D2.5

National reports with a review and synthesis of the collated information

Czech Republic

Document information

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D2.5: National reports with a review and synthesis of the collated information – Czech Republic

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 countries[1]. Between March 2015 and March 2016 The NFP's interviewed National Key Stakeholders (NKS), performed a desk study and organized workshops with national stakeholders of funders, end-users and researchers across the various soil and land management disciplines. The goal of these exercises was 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 (see section 1.3) 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** and follow us on twitter: **@inspiration4eu**.

[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. This report furthermore contains some information for Denmark and Luxemburg – representatives of both countries joined the Belgium workshop – and for the Republic of Ireland – representatives joined the UK workshop – see below.)

1.2 This report

This country report is an excerpt from the INSPIRATION Deliverable 2.5 “National reports with a review and synthesis of the collated information”, which integrates 17 national reports. These 17 countries, in alphabetical order, and respective report authors are:

1. **Austria**,
   Pia Minixhofer, *Sophie Zechmeister-Boltenstern*, Rosemarie Stangl, Andreas Baumgarten, Martin Weigl, Peter Tramberend,
2. **Belgium** (including some information for **Denmark** and **Luxemburg**),
   Nele Bal, Bavo Peeters,
3. **Czech Republic**,
   Petr Klusáček, Stanislav Martinát, Bohumil Frantál,
4. **Finland**,
   Antti Rehunen, Teija Haavisto, Ritva Britschgi, Outi Pyy, Jari Rintala, Petri Shemeikka,
5. **France**,
   Marie-Christine Dictor, Samuel Coussy, Valérie Guerin, Corinne Merly,
6. **Germany**,
   Uwe Ferber, Stephan Bartke, Detlef Grimski,
7. **Italy**,
   Matteo Tabasso, Sarah Chiodi, Giulia Melis,
8. **Poland**,
   Anna Starzewska-Sikorska,
9. **Portugal**,
   Thomas Panagopoulos, Vera Ferreira, Dulce Antunes
10. **Romania**,
    Mihail Dumitru, Sorin Liviu Stefanescu, Andrei Vrinceanu, Valentina Voicu, Nicoleta Vrinceanu,
11. **Slovakia**,
    Maros Finka, Maria Kozova, Zita Izakovicova, Lubomir Jamecny, Vladimir Ondrejicka,
12. **Slovenia**,
    Boštjan Cotič, Barbara Mušič, Ina Šuklje Erjavec, Matej Nikšič,
13. **Spain**,
    Pierre Menger, *Gemma Garcia-Blanco*, Efren Feliu,
14. **Sweden**,
    Yvonne Ohlsson, Lisa van Well, Kerstin Konitzer,
15. **Switzerland**,
    Regula Brassel, *Marco Pütz*,
16. **The Netherlands**,
    Linda Maring, Jos Brils
17. **The United Kingdom** (including some information on **the Republic of Ireland**),
    Paul Nathanail, Matt Ashmore.

Deliverable D2.5 concludes the activities of INSPIRATION Work Package (WP) 2 "**Demands of research from industry, end-users and funders (State-of-the-art at national levels)**", task 2.5 "**Review and synthesis of the collated information**".

The WP2 activities were executed in the 1st year of the INSPIRATION project (month 1 – 12), i.e. in the period from March 2015 to February 2016. In the WP2 project description, the final task executed in this period is described in the following way:

> "*The NFPs will organize at national level a 2-day workshop, where the collated information (task 2.4) will be reviewed and synthesized and prioritized under guidance of the NFP by the NKSs. The WP-leader will prepare – in consultation with the INSPIRATION core group – a generic outline for the agenda of the 2-day national workshops. That outline will then be tailored to specific national situations by the NFPs. The results of the workshop – i.e. reviewed and synthesised information regarding topic a-d as mentioned under the WP2 objectives[2] – will be described in a national report (in English) by the NFPs. Before finalizing these reports, the NKSs as well as the International Advisory Board (IAB) will be given the opportunity to review the draft report. In these cases where English is not the native language, the national reports will also contain an executive summary (policy brief) of the report in the native language."* (INSPIRATION Grant Agreement - Description of Action - DoA).

