizerischer Hartsteinbrüche (VSH); Bundesamt für Landestopografie (swisstopo) et al. (2012)

Stakeholders:

- National/regional/local authority

Research topic CH 2.8: Alternative energies

Relevance of the issue and justification of the need for research:

In 2011, Switzerland decided to gradually phase out nuclear energy. As a result, the demand for sites for alternative sources of energy is growing.

Specific research topics:

- **Decision-making support for alternative energy site selection:** Develop the scientific basis and decision-making tools for selecting sites for solar panels, wind farms and hydroelectric power plants.
- **Acceptance of alternative energies:** Develop approaches to enhancing the acceptance of solar panels, wind turbines and hydroelectric power plants by the population.
- **Draw up a “Renewable Energy Sectoral Plan”:** Develop a “Renewable Energy Sectoral Plan” that conducts a comparative assessment of the various technologies (wind, solar, hydroelectric) and also provides answers to possible future developments.

Documents:

- Publication on approaches to solve the conflict between alternative energies and land use: Akademien der Wissenschaften Schweiz (2012)

Stakeholders:

- Network, SME/consultant, university/research institute

Research topic CH 2.9: Demographic change

Relevance of the issue and justification of the need for research:

The demographic structure in Switzerland is undergoing changes: the number of older people is increasing, and the population is growing primarily due to migration. This has effects on spatial aspects, like housing and neighbourhood development.

Specific research topics:

- **Effect of demography on space:** Gain a better understanding of the effect of demographic change on spatial aspects, like housing and neighbourhood development.



Stakeholders:

- Business/industry, university/research institute

Research topic CH 2.10: Capital-markets, locational policy and tax policy

Relevance of the issue and justification of the need for research:

Spatial planning in Switzerland does not deal with the impact of the capital markets on the construction and real-estate sector or with locational policy and tax policy. These aspects nevertheless have an effect on spatial aspects, making it important to gain a better understanding of the connections and interactions between these fields.

Specific research topics:

- **Impact of policy areas on spatial aspects:** Gain a better understanding of the impact of locational policy, site competition and tax policy on spatial development. Gain insights on the impact of capital markets on the construction and real-estate sector and on the investment business.

Stakeholders:

- Business/industry, university/research institute

Research field 3: Soil, sediment and water

Research topic CH 3.1: Interaction between soil biology and the soil

Relevance of the issue and justification of the need for research:

Soil organisms play an important role in the soil: They interact with each other and with plants and inanimate components, thereby ensuring the functioning of various different soil processes. The impact of this interaction on soil processes, and therefore also on soil functions, is not yet fully understood. However, such an understanding is vital to make optimal use of the soil. Soil biology is also undergoing major changes as a result of genetically-modified organisms and invasive species. The biodiversity in the soil needs to be registered as soon as possible to grasp it at least in a near-natural state.

Specific research topics:

- **Role of biodiversity in the fulfilment of soil functions:** Study the role which biodiversity – in particular small organisms (fungi, bacteria, and archaea) – plays in fulfilling soil functions and maintaining material cycles in the soil.
- **Functioning of food webs:** Understand how food webs function (animal-plant-microorganism networks). Study how the different soil organisms interact with each other and how the interaction with plants and inanimate components of the soil works.
- **Register the spatial and temporal heterogeneity of biodiversity:** Register the spatial and temporal heterogeneity of soil-organism communities.

Documents:

- Bulletins of the working group on soil biology (Arbeitsgruppe Vollzug Bodenbiologie, VBB) of the cantonal soil protection agencies and FOEN
- Ordinance on the stress factors on soils (Verordnung über Belastungen des Bodens, VBBo): Schweizerischer Bundesrat (2012)

Stakeholders:

- University/research institute, national/regional/local authority

Research topic CH 3.2: Material flows in the soil

Relevance of the issue and justification of the need for research:

The bio-geochemical processes are already known for the most part. What is not known, however, is how the material flows behave under modified conditions and what impact these conditions have on



the quantity of the material flows. In fact, modelling studies are already carried out at present, but they are not precise enough to be used as a basis for policy recommendations. Similarly, there is still too little knowledge of how the bio-geochemical processes in the soil can be influenced.

Specific research topics:

- **Quantitative change of material flows:** Study how the quantity of material flows changes under modified conditions.
- **Impact on biochemical processes:** Understand how the bio-geochemical processes in the soil can be impacted and controlled.

Stakeholders:

- University/research institute

Research topic CH 3.3: Impact of stress factors on ecosystems

Relevance of the issue and justification of the need for research:

A better understanding of the connections and dynamics between soil, sediment and water is needed to manage ecosystems in a sustainable manner. Further biological tests must be developed to measure the impact of stress factors on ecosystems. Stress factors can be of a physical (e.g. temperature) or chemical nature (e.g. contaminants).

Specific research topics:

- **Dynamics and connections in the Soil-Sediment-Water-System:** Gain a better understanding of the dynamics and connections in the Soil-Sediment-Water-System.
- **Methods for measuring contaminants in ecosystems:** Improve and supplement the methods for measuring contaminants in ecosystems through biological indicators (biological tests). Study the effect of pesticide components (e.g. neonicotinoids) on ecosystems.
- **Effect of climate change on the Soil-Sediment-Water-System:** Study the effect of climate change on Swiss agriculture and its impact on the Soil-Sediment-Water-System.

Documents:

- Assessment action plan pesticides: Eidgenössisches Departement für Wirtschaft Bildung und Forschung WBF (2014)

Stakeholders:

- University/research institute

Research topic CH 3.4: Soil protection and land management

Relevance of the issue and justification of the need for research:

Agricultural land management has a major influence on the quality of the soil. Research is needed on this subject to preserve the quality of agricultural soils in the long term. Furthermore, there are no quality-assurance standards for soil-protection projects.

Specific research topics:

- **Land management methods to promote biodiversity:** Find land management methods that promote soil biodiversity.
- **Biological plant protection:** Find herbal active ingredients that can be used in organic agriculture for plant protection.
- **Land management methods to enhance the soil structure and stability:** Determine land management methods that enhance the stability of the soil, while maintaining productivity and the soil functions with minimal use of chemicals (research on non-tillage farming, fertilisation and application of organic matter). Identify measures that optimally stabilise the soil under specific local conditions.
- **Prevent soil compaction through vehicle selection:** Improve tractor tyres and wheels so that they do not compact the soil. Develop tools such as Terranimo further (see documents).



- **Land management methods to ensure protection from the effects of climate change:** Identify land management methods to protect the soils and lakes in Switzerland from the effects of climate change (e.g. increased erosion).
- **Quality assurance in soil-protection projects:** Develop standards for quality assurance in soil-protection projects that reveal the effectiveness of such projects and thus demonstrate whether the available implementation guidelines are sufficient.

Documents:

- *Sustainable use of soil as a resource, National Research Programme NRP 68 (running):* (Swiss National Science Foundation (SNSF), 2015c)
- *Online-Tool Terranimo:* (Hochschule für Agrar- Forst- und Lebensmittelwissenschaften (HAFL); Forschungsanstalt Agroscope Reckenholz-Tänikon (ART) et al.)

Stakeholders:

- University/research institute, national/regional/local authority

Research field 4: Monitoring and data

Research topic CH 4.1: Soil

Relevance of the issue and justification of the need for research:

There is no nation-wide soil map of Switzerland, although such a map would be an important basis for spatial planning. As conventional soil mapping is very time-consuming and expensive, research on interpolation methods along with the use of drones and satellites for digital soil mapping are needed. For spatial planning purposes, it would however be useful to have not only soil maps but also maps which indicate the soil functions.

Specific research topics:

- **Data acquisition and interpolation methods for soil maps:** Develop new, feasible data acquisition methods using drones and satellites for digital soil mapping. Develop new and improved interpolation and modelling methods to obtain area information from point data. Integrate these new methods into the conventional soil mapping methods.
- **Maps on soil functions:** Develop models to show the spatial distribution of soil functions in Switzerland. To this end, methods must be devised to reliably translate the soil properties into soil functions.
- **Improve the soil information data base:** Use conventional mapping of new soil points to improve the data density.

Documents:

- *Remote Sensing of Soils:* Wulf; Mulder et al. (2015)
- *Publications of the SSSS (Swiss Soil Science Society) on traditional soil mapping:* (Soil Science Society of Switzerland (SSSS), 2014)
- *Publications of Andreas Papritz, ETH Zürich on modelling of soil data:* Nussbaum; Papritz et al. (2014)

Stakeholders:

- National/regional/local authority, network, SME/consultant, university/research institute

Research topic CH 4.2: Ecosystem

Relevance of the issue and justification of the need for research:

Some of the statistical data on the state of ecosystems in Switzerland are out of date (because of rapid degradation) or are simply unavailable. Such data are urgently needed to be able to manage ecosystems in a sustainable way.

Specific research topics:



- **Data on the quality of ecosystems:** Assess how the quality of ecosystems has changed over time in Switzerland. Assess the pollution of ecosystems by contaminants. Identify the contaminants and the pollution hotspots.
- **Data on the movement of erosion material:** Assess the movement of washed-away soil and the accumulation sites.

Stakeholders:

- University/research institute

Research topic CH 4.3: Sediment

Relevance of the issue and justification of the need for research:

The Swiss Soil Monitoring Network (Nationale Bodenbeobachtung, NABO) is a system that allows Switzerland to monitor soil quality across the country. However, the sediment quality is not monitored.

Specific research topics:

- **Monitoring sediment quality:** Develop a monitoring system to monitor the sediment quality in Switzerland.

Stakeholders:

- University/research institute

Research topic CH 4.4: Harmonisation

Relevance of the issue and justification of the need for research:

Understanding how ecosystems function requires close cooperation between researchers from different disciplines. However, there is currently a lack of basis documents that make the connection between soil, sediment and water. As well missing are uniform data acquisition and sampling methods, binding standards for biological tests and a standardised terminology. In the field of soils, better links between existing soil data records and uniform soil description standards would improve the information base immensely. NABODAT is a soil information system with the aim to link the already existing soil data in Switzerland.

Specific research topics:

- **Missing basis documents on the Soil-Sediment-Water-System:** There is a lack of basis documents interlinking soil, sediment and water.
- **Missing harmonisation in the field of ecosystems:** Standardise the vocabulary used by different scientific disciplines and also by the administrative authorities. Standardise the sampling methods between cantons and between states for collecting ecosystem data. Standardise the methods for assessing and analysing ecosystem data. Develop binding standards for biological tests to identify stress factors in ecosystems.
- **Missing harmonisation in the field of soils:** Develop binding soil description standards. Bring existing soil data records together. Coordinate the soil strategies between different states.

Stakeholders:

- University/research institute

Research field 5: Implementation and awareness-raising activities

Research topic CH 5.1: Conflicts and dialogue regarding land and soil use

Relevance of the issue and justification of the need for research:

There are no adequate instruments in place for resolving conflicts regarding land and soil use. Furthermore, in practice, there is often a lack of concrete knowledge on how to weigh interests up against each other and on how to hold stakeholder dialogues. As the land and soil in Switzerland are under a lot of pressure, support is needed in this area.

Specific research topics:

- **Methods for weighing up interests:** Show how interests can be weighed up in practice. Show how an effective stakeholder dialogue is conducted.
- **Approaches to resolving conflicts regarding land and soil use:** Find approaches to resolving conflicts that involve the stakeholders concerned. Create conflict-resolution 'laboratories' in which general conditions and goals are defined and potential solutions are worked out.

Documents:

- Test Planning - A Method with a Future: Scholl; Vinzens et al. (2013) (the mentioned „laboratories“ could be built up analogically)

Stakeholders:

- National/regional/local authority, SME/consultant

Research topic CH 5.2: Concrete implementation and project management

Relevance of the issue and justification of the need for research:

For several spatial planning issues in Switzerland, visions and targets have been formulated, that point to the direction future development should take. However, these visions and targets are partly not applied, because it is not clear how to implement them in practice. It is crucial to develop support measures and guidelines that serve this purpose. Furthermore, major spatial planning projects represent a challenge because they cover periods of up to 50 years. Therefore, project planning must allow some scope for uncertainties, to be able to respond to new developments also after the start of the project.

Specific research topics:

- **Concrete implementation of visions and targets:** Show how visions and targets can be brought down to a feasible level and entrenched in the planning process. Develop appropriate implementation instruments.
- **Project management of long-term projects:** Indicate how long-term spatial planning should be refined so as to be able to react to new developments after the start of the project. Improve the process design for long-term projects. Document examples of best practices in interdisciplinary long-term projects.

Stakeholders:

- National/regional/local authority, SME/consultant, network

Research topic CH 5.3: Cooperation and knowledge integration

Relevance of the issue and justification of the need for research:

A lot of existing knowledge is never applied in practice due to insufficient cooperation. In addition, there is a flood of information today which makes it difficult to find relevant knowledge from other disciplines. Searches by keywords are insufficient because different disciplines use different terminology.

Specific research topics:

- **Organise interdisciplinary cooperation:** Document examples of how smooth interdisciplinary cooperation can be organised between practitioners, between researchers as well as between practitioners and researchers.
- **Interlink knowledge:** Develop data mining tools to establish interrelations between knowledge from different disciplines and to make it available efficiently.

Stakeholders:

- National/regional/local authority, university/research institute

Research topic CH 5.4: Awareness-raising

***Relevance of the issue and justification of the need for research:***

Soil protection, protection of cultivated land, sustainable production and consumption are issues that do not rate high on the radar of the population at large. Little notice is taken of the work that farmers do for the general public. This means that there is a need to establish knowledge, on how to raise public awareness of these issues. Moreover, many farmers fear that ecological management means production losses. Strategies must therefore be developed to show how farmers could get convinced to strive for a more sustainable production. In the past, the OLMA and BEA agricultural trade fairs were events where genuine exchanges between farmers and non-farmers took place. Today, these are more dedicated to entertainment. Such real interaction between farmers and non-farmers should be restored so that the two sides have the chance to understand each other better.

Specific research topics:

- **Awareness-raising initiatives on sustainability issues among the general public:** Develop approaches which show how to raise awareness about soil protection, protection of cultivated land, sustainable production and consumption within the general public.
- **Awareness-raising initiatives on sustainability issues among farmers:** Develop strategies on how to convince farmers to produce more ecologically sound and cause less damage to the soil (smaller tractors). Develop approaches that motivate farmers to apply and implement new knowledge.
- **Strategies to bring farmers and non-farmers closer together:** Develop strategies on how farmers and non-farmers could be brought closer together and therefore get a better understanding of one another's view.

Documents:

- Publications on soil biodiversity by Elena Havlicek, e.g.: Havlicek (2012)
- Motivations for implementation of ecological compensation areas on Swiss lowland farms: Home; Balmer et al. (2014)

Stakeholders:

- University/research institute, national/regional/local authority

16.3 Experiences regarding connecting science to policy/practice

Topic b: *Experiences regarding the exploitation of scientific knowledge to improve business opportunities and/or tackle other societal challenges.*

*Related key question to be answered: **Where to improve the science-policy interface so that (new) knowledge can and will be more effectively exploited by the demand side?***

16.3.1. Use of knowledge

3.1.1. Sources of knowledge

As shown in the table below, for most of the stakeholders, the personal network is very important to gain new knowledge for doing their job. Scientific papers and other publications are also important sources of knowledge. Besides, many stakeholders inform themselves at conferences, congresses and workshops.

Sources of knowledge	Number of mentions
Colleagues, personal network	15
Scientific publications	14
Conferences, congresses, workshops	10
Other publications and reports	9
Internet	8
Professional associations, networks, platforms, advisory groups	5
Databases and basic information of the administration	5
Experiences and examples from Switzerland	3
Experiences and examples from abroad	3
Research- or consultant projects ordered by the stakeholders' institution	3
Media (print, radio, TV...)	1
Twitter, Facebook	1
Library, archive	1
Interviews	1
Public-private-partnerships	1

n=18

3.1.2 Use of scientific knowledge by persons from the non-science sector

All stakeholders from the non-science sector use scientific knowledge at work. This may be through scientific papers, other scientific publications or through conferences and congresses they attend to. Some use scientific knowledge every day; others use it particularly when they start a new project to get new input and to know the state-of-the-art.

3.1.3 Knowledge transfer from science to policy and practice

Because it is difficult to measure how much state-of-the-art scientific knowledge has been used for the formulation of existing policies in Switzerland, we asked our stakeholders, which institutions in Switzerland help integrating scientific knowledge into policy and practice and where knowledge transfer is missing. In the following table we give an overview on the institutions in Switzerland, where knowledge flows from the science to the non-science sector or the opposite direction. After that, we show in which fields knowledge transfer is insufficient today.