Deliverable D2.5 describes the results of NKS interviews and of the desk-exercise as performed in participating countries aimed at collecting national research demands, science-policy-interface experiences and funding options. This report builds up on the interim results presented in Deliverable 2.4.[3] The methodologies followed for the information collation and synthesis are presented in more detail for each country below. In general, the following approach was applied (see also Figure 1):

1. In each country, national key stakeholders (NKS) have been identified (in a way to ensure broad representation of soil and land-use/management topics and affiliations in research funding / end-use / science or policy making);
2. Interviews (structured according to a common template: see Annex I and II) with circa 20 NKS per country have been conducted in order to collect national research needs as well as information on science-policy-interface and financing options (with interim result presented as D2.4);
3. In each country, a national workshop with NKS was conducted. Basis for the workshops was the input provided in the NKS interviews before the workshop. It was presented in order to synthesize the collated info, discuss and review the key national research topics. The workshop thus aimed to check, verify and enrich, and in some cases also already prioritize the suggestions provided by the NKS;[4]

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2 See section 1.5 for a description of topic a-d.

3 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.

4 In several countries besides the NKS interviewed also more stakeholders were invited (i.e. it were open events), and participated and contributed to the workshops.

4. The results of the interviewing plus workshop process were documented in a report to become the respective final national reports. A draft version was to be send nationally to the NKS for review;
5. The national reports were aggregated in a combined document, on which the International Advisory Board (IAB) of INSPIRATION was asked to give feedback, too;
6. The D2.5 report has been finalised taking into account the IAB recommendations.

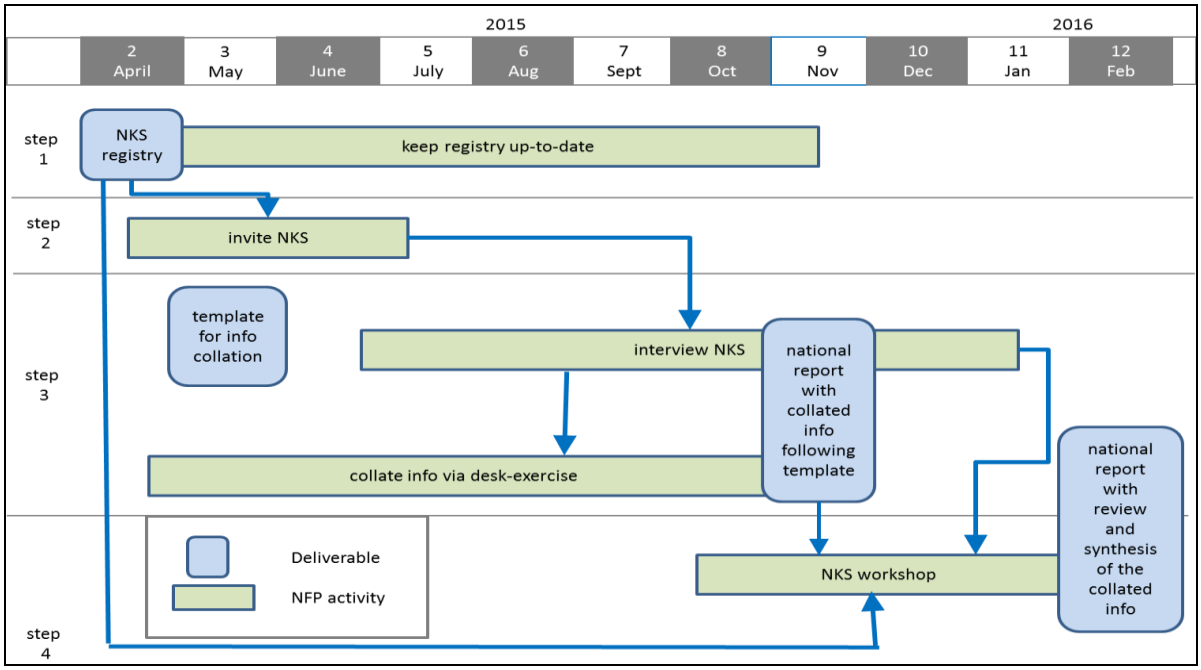

Figure 1: *INSPIRATION's WP2 workflow.*

The information collated in this report feeds into WP3 "Transnational commons aggregated under integrated themes". According to the INSPIRATION DoA, the main objectives of WP3 will be to:

1. Achieve an overview of the transnational shared demands and experiences grouped under common themes based on the national state-of-the-art reports as produced by WP2,
2. Prioritise and elaborate the topics that could be included in the SRA (to be developed by WP4) under specific themes,
3. Elucidate the opportunity to match (to be done under WP4) individual stakeholders (as funders) to specific SRA topics that could be shared transnationally." (INSPIRATION Grant Agreement - Description of Action - DoA).