Knowledge transfer science <=> policy, practice

Research:

- SNF, Swiss National Science Foundation (e.g. knowledge transfer in NRPs)
- Universities of applied sciences (e.g. training days, master thesis in collaboration with private enterprises)
- Universities (e.g. master thesis in collaboration with private enterprises)
- Agroscope, Swiss centre of excellence for agricultural research (e.g. Exchange with Federal Office for Agriculture FOAG, exchange with farmers)
- ETH, EPFL, Swiss Federal Institute of Technology (e.g. NSL (NSL - Network City and Landscape), conferences)
- WSL, Swiss Federal Institute for Forest, Snow and Landscape Research (e.g. Forum for knowledge, courses for forestry offices, contact with soil protection agencies)

Federal Offices:

- Working groups within Federal Offices with people from science, policy and practice (e.g. Federal Office for the Environment FOEN: VBB, Arbeitsgruppe Vollzug Bodenbiologie [working group on soil biology])
- Knowledge transfer within research studies, ordered by the administration

Networks, associations, platforms:

- Agridea (e.g. conferences, consulting, training days for farmers)
- SSSS, Swiss Soil Science Society (e.g. working groups, conferences, excursions, training days, education for pedological site agents)
- Forum Landschaft [Forum Landscape] (e.g. conferences, workshops, newsletter)
- GWG, Gebirgswaldpflegegruppe [Mountain Forest Cultivation Group]
- SUAN, Swiss Urban Agriculture Network
- NEROS, Netzwerk Mineralische Rohstoffe Schweiz [Network Mineral Raw Materials Switzerland]
- SCNAT, Swiss Academy of Sciences (e.g. SWIFCOB, Swiss Forum on Conservation Biology)
- Regiosuisse, network unit for regional development
- SIA, Swiss Society of Engineers and Architects (e.g. conferences, publications)
- VLP-ASPAN, Schweizerische Vereinigung für Landesplanung [Swiss association for spatial planning] (e.g. knowledge transfer and integration, conferences, courses, publications)

Journals:

- Forum Raumentwicklung [Magazine of the Federal Office for Spatial Development, ARE]
- disP - The Planning Review [Journal of the ETH Zurich]
- Hotspot [Journal of the Swiss Biodiversity Forum]
- N + L inside [Journal of KBNL and the Federal Office for the Environment FOEN]
- Hochparterre [News in architecture, planning and design]
- Tec21 [Journal of the SIA]
- Inforum [Magazine of VLP-ASPAN]
- Raum & Umwelt [Magazine of VLP-ASPAN]
- Swiss Bulletin for Applied Geology
- Wald und Holz [Journal of forestry and timber industry]
- Die Grüne [Magazine on Swiss agriculture]
- Agrarforschung Schweiz [Journal of Agroscope]

Further institutions:

- Sanu [Trainings and education in the environmental field]
- Internet-Tools (e.g. Terranimo, erosion risk maps)
- Social networks: Groups on spatial planning (e.g. on Xing, LinkedIn, Twitter, Facebook)
- Multipliers [Institutions that are in the position to disseminate knowledge particularly efficient]

3.1.4 Missing knowledge transfer science <=> policy, practice

In several sectors, knowledge transfer from science to policy and practice is viewed as insufficient in Switzerland. In the field of **surface water**, Swiss journals and magazines are missing that process scientific knowledge for non-scientists. Furthermore, a nationwide network that comprises surface water experts from the science and the non-science sector would be needed to enhance knowledge exchange. In the field of **geological underground** the exchange between scientists and the industry is insufficient – however, more public-private-partnerships would improve this situation. Moreover, professionals from the industry would need continuing high-quality educational trainings to keep themselves up to date. In the field of **spatial planning**, more direct contact between scientists and policymakers is to be established. Finally, a sound education on urban planning is missing in Switzerland.

16.3.2. Possibilities to set the agenda

The interviewed stakeholders have different methods and opportunities to influence research agendas in Switzerland.

Stakeholders from **networks and NGOs** try to influence the setting of research topics by inputs in conferences and workshops and by expert opinions they give. Besides, some of them are part of an advisory group within the Swiss administration and bring in important input on knowledge gaps this way.

Stakeholders from **Federal Offices** give thematic inputs for new National Research Programmes (NRPs) of the Swiss National Science Foundation. They also may influence the research concepts (see chapter 2.2.2: Research agendas) of their own office. This so called “departmental research” (Ressortforschung) comprises research within the Federal Offices, but also research they fund externally (Bundesamt für Raumentwicklung (ARE), 2012). By funding research, Federal Offices influence, which research topics are actually getting explored.

Stakeholders from **research institutions** influence the setting of research topics through their own work and interests. Besides, researchers give inputs for new NRPs and are asked for expert opinions during the planning phase of NRPs.



16.3.3. Science – policy – practice

16.3.3.1. Experiences in doing research and synthesizing of scientific knowledge by stakeholders from the non-science sector

Most of the stakeholders from the non-science sector were already involved in research projects and/or have synthesized scientific knowledge for policy and practice. In the following we give an overview on the experiences the interviewed stakeholders made thereby.

Several stakeholders consider the **transfer of knowledge from science to policy and practice** as a crucial point. In research projects more emphasis should be laid on this aspect:

- In every research project one person should be responsible for the communication between science and the non-science sector. From the beginning of a project, this person is to be in close contact with policy, practice and the scientists, to ensure that the research project also addresses the important questions of the non-science sector. The job of this person would also be to ensure that the scientists produce results on an applicable level.
- Results of a research project cannot just be transferred to policy and practice. They have to be processed, valued and brought down to an applicable level. Very helpful for people from policy and practice are good examples – they are much easier to understand and adopt. Also helpful are “guidelines for successful implementation” with tips and support material for practitioners.
- Special attention has to be turned to the language of texts addressing people from the non-science sector. Such texts have to be easy to understand and not in academic but in a more journalistic language.
- To disseminate scientific knowledge, networks are necessary to transfer knowledge directly to those people who need it. Therefore, networks with members from science, policy and practice are very valuable.

Transdisciplinary and interdisciplinary research are other topics that have been mentioned by several stakeholders:

- In the interviews it has been criticised that transdisciplinarity is a term that often is misapprehended. A project, where scientists have some contact with persons from the non-science sector is not yet a transdisciplinary project. For transdisciplinarity real involvement from the very beginning of the project is mandatory. However, correctly applied, the method is considered as an option that facilitates the adoption and use of knowledge by persons from policy and practice.
- Interdisciplinary research and implementation are viewed as important. Particularly in projects within the administration, joint approaches should be found.

16.3.3.2. Assessment of the impact of scientific research

The impact of scientific research in the fields of spatial planning, land use and soil management is not assessed in Switzerland – with one exception. Agroscope, Swiss centre of excellence for agricultural research, performs an annual efficacy assessment (Wirksamkeitsabschätzung). The indicators for efficacy are the research results that are actually integrated in Swiss legislation. The efficacy assessment is an internal document.

16.3.3.4. Science-policy-interface documents

In some of the research agendas from the Swiss Federal Offices, the science-policy-interface is discussed:

- Forschungskonzept Land- und Ernährungswirtschaft 2013-2016: (Bundesamt für Landwirtschaft (BLW), 2012) Research agenda on agriculture and nutrition economy of the Federal Office for Agriculture (FOAG)
- Forschungskonzept Nachhaltige Raumentwicklung und Mobilität 2013-2016: (Bundesamt für Raumentwicklung (ARE), 2012) Research agenda on sustainable spatial development and mobility of the Federal Office for Spatial Development (ARE)

- Forschungskonzept Nachhaltiger Verkehr 2013-2016: (Bundesamt für Strasse (ASTRA) & Bundesamt für Verkehr (BAV), 2012) Research agenda on sustainable transport of the Federal Office of Transport (FOT)
- Forschungskonzept Umwelt für die Jahre 2013-2016. Schwerpunkte, Forschungsbereiche und prioritäre Forschungsthemen: (Miranda; Jacquat et al., 2012) Master plan on environmental research of the Federal Office for the Environment FOEN

Further science-policy-interface documents:

- Identifying urban transformation dynamics: Functional use of scenario techniques to integrate knowledge from science and practice: (von Wirth; Wissen Hayek et al., 2014)
- Soil biodiversity and bioindication: From complex thinking to simple acting: (Havlicek, 2012)
- Engagement at the Science–Policy Interface: (Hering; Dzombak et al., 2014)
- How to Manage Knowledge Sharing: Experiences from Research Practice: (Fry; Zingerli et al., 2011)

16.4 National and transnational funding schemes

Topic c: *Predominant, current as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination.*

*Related key question to be answered: **How to get with one Euro of national/regional funding a multitude of Euros (from all sources) worth of knowledge in return contributing to EU and national demands? Or even how to get with one Euro of EU funding a multitude of Euro's (from national, regional, local, and private sector) worth of knowledge in return contributing to the R&I demands on Land and the Soil-Sediment-Water systems.***

Topic d: *Experiences regarding the use of any trans-national, common budget for scientific knowledge production related to the scope of INSPIRATION.*

*Related key question to be answered: **How to set up/govern the appropriate funding option(s) resulting from INSPIRATION – based on previous learning experiences – so that: (1) the above demands will be fulfilled, (2) knowledge resulting from implementation of the SRA will be taken up and used and (3) funders experience that their invested, national Euros are indeed multiplied?"***

16.4.1. Funding schemes and possibilities for research funding

In the following table, we provide an overview on public and private funding schemes on subnational, national, European and international level. After that, some of the funding schemes are explained in a more detailed way. As the INSPIRATION-Project is interested on experiences how to best set up funding options so that societal demands are getting fulfilled and new knowledge is taken up, we would especially like to point to the National Research Programmes by the Swiss National Science Foundation which are also discussed in the following.

	Subnational	National	European	International
Private funding schemes	Foundations • Hamasil Foundation	Foundations • Sophie und Karl Binding Foundation • Ernst Göhner Foundation • Gebert Ruff Foundation • Maria und Heinrich Th. Uster-Foundation • Foundation Mercator Schweiz Networks • SIA, Swiss Society of Engineers and Architects Commercial Companies • e.g. Migros, Coop, Pensimo		Foundations • Foundation for the Third Millennium • Mava-Foundation Commercial Companies • e.g. IBM, Michelin
Public funding schemes		National Science Foundation • SNF, Swiss National Science Foundation Federal Offices and commissions • SERI, State Secretariat for Education, Research and Innovation (e.g. COST-Actions) • CTI, Commission for Technology and Innovation (e.g. CTI Projects) • Modellvorhaben des Bundes [Model Development Plans] • ARE, Federal Office for Spatial Development • FEDRO, Federal Roads Office • FOEN, Federal Office for the Environment (e.g. Forest and timber research fund, Umwelttechnologieförderung [environmental technology aid] of FOEN) • FOPH, Federal Office of Public Health • SFOE, Swiss Federal Office of Energy • FOAG, Federal Office for Agriculture • Swisstopo, Federal Office of Topography	European Commission • Interreg: Alpine Space-Programm • Horizon 2020 • JPI Joint Programming Initiatives	Agencies • International Energy Agency: Implementing agreements

The Swiss National Science Foundation (SNSF)

The Swiss National Science Foundation is a private foundation, which operates on behalf of the Swiss Government. It is the major funding institution for scientific research in Switzerland and funds research in all academic disciplines. The SNSF has different funding instruments at hand: Project funding is open to researchers working in Switzerland that look for financial support for their own research project – however, the salary has to be covered by the scientists research institution. Within the career funding schemes the researchers' person stands in the centre. Scientists apply for a fellowship, respectively salary and sometimes additionally for funding to realise their project. With the funding programmes, 12 funding instruments are available where the conceptual/organisational framework or the topic already is given. One type of these programmes are the National Research Programmes (NRPs) that address today's key challenges in Switzerland. Every two to three years the Swiss Federal Council chooses two to four topics for new NRPs, covering pressing societal, political and economic issues. NRPs give a platform to researchers, policymakers and practitioners to exchange their views and opinions and bring them together. The idea of this exchange is to insure that knowledge is generated that really helps solving the addressed problem and to facilitate knowledge transfer. Another funding programme is Sinergia which focus on inter-, multi- and interdisciplinary projects where three to four different research groups collaborate. In Sinergia projects one research group may be from abroad if there is no equivalent group in Switzerland. Apart from the funding programmes, the SNSF also funds scientific infrastructure and initiatives to enhance knowledge transfer (Swiss National Science Foundation (SNSF), 2011; Swiss National Science Foundation (SNSF), 2015b).

COST-Actions funded by the State Secretariat for Education Research and Innovation (SERI)

In Switzerland the SERI is responsible for the management of COST-Actions. It decides in which COST-Actions Switzerland takes part in and has a budget to fund certain parts of research projects linked to COST-Actions (State Secretariat for Education Research and Innovation (SERI), 2015).

Modellvorhaben nachhaltige Raumentwicklung [Model Development Plans]

The Model Development Plans are an initiative of the Federal Government to promote new approaches and methods in sustainable spatial planning. Local, regional and cantonal actors may propose innovative projects which get financial support if selected. The Model Development Plans are



getting documented and shall serve as a model and example for further projects (Bundesamt für Raumentwicklung (ARE), 2015).

CTI Projects

CTI Projects are research projects, which are built up in close collaboration between scientists and commercial companies. The Commission for Technology and Innovation (CTI) funds 50% of the research costs while the business partner pays the other half. In this way transfer of knowledge and technology shall be enhanced (Commission for Technology and Innovation (CTI), 2015).

16.4.2. Gaps in financial resources

16.4.2.1. Missing funding mechanisms

In this section we present the interview results on funding schemes that today are missing and topics which lack of funding opportunities.

- The generation of soil data in Switzerland is a task of the cantons. However, at the moment most of the cantons are reducing their expenses, which is why cantonal soil inventories are often not further extended. As soil data is very important for management and planning issues, new financial sources have to be found. One way to find money for this could be a property appreciation tax (a tax on the increased value of a piece of land, when it is rezoned from agricultural zone to building zone).
- Funding mechanisms are missing for projects that are not anymore basic, but not yet applied science. Within the NRPs, the Swiss National Science Foundation funds such half-applied research. However, it is the only institution that does so in Switzerland. Besides, NRPs are always limited to a certain topic and to the duration of five years. Thus, setting-up constant funding mechanisms for half-applied research projects would be important.
- For research on societal challenges that are often discussed in general public, crowdfunding could be an interesting alternative funding option.

16.4.2.2. Transdisciplinary approaches

Transdisciplinary research projects are often difficult to get recognised by the research funding communities. To change this, one stakeholder suggests setting up good examples of transdisciplinary research that show the benefits of the approach. However, to find funders for transdisciplinary projects is not the only difficulty; for researchers that include practitioners as equivalent partners into the whole research process, it is not easy to get ahead professionally and make a career. This should also be considered when trying to promote transdisciplinarity.

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



16.5 Annexes

1a: NKS interviews in Switzerland

nr	Name of the entity	Contact person	funder	end user	knowledge provider	national-regional-local authority	university /research institute	SME/ consultant	business and industry	NGO	network	other	soil	sediment	water	land use-management
1	Federal Office for the Environment FOEN, Soil Section	Roland von Arx	1	1	1	1							1			
2	Federal Office for Spatial Development ARE, Section for Settlements and Landscape	Reto Camenzind	1	1	1	1										1
3	Soil Science Society Switzerland SSSS Bern University of Applied Sciences: School of Agricultural, Forest and Food Sciences HAFL	Stéphane Burgos			1		1				1		1			
4	Zurich University of Applied Sciences ZHAW, Life Sciences und Facility Management Netzwerk Raumplanung [Network Spatial Planning]	Beatrice Kulli			1		1				1		1			
5	Landscape Forum (Forum Landschaft) NRP 68, leader knowledge transfer steiger texte, konzepte, beratung	Urs Steiger		1	1			1			1		1	1	1	1
6	Swiss Foundation for Landscape Conservation (SL)	Raimund Rodewald		1	1					1			1			1
7	Credit Suisse, Real Estate Research	Fabian Waltert		1					1							1
8	Swisstopo, Swiss Geological Survey	Christian Minnig	1	1	1	1							1	1		
9	Research Institute of Organic Agriculture FIBL, Department of Socioeconomics	Robert Home		1	1		1						1		1	1
10	Swiss Federal Research Institute WSL, Soil Functions and Soil Protection	Jörg Luster			1		1						1	1		
11	Swiss Federal Institute of Aquatic Science and Technology EAWAG, Surface Waters, Sedimentology	Nathalie Dubois			1		1							1	1	
12	Ernst Basler + Partner AG	Daniel Baumgartner		1				1					1	1	1	1
13	Pensimo Management AG Privatdozent at the ETH Zurich, Department of Architecture	Joris van Wezemael	1	1			1		1							1
14	Schweizerische Vereinigung für Landesplanung VLP-ASPAN [Swiss association for spatial planning]	Lukas Bühlmann		1	1						1					1
15	Stadtbauamt Liestal [Building Authority of the city of Liestal]	Thomas Noack		1		1										1
16	Fachstelle Bodenschutz des Kantons Bern [Soil Protection Agency of the canton of Berne]	Wolfgang Sturny, Andreas Chervet		1		1							1			1
17	Ecotox Centre, Sediment and Soil Ecotoxicology	Benoît Ferrari, Sophie Campiche, Carmen Casado-Martinez			1		1						1	1	1	
18	Swiss Society of Engineers and Architects SIA	Hans-Georg Bächtold	1	1	1						1		1	1	1	1
19	Agroscope, Soil Fertility and Soil Protection	Peter Weisskopf			1		1						1			1



Annex Ib: NKS questionnaire template

Questionnaire Switzerland INSPIRATION

A. Interview information
Country: Switzerland Name of INSPIRATION researcher: Date of interview: Place: Name of person interviewed:
B. Introduction
i. <u>Aims of INSPIRATION</u> Introduction on the project ii. <u>Expert interviews</u> Information on the interviews iii. <u>Anonymization of the statements</u> All your statements will be made anonymous. However, we would like to mention your name as well as the name of your institution as participants of the study. iv. <u>Recording</u> Are we allowed to record the interview?
C. Background information on the interviewee
1. Institution:
2. Position:
3. Are you working at... ☐ a governmental office ☐ an university or a research institute ☐ a Small or Medium Sized Enterprise (SME < 500 employees) ☐ in a big company ☐ a Non-Governmental-Organization (NGO) ☐ a network or an union
4. What is your expertise in the fields of spatial planning, land use and soil management?



D. Current land- and soil-relevant objectives

5. Main goals/research topics:
- Business/policy:** Which are the 3-4 land- and soil-relevant main goals of your organization?
 - Science:** Which are the 3-4 land- and soil-relevant main research topics at your university or research institute?

6. Which are the most important land- and soil-relevant concepts, strategies, standards and documents your organization refers to and bases itself on?

7. Does your organization provide external research funding? Please give examples.

E. Knowledge needs and research gaps

8. Which societal challenges Switzerland is facing currently in the fields of spatial planning, land use and soil management?

9. Which new knowledge will be needed to tackle these societal challenges?

[System knowledge, target knowledge and transformation knowledge]

- Where do you see knowledge needs in business and policy?
- Where do you see research gaps?

10. Which specific topics (knowledge needs and research gaps) should be included in the Strategic Research Agenda?

- Please elaborate the topic.

Optional:

- What exactly is the problem?
- What is the consequence if we do not act?
- Who can contribute to the improvement of the situation?
- How can the newly gained knowledge be effectively used?

- How **important** is the topic? *[in the sense of "what happens if we don't act"]*

- ☐ Very high importance
- ☐ high importance
- ☐ medium importance
- ☐ low importance
- ☐ no importance

- How **urgent** is the topic?

- ☐ Very high urgency
- ☐ high urgency



- medium urgency
- low urgency
- no urgency

d. Who wants to/should fund this kind of research?

e. Which are the important documents underpinning this topic?

11. Which research agendas and research programs do exist that already today cover knowledge needs and research gaps in the fields of spatial planning, land use and soil management?

- a. Please name the relevant documents underpinning these agendas and programs.
- b. What are windows-of-opportunities to influence the setting of topics for these agendas and programs?

12. To what extent are you able to influence the setting of topics for scientific research agendas, -programs and -strategies in Switzerland?

F. Science-Policy-Interface

13. Which sources of knowledge do you use for doing your job?

- a. Scientific publications
- b. Other publications and reports
- c. Colleagues
- d. Experiences and examples from Switzerland
- e. Experiences and examples from abroad
- f. Media (print, radio, TV...)
- g. Conferences
- h. Research- or consultant projects ordered by your institution
- i. Internet
- j. Other, specify?.....

14. Use of scientific knowledge:

- a. **Business/policy:** When (and what for) do you use scientific knowledge in your job?
- b. **Science:** Which strategies do you adopt to make sure that the results of your research reach business and policy and are used by them?

15. To what extent (and where) are results from state-of-the-art scientific research integrated into policies and business in Switzerland? Please give examples.

- a. What goes well?
- b. What could be improved?

16. How could the knowledge transfer from science to policy/business be (further) improved?

- a. Improvement of communication?
- b. Other funding mechanisms?
- c. Other research approaches or other research goals?

17. [Questions only to persons from the **non-science sector** (business and policy)]

Have you ever been involved in...

- a. the formulation of research questions or in doing scientific research?
 - 1) What went well?
 - 2) What could be improved?
- b. synthesizing scientific knowledge to feed into policy making/into your company?
 - 1) What went well?
 - 2) What could be improved?

18. How is the societal/political/economic impact of scientific research in the field of spatial planning, land use and soil management being assessed in Switzerland?

- a. What indicators are used?
- b. What goes well?
- c. What could be improved?

19. Which Science-Policy-Interface documents do you know? Please give examples.

G. Funding

20. Funding systems:

- a. How do you finance your activities and projects/your research (public/private)?
 - 1) Subnational
 - 2) National [e.g. „Schweizerischer Nationalfonds“]
 - 3) European [e.g. „H2020“, „Interreg“, *multilateral Programs as the „Joint Programming Initiatives“*]
 - 4) International [e.g. „Belmont Forum“ etc.]
- b. Do you know other funding schemes (public/private) that fund research in the field of spatial planning, land use and soil management, or could fund such research in the future?
 - 1) Subnational
 - 2) National [e.g. „Schweizerischer Nationalfonds“]
 - 3) European [e.g. „H2020“, „Interreg“, *multilateral Programs as the „Joint Programming Initiatives“*]
 - 4) International [e.g. „Belmont Forum“ etc.]
- c. Do you know websites or documents on these funding schemes? Which?



21. Are there areas of research and innovation that are not (yet) covered by current funding mechanisms and which would need new/different funding schemes? Which areas of research and innovation?

H. Vision

23. How do you see Swiss spatial planning, land use and soil management in the future? What is your vision?

I. Remarks, suggestions, examples

24. Did we forget something important? Do you wish to add something?

J. Ending the interview

25. Thank you for taking the time to participate in this interview!

- a. Would you like to be updated about the INSPIRATION progress by the online newsletter?
- b. Would you suggest anyone else who we should interview?
- c. We are organizing a workshop in November to consolidate the outcomes of the interviews and to prioritize the found knowledge gaps. Would you be ready to take part in this workshop on Friday, 13th of November 2015 in the afternoon?
- d. We write a report on the results of all the interviews – if you are interested we will send this report to you. For the report, we will make all your statements anonymous. But we would like to give your name and the name of your institution as participants of the study.

Annex Ic: NKS hand-out: INSPIRATION interview at a glance

INSPIRATION (Integrated Spatial Planning, Land-Use and Soil Management Research Action)

Information on the expert interview

If you wish to prepare yourself for the interview, we send you some information on the topics that are covered by the project and the main interview questions.

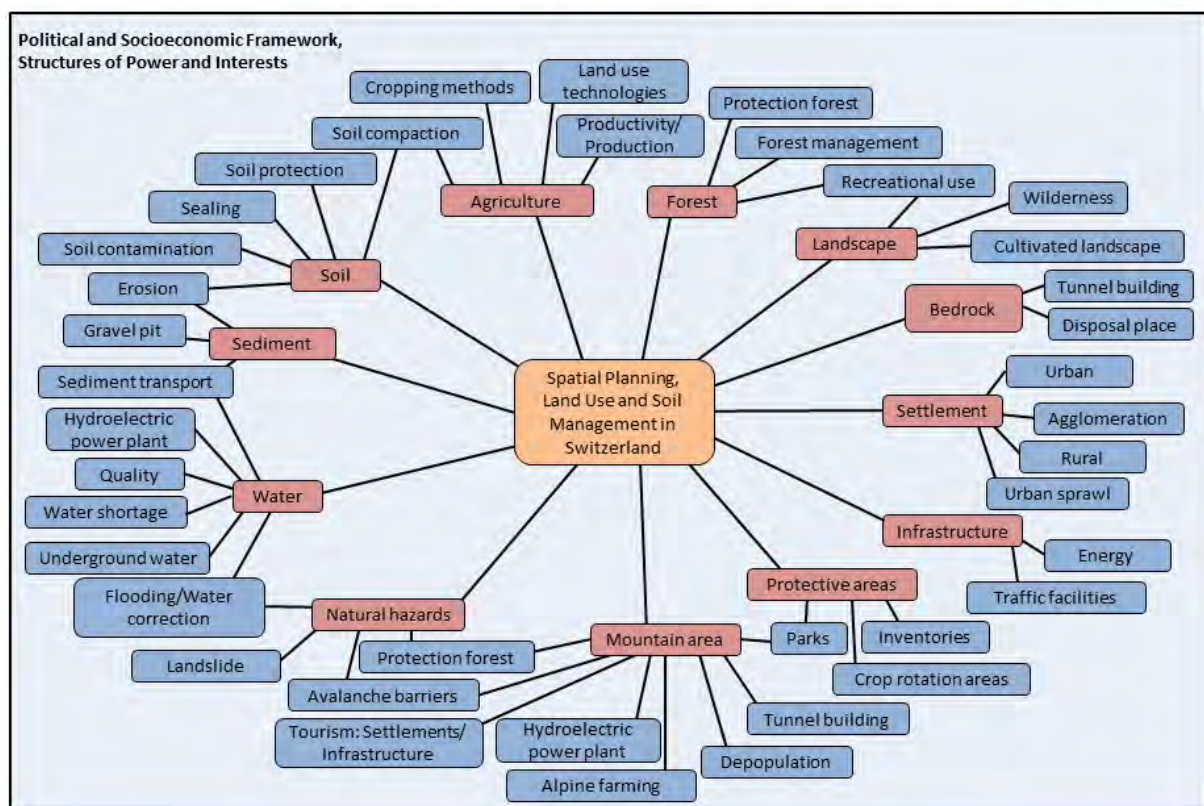
Aim of INSPIRATION

INSPIRATION is a European research project within the research program HORIZON 2020. The aim of the project is to find knowledge needs and research gaps in the fields of spatial planning, land-use and soil management. Within the project a strategic research agenda will be formulated and it will be showed how research in this field could be realised and funded.

Topics covered by INSPIRATION

The topics covered by INSPIRATION are very broadly spread. To visualise this, we developed a “Map of Spatial Planning, Land-Use and Soil Management in Switzerland” that shows, which topics are included in the terms spatial planning, land-use and soil management (red). In the blue fields we list examples, which specify the topics. The examples are not concluding, but will be complemented in the interviews.

Map of Spatial Planning, Land Use and Soil Management in Switzerland





Main interview questions

In the following you find the essential interview questions. When we talk of spatial planning, land-use and soil management, we always refer to all the topics visualized in the map above. The experts decide by themselves on which topics they can give information.

1. Current land- and soil-relevant objectives

- Which are the most important land- and soil-relevant concepts, strategies, standards and documents your organization refers to and bases itself on?

2. Knowledge needs and research gaps

- Which societal challenges Switzerland is facing currently in the fields of spatial planning, land use and soil management?
- Which new knowledge will be needed to tackle these societal challenges?

3. Science-Policy-Interface

- To what extent (and where) are results from state-of-the-art scientific research integrated into policies and business in Switzerland? Please give examples.
- How could the knowledge transfer from science to policy/business be (further) improved?

4. Funding

- Which funding schemes (public/private) do you know that fund research in the field of spatial planning, land use and soil management, or could fund such research in the future?

5. Vision

- How do you see Swiss spatial planning, land use and soil management in the future? What is your vision?

We thank you for your support and are looking forward to the interview!



Annex II: Documents used for the Swiss desk study

Literature

Agroscope (2014). Arbeitsprogramm Agroscope 2014-2017, Agroscope.

Akademien der Wissenschaften Schweiz, Ed. (2012). Lösungsansätze für die Schweiz im Konfliktfeld erneuerbare Energien und Raumnutzung. Bern, Akademien der Wissenschaften Schweiz.

Bellini, E. (2015). Boden und Bauen. Stand der Technik und Praktiken. Bern, Bundesamt für Umwelt (BAFU), Umwelt-Wissen, Nr. 1508.

Borer, F. & Knecht, M. (2014). Bodenkartierung Schweiz. Entwicklung und Ausblick., Bodenkundliche Gesellschaft der Schweiz (BGS).

Bosshard, A.; Schläpfer, F. & Jenny, M. (2011). Weissbuch Landwirtschaft Schweiz: Analysen und Vorschläge zur Reform der Agrarpolitik, 2., korrigierte Auflage. Bern, Stuttgart, Wien, Haupt Verlag.

Bundesamt für Landwirtschaft (BLW) (2012). Forschungskonzept Land- und Ernährungswirtschaft 2013-2016. Bern, Bundesamt für Landwirtschaft (BLW).

Bundesamt für Raumentwicklung (ARE) (2012). Forschungskonzept Nachhaltige Raumentwicklung und Mobilität 2013 - 2016. Bern, Bundesamt für Raumentwicklung (ARE).

Bundesamt für Raumentwicklung (ARE), Ed. (2013). Modellvorhaben Nachhaltige Raumentwicklung: Nutzungspotentiale für eine Siedlungsentwicklung nach innen. Bern, Bundesamt für Raumentwicklung (ARE).

Bundesamt für Raumentwicklung (ARE) (2015). "Website on Model Development Plans of ARE." Retrieved 16.11.2015, from <http://www.are.admin.ch/themen/raumplanung/modellvorhaben/index.html?lang=de>.

Bundesamt für Raumentwicklung (ARE); Bundesamt für Umwelt (BAFU) & Bundesamt für Statistik (BFS) (2011a). Landschaftstypologie Schweiz. Teil 1, Ziele, Methode und Anwendung. Bern, Bundesamt für Raumentwicklung (ARE), Bundesamt für Umwelt (BAFU), Bundesamt für Statistik (BFS).

Bundesamt für Raumentwicklung (ARE); Bundesamt für Umwelt (BAFU) & Bundesamt für Statistik (BFS) (2011b). Landschaftstypologie Schweiz. Teil 2, Beschreibung der Landschaftstypen. Bern, Bundesamt für Raumentwicklung (ARE), Bundesamt für Umwelt (BAFU), Bundesamt für Statistik (BFS).



Bundesamt für Raumentwicklung (ARE) & Bundesamt für Wohnungswesen (BWO) (2014). Freiraumentwicklung in Agglomerationen. Bern, Bundesamt für Raumentwicklung (ARE), Bundesamt für Wohnungswesen (BWO).

Bundesamt für Strasse (ASTRA) & Bundesamt für Verkehr (BAV) (2012). Forschungskonzept Nachhaltiger Verkehr 2013-2016. Bern, Bundesamt für Strasse (ASTRA), Bundesamt für Verkehr (BAV).

Bundesamt für Wohnungswesen (BWO) (2012). Wohnforschung 2012 - 2015. Forschungsprogramm des Bundesamtes für Wohnungswesen. Grenchen, Bundesamt für Wohnungswesen (BWO).

Bundesversammlung der Schweizerischen Eidgenossenschaft (2014). Bundesgesetz über die Raumplanung (Raumplanungsgesetz, RPG) vom 22. Juni 1979 (Stand am 1. Mai 2014). Bern, Bundesversammlung der Schweizerischen Eidgenossenschaft.

Carrel, M. (2014). Le régime du sous-sol en droit suisse : planification - exploitation - construction. Genève, Schulthess Verlag.

CHGEOL (2012). Die Nutzung des geologischen Untergrunds in der Schweiz: Empfehlungen des Schweizer Geologenverbands CHGEOL zur Harmonisierung von Verfügungshoheit, Sachherrschaft und Nutzungsvorschriften. Solothurn, CHGEOL.

Commission for Technology and Innovation (CTI) (2015). "Website of the Commission for Technology and Innovation (CTI)." Retrieved 12.11.2015, from <https://www.kti.admin.ch/kti/en/home.html>.

Degenhardt, B. & Hunziker, M. (2011) *Herausforderungen der Landschaftsentwicklung - Aktuelle Forschungstrends und zukünftiger Forschungsbedarf in der Schweiz*. 62 S. Retrieved 10.8.2015, from <http://www.wsl.ch/publikationen/pdf/10898.pdf>. Birmensdorf, Eidg. Forschungsanstalt WSL.

Diener, R.; Herzog, J.; Meili, M.; de Meuron, P. & Schmid, C. (2006). Die Schweiz - ein städtebauliches Portrait. Basel, Birkhäuser Verlag für Architektur.

Eawag (2011). Schwerpunkte der Eawag-Forschung von 2013 bis 2016. Dübendorf, Eawag.

Eidgenössisches Departement für Wirtschaft Bildung und Forschung WBF (2014). Bedarfsabklärung eines Aktionsplans zur Risikoreduktion und nachhaltigen Anwendung von Pflanzenschutzmitteln. Bericht des Bundesrates in Erfüllung des Postulates Moser vom 16. März 2012 (12.3299). Bern, Schweizerischer Bundesrat.



Eidgenössisches Justiz und Polizeidepartement (EJPD); Bundesamt für Raumplanung (BRP); Eidgenössisches Volkswirtschaftsdepartement (EVD) & Bundesamt für Landwirtschaft (BLW) (1992). Sachplan Fruchtfolgeflächen (FFF). Festsetzung des Mindestumfangs der Fruchtfolgeflächen und deren Aufteilung auf die Kantone. Bern, Eidgenössisches Justiz und Polizeidepartement (EJPD), Bundesamt für Raumplanung (BRP), Eidgenössisches Volkswirtschaftsdepartement (EVD), Bundesamt für Landwirtschaft (BLW).

ETH Zurich, Chair of Spatial Development (2015). "Website Raum+." Retrieved 16.11.2015, from <http://www.raumplus.ethz.ch/de/home/>.

Forum Früherkennung Biodiversität und Landschaft (2011). Themenspeicher, Bundesamt für Umwelt (BAFU), Bundesamt für Raumentwicklung (ARE), Konferenz der Beauftragten für Natur- und Landschaftsschutz (KBNL), Sanu - Bildung für nachhaltige Entwicklung, Eidgenössische Forschungsanstalt für Wald, Schnee und Landschaft (WSL).

Fry, P.; Zingerli, C.; Kläy, A. & Förster, R. (2011). "Wissensaustausch aktiv gestalten: Erfahrungen in der Forschungspraxis. How to Manage Knowledge Sharing: Experiences from Research Practice." GAIA - Ecological Perspectives for Science and Society **20**(2): 130-132.

Haefeli, U. (2006). "Der grosse Plan und seine helvetische Realisierung. Die Gesamtverkehrskonzeption 1972-1977 und ihre Wirkung auf die schweizerische Verkehrspolitik." Schweizerische Zeitschrift für Geschichte **56**(1): 86-95.

Havlicek, E. (2012). "Soil biodiversity and bioindication: From complex thinking to simple acting." European Journal of Soil Biology **49**: 80-84.

Hering, J. G.; Dzombak, D. A.; Green, S. A.; Luthy, R. G. & Swackhamer, D. (2014). "Engagement at the Science-Policy Interface." Environmental Science and Technology **48**: 11031-11033.

Hochschule für Agrar- Forst- und Lebensmittelwissenschaften (HAFL); Forschungsanstalt Agroscope Reckenholz-Tänikon (ART) & Aarhus University Faculty of Science and Technology - Research Centre Foulum. "Website Online-Tool Terranimo." Retrieved 17.11.2015, from <https://www.terranimo.ch/Default.aspx?language=en>.

Home, R.; Balmer, O.; Jahrl, I.; Stolze, M. & Pfiffner, L. (2014). "Motivations for implementation of ecological compensation areas on swiss lowland farms." Journal of Rural Studies **34**: 26-36.



Institut für Wirtschaftsstudien Basel (2015). Bauen ausserhalb der Bauzonen: Fehlanreize im Nichtbaugebiet - eine Übersicht. Schlussbericht vom 27.07.2015. Bern, Bundesamt für Raumentwicklung ARE.

Keller, A.; Meuli, R.; Weisskopf, P.; Zihlmann, U. & Prasuhn, V. (2014). Kompetenzzentrum Boden: Servicestelle für Kantone und Bund, Agroscope, Institut für Nachhaltigkeitswissenschaften.