Visit the INSPIRATION website for the up-coming deliverables of the network!

1.3 The INSPIRATION conceptual model and its themes

In order to identify cross-country and cross-sectorial knowledge gaps and research questions, the national Research and Innovation (R&I) needs will be analysed along four overarching themes identified in the INSPIRATION conceptual model. This model is presented in figure 2. It has been used to structure the information presented in this report on R&I needs following these guiding key-questions for each theme:

- **Demand**:
  What does society demand from natural capital and ecosystem services including the SSW-system?
- **Natural capital**:
  What has nature, including the Soil-Sediment-Water (SSW)-system, to offer and which determinants sustain the system?
- **Land management**:
  What are options for an integrated, cross-sectorial land management to balance societal demands and natural capital?
- **Net-impacts**:
  What are the impacts of different options of managing natural capital, including the SSW-system on global, regional and local as well as temporal scales?

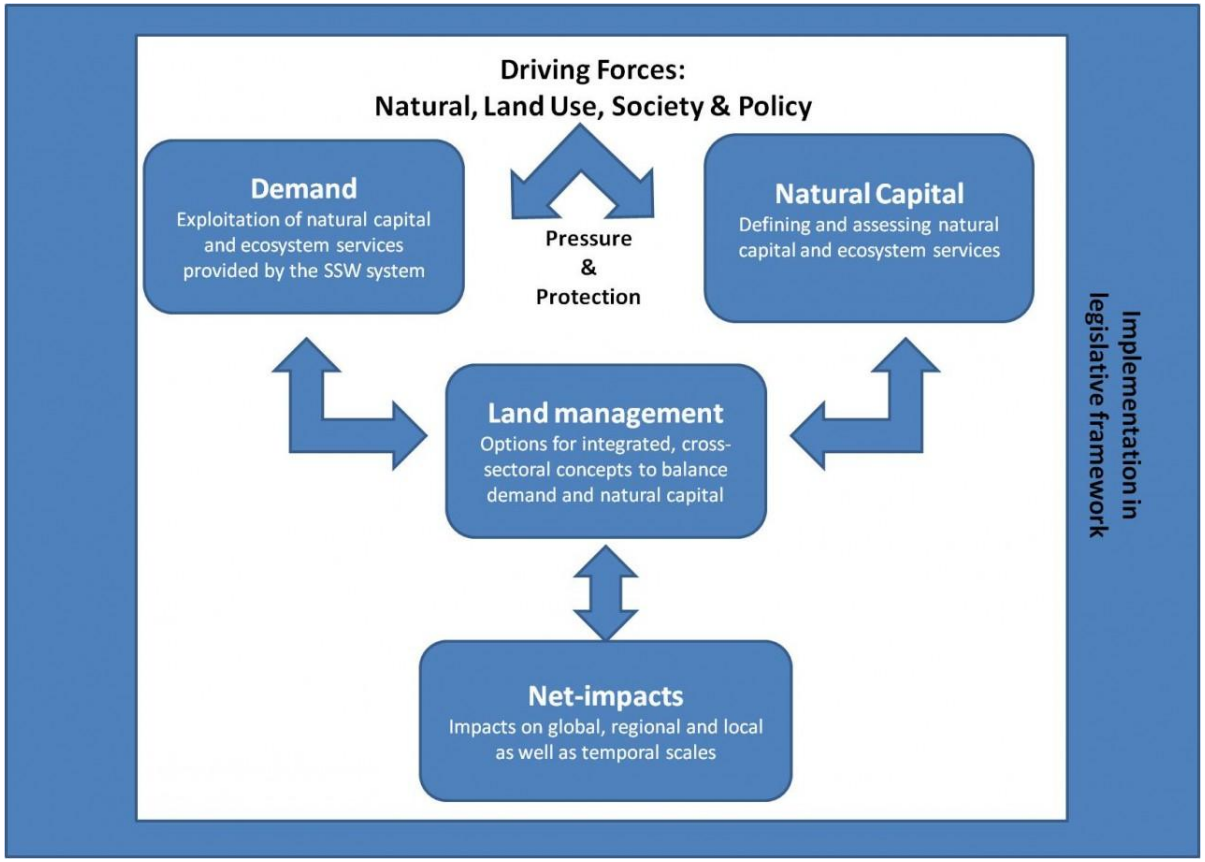

Figure 2: *INSPIRATION's conceptual model.*

1.4 Guide to the reader: outline of the country chapters

Each county chapter in Deliverable D2.5 follows a comparable outline:

Section X.1- Executive summary

This section provides an executive summary in English (X.1.1) as well as in the national language (X.1.2).

Section X.2 - Methodology followed

This section describes the methodology followed in the respective country including information on the stakeholder engagement (see also section 1.4).

The subsequent sections give a review and synthesis of the main results of the topics as mentioned under the WP2 objectives (see section 1.2).

Section X.3 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.*

This section is divided in the sub-sections:

- Societal challenges and needs (X.3.1);
- Topics / research needs to include in the SRA (X.3.2).

The research questions under the topics in the X.3.2 sub-sections are divided by themes of the INSPIRATION conceptual model as described in section 1.3 of this chapter.