Miranda, B.; Jacquat, O. & Zürcher, D. (2012). Forschungskonzept Umwelt für die Jahre 2013-2016. Schwerpunkte, Forschungsbereiche und prioritäre Forschungsthemen. Bern, Bundesamt für Umwelt (BAFU): 70 S.

Netzwerk Mineralische Rohstoffe Schweiz (NEROS) (2014). "KiesRohstoffStudie Schweiz KiRoSt." Retrieved 17.11.2015, from http://neros.ch/wp-content/uploads/NEROS_KiRoSt.pdf.

Nussbaum, M.; Papritz, A.; Baltensweiler, A. & Walthert, L. (2014). "Estimating soil organic carbon stocks of Swiss forest soils by robust external-drift kriging." Geoscientific Model Development 7(3): 1197-1210.

Scholl, B.; Vinzens, M. & Staub, B. (2013). Test Planning - A Method with a Future. Main features and information on the practical application of the test planning process using Riedholz/Luterbach as an example. Solothurn, Kanton Solothurn, Amt für Raumplanung, Bundesamt für Raumentwicklung (ARE), Departement für Umwelt, Verkehr, Energie und Kommunikation (UVEK).

Schweizerischer Bundesrat (2012). Verordnung über Belastungen des Bodens (VBBo) vom 1. Juli 1998 (Stand am 1. Juni 2012). Bern, Schweizerischer Bundesrat.

Schweizerischer Bundesrat (2015). Strategie Antibiotikaresistenzen Schweiz. Bern, Schweizerischer Bundesrat.

Schweizerischer Bundesrat; Konferenz der Kantonsregierungen (KdK); Bau-, Planungs- und Umweltdirektoren-Konferenz (BPUK); Schweizerischer Städteverband (SSV) & Schweizerischer Gemeindeverband (SGV) (2012). Raumkonzept Schweiz. Überarbeitete Fassung. Bern, Schweizerischer Bundesrat, KdK, BPUK, SSV, SGV.

Soil Science Society of Switzerland (SSSS) (2014). "Website of the Soil Science Society of Switzerland (SSSS), Documents." Retrieved 17.11.2015, from http://www.soil.ch/cms/index.php?id=dokumente_medien&L=0.

State Secretariat for Education Research and Innovation (SERI) (2015). "Website COST in Switzerland." Retrieved 20.11.2015, from <http://www.sbf.admin.ch/themen/01370/02396/02404/02405/index.html?lang=en>.



Stiftung Landschaftsschutz Schweiz & naturaqua PBK, Eds. (2015). Gesundheit fördern, Landschaft gestalten. Gesundheitsressource Landschaft: Wie sich in Gemeinde-, Stadt- und Quartierentwicklungen dieses Potenzial nutzen lässt. Bern, Stiftung Landschaftsschutz Schweiz, naturaqua PBK.

Swiss National Science Foundation (SNSF) (2011). Research for you - The National Research Programmes (NRPs). Bern, Swiss National Science Foundation (SNSF).

Swiss National Science Foundation (SNSF) (2015a). "Website New Urban Quality, National Research Programme NRP 65." Retrieved 23.11.2015, from <http://www.nrp65.ch/en>.

Swiss National Science Foundation (SNSF) (2015b). "Website SNSF." Retrieved 18.11.2015, from <http://www.snf.ch/en/Pages/default.aspx>.

Swiss National Science Foundation (SNSF) (2015c). "Website Soil as a Resource, National Research Programme NRP 68." Retrieved 17.11.2015, from <http://www.nrp68.ch/en>.

Tobias, S. (2013). "Preserving ecosystem services in urban regions: Challenges for planning and best practice examples from Switzerland." Integrated Environmental Assessment and Management 9(2): 243-251.

Verband Schweizerischer Hartsteinbrüche (VSH); Bundesamt für Landestopografie (swisstopo); Bundesamt für Raumentwicklung (ARE); Bundesamt für Umwelt (BAFU); Kantonsplanerkonferenz (KPK) & Schweizerische Geotechnische Kommission (SGTK), Eds. (2012). Evaluation von Potenzialgebieten für Hartsteinbrüche ausserhalb der Landschaften von nationaler Bedeutung (BLN). Schlussbericht. Bern, Bundesamt für Raumentwicklung (ARE).

von Wirth, T.; Wissen Hayek, U.; Kunze, A.; Neuenschwander, N.; Stauffacher, M. & Scholz, R. W. (2014). "Identifying urban transformation dynamics: Functional use of scenario techniques to integrate knowledge from science and practice." Technological Forecasting and Social Change 89: 115-130.

Wulf, H.; Mulder, T.; Schaepman, M. E.; Keller, A. & Jörg, P. C. (2015) Remote Sensing of Soils. Retrieved 17.11.2015, from http://www.geo.uzh.ch/fileadmin/files/content/abteilungen/rsl1/Remote_sensing_of_soils_BA_FU_report_dpi300_v.pdf.

17. The Netherlands

Report by Linda Maring, Sophie Moinier, Jos Brils

17.1 Introduction

This national report is INSPIRATION deliverable 2.4 - The Netherlands. In the Netherlands, 16 interviews have been performed (NKS that were interviewed are taken up in Annex I). The desk study was based on documents as suggested by NKS (Annex II).

17.2 Research and Innovation (R&I) needs

Topic a: Demand-driven* suggestions for the Strategic Research Agenda (SRA), i.e. suggestions from the perspective of industry, end-users and funders.

Related key question to be answered: **What (new) knowledge do these parties need to tackle societal challenges including the increase of job opportunities)?**

****Demand-driven** in INSPIRATION means focusing on the demands of those who are responsible or feel committed to tackle the societal challenges related to the INSPIRATION scope and themes, i.e. industry, end-users and funders. These parties could improve their business opportunities and/or take better informed decisions on what measures to take and execute in order to tackle other societal challenges if they would (be enabled to) use the knowledge as resulting from execution of the INSPIRATION SRA.

17.2.1. Societal challenges and needs

In the Netherlands, the main challenges are climate change and water supply (and safety), clean environment and smart urbanisation (including transport), food supply and the liveability of rural areas agricultural, resource efficiency and energy supply. These challenges are already seen as challenges that we have to study, but looking at the future they become even more important. Underneath they are mentioned under the challenges as the Eu has formulated.

- Climate action, environment, resource efficiency and raw materials;
Climate change and resource efficiency are seen as serious challenges both in urban as in agricultural areas. Water safety and supply is an issue that is connected to both challenges.
- Health, demographic change and wellbeing;
When looking at health, the care for the quality of the soil-sediment-water- (SSW-) system remains an evident aspect. Many challenges related to demographic changes and wellbeing are related to urbanization. The pressure on and changes in urban areas ask for a vision on smart and healthy cities. Next to contamination, a better link between the natural system and the land use functions is necessary to contribute to resilience.
- Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy;
Food security and especially sustainable agriculture are important challenges in the Netherlands. The agriculture is very intensive and productive, which has repercussions on the quality of soil and water and nature. There is a need for balance between sufficient and cost-effective food production and sustainable, future proof agriculture. Liveability of rural areas, vital soils and care for landscapes are part of this discussion.
- Secure, clean and efficient energy;



The history of natural gas winning in the Netherlands has now serious impacts in the North of the Netherlands (earth quakes). This subscribes the need for better knowledge of the system. The subsurface can play a role in the transition by supplying sustainable energy (ATES, geothermal energy).

- Smart, green and integrated transport;
This aspect is mainly a challenge, looking at SSW- system, while looking at the many subsurface structures (tunnels, cables and pipes) in the Netherlands.

Next to these, there were some crosscutting themes addressed which are needed to solve and meet societal challenges and needs. Governance, system knowledge, knowledge base of stakeholders, valuation of the natural system, data and information and land use or spatial planning were mentioned in this respect.

17.2.2. Topics / research needs to include in the SRA

Many topics and research needs related to the societal challenges as mentioned in 2.1 are retrieved from the interviews and desk-study. Underneath the main topics and their research questions are summarized. The important / relevant documents, research agendas, research programmes underpinning these topics are found in Annex II.

NL-1 Climate change is seen as a serious challenge in the Netherlands in relation to urban areas. Smart planning is needed to make climate proof and resilience cities. The prevention of damage as well as making use of the natural system (green infrastructures) are important aspects. Climate change poses different threats to rural areas: such as salinization, subsidence and droughts. This asks for solutions in terms of adaptation to and mitigation of climate change.

- How to cope with and adapt to climate change (water shortage, water surplus, erosive / extreme rain events, frost free winters, changes in ground water level and flows, failing of primary dikes, etcetera).
- How to make cities resilient and climate proof?
- How to mitigate climate change in a (cost-)effective way (eg. CCS)
- How to improve our water management (continuous cycle of lowering water levels for land uses / subsidence)?

NL-2: (Drinking) water supply and safety. Sufficient water supply for drinking, irrigation and process water is, now and in the future, recognized as a serious challenge. For that reason strategic groundwater supplies are taken up in the Dutch strategy for subsurface planning. How to make decisions between different uses is still subject of discussion.

- How to deal with groundwater levels in relation to different functions in an area (avoiding other threats such as rotting foundation, droughts, wet feet, subsidence, water supply for agriculture)?
- How can different stakeholders collaborate within area-based groundwater management (quality and quantity)?
- How to make choices between different functions within the groundwater?
- How to ensure (drinking) water supply for now and the future and what effects has this for the subsurface (strategic drinking water resources)?
- How to deal with ending large scale groundwater extractions?

NL-3: Resource efficiency. The necessity for sustainable use of resources (including land) is recognized as well as the trend of increased consumption due to a changing lifestyle. Authorities on different levels focus on resource efficiency by investing in circular economy, the food, water, energy nexus and possibilities to make the re-use of (secondary) building material (soil, sediment) possible.

The challenge to become more resource efficient has a broad support. This becomes evident in different trends: 1) (small scale urban) initiatives of citizens connected mainly to food, shorter production circuits, sharing and reuse of products /waste. 2) Companies and industries investing in sustainability. Reduced use of natural resources, better links to the place of business, circular economy initiatives.

- What does circular economy mean when related to the SSW-system and land use?
- How to reuse sediments and soil in a safe and cost-effective way?
- How to lower inputs in an urban, industrial and rural setting?

NL-4: Soil remediation. Dealing with historic contamination is still on the agenda, mainly in terms of organisation and financing. At the other hand: new contaminants pose possible risks and ask for a research effort. Sustainable transformation from brownfield to productive land remains to be a complex topic. In practice it can be very difficult to comply with national and European regulation.

- How to deal with anthropogenic/ new substances?
- How can regulation for (quality) of soil / water / sediments be better matched (eg to comply with objectives such as WFD)
- How do the soil, water and sediment interact within the system?
- How to ensure a good link between land use and soil-water quality (related to “the end” of the Dutch remediation operation, aftercare, more open soil, recreation in new places such as city canals)?
- What new (innovative, sustainable and (cost-)effective) remediation techniques and analysis methods can be developed?
- What strategies are effective for management and removal of contamination in relation to land use (eg area-based groundwater management, brownfield regeneration)?

NL-5: Smart and healthy cities. Many challenges related to demographic changes and wellbeing are related to urbanization. The pressure on and changes in urban areas ask for a vision on smart and healthy cities, to ensure liveability in the future and avoid damage and unnecessary costs.

- How to deal with changing demographics in existing cities (more freelancers, empty offices and shops, demand for housing (smaller households), brownfield regeneration)
- How to make cities resilient and climate proof?
- What strategies and techniques are available to avoid soil sealing?
- How to manage the cities assets above and under the ground in such a way that functions are maintained?
- How to deal with threats from the SSW-system such as rot on wooden poles (foundations) and subsidence?

NL-6: Sustainable agriculture. The agriculture is very intensive and productive, which has repercussions on the quality of soil and water and nature. This contributes to the difficulties to comply with the Water Framework Directive (WFD). A divide is seen in the agricultural sector: 1) More intensive up-scaled farms in rural areas and 2) Local initiatives (urban agriculture) around city borders.

- How can we make intensive agriculture more sustainable (to lower impacts on ecology and be able to comply with WFD)?
- What is our vision on the future of agriculture (trend: on the one hand more intensive up-scaled agriculture, the other hand multifunctional border of urban areas with small scale food production. What was in-between is disappearing: the traditional medium size family businesses)?
- How can we improve the match between suitable agricultural use and suitable soils?
- How to deal with threats such as soil subsidence, salinization in relation to agriculture?



NL-7: Liveability of rural areas. There is a need for balance between sufficient and cost-effective food production and sustainable, future proof agriculture. Liveability of rural areas, vital soils and care for landscapes are part of this discussion.

- How to change nature development (link with soil suitability, involvement of public)?
- How to safeguard landscapes in the Netherlands?
- How can we match economic scenarios and our vision to have attractive, liveable landscapes?
- How to ensure spatial quality in large scale projects (as is done in “space for the river”)?

NL-8: Secure, clean and efficient energy The history of natural gas winning in the Netherlands has now serious impacts in the North of the Netherlands (earth quakes). This subscribes the need for better knowledge of the system and also influences the opinion of the public on (future) subsurface functions such as Carbon Capture and Storage (CCS) or unconventional gas winning. The energy transition has spatial impacts, both aboveground and in the subsurface, that need to be considered when making choices. The subsurface can play a role in the transition by supplying sustainable energy (ATES, geothermal energy).

- What spatial impacts has the energy transition?
- How to (improve the) use of the SSW-system for sustainable energy?
- How to better store and transport energy (and use the subsurface for this)?
- What are effects of interventions in the subsurface related to energy functions (natural / unconventional gas winning, ATES, etc)

NL-9: Smart, green and integrated transport This aspect is mainly a challenge, looking at SSW- system, while looking at the many subsurface structures (tunnels, cables and pipes), in terms of of asset management and spatial planning. Many parties are involved here, which also has a governance aspect. Further the carrying capacity of the subsurface (knowledge of the system) can be mentioned related to transport.

- What innovations are possible for (maintenance on) underground infrastructure?

NL-10: Governance Asking more integrated questions asks for understanding of, and in some cases, changes in the governance system. Policies and, regulation need to become less sectorial. This asks for other arrangements and collaboration. Dealing with insecurities when working with the SSW-system also poses challenges in terms of “governance”. Risk-based and adaptive practices are valuable here.

- How to transform governance from a control model to an adaptive model?
- How can we work on integrated issues, in an effective way (T-shaped knowledge)?
- How can we translate regulation to a location to avoid mismatches between regulation and practical situations?
- How can we shape effective processes to solve integrated challenges (how to collaborate, who is involved, who leads)?

NL-11: System knowledge. Knowledge of the natural system (and man-made system) “system knowledge” is needed to make decisions. In this way effects and risks can be taken into decisions. Also when designing innovative solutions in terms of geo- or eco-engineering, knowing the system and its responses is necessary.

- What can geo-engineering and eco-engineering contribute to societal challenges?
- What are the 4D (horizontally and vertically in space and in time) effects of interventions in the SSW-system and land use?
- What (autonomous or human induced) threats and changes can we expect the coming 50 years (soil subsidence, changes in water levels and flows, chemical state etc)?



NL-12: Knowledge base The level of knowledge (eg by authorities, and also the value of schooling) and exchange of knowledge were mentioned in this respect. To make decisions, formulate research questions and use research results in practice, a sufficient level of knowledge is needed.

- How to keep the knowledge base on the SSW-system and land use on a sufficient level within organisations and authorities (knowledge management, schooling, exchange, collaboration)
- How to deal with integrated challenges? (multidisciplinary work, right processes)

NL-13: Valuation of the SSW-system (ecosystem services)

To use the natural system we need to know what it is worth in terms of benefits and economic value: valuation of the SSW-system (ecosystem services). When this made more explicit, it can be part of making (spatial) choices.

- How to make use of the ecosystem in a sustainable way (from “knowing what it has to offer” to ending the use of a service)?
- In what ways can industries contribute with its (sub)surface to deliver services to the surrounding area?

NL-14: Data and information. The role of (big, open) data and information becomes more and more important. Possibilities grow, while at the other side aspects as reliability and privacy need attention.

- How to supply participants in “bottom-up” initiatives with the right information to make save and sound plans (eg. related to urban agriculture)?
- What means big data for the field of the SSW-system and land use, for different stakeholders?
- How can we improve monitoring and modelling?
- How can we improve recording and exchange of subsurface information (and thus the actual use in spatial designs and (re)development projects)?

NL-15: Land use. There is a need for a vision on the use of space in the Netherlands that goes beyond urban areas. This vision should address vision the future of the agricultural sector, the role of landscapes, the place of subsurface functions (and ecosystem services) in relation to land. To make such a vision, the role of the Netherlands within Europe and the world is of importance.

- What is our vision on the use of space in the Netherlands (This vision needs to address sustainable urbanization, the future of the agricultural sector, the role of landscapes and the place of subsurface functions (and ecosystem services) in relation to land)?
- How can we give content to discussions around sustainable land use, looking over sectorial boundaries and with consideration for the future?
- How to deal with land ownership in relation to our vision on sustainable land use?
- How to improve the match between land use and suitability of the SSW-system and thereby resilience of land uses (aboveground and subsurface functions and qualities)?

17.3 Experiences regarding connecting science to policy/practice

Topic b: *Experiences regarding the exploitation of scientific knowledge to improve business opportunities and/or tackle other societal challenges.*

*Related key question to be answered: **Where to improve the science-policy interface so that (new) knowledge can and will be more effectively exploited by the demand side?***

17.3.1. Use of scientific knowledge

‘Scientific knowledge’ is defined in different ways by the NKS:

“Knowledge that contributes to understand “how things work”, “Facts, numbers, statistics, process descriptions and experiences”; “Knowledge that is developed on scientific principles, and fundamentally or experimentally determined”; “Knowledge to solve problems” or “Factual knowledge”.

The difference between fundamental, strategic and applied research is broadly known and used in the Netherlands. The trend is that the focus of research shifts towards applied research, which can cause a gap on the side of fundamental research, which is expressed as a concern.

Many sources for scientific knowledge are used. Especially the more ‘personal’ ways to get knowledge are mentioned more frequent: own experience in research projects, colleagues, national and international experiences/examples. Knowledge “in people” is very valuable. Also more traditional ways for knowledge dissemination such as scientific articles and conferences, and reports and websites (www.soilpedia.nl, www.natuurlijkealliantie.nl, www.EUGRIS.org, EU portals, websites of research institutes) are mentioned.

It was stressed that knowledge exchange by reports is in some cases out-of-date. Serious gaming is mentioned as an alternative. We can learn here from universities that have knowledge transfer as core business.

Most NKS use (in higher or lower extent) scientific knowledge. They value knowledge to make well-founded choices in practical situation and for policy. Scientific knowledge is in the Netherlands certainly used for policy making. Co-creation between scientists and policy makers is mentioned as an effective method. However, in many cases the link between science and policy can be improved. As obstacles are mentioned:

- The value or credibility that is attributed to research
- Time span of programming. Urgent questions (short-term) get the research money
- *“Knowledge gives the policy maker what a lamppost gives the drunk: no light but support”*
- Difficulty to formulate the right questions. The dialogue between science and policy needs to be improved
- Research attitude is missing *“Policy makers search for answers and not for questions”*

17.3.2. Possibilities to set the agenda

The ability to influence research agendas differs per party. Many parties are involved or have the ability to join the conversation in the Netherlands. But as mentioned: *“To get something on an agenda is easier than to get something under the attention.”* The latter is more important. A research program should be well designed, facilitating coherent, long



term research. Linking research questions to societal challenges works well to get it on under the attention. For industries it is harder to set the research agenda, because they could be suspected to influence results.

The Dutch national policies/agendas reflect to a reasonable extent specific needs and priorities of different national parties. Sometimes it needs some time. Good examples and a good story work very well: “*show & tell*”. However, there are more agendas than there is funding for research.

17.3.3. Science – policy – practice

Many of the NKS have been involved in doing scientific research, the formulation of scientific research questions and synthesizing/wrapping-up of scientific knowledge eg. for policy making. The lessons learned are:

- Practice When science needs to be used in practice, it is advisable to use the practical situation as a starting point, otherwise the scope of research will be too broad.
- Time Also it is important to have sufficient time. It needs investments in terms of time and effort to get knowledge to practice. The time scale between research (long term) and government (short term) is different and should be matched better.
- People The right people need to be involved: experts, visionaries, managers. People are the backbone of the knowledge field. The role of researchers and policy makers in the science-policy interface can be improved. The researchers also need to translate the results of the research to an interpretation that is valuable for policy. They can also help formulating the right question. Policymakers must look beyond the answers they need to do their job. They should adopt a helicopter view, looking over the boundaries of their field and to the problems and challenges behind the “now and here” questions. This enables them to ask the right questions to research.
- Trust To get research in practice, all parties must trust the outcomes of the research

Apart from the above discussion, many NKS emphasize the attention for fundamental research. In the Netherlands the trend is to focus on more short term results, applied research for direct questions. “*There are two knowledge cycles. One to go from nothing to something and one to go from something to something better.*” The first cycle gets not enough attention. This has as a result that no new knowledge will be developed.

The Science-Policy-Interface documents that were recommended are listed in annex II.

17.4 National and transnational funding schemes

Topic c: Predominantly used as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination.

Related key question to be answered: *How to get with one Euro of national/regional funding a multitude of Euro's (from all sources) worth of knowledge in return contributing to EU and national demands? Or even how to get with one euro of EU funding a multitude of euro's (from national, regional, local, and private sector) worth of knowledge in return contributing to the R&I demands on Land and the Soil-Sediment-Water system.*

Topic d: Experiences regarding the use of any trans-national, common budget for scientific knowledge production related to the scope of INSPIRATION.

Related key question to be answered: *How to set up/govern the appropriate funding option(s) resulting from INSPIRATION – based on previous learning experiences – so that: (1) the above demands will be fulfilled, (2) knowledge resulting from implementation of the SRA will be taken up and used and (3) funders experience that their invested, national Euros are indeed multiplied?"*

17.4.1. Funding schemes and possibilities for research funding

International

No examples of international funding schemes were mentioned in the interviews, although some international collaboration was mentioned.

European

programme	comments
H2020 (and before EU Framework Programmes).	+European projects can be effective when stakeholders are involved, it is not fundamental research, but can show new possibilities -The bureaucracy is a constriction to involve some stakeholders. It is difficult to find ways to improve this.
Joint Programming Initiatives - JPI's	+By collaborating in a smart way, you can multiply national euros -Difficult to translate to practice -In the Netherlands the financing for this has decreased
Interreg	financed by the European Regional Development Fund, helps regions of Europe share knowledge and transfer experience to improve regional policy http://www.interreg4c.eu/
ERANET (European Research Area Network)	Instrument for research and innovation +Good constructions
LIFE +	Financial instrument supporting environmental and nature conservation projects throughout the EU http://ec.europa.eu/environment/life/ -Complicated procedure
SNOWMAN	+good example for international collaboration +involvement of end-users (demand driven) -too much acquisition needed
European structural funds	Used to lower economic deprivation. Works within Wetsus (see national schemes)
European subsidies	Eg. for agricultural sector, European rural development programs

Overall comments:

Europe is complicated. There are too many procedures and bureaucracy to submit proposals. Large and experienced parties are most successful. A solution can be to make more 2-stage procedures. 1: Simple project idea and a more complex second stage for a full proposal. The evaluation of proposals should match better with the call text. At the moment, the questions are more integrated, multidisciplinary, but the assessment of proposals is still very sectorial.

National

programme	comments
HABIFORUM / BASIC	+ for front runners. Enough money, gives positive impulses -programme has stopped
NOBIS / SKB	+ open tenders, open for new ideas, gives positive impulses +demand driven with involvement of end-users -programme has stopped
KIBO knowledge and innovation program soil and subsurface	Start January 2016 Works with business cases (25% KIBO, 75% research, advisors, business & industry) +Demand driven, end users involved
Money related to national tasks and dossiers	Such as Soil Protection Act: Wbb transition money, RWS Corporate Innovation Program, Policy supporting research (BOA) etc -Large projects have very large overhead because of audits
STOWA (Foundation for Applied Water Research)	Space for innovative ideas Enough flexibility. Scope is quite narrow (water) http://stowa.nl/english/
Fundamental research of universities	Part of this research is financed by society +back bone for knowledge development +maintain knowledge base -budgets are decreasing
3 rd flow of funds (universities)	public, private, with industries and governments (project oriented research) +can be substantial
NWO	Universities can finance PhDs en postdocs with NWO -more difficult to get direct finance for permanent research university staff (PhDs and postdocs leave, the knowledge does not consolidate) -not all parties can participate
Applied research of research institutes	Part of this research is financed by society + important role in eg collection of data +maintain knowledge base -budgets are decreasing
Topsectors	+collaboration with business community -importance to keep objective -sectorial impuls, less space for integrated subjects and not all subjects fit in: landscapes, subsurface)
TKI (<i>top consortia for knowledge and innovation</i>)	-not all parties can participate http://www.rvo.nl/subsidies-regelingen/tki-toeslag

Overall comments:

The gap between fundamental and applied research was mentioned many times. There is more money now available for applied research. The sectorial character of the top sectors is also reason for concern. For some more integrated research it is difficult to get funding.

Regional / local

programme	comments
new collaborations co-creation	Many parties have some budget and the same questions. Join forces. Trust is needed within collaboration -“ear marked” research money can hamper collaboration +delivers more than a question on an answer: networks, continued effects
Project based research	Ad hoc/ made-to-measure research
Networks / collaboration within regions / COPs / living labs	All parties contribute to the group. Together problems are tackled (Examples SBRCURnet, AMS, Kenniscentrum Healthy Urban Living, railforum, Nudge)
Public-private collaboration	public-private collaborations
Citydeals Greendeals	public-private collaborations between business and industry, governments, research partners and societal initiatives http://agendastad.nl/ https://www.rijksoverheid.nl/onderwerpen/duurzame-economie/inhoud/green-deal
Wetsus	Infrastructure is provided. Parties that want to innovate join. Also the city and region participate (stimulating economic development of the region) +bridge between research and market
Social / sustainability funds / pension funds	These funds are interested in investments that give long term revenues (Eg ABN Amro Social Impact Fund)
Crowdfunding	clear research question and contact with the crowd is needed -difficult for research projects -many eyes are focussed on the research. Failure is no option
Revolving funds	Labelled money. The investment should give revenues. The difference with an investment fund is that it should serve a public goal.
Industries	Most industries have own research funding /innovation budgets -perception on the value of the research can be negative
Decentral authorities	Have their own budgets -more tasks and less money lower the “freedom” in doing research Examples: Deltaplans, provincial development funds

Overall comments:

There is a lot of attention for business cases. This can be very difficult money and there should remain attention for flexibility, innovation, seed money for good ideas. A lot of attention exists for involvement of small and medium sized enterprises (SMEs), because a lot of money goes on within SMEs. This is a lot of money in total. Per organisation this is limited. Therefore, the flexibility for them to join a research initiative is also limited. They focus on continuity of their business and money spend should serve a direct goal.

17.4.2. Gaps in financial resources for resource

Topics that are not or insufficiently covered within research programs and funding possibilities, are obviously the aspects that are not directly linked to tasks or core business of organisations. If there is no direct ownership, while these subjects between sectors can give us interesting insights and impulses for innovations. We have to “brand” these aspects in a better way to get financing. Shrinking cities and soil subsidence are examples that were left alone for a long time in the Netherlands, but are now on the agenda after much effort.

Aspects that need more attention:

- Land use and monitoring
- Landscapes
- Rural development
- Illnesses related to agriculture: e.g. Q fever
- Nature policy and legislation
- How to deal with invasive species.
- Integrated approach eg. needed for eco-Engineering projects
- Landfills in rural areas eg. possibilities for landfill mining / Biomass
- Soils and subsurface
- Radioactive waste (on a European level)
- Revision standards for soil classes
- Emerging contaminants
- Hormones in (drinking) water
- Trans-border issues

Programming and financing of research and policy are in the Netherlands (and also in the EU) still quite sectorial. This obstructs integrated research and approaches. For integrated research, collaboration should be sought. Make a good analysis in terms of people planet and profit to communicate the benefits and needs of the research. Show who invests and who gets the benefits. Search for synergies. You have to involve other fields of expertise, show overall value and find ways to spend earmarked money to a broader project. This takes a lot of effort.



17.5 Other remarks made by interviewees

Messages for the INSPIRATION consortium:

- Pay attention to the presentation and communication of the SRA. Pitches and stories work better than a 100 page report (multimedia presentation of the agenda?)
- Show paradoxes (food supply by up-scaled industrial agricultural verses the trend of more biological and local agriculture)
- Agendas can be demand / solution driven, but also inspirational and creative
- Incite the public with the SRA and relate the questions to possibilities for the stakeholders to take action.
- Pay attention to practical solutions and examples
- It is good to spend attention to innovation. We cannot steer innovation but pay attention to creation of a positive climate for innovation
- Pay attention to the position of women in science. In the Netherlands just 17% van de professors is female
- Make sure the NKS remain involved during the project. A platform where stakeholders can meet on a regular basis and reassess progress and objectives (a lot can change in 3 years).
- How can we show on a national basis what we already can do? Match strengths of countries to questions in other countries

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



17.6 Annexes

1a: NKS interviews in the Netherlands

Date of interview	Organisation	Interview	funder	end user	knowledge provider	Nat.reg.loc. authority	Univ./ research inst	SME /consultant	business & industry	NGO	network	other	soil	sediment	water	land use-management
17-06-15	ProRail	Jeroen ter Meer & Paul van der Voort	1	1					1				1			1
30-07-15	KIBO	David vd Burg	1			1							1			
30-07-15	IenM	Ruud Cino	1	1		1							1			
04-08-15	Nudge	Tieneke Broomhaar			1			1							1	1
06-08-15	SBR-CURnet	Geert-Jan Verkade	1	1							1		1	1	1	1
06-08-15	Platform31	Jeroen Niemans									1					1
13-08-15	Bouwcampus	Han de Wit		1	1		1		1		1		1			1
13-08-15	Waternet	Fred de Haan	1	1		1								1	1	
20-08-15	TCB	Joke van Wensem	1		1	1							1			
26-08-15	RUG	Rien Herber			1		1						1			1
27-08-15	SEDNET / RWS	Pieter de Boer	1	1	1	1					1			1		
31-08-15	VITENS	Johan Driessen		1					1						1	
01-09-15	TUD	Fransje Hooimeijer			1		1									1
02-09-15	Nicole / TAUW	Laurent Bakker			1			1					1		1	
09-09-15	WUR	Bas Pedrol			1		1						1			1
15-09-15	Prov Brabant	Jaap Harthoorn	1	1		1							1	1	1	1



Annex Ib: NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training on 22nd – 23rd June 2015.

[Note: this questionnaire template is meant to help National Focal Points (NFPs) to facilitate the interview/conversation with the National Key Stakeholders (NKS). Some questions are relevant to one NKS, other questions to another NKS. Hence, not all questions are relevant to each single NKS. The NFPs are required to adapt the template accordingly – keeping in it as many as possible of the issues to be addressed. If needed, the NFPs also translate the questionnaire into their national language.]

The questionnaire (see next pages) has the following outline:

KKKK. Interview information:

To be filled out by the interviewer

LLLL. Introduction:

That the interviewer can use to start the NKS interview

MMMM. Background information of the NKS interviewed:

Mostly 'tick-boxes'

NNNN. Strategic Research Agenda (SRA):

NKS preferred topics, overarching themes and scope for the SRA and national state-of-the-art on research agendas that the NKS is aware of

OOOO. Science-Policy-Interface:

NKS experiences regarding the exploitation of scientific knowledge to: improve business opportunities; tackle other societal challenges; assist policy-implementation and/or policy revision

PPPP. Funding:

Predominantly used as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination that the NKS is aware of

QQQQ. Other:

At the end there is some time advised to let the NKS give us their advice, some nice quotes (that we can use anonymously in our communications), examples etc.

RRRR. Ending the interview:

Explain follow up and if/how NKSs will be involved in the next steps of INSPIRATION



Questionnaire template in National Language

A. Interviewinformatie
Land: Naam van INSPIRATION interviewer en organisatie: Datum Interview: Hoe kunnen we naar de stakeholder refereren (als persoon/vertegenwoordiger van netwerk/organisatie)
B. Introductie
<i>Zie handout (Annex Ic)</i>
C. achtergrondinformatie geïnterviewde
1. Naam van de geïnterviewde stakeholder: 2. Organisatie 3. Rol
4. Bent u (meerdere antwoorden mogelijk): ☐ Nationale / regionale / lokale overheid ☐ Universiteit / onderzoeksinstituut ☐ MKB (<500 medewerkers)/consultant ☐ Zakelijke markt / industrie ☐ Non-Governmental Organisation (NGO) ☐ Vertegenwoordiger netwerk ☐ Anders, specificeer:
5. Expertise (meerdere antwoorden mogelijk): ☐ Bodem ☐ Water ☐ Sediment ☐ Stedelijke / ruimtelijke planning ☐ Landschapsarchitect ☐ Gebiedsbeheerder ☐ Anders, specificeer:
6. Financiert uw organisatie extern onderzoek? ☐ Ja, specificeer (als programmatrekker, incidenteel, publiek, privaat, ...)..... ☐ Nee

D. Strategische Onderzoeksagenda

7. Welke maatschappelijke uitdagingen ziet u als leidend?

[voorbeeld EU maatschappelijke uitdagingen:]

1. *Bijdragen aan voedselzekerheid en –veiligheid;*
2. *Voldoende en zekere drinkwatervoorziening;*
3. *Voldoende en zekere energievoorziening en -distributie;*
4. *Verminderen en efficiënt gebruik van materialen en (natuurlijke) hulpbronnen;*
5. *Bijdragen aan mitigatie en adaptatie klimaatveranderingen;*
6. *Bijdragen aan een gezonde leefomgeving;*
7. *Zekere en veilige infrastructuur*

a) Indien van toepassing: welke aanvullende / alternatieve thema's raadt u aan?

[Als voorbeelden nodig zijn: denk aan thema's als natuurbescherming, duurzaam gebruik van ecosysteemdiensten, tegengaan afname biodiversiteit]

8. Vanuit uw praktijk: welke onderwerpen (onderzoeksvragen) zouden in de onderzoeksagenda opgenomen moeten worden?

[Vervolg vragen per genoemd onderwerp, a, b en c zijn vereist, de overige vragen optioneel]:

ee. Leg het onderwerp svp verder uit

- *Wie heeft daar last van?*
- *Wie is verantwoordelijk?*
- *Is het een belangrijk onderwerp voor uw organisatie?*
- *Is het een nationaal probleem, of hebben andere landen er ook mee te maken?*
- *Waar staan we nu en waar willen we over x jaar zijn, (punt op de horizon)?*
- *Hoe kan nieuwe kennis effectief worden ingezet in de praktijk?*

ff. Prioriteit:

1. *Hoge prioriteit*
 2. *Enige prioriteit*
 3. *Neutraal*
 4. *Lage prioriteit*
 5. *Geen prioriteit*
- *Wat is de urgentie, wat gaat mis als we niks doen?*

gg. Wie wil dit onderzoek financieren (of wie zou dit moeten doen)?

[Optioneel: check of de onderstaande onderwerpen relevant zijn]

- *Beoordeling voorraden / hulpbronnen*
- *Productiviteit van land en bodems*
- *Vraag naar land-bodemvoorraden, import en export*
- *Concurrentie tussen verschillende soorten landgebruik (conflicten)*
- *Concepten om impacts te identificeren en kwantificeren*
- *Instrumenten om impacts te vermijden / minimaliseren (feedback naar beslissingsproces)*
- *Kansen voor innovatieve landgebruikstechnologieën*



- *Op voorraden georiënteerde landbeheerssystemen*
- *Bodemherstel / regeneratie*
- *Bodem en grondwatersanering*

9. Gerelateerd aan de benoemde onderzoeksvragen:

- a) Welke documenten / agenda's / onderzoeksprogramma's onderbouwen de onderzoeksvraag?
- b) Welke tijdlijn hoort bij de programmering / het opstellen van deze agenda's programma's?