Section X.4 - 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?***

This section is divided in the sub-sections:

- Use of knowledge (X.4.1);
- Possibilities to set the agenda (X.4.2);
- Science – policy – practice (X.4.3).

Section X.5 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?"

This section is divided in the sub-sections:

- Funding schemes and possibilities for research funding (X.5.1);
- Gaps in financial resources for research (X.5.2).

Section X.6 - Other remarks made by interviewees

This section is optional and is not taken up in all national reports. It contains remarks, points of attention and recommendations for INSPIRATION as given by the NKS.

1.5 Annexes

Annex I: NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training in Vienna 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: *[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
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): *[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: …..

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 <u>specific topics</u> (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 / minimize 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]

- *scientific paper*
- *consultants*
- *reports*
- *colleagues*
- *experiences /examples within my own country*
- *experiences /examples abroad*
- *newspapers*
- *television*
- *conferences Involvement in research projects*
- *data (bases)*
- *websites, such as: …..*
- *other, specify: …..*

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 indictors 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, 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 recognized 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]

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

INSPIRATION interview at a glance

Aim of INSPIRATION:

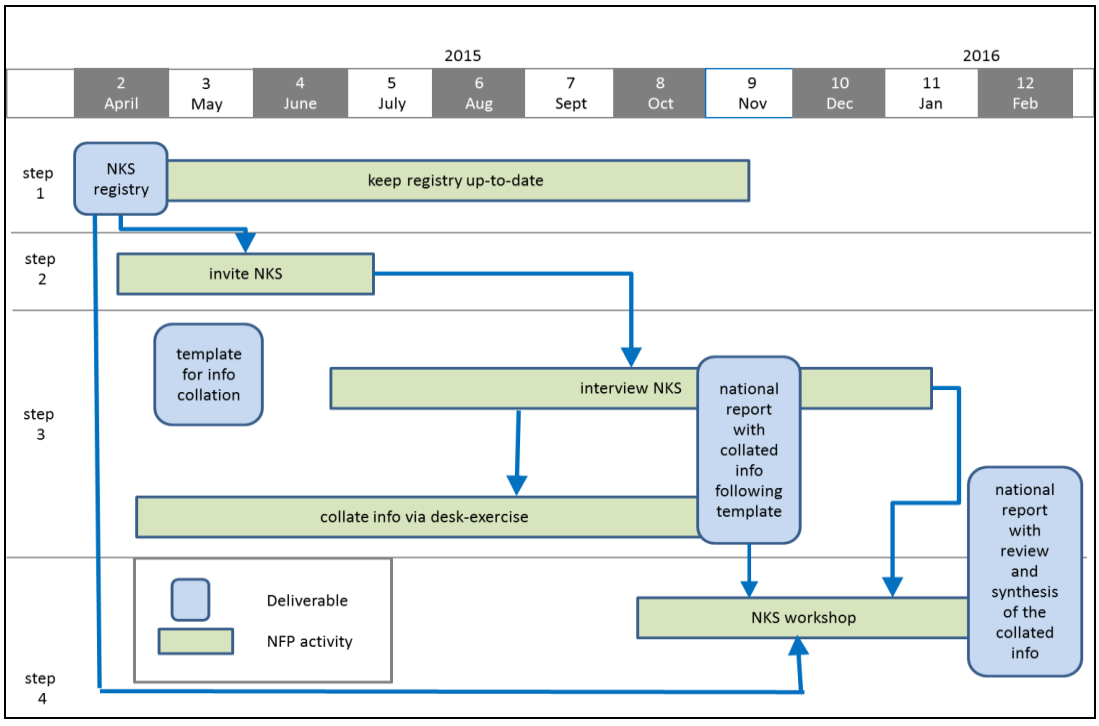
The main purpose of the EC-funded INSPIRATION project is to formulate an end-user driven strategic research agenda (SRA) for land-use, land-use changes and the related, impacted compartments of the Soil-Sediment-Water (SSW) system in order to meet current and future societal challenges and needs. Next 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.