[vraag 9b is input voor werkpakket 5]

E. relatie wetenschap-beleid (Science-Policy-Interfacing)

10. Hoe omschrijft u 'wetenschappelijke kennis'?

11. Waarvoor gebruikt u wetenschappelijke kennis in uw werk?

12. Wat zijn uw bronnen voor (wetenschappelijke) informatie?

[Open vraag gebruik onderstaande bronnen eventueel als voorbeeld]

o wetenschappelijke artikelen	o kranten
o adviseurs	o televisie
o rapporten	o conferenties
o collega's	o data (bases)
o betrokkenheid in onderzoeksprojecten	o websites, such as:
o ervaringen/voorbeelden in eigen land	o other, specify:
o ervaringen/voorbeelden in het buitenland	

13. In hoeverre gebruikt u nieuwe / recente wetenschappelijke kennis (state of the art wetenschappelijke inzichten) om uw werk uit te voeren?

14. In hoeverre (en hoe) kunt u de agendering rond wetenschappelijk onderzoek / beleid beïnvloeden in uw land?

15. In hoeverre komen uw specifieke vragen en prioriteiten terug in nationale agenda's beleid?

16. In hoeverre wordt de state of the art in wetenschappelijk onderzoek gebruikt bij formulering van beleid in Nederland?

[vragen voor NKS uit de niet-wetenschappelijke sector (bedrijven en beleidsmakers:)]

17. Bent u ooit betrokken geweest bij:

- j. De formulering van wetenschappelijke onderzoeksvragen?
- k. Uitvoering van wetenschappelijk onderzoek (i.e. kennis co-creatie)?
- l. Samenvatten van wetenschappelijke kennis, bijv. ten behoeve van beleid maken of om marktkansen te vergroten?

[indien ja: vervolgvragen]

- Hoe succesvol/toereikend was dit op een schaal van 1-5?

46. Zeer succesvol/toereikend

47. Succesvol/toereikend

48. Neutraal

49. Onsuccesvol / ontoereikend

50. Zeer onsuccesvol / ontoereikend

- Wat ging goed?
- Wat kon worden verbeterd?
- Wat te vermijden?
- Aanvullende opmerkingen?

[vragen voor NKS die hier iets in te brengen hebben (bijv financiers van onderzoek)]

18. (Hoe) wordt de maatschappelijke impact van wetenschappelijk onderzoek (gerelateerd aan de INSPIRATION scope) bepaald in Nederland?

[als NKS hier weet van heeft: vervolgvragen:]

- Hoe succesvol/toereikend was dit op een schaal van 1-5?

1. Zeer succesvol/toereikend

2. Succesvol/toereikend

3. Neutraal

4. Onsuccesvol / ontoereikend

5. Zeer onsuccesvol / ontoereikend

- Welke indicatoren werden gebruikt?
- Wat ging goed?
- Wat kon worden verbeterd?
- Wat te vermijden?
- Aanvullende opmerkingen?

19. Welke documenten over het nationale grensvlak tussen wetenschap / beleid kent u of kunt u aanraden?

F. Financiering

20. Welke ervaringen en verwachtingen tav financieringsmogelijkheden (publiek / privaat) kent u die kansen kunnen bieden voor toekomstig onderzoek op het gebied van de INSPIRATION agenda:

- a) Lokaal / Regionaal?
- b) Nationaal?
- c) Europees? *[bijv. H2020, Interreg, Joint Programming Initiatives]*
- d) Intercontinentaal? *[bijv. Belmont Forum]*



<i>[link aan beleidsdoelen in Land & natuurlijk systeem, zoals Sustainable Development Goals voor bodem (wordt op UN level in September 2015 vastgesteld, bestaande EU richtlijnen zoals de Environmental Liability Directive, etc. Vraag naar publieke en private financieringsbronnen en naar relevante details en bronnen (documenten, websites)]</i>
21. Op welke manier kunnen we de toegevoegde waarde van verschillende financiële bronnen verhogen (multiplier) voor het doen van onderzoek wat bijdraagt aan de EU en nationale wensen, met name tav de onderzoek en innovatiebehoeften op het gebied van land en het BWS-systeem. <i>[CONSTRUCTIES die kunnen werken: Publiek-private constructies en initiatieven Vraag zo open mogelijk naar suggesties, ideeën, ervaringen, goede voorbeelden]</i>
22. Zijn er gebieden binnen de INSPIRATION scope waarvan u weet dat daar momenteel geen financiering voor is in de huidige situatie en waar nieuwe / andere financieringsconstructies gewenst zijn?
23. De integrale aanpak (benodigd voor de maatschappelijke opgaven waar land en het BWS sediment meespelen) zijn gewoonlijk lastig om te financieren en worden niet altijd herkend door onderzoeksgemeenschap. Wat is nodig om dit op te pakken?
e) Heeft u ervaring met hoe we het beste financiering voor onderzoek kunnen opzetten en beheren zodat maatschappelijke behoeften worden vervuld, kennis die voortkomt uit wordt gebruikt in de praktijk en de financiers ervaren dat hun geïnvesteerde (nationale) euro's inderdaad nuttig zijn gebruikt en vermenigvuldigd. <i>[als NKS hier weet van heeft: vervolgvragen:]</i> - Hoe succesvol/toereikend was dit op een schaal van 1-5? 1. Zeer succesvol/toereikend 2. Succesvol/toereikend 3. Neutraal 4. Onsuccesvol / ontoereikend 5. Zeer onsuccesvol / ontoereikend - Welke indicatoren werden gebruikt? - Wat ging goed? - Wat kon worden verbeterd? - Wat te vermijden? Aanvullende opmerkingen?
G. Overige (opmerkingen, suggesties, voorbeelden):



H. einde van het interview

Bedankt voor deelname:

- Wilt u op de hoogte gehouden worden over INSPIRATION
- Kent u iemand die we ook zouden moeten interviewen?
- Heeft u nog andere vragen n.a.v. dit interview?
- In welke informatie bent u geïnteresseerd en hoe benaderen we u daarvoor?
[bespreek het feedbackmechanisme en hoe de uitingen in het interview zijn gedaan, als persoon, organisatie, netwerk. Checklist:]
 - s. Uit te wisselen informatie / feedback zal worden gegeven op:
 - (compleet interview, niet aangeraden)
 - Samenvatting van belangrijkste punten interview
 - Nationale rapportage, nationale contributie aan D2.4
 - Complete D2.4, alle landen
 - t. Geprefereerde wijze van feedback geven:
 - geen feedback
 - informele feedback
 - formele feedback (bijv. uit naam van organisation)

[Check: heb je de 'consent form' en hoe we naar de stakeholder refereren (als persoon/vertegenwoordiger van netwerk/organisatie) besproken?]

INSPIRATION acknowledges the received funding from the
European Community's HORIZON2020 Framework Programme
under grant agreement no 642372



Annex Ic: NKS hand-out: INSPIRATION interview at a glance

Doel van INSPIRATION:

Hoofddoel van het EU-project INSPIRATION is om een vraaggestuurde, strategische onderzoeksagenda op te stellen om te onderzoeken hoe landgebruik(sveranderingen) en het bodem-sediment-water (BSW) systeem kunnen bijdragen aan de huidige en toekomstige maatschappelijke uitdagingen en behoeften.

Daarnaast onderzoekt het project manieren om de onderzoeksagenda te kunnen implementeren en een netwerk van publieke en private financiers te vormen, welke bereid zijn te investeren in de uitvoering van de onderzoeksagenda.

Nationale “Key Stakeholders” (NKS):

De Nationale “Focal Points” (NFP) zullen in elk deelnemend land een aantal interviews met de NKS uitvoeren met als onderwerpen:

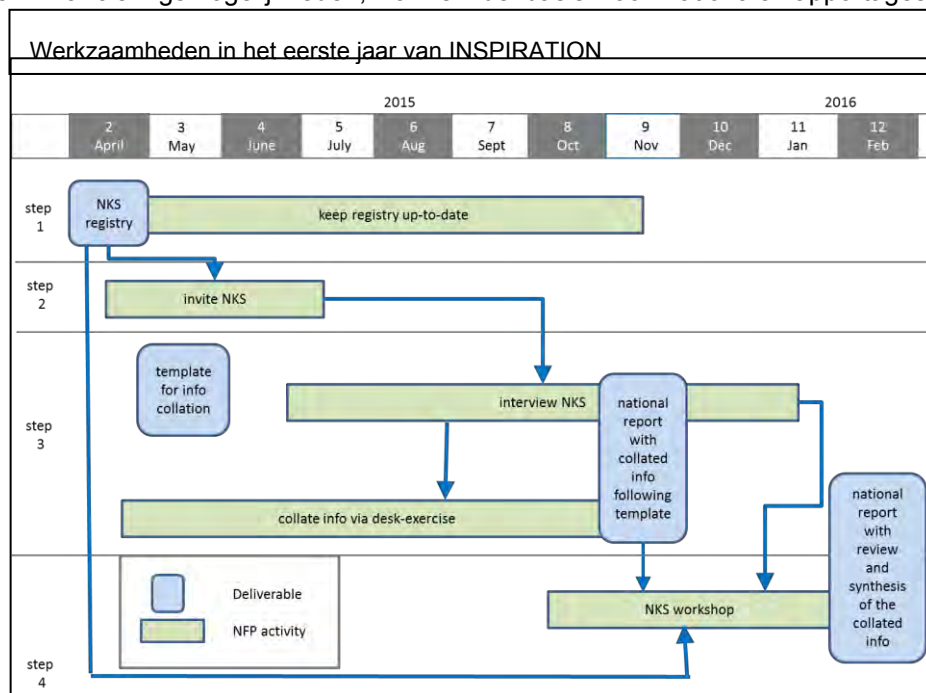
- Onderzoek en innovatie-behoefte ten aanzien van landgebruik en het natuurlijk systeem in het licht van maatschappelijke opgaven
- Ervaringen ten aanzien van de connectie tussen wetenschap en beleid/praktijk
- Nationale en transnationale financieringsconstructies

In de interviews bevragen we NKS zoals u, die op strategisch niveau opereren: leidende personen binnen een expertiseveld met visie op en inzicht in de kennisbehoeften (op verschillende tijdschalen) en financierings- en samenwerkingskansen. De NKS zijn goed vertegenwoordigd in diverse (professionele) netwerken en hebben de potentie om als ambassadeur voor INSPIRATION op te treden. De NKS zijn geselecteerd zodat verschillende disciplines en rollen (zoals ruimtelijke ordenaars, managers, bodem-, sediment- en waterexperts, onderzoekers, financiers en beleidsmakers) goed vertegenwoordigd zijn in het Nederlandse NKS netwerk.

Dit interview:

Het verkrijgen van uw input is cruciaal voor het project, om zo de state-of the art in Nederland te beschrijven als input voor de Europese agenda. In het interview gaan we in op diverse onderwerpen en vragen. De NKS interviews (ca. 20 per land), tezamen met een bureaustudie naar onderzoeksbehoeften en financieringsmogelijkheden, vormen de basis voor nationale rapportages.

Deze worden vervolgens getoetst in een nationale workshop waarin onderwerpen worden geprioriteerd om de Nederlandse inhoud en aandachtspunten neer te zetten. De resultaten worden gebruikt als input voor de Europese strategische onderzoeksagenda en als basis voor het leggen van verbanden tussen onderzoeksbehoeften en financieringsmogelijkheden tussen de Europese landen.





Voorbeeldvragen:

Strategische Onderzoeksagenda

- Welke maatschappelijke uitdagingen ziet u als leidend?
- Vanuit uw praktijk: welke onderwerpen (onderzoeksvragen) zouden in de onderzoeksagenda opgenomen moeten worden?

Ervaringen ten aanzien van de connectie tussen wetenschap en beleid/praktijk

- Hoe omschrijft u 'wetenschappelijke kennis'?
- In hoeverre wordt in Nederland gebruik gemaakt van de state-of-the art in wetenschappelijk onderzoek bij het formuleren van beleid?

(Trans)nationale financieringsconstructies

- Verstrekt uw organisatie externe onderzoeksfinanciering?
- Welke ervaringen en verwachtingen t.a.v. financieringsconstructies (publiek / privaat) heeft u, die kansen kunnen bieden voor toekomstig onderzoek op het gebied van landgebruik en het bodem-sediment-water system?

Wat levert deelname u op:

- Een kans om de Europese onderzoeksagenda te beïnvloeden op het gebied van management van land en het natuurlijk system in het licht van maatschappelijke uitdagingen en behoeften;
- U kunt gebruik maken van de resultaten van het project: een overzicht van onderzoeksbehoeften, bestaande en nieuwe veelbelovende financieringsconstructies (regionaal, nationaal, Europees, internationaal) en inzicht in de mogelijkheden voor een betere verbinding tussen wetenschap en beleid/praktijk;
- U kunt in contact komen met andere netwerken in binnen- en buitenland, u krijgt inzicht in welke andere landen uw opgaven delen en hoe u deze samen kunt oppakken.



Annex II: Documents used for the desk study

Documents underpinning societal challenges and related research questions:

Bedrijfstakonderzoek: Gezamenlijke kennisagenda (5 jarenplan) van de drinkwaterbedrijven
<http://www.kwrwater.nl/BTO/>

CATO programma (CO2 opslag) <http://www.co2-cato.nl/>

Collegeakkoord provincie Noord-Brabant <https://www.brabant.nl/>

Dynamische Uitvoeringsagenda (DUA) Brabant van het PMWP, en het bijbehorende uitvoeringsprogramma Vitale Bodem (not published yet)

EDGAR gasprogramma (beta gamma over toekomst gas in NL. biogas tot gasrotonde en CCS) <http://www.edgar-program.com/nl/nieuws/enabling-sustainability-with-gas>

Energieprogramma wat in november wordt geïssued door kabinet (not available yet)

Kennisagenda Bodem en Ondergrond (2011)

Kennisagenda geothermie Kennisprogramma ondergrond EZ not published yet (<http://www.namplatform.nl/investeren-in-de-regio/educatie/ontwikkeling-kennisprogramma>).

NICOLE: document voor NICOLE. (not published, on demand) <http://www.nicole.org/>

Ovv rapport rond bevingen <http://www.onderzoeksraad.nl/uploads/phase-docs/843/33ef77ab629erapport-gaswinning-groningen-nl-interactief.pdf>

PBL Toekomst van de landbouw ex ante evaluatie

Platform31 (2014) Maak Ruimte. Manifest ikv Jaar van de Ruimte (versie December 2014).

Prorail Innovatie en ontwikkelagenda 2015 (not public).

Prorail (2013) Meerjarenplan Duurzaamheid 2013-2015

Provinciaal Milieu- en Waterplan 2016-2021 (strategisch document) en bijbehorend uitvoeringsplan (in de maak) <http://www.brabant.nl/dossiers/dossiers-op-thema/water/waterbeleid/provinciaal-milieu-en-waterplan-2016-2021.aspx>

SMART URBAN REGIONS OF THE FUTURE <http://surf.verdus.nl/voorpagina>

Vitens innovatieagenda: in de onderwerpen staat waarin Vitens wil innoveren (not public)

Wit, Han de & Zoetbrood Pascal (undated) Formule Leven met Water ook bruikbaar in de toekomst? Evaluatie werkwijze Leven met Water

SPI

Bloemers, T., S. Daniels, G. Fairclough, B. Pedrolì & R. Stiles (eds., 2010): Landscape in a changing world. Bridging Divides, Integrating Disciplines, Serving Society. Science Policy Briefing ESF-COST nr 41, Strasbourg / Brussels. 16 p
http://www.esf.org/fileadmin/Public_documents/Publications/SPB41_Landscape_ChangingWorld.pdf

Duijn, M., G.J. Ellen, Hooimeijer, F.L. and Alphen, J. van (2014) Kennis voor Deltabeslissingen Grootse Plannen voor waterveiligheid. Water Governance, 03 (2014), pp. 17-26

Herber R. (2011) Kan ook de Diepe Ondergrond Ruimtelijke Geordend Worden? Inaugurele rede 1 maart 2011, Rijksuniversiteit Groningen

Isaacson, de uitvinders (ter inspiratie voor science-policy interface: boek over de ontwikkeling van de it-achtige wereld)



Kahneman Daniel 2013 Thinking fast and slow

van Os HWA, Herber R, Scholtens B. (2014) Not under Our Back Yards? A case study of social acceptance of the Northern Netherlands CCS initiative. Renewable and Sustainable Energy Reviews 2014; 30: 923-942

Rathenau: <http://www.rathenau.nl/publicaties/publicatie/wetenschap-als-strijdtoneel.html>

WRR: <http://www.wrr.nl/publicaties/publicaties/>

18. The United Kingdom

Report by Paul Nathanail, Matt Ashmore

18.1 Introduction

This national report (i.e. INSPIRATION deliverable 2.4) reports the information collated for The UK. The information was collated in accordance with INSPIRATION D2.3 “Template for national information collation”. In the UK, **16** NKS were interviewed. Details on these NKS are provided in Annex I. The desk study was based on documents as suggested by NKS. These are listed in Annex II.

18.2 Research and Innovation (R&I) needs

Topic a: Demand-driven* suggestions for the Strategic Research Agenda (SRA), i.e. suggestions from the perspective of industry, end-users and funders.
Related key question to be answered: **What (new) knowledge do these parties need to tackle societal challenges including the increase of job opportunities)?**

****Demand-driven** in INSPIRATION means focusing on the demands of those who are responsible or feel committed to tackle the societal challenges related to the INSPIRATION scope and themes, i.e. industry, end-users and funders. These parties could improve their business opportunities and/or take better informed decisions on what measures to take and execute in order to tackle other societal challenges if they would (be enabled to) use the knowledge as resulting from execution of the INSPIRATION SRA.