Workflow in the first year of INSPIRATION

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).

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:	Contact the general project coordination:
See the INSPIRATION website for contacts	Stephan Bartke stephan.bartke@uba.de

2. Czech Republic

Report by Petr Klusáček, Stanislav Martinát, Bohumil Frantál

2.1 Executive summary

2.1.1 English version

On the basis of interviews and workshop important challenges for society from the perspective of stakeholders (NKS) were defined. These challegens 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?

As the most important research needs bellow mentioned topics were identified (on basis of data gathered during interviews and workshop)

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

specific research questions

Improving the process understanding – and improvement of sharing of that understanding – of the development on greenfields; Developing/testing/demonstrating new technical solutions for building activities on greenfields respecting needs of SSW systems; 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

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

specific research questions

There is need of research of brownfields and development of holistic and transdisciplinary approaches including the perspective of different and stakeholders; Improving the process understanding – especially improvement of understanding of roles of the different public administration; Improve research focused on best practises and demonstration projects related to both contaminated sites and brownfields. Use innovative solutions

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

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; Animal husbandry has been strongly reduced, which is one of the reason for lack of organic matter in 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

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

specific research questions

There is need of research integrating productive and environmental perspective of soil management; Improving the process understanding – especially improvement of understanding of roles of the different bodies of public administration; Improve research focused on best practises and demonstration projects related to both floods and droughts

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

specific research questions

Improving the process understanding – especially improvement of understanding of roles of the different bodies of public administration in SSW system; Improve research focused on best practises and demonstration projects supporting both productive and environmental function of landscape

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

specific research questions

Relations of population to public spaces in cities need to be more researched to learn more; Marketing of cities/urban regions is the topic, which needs more attention. This is mainly case of rather smaller cities; 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

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

specific research questions

Decentralized projects for generation of renewable energy, where energy is locally both produced and consumed should be supported; Energy use of households and municipal wastes. Enormous energy potential of waste is nowadays overlooked; Spatial distribution of individual types of renewable energies should be more researched and adopted to natural/social/environmental conditions

CZ-8: Sustainable use and renewal of population´s relation to soil and landscape

specific research questions

Relation of population to soil and landscape shall be renewed and significantly improved. This could be achieved by set of wisely implemented educational and research actions; More attention should be devoted to environmental education in primary schools. Interactive and smart environmental games could be attractive way how to make environmental education more attractive for school kids.

Part of study focused on science-policy interface brought several important points – I) problem with identification, formulation of research questions and funding of research, whose solution might be beneficial for whole society. This 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. II) 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.

Part of study foucsed on funding options derived these remarks. 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. Administration burden connected to projects is usually 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. Fragmentation of funding of research has been also mentioned quite frequently.