18.2.1. Societal challenges and needs

Please give a synthesis of answers to question 7:

- Which societal challenges do you regard as important?

Contribute to food security and food safety (151109, 151104); 151124 – in the context of land contamination.

Ensure secure supplies of water for a range of purposes. ‘Safe and sufficient drinking water’ is cited, with 151109 including irrigation water for crop production and water for livestock health.

Reduce raw material and resource consumption, Ensure efficient use of natural resources; 151104. 151109 indicated water as a natural resource of concern, and also nutrients, particularly Phosphorus and Nitrogen use efficiency.

Contribute to climate change mitigation and societal adaptation (151109, 151104);

Contribute to a healthy living environment. 151104. 151109 has challenges to face in national diet as representatives of primary producers. 151124 mitigating effects of land contamination.

Ensure secure infrastructure: 151109 indicated the importance of an efficient supply network.

151104 highlighted the Protection of 'intrinsically valuable natural features/assets'.

151109: Climate change related maintenance of food supply. Food & health – impacts on primary food production. Soil degradation and soil health – biocontrol of soil pathogens. Water availability and competing demands.

151109: funding for their work comes from Industry Levies and is ring-fenced for the particular sector. They then prioritise investments in research and knowledge transfer (KT) taking into account overlaps between sectors. All to help produce profitable businesses whilst being aware of the environmental and societal drivers around the decisions being made.

151112A: Contributes to food security and food safety to a much lesser extent. have a role in ensuring secure supplies of safe drinking water, along with other public bodies. Also carries out peripheral work on biomass, some activity in waste reduction, and efficient natural resource consumption. 151112A contribute to climate change mitigation and societal adaptation in terms of GHG emissions, carbon accounting, reducing fertiliser use, runoff into water courses. Contributes to a healthy living environment and has marginal feed into extreme events with respect to climate change and infrastructure. Natural Capital accounting and valuation of all benefits and services – trying to move towards a systems approach – science to move away from easily seen entities (bee counts; location of nature reserves), we are some distance away from being able to apply this understanding to decision making and as such is a key research need.

151112B: feeds into Contribute 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; Contribute to climate change mitigation and societal adaptation; and indirectly contributes to a healthy living environment;

In addition 'Protection of the environment' was given – the currently being formulated "25 year Environment Plan" that DEFRA is producing does not cover Wales which has its own plans: Natural Resource Management approach and statement that are broader as they cover more factors and not just biodiversity.

151118: Contribute to food security and food safety, Reduce raw material and resource consumption, Ensure efficient use of natural resources and Contribute to climate change mitigation and societal adaptation. In addition, Resource efficient circular economy in the UK was an extra challenge.

18.2.2. Topics / research needs to include in the SRA

Question 8

UK-1 efficiency of primary producers, while recognising the associated environmental and societal needs. – Of interest to all in the supply chain.

There are organisations across Europe aiming to provide the same function using a variety of mechanisms, as well as links to bodies in for example South Africa, Australia and Canada where similar problems are faced, and all divisions work or collaborate internationally where there is a benefit to UK producers to do so.

Greenhouse emissions from livestock and broadacre arable crops are key drivers, but it's important to recognise where improvements in business efficiency, for example crop nutrient management plans, can reduce emissions.



How does improving supply chain efficiency affect the pressure on land use (e.g. by ensuring more, good quality produce reaches the ultimate consumer?)

UK-2 Soil and groundwater remediation – difficult to achieve so best to preserve what we already have. Eg increase SOM by 20%, beneficial but how much is needed is contested. Research at eg Rothamsted & Lancaster University in this area. – but a lot of resources and money could be committed without understanding what they will deliver. (we're unsure where the 20% figure originated)

UK-3 Soil 'Regeneration' – how to increase to Soil Organic Matter in poorer soils, and what level is achievable, desirable, beneficial? Etc. Best practice, costs/benefits in peatland restoration – are there international lessons to learn?

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 (deliberate or accidental) in order to inform Policy- and decision- makers in the UK and abroad in trying to avoid 'unintended consequences' arising from the complexity of natural systems. How to link in ideas on ecosystem services and 'soil resilience'. How does soil quality affect the wider system (and vice versa) What are the economic implications of soil degradation, and what evidence and indicators should be used to quantify degradation?

UK-5 Demand for soil/land resources, imports and exports: (the international dimension of food supply and hence food security is important. The UK does not see itself as being isolated in terms of food – it both imports and seeks to export foodstuff).

UK-6 Competition between land-uses (land-use conflicts): It is recognised that there are competing and often mutually excluding land uses. How should land use conflicts be resolved?: e.g. Is it appropriate to build on poor agricultural soils rather than brownfield land? What instruments are needed to avoid / minimise impacts (feedback to decision-making process). Spatial analysis of Natural Capital to inform decision making. Techniques and technologies to assess (productivity) and value land resources.

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. There appears to be a lack of research in the UK. There is no research quantification of loss of good quality agricultural land to development.*

***UK-9** Important areas of technical innovation include new techniques to understand the microbiology of soil to help assess biodiversity and so understanding impacts and optimisation of land management.*

UK-10 landscape scale solution – improve biodiversity and soil management and productivity; funding farmers has modest/ limited impact; LANDSCAPE: WRAP *Food futures* report. Integration to manage a landscape not the media and not just maximise crop. The role of Precision Agriculture in the improvement/conservation of soil quality – new techniques



and technologies to assess/map. Catchment-scale management involving collaboration of individual farmers.

UK-11 assessing the values of primary and secondary production: for example, 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 valuable (enjoyed) environments – eg uplands and grouse shooting, sheep grazing and patchwork of fields and river margins in the low lands are very dependant on how farmers perceive themselves as guardians to their environment. Long-time horizons often matter in agriculture – succession from generation to generation is important in some cases, whereas businesses renting land brings about shorter time horizons. Business (land rental over a series of say 3-5 year sequences) and land owning (estate management) objectives need to be managed. How does each of these elements value the other, and how should they value it?

IR-1 (Generic) Risk Assessment of Contaminated Soils. Management of contaminated land in Ireland lags behind much of Europe, partly because it has a less-industrial past than many partners. It lacks almost all necessary elements from primary legislation to practical tools and guidance and, though it is a sporadic problem, each instance entails a lot of time, money and effort because of the lack of a coherent approach. It requires research to transfer basic tools and processes into an Irish context, eg geology, population, demographics etc.

IR-2 Pragmatic appraisal of environmental technologies in an Irish setting: there is inertia in the application of technologies such as remediation methods and investigation techniques in Ireland, either because people are unwilling to try 'new' techniques, or try new techniques that are wholly inappropriate – eg for the problematic drift geology in much of Ireland. Pragmatic appraisals of the capabilities and limitations of technologies would help better application.

18.3 Experiences regarding connecting science to policy/practice

Topic b: *Experiences regarding the exploitation of scientific knowledge to improve business opportunities and/or tackle other societal challenges.*

*Related key question to be answered: **Where to improve the science-policy interface so that (new) knowledge can and will be more effectively exploited by the demand side?***

18.3.1. Use of knowledge

Please give a synthesis of answers to questions 10-11-12-13 and 16:

- How would you define 'scientific knowledge'?

151109: existing and new science and its interpretation with respect to specific sectors and integration across disciplines (soil science, crop physiology, genetics etc.). New knowledge must be built on to deliver additionality.

151112A: knowledge that arises from the scientific process, testing a hypothesis. Turning that into knowledge via peer review, published, debated and accepted. One of the things we constantly say is that there is no certainty in science and you are not seeking certainty and there must always be explanations of uncertainty, errors and caveats.

151112B information or evidence that helps inform change.



151118 experimentation – hypothesis formulation and testing – evidence based conclusion – iterative

151124 evidence-based decision making

- For what do you use scientific knowledge in your job?

151109: within the organisation with respect to the research it commissions, they would expect to see technical reports, briefing notes, peer review papers, publicity and outreach materials (for farming press), it would also be used to respond to consultations, inform policy. New information would be interpreted to farmers, growers and supply chain to improve business performance.

151104 uses 'scientific knowledge' to inform policy formulation and negotiations at a National and trans-national level.

151112A: scientific knowledge is used to communicate with (non-scientific) policy teams and inform ministers and their responses to e.g. parliamentary questions. Robust transparent science is needed, often from first principles.

151112B is the core of what they do, whether at operational or policy level, everything is subject to challenge and needs to be properly evidenced to back that up.

151124: decision making process for risk assessment or remediation strategies, for example in signing off sites.

- Which sources of (scientific) knowledge do you use for doing your job?

151109: in addition to the information gained from commissioned research, they also acquire information from scientific papers; cost of access is an issue but literature review is part of commissioned research to establish knowledge gaps. Business consultants are also used to understand implications of the commissioned research and understand the return on investments. Internal expertise and communication is good, and ad hoc working groups may be convened.

Television and local is used to convey information to the public, where they have to, e.g. items on potatoes and health, and the recent concern over sausages and bacon with respect to cancer.

key websites such as: organisations Europa, RCUK are used.

151104: primary literature: Journal papers are used.

151112A: consulting our network of subject specialists, sometimes yet-unpublished work scientific articles; but they need to be simplified for a non-technical audience, along with grey literature.

151112B: acquired from multiple sources: from peer reviewed research, specialists, colleagues, undertaking research independently. JRC and EEA reports are strategically important. Searching for peer reviewed literature is difficult, but obtaining it isn't – need to know what the paper is before they can obtain it.

151118: takes information from most avenues, from peer-reviewed research, to experts, experience and both academic and industrial conferences.

151124: tends to get knowledge from consultants, and other industry professionals (via word of mouth or networks/conferences/training courses), from secondary websites such as US EPA, ATSDR and EA.

- To what extent do you use most recent/new scientific knowledge (i.e. state-of-the-art scientific insights/findings) for doing your job?



151109: Use conferences on hands on involvement to keep up to date on science, policy and practice. There's a 2 way dialogue between them and stakeholder organisation dialogue (eg Dairy UK will talk to AHDB Dairy sector directly).

151112B keep up to date by having strong links with the research community in Wales, e.g. by having academic members of stakeholder groups when policy is being developed. The academic community are comfortable challenging their position.

151118: has links with Academia to keep up to date with relevant cutting edge knowledge

151124: is more interested in applied knowledge, so tends to interact with established contaminated land regimes practice, such as the UK

- To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

151104: Good use is made of both peer reviewed literature and by close links with researcher and practitioner thought leaders in relevant areas.

151118: Policy lags science and is driven by evidence of good practice (S&W policy on Waste – increase food recycling and reduce landfilling; carrier bag policy); elsewhere could do better

18.3.2. Possibilities to set the agenda

Please give a synthesis of answers to questions 14-15

- To what extent are you able to influence (and how) the setting of scientific research policies/agendas in our country?

151104: Sets national policy which is informed by emerging research. It partners with research funders and researchers. It appreciates early involvement in research project formulation. It offers support in staff time, data and letters of support to many researchers. On RC committees.

151112B: has influence in RCUK funding In Wales, and through joint funding. Senior staff represent the organisation

151112B: Peatland restoration policy – evidence showed it was cost effective to combat climate change, nature based. Ministers felt evidence was sufficiently strong to restore Welsh peatlands by 2020 (ca 2014) and the policy was rapidly implemented.

Have been looking at fungal DNA assessments in soil samples to assess how habitats have been damaged by agricultural activities (in its infancy), and possibly extend it to using plant DNA.

- To which extent do our national policies/agendas reflect your specific needs and priorities?

18.3.3. Science – policy – practice

Please give a synthesis of answers to questions 17-18-19

1. Have you ever been involved in:

- m. the formulation of scientific research questions?
- n. doing scientific research (i.e. knowledge co-creation)?
- o. synthesizing/wrapping-up of scientific knowledge, e.g. to feed into policy making or to increase business opportunities?



151109 carries out a wide range of dissemination and abstraction in order to achieve specific goals. For example, 151109 produced an assessment of the impacts of loss of the use of endocrine disrupting chemicals to the industry, the findings of which were relayed to stakeholders, DEFRA and the EC. This was successful because they were in a position to bring together an agriculture-wide impact assessment. It was a challenge to interpret the findings for several different, including non-specialist, audiences.

Whereas some findings will only be of interest to relatively few stakeholders.

151104: is involved in formulating research questions, knowledge creation and feeding research findings in policymaking. The view was expressed that a range of views is welcome in these processes but ultimately a decision needs to be made in the knowledge that not all stakeholders will be satisfied on every occasion.

- How) is the societal impact of scientific research related to the scope of INSPIRATION being assessed in our country?

151104: Certain issues such as energy and climate change are high on the political agenda, along with food quality and diet. We already have in place good natural resource protection measures. We are putting in place Natural Capital auditing and exploitation mechanisms that will foster its stewardship. However, the interface between the natural sciences, economics and governance could usefully be better understood.

151112A: the last Research Programme 2011 did not have enough evaluation mechanisms were built in. Slightly different approach adopted now, Performance Management Framework in terms of a Logic Model Process (input – outputs – outcomes – long term impacts – can be a long way down the line). Pathways to impact should be built in up front. Learning what other funding organisations are implementing (as long as these are not too onerous).

151112B: no formal mechanism, but up-front the project has to be justified.

151118: 'sporadically' and perhaps unavoidably so. We could look at uptake of findings into the sector. Universities are not incentivized to do that (beyond use of IP).

- Which national Science-Policy-Interface documents do you know of / can you recommend?

151109: Defra Food and farming plan, H2020, the Agri food strategy.

151104: the emerging 25 year environment plan and the National Planning Policy Framework.

1511218: FORESIGHT reports – eg *future of food* (Beddington);

18.4 National and transnational funding schemes

Topic c: *Predominant, current as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination.*

Related key question to be answered: *How to get with one Euro of national/regional funding a multitude of Euro's (from all sources) worth of knowledge in return contributing to EU and national demands? Or even how to get with one euro of EU funding a multitude of euro's (from national, regional, local, and private sector) worth of knowledge in return contributing to the R&I demands on Land and the Soil-Sediment-Water systems.*

Topic d: *Experiences regarding the use of any trans-national, common budget for scientific knowledge production related to the scope of INSPIRATION.*

Related key question to be answered: *How to set up/govern the appropriate funding option(s) resulting from INSPIRATION – based on previous learning experiences – so that: (1) the above demands will be fulfilled, (2) knowledge resulting from implementation of the SRA will be taken up and used and (3) funders experience that their invested, national Euros are indeed multiplied?"*

18.4.1. Funding schemes and possibilities for research funding

Please give a synthesis of answers to questions 20-21-24

2. Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems

151109 has no barriers to co-funding in EU or elsewhere. These can be bilateral or multilateral. For example they work with Danish partners on pork production, with French, Belgians and Dutch on potato blight and with Aus/NZ/CAN voluntary contribution programme (VC) co-funding of a programme in UK and other partners led by AUS.151104

151104: Central government funding of research is limited and will increasingly focus on co-funded activities to leverage the benefit of available funds. 151104 has co-funded European projects, including Interreg.

151112A: have scope to collaborate on funding for work aligned with their goals.

151118: Working with businesses is effective... use advisory committees to help dissemination. 'Bigger issues' (inc MNC) that are solutions that can be 'exported' or trialled in multiple EU countries is useful (and EU funded)

3. How to increase the added value of different financial resources (i.e. achieve a multiplier) for doing research that contributes to EU and national demands, in particular to the R&I demands on Land and the SSW-system?

151104: Early involvement of policy makers can ensure both a better targeted research proposal and maximise the magnitude of support that can be mobilised. Late or last minute approaches cannot be so well supported. Support in the form of letters of support are given to competing proposals on a non-exclusive basis. Responses to direct approaches for financial support are subject to strict single tender action constraints.



151112A: was involved in an ERA NET called Urban NET, stakeholders were more interested in what they wanted to change rather than new knowledge they needed. But ultimately wasn't able to take it forward as there wasn't a policy dept. interested in the (Urban) field.

151112B: there are two or 3 projects such as INTERREG being scoped out, and are becoming increasingly active, there are no real barriers to European collaboration. Currently try to match and leverage funding from other funders such as NERC.

151124: Rather see money going into research in to pragmatic training, techniques, rather than high tech remediation techniques. training in pragmatic decisions : dissemination, knowledge transfer.

4. Based on previous learning experiences that you are aware of: how to best set up / govern funding option(s), so that societal demands will be fulfilled, knowledge resulting from execution of the SRA will be taken up and used; and funders experience that their invested, national Euros are indeed multiplied?

18.4.2. Gaps in financial resources for resource

Please give a synthesis of answers to questions 22-23

5. Are there areas of research and innovation (R&I) that you are aware of that are not (yet) covered by current funding mechanisms and which would need new/different funding schemes / infrastructures?

151109: Crop rotation aspects of production, though is being address, needs on-going input – how to integrate farming and distribution to improve business efficiency; then scale out to how land is used for farming... how do we use land for multiple purposes...

151104: The challenge is the increasing scope of research activities and the decreasing funding for it. Current funding mechanisms are changing. Increasingly 151104 expects industry to fund or at least substantially co fund research activities.

151112B: there has been a gap in the assessment of soil biodiversity, though NERC is beginning to address this. There used to be a UK soils forum to share information on what was being funded, though that closed ~5years ago.

151118: Embedding systems thinking intonew sectors – eg sust intensification (reducing farm waste); 4th ind rev into agri & food (robotics and automation)... linking projects are missing. Getting out of compartmentalised thinking.

6. Integrated approaches (necessary for addressing particular societal challenges related to the use and management of land and related impacts to SSW systems) are usually difficult to fund / get recognised by the research funding communities. What would be necessary to improve this?

151109: Bid preparation is time consuming so needs to be prioritized. Supporting others proposals into RCUK (eg BBSRC) in terms of research or KT activities needs careful thought of what will be achieved/delivered by this engagement. There needs to be clear evaluation procedures and transparent mapping on to the call criteria. Consistent decision making is needed. Peer reviewers (not involved in the original call) need to be well briefed on the call intentions.



151104: Proposals need to justify the societal, environmental and economic benefits/ value of their work.

151104: The UK has a long track record of building policy on research based evidence and on funding research projects to support the implementation of such policy. This work has been published and is now freely available online.

The outcomes need to be robust (including being published in peer review journals), widely accessible (eg through open access publishing) and widely understandable (non-technical and short summaries of the main findings are essential if they are to be taken on board by non-specialists and if they are to change opinions or inform policy formulation).

151112A: better metrics of impact are needed.

151112B: interdisciplinary work is a challenge, but is being addressed more and more. And is important in the face of shrinking budgets.



Other remarks made by interviewees

Please give a synthesis of remarks, suggestions, examples, points of attention given by the interviewees

151109: Bio controls; soil loss; nutrient efficiency.

In terms of rotational contexts: We need to know what a healthy soil is and how to get there; eg SOM content is only one part of it. This is an immensely challenging question.

We need to know what is going on at sub soil level.

National databases and soil maps/ reference collections need to be more widely used by growers and practitioners (need to take them out the research community) – could help practitioners.

151104: There is a willingness to cooperate, including through joint funding, on research with partners outside the UK where there are overlapping interests.

151112A: Soils – an area of science which Scotland has much to offer and collaboration would be welcome.

151112B there's a small, strong soils community which knows each other, and to an extent throughout the UK.

151118: “we take soil for granted and we shouldn't and mustn't” soil as water and air as a resource; exploiting natural capital in soil, not preserving let alone enhancing it.

HORIZON2020 CSA INSPIRATION

Deliverable D2.4 - public web version
National report on collated information
following the template



18.5 Annexes

Ia: NKS interviews in the UK

Date of interview	Organisation	Interview	funder	end user	knowledge provider	Nat.reg.loc. authority	Univ./ research inst	SME /consultant	business & industry	NGO	network	Other	soil	sediment	water	land use-management
09/11/2015	AHDB	Mike Storey	1		1							1	1			1
04/11/2015	DEFRA	Maggi Charnley, Judith Stewart	1		1	1							1	1	1	1
12/11/2015	Scottish Body	Anon	1		1	1							1	1	1	1
12/11/2015	Welsh Govt	Jame Skates, Ian Rugg	1		1	1							1	1	1	1
24/11/2015	Irish Practitioner	Kevin Motherway		1	1	1		(1)			1		1	1	1	1
18/11/2015	WRAP	Richard Swannell	1							1			1	1	1	

Annex Ib: NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training on 22nd – 23rd June 2015.

[Note: this questionnaire template is meant to help National Focal Points (NFPs) to facilitate the interview/conversation with the National Key Stakeholders (NKS). Some questions are relevant to one NKS, other questions to another NKS. Hence, not all questions are relevant to each single NKS. The NFPs are required to adapt the template accordingly – keeping in it as many as possible of the issues to be addressed. If needed, the NFPs also translate the questionnaire into their national language.]

The questionnaire (see next pages) has the following outline:

SSSS. Interview information:

To be filled out by the interviewer

TTTT. Introduction:

That the interviewer can use to start the NKS interview

UUUU. Background information of the NKS interviewed:

Mostly 'tick-boxes'

VVVV. Strategic Research Agenda (SRA):

NKS preferred topics, overarching themes and scope for the SRA and national state-of-the-art on research agendas that the NKS is aware of

WWWW. Science-Policy-Interface:

NKS experiences regarding the exploitation of scientific knowledge to: improve business opportunities; tackle other societal challenges; assist policy-implementation and/or policy revision

XXXX. Funding:

Predominantly used as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination that the NKS is aware of

YYYY. Other:

At the end there is some time advised to let the NKS give us their advice, some nice quotes (that we can use anonymously in our communications), examples etc.

ZZZZ. Ending the interview:

Explain follow up and if/how NKSs will be involved in the next steps of INSPIRATION

Questionnaire template in English

A. Interview information	
Country:	
Name of INSPIRATION Researcher:	
Date of Interview:	
How does the NKS wish to be referred to:	
<i>[Anonymous, personal opinions, company's opinion. Choose when it is a good time to discuss this. In the beginning or later on.</i> <i>SHOW the interviewed NKS the ENGAGEMENT CONSENT FORM and ask him/her to fill it out. Please introduce the engagement consent form (available in 'D2.1 MoU' and editable by yourself) and hand a copy to the interviewee to read and fill in – make sure that you take this away with you and keep for your own records]</i>	
B. Introductions	
<i>[Please introduce your selves, the project and the purpose of the interview. You can use the handout as provided at the end of this template. This can also be sent beforehand to the NKS. Agree on a time span: approximately one and a half hour.]</i>	
C. Background information on the interviewee	
169.	Name of NKS interviewed:
170.	Institution:
171.	Role:
172.	Are you a (multiple answers possible): ☐ National-regional-local authority ☐ University/research institute ☐ Small or Medium sized Enterprise (SME, i.e. < 500 employees) / consultant ☐ Business and industry ☐ Non-Governmental Organisation (NGO) ☐ Network representative / leader ☐ Other, specify: ...
173.	Fields of expertise (multiple answers possible): <i>[Ask to specify background regarding the selected item(s) in order to understand expertise background of interviewee]</i> ☐ Soil ☐ Water ☐ Sediment ☐ Urban / spatial planning

- Landscape design
- Land management
- Other, specify:

174. Does your organisation provide external research funding?

- Yes. Please specify: ...
[e.g. as programme holder, public, private, ...]
- No

D. SRA

175. Which societal challenges do you regard as important?

[If needed, you can use the European Commissions (EC) list of societal challenges here. These EC themes are:]

- Contribute to food security and food safety;
- Ensure secure supplies of safe drinking water;
- Secure energy supply and distribution;
- Reduce raw material and resource consumption, Ensure efficient use of natural resources;
- Contribute to climate change mitigation and societal adaptation;
- Contribute to a healthy living environment;
- Ensure secure infrastructure

[Explain that these challenges may be used as bases for defining of the overarching themes for aggregating the research topics of our SRA.]

j. If applicable, what additional, other or alternative challenges would you suggest/prefer?

[When needed, you can mention challenges as nature conservation, sustainable use of ecosystem services, halting the loss of biodiversity]

176. Starting with your own experience: which specific topics (research needs) should be included in the SRA?

[For each single topic mentioned by the NKS, use the following follow-up questions. The a, b and c sub-questions are mandatory. The other sub-questions are optional]:

hh. Explain – elaborate the topic

- *Who will be affected?*
- *Who is responsible?*
- *Is it a topic of concern of your organisation / department*
- *Is it only a national topic, or a shared topic by multiple countries?*
- *Where are we now, where do we want to be in x years (point on the horizon)?*
- *How can the newly gained knowledge be effectively used?*

ii. Priority:

- 52. High priority
- 53. Some priority
- 54. Neutral priority
- 55. Low priority
- 56. No priority

- What is the urgency, i.e. what goes wrong if we do nothing?

jj. Who wants to/should fund this kind of research?

[Optionally: check the following WP3 key-words for relevance, i.e. if they raise any

*additional topics by the NKS. The key-words can be used as support / check list
Be sensible as interviewer if this is needed.]*

- *Assessment of land resources*
- *Potential productivity of land and soils*
- *Demand for soil/land resources, imports and exports*
- *Competition between land uses (land-use conflicts)*
- *Concepts to identify and quantify relevant impacts*
- *Instruments to avoid / minimise impacts (feedback to decision-making process)*
- *Opportunities of innovative land-use technologies*
- *Resource-oriented land management systems]*
- *Soil regeneration*
- *Soil and groundwater remediation*

177. Linked to topics mentioned by the NKS:

- a. What are the important / relevant documents, research agendas, research programmes underpinning these topics? (state-of-the-art)
- b. Related to these agendas and programmes: what are timelines of programming and windows-of-opportunities to influence agendas / programmes?

[Note: question 9b is input for work package 5]

E. Science-Policy-Interfacing (SPI)

178. How would you define 'scientific knowledge'?

179. For what do you use scientific knowledge in your job?

180. Which sources of (scientific) knowledge do you use for doing your job?

[Open question and you can mention some of the sources underneath as examples]

○ <i>scientific paper</i>	○ <i>newspapers</i>
○ <i>consultants</i>	○ <i>television</i>
○ <i>reports</i>	○ <i>conferences Involvement in research projects</i>
○ <i>colleagues</i>	○ <i>data (bases)</i>
○ <i>experiences /examples within my own country</i>	○ <i>websites, such as:</i>
○ <i>experiences /examples abroad</i>	○ <i>other, specify:</i>

181. To what extent do you use most recent/new scientific knowledge (i.e. state-of-the-art scientific insights/findings) for doing your job?

182. To what extent are you able to influence (and how) the setting of scientific research policies/agendas in our country?

183. To which extent do our national policies/agendas reflect your specific needs and priorities?

184. To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

[Questions only for NKS from the non-science sector (business and policy):]

185. Have you ever been involved in:

- v. the formulation of scientific research questions?
- w. doing scientific research (i.e. knowledge co-creation)?
- x. synthesizing/wrapping-up of scientific knowledge, e.g. to feed into policy making or to increase business opportunities?

[When yes: Follow-up questions]

- How successful/satisfying was this, on a scale of 1-5?
 - 51. Very successful/satisfying
 - 52. Successful /satisfying
 - 53. Neutral
 - 54. Unsuccessful/unsatisfying
 - 55. Very unsuccessful/unsatisfying
- What went well
- What could be improved?
- What to avoid/not to do?
- Additional remarks?

[Question only to NKS who are likely to have insights here (e.g. research funders)]

186. (How) is the societal impact of scientific research related to the scope of INSPIRATION being assessed in our country?

[If they know: Follow-up questions:]

- How successful/satisfying is this, on a scale of 1-5?
 - 41. Very successful/satisfying
 - 42. Successful/satisfying
 - 43. Neutral
 - 44. Unsuccessful/unsatisfying
 - 45. Very unsuccessful/unsatisfying
- What indicators are used?
- What goes well?
- What can be improved?
- What to avoid/not to do?
- Additional remarks?

187. Which national Science-Policy-Interface documents do you know of / can you recommend?

F. Funding

188. Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems:

- Sub-nationally /regionally?

- Nationally?
- European? [e.g. H2020, Interreg, multi-lateral such as the Joint Programming Initiatives]
- International? [e.g. Belmont Forum, Foundations.]

[For all R&I questions aiming at achieving policy targets in the Land & SSW related system (like e.g. Sustainable Development Goals on soils -to be adopted at UN level in September 2015-, existing EU directives such as the Environmental Liability Directive, etc.) Consider all Public and Private funding sources. Please ask to provide details and give most important references (documents, website) that could be relevant for explaining the answer]

189. How to increase the added value of different financial resources (i.e. achieve a multiplier) for doing research that contributes to EU and national demands, in particular to the R&I demands on Land and the SSW-system?
[CONSTRUCTIONS that (could) work. PP, PPI, etc. Just ask for, as open as possible for suggestions, ideas, experiences, good examples]

190. Are there areas of research and innovation (R&I) that you are aware of that are not (yet) covered by current funding mechanisms and which would need new/different funding schemes / infrastructures?

191. Integrated approaches (necessary for addressing particular societal challenges related to the use and management of land and related impacts to SSW systems) are usually difficult to fund / get recognised by the research funding communities. What would be necessary to improve this?

192. Based on previous learning experiences that you are aware of: how to best set up / govern funding option(s), so that societal demands will be fulfilled, knowledge resulting from execution of the SRA will be taken up and used; and funders experience that their invested, national Euros are indeed multiplied?

[if they know: Follow-up questions]

- How successful/satisfying was this, on a scale of 1-5?
 - 41. Very successful/satisfying
 - 42. Successful/satisfying
 - 43. Neutral
 - 44. Unsuccessful/unsatisfying
 - 45. Very unsuccessful/unsatisfying
- What went well
- What could be improved?
- What to avoid/not to do?
- Additional remarks?

G. Other (remarks, suggestions, examples):

H. Ending the interview

Thank you for taking the time to participate in this interview:

- Would you like us to keep you updated about INSPIRATION progress?
- Would you suggest anyone else who we should be interviewed by us?
- Do you have further questions arising from this interview, or would you like to add anything else?
- What information are you interested in, and willing to give feedback on?
[Discuss the feedback mechanism and if they have expressed their opinions as a person or as a representative of their organisation/network. Checklist:]
 - u. Information to exchange / willingness to give feedback on:
 - (complete interview, not recommended)
 - summary of main conclusions
 - national report, national contribution to D2.4
 - complete D2.4, all countries
 - v. Preferred level of feedback:
 - no feedback
 - informal feedback
 - formal feedback (e.g. on behalf of represented organisation)

[Check: have you discussed consent form / how to refer to interviewee]

INSPIRATION acknowledges the received funding from the
European Community's HORIZON2020 Framework Programme
under grant agreement no 642372



Annex Ib: NKS hand-out: INSPIRATION interview at a glance

INSPIRATION interview at a glance

Aim of INSPIRATION:

The main purpose of the EC-funded INSPIRATION project is to formulate an end-user driven strategic research agenda (SRA) for land-use, land-use changes and the related, impacted compartments of the Soil-Sediment-Water (SSW) system in order to meet current and future societal challenges and needs. Next to that, the project aims to scope out models of implementing the SRA and to prepare a network of public and private funding institutions willing to commonly fund the execution of the SRA.

National Key Stakeholders (NKS):

In a series of NKS interviews across EU nations the “National Focal Points (NFP) gather for nations individually information related to the INSPIRATION scope (land and SSW-system use and management) on:

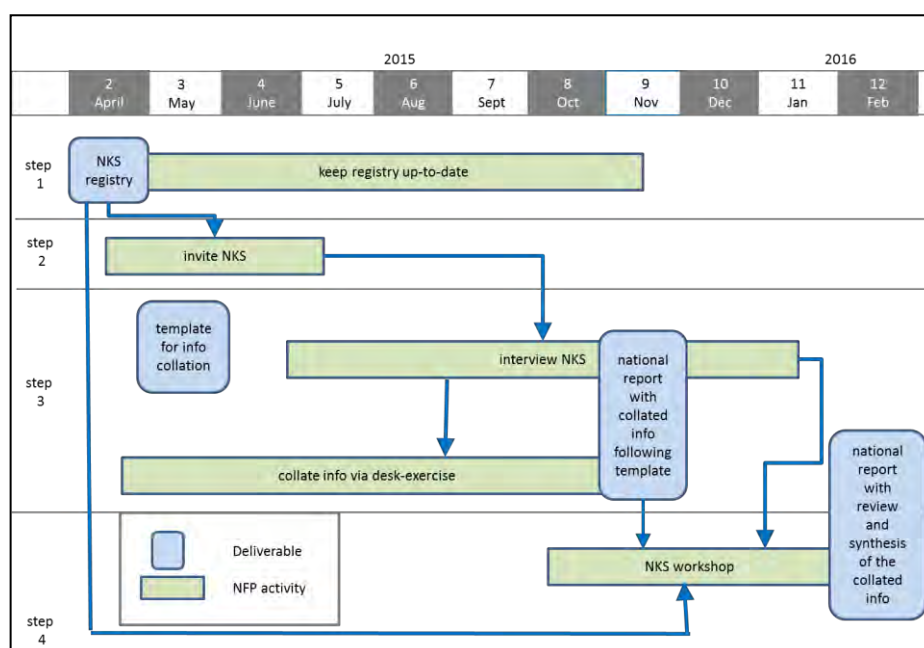
- Research and Innovation (R&I) needs
- Experiences regarding connecting science to policy/practice
- National and transnational funding schemes

In the interviews we focus at NKS – like you – positioned at a strategic level, i.e. leading persons in their field of profession; with a good overview on opportunities; a clear vision on, and insight in knowledge demands (short, middle and long-term). Furthermore, these NKS are well positioned and participate in relevant professional network(s) and may also have potential to become an ambassador for INSPIRATION. We selected NKS to represent different disciplines and institutional backgrounds including: land-use planners; managers; soil, sediment and water experts; researchers, funders and regulators/policy makers.

This interview:

Collecting input from you – an expert in your field – is crucial for the project in order to help us describing the state-of-the-art in our country as input into the European research agenda. In the interview we will go through a series of topics and questions: The interviews of NKS (ca. 20 per nation), together with a desk study on research needs and funding possibilities will be synthesized to a 'national report'. This synthesis will be reviewed in a national workshop, to prioritize the topics for the suggested Strategic Research Agenda (SRA) from our country's point of view. The national reports will finally be used as input for elaborating the European SRA and cross-nation matchmaking (matching research needs to possible funding).

Workflow in first year of INSPIRATION





Example questions:

Research and Innovation (R&I) needs

- Which societal challenges do you regard as important?
- Starting with your own experience: which specific topics (research needs) should be included in the SRA?

Experiences regarding connecting science to policy/practice

- How would you define 'scientific knowledge'?
- To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

National and transnational funding schemes

- Does your organisation provide external research funding?
- Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems

Your benefits from participating:

- A chance to influence the European SRA on land and SSW management in the light of societal challenges and needs;
- Being able to make use of the results of the project: overview of research need and of existing and promising funding schemes on different levels (sub-national, national, European, international) and opportunities for a better connection between science and policy/practice;
- Use the matchmaking opportunity to get in contact with other networks in- and outside our country, and countries learn which shared challenges can be taken up jointly.

Contact and further information:

For general information on the INSPIRATION project visit our website: www.inspiration-h2020.eu

Contact the National Focal Point: <i>[Name]</i> <i>[Address]</i> <i>Tel</i> <i>Email]</i>	Contact the general project coordination: Stephan Bartke FG I3.5 – Coordination INSPIRATION Federal Environment Agency Woerlitzer Platz 1 06844 Dessau-Rosslau Germany stephan.bartke@uba.de



INSPIRATION acknowledges the received funding from the
European Community's HORIZON2020 Framework Programme
under grant agreement no 642372