2.1.2 Czech version

Na základě provedených rozhovorů a výsledků tematického workshop byla identifikována společensky významná témata týkající se oblastí projektu INSPIRATION. Zjištěná témata byla rozdělena do tří hlavních výzkumných otázek: a) Jak neohrožovat (jak chránit) produkční funkce půd pro budoucí generace v podmínkách, kdy jsou soudobé zemědělské a lesnické activity primárně orientovány na dosahování pouze krátkodobého profit (například dosahování zisku prostřednictvím dotací pro pěstování energetických plodin, které způsobují zvýšenou degradaci půdy erozí, pokles míry organické hmoty v půdách atd.)?; b) Jak dosáhnout optimální miry neproduktivního využívání země (například environmentální funkce, rekreační funkce, estetické funkce)?; c) Jak regulovat zastavování půdy a krajiny či jak zvýšit míru regenerovaných ploch brownfieldů (dříve využívaných ploch) a snížit zastavování volných ploch (greenfields)?

Jako nejvýznamnější výzkumné potřeby týkající se témat projektu INSPIRATION byly na základě provedených rozhovorů a výsledků workshop identifikovány tyto:

CZ-1: Divoké rozrůstání měst a související změny využívání krajiny v zázemí velkých měst

specifické výzkumné otázky

Lepší chápání a porozumění souvislostem zastavování volných ploch (greenfields);
Vývoj, testování a demonstrace nových technických řešení pro stavební activity na volných plochách, které respektují potřeby systému voda-půda-podloží (SSW);

Společenské náklady související se zástavbou volných ploch a identifikace příkladů dobré praxe a demonstrační projekty ze zemí Evropské unie i České republiky.

CZ-2: Kontaminované ploch jako dědictví 20. století a jak s nimi dále naložit

specifické výzkumné otázky

Potřeba výzkumu brownfieldů a vývoje holistických a transdisciplinárních přístupů, které zahrnují pohledy nejrůznějších aktérů; Lepší porozumění role veřejné správy při čistění kontaminovaných ploch; Zlepšení výzkumů zaměřených na příklady dobré praxe a demonstrační projekty zaměřené na kontaminované plochy a brownfieldy. Využívání inovativních řešení.

CZ-3: Propady zemědělské produkce v České republice a jejich souvislost s potravinovou bezpečností

specifické výzkumné otázky

Zemědělská produkce zaměřená na produkci potravin je významně vytlačována jinými aktivitami, jež se zaměřují na nepotravinářské využívání půdy (energetické plodiny), což významně ovlivňuje budoucí potravinovou (ne-)bezpečnost země; Chov hospodářských zvířat byl silně redukován, což je jedna z příčin nedostatků organické hmoty v půdách; Dochází ke zvyšování efektivity práce využíváním moderních prostředků, což způsobuje zvyšování intensity zhutňování půd a zhoršování propustnosti půd

CZ-4: Přizpůsobování se klimatické změně (extrémní klimatické jevy – sucha, povodně atd.)

specifické výzkumné otázky

Potřeba výzkumu, který by integroval produkční i environmentální stránky management půd; Lepší chápání a pochopení rolí veřejné správy; Zlepšování výzkumů zaměřených na příklady dobré praxe a demonstrační projektu související s řešením povodní a nebezpečím sucha

CZ-5: Zlepšování kvality systému půda-sedimenty-voda (SSW)

specifické výzkumné otázky

Lepší pochopení role veřejné správy ve zlepšování kvality systému půda-sedimenty-vody (SSW); Zlepšení výzkumů zaměřených na příklady dobré prace v kontextu SSW systému a podpora demonstračních projektů podporujících produkční i environmentální využívání krajiny

CZ-6: Regenerace městského prostoru a soudobá rizika dalšího rozvoje měst

specifické výzkumné otázky

Vztahy obyvatelstva k veřejnému prostoru ve města by měly být hlouběji zkoumány a pochopeny; Marketing měst a městských region, kterému by měla být věnována větší pozornost; Je nezbytné zaměřit se na alternativy vůči suburbanizaci a cílit k budování vice kompaktních měst (například využíváním již dříve využívaných, dnes ale opuštěných ploch)

CZ-7: Obnovitelné vs. fosilní zdroje energie v České republice

specifické výzkumné otázky

Podpora decentralizovaných energetických projektů na výrobu obnovitelné energie, kde je energie jednak lokálně produkována, ale i spotřebována; Energetické využívání odpadů z domácností; Prostorové rozmístění individuálních typů zařízení na výrobu obnovitelné energie a jejich přizpůsobení přírodním, sociálním a environmentálním podmínkám

CZ-8: Udržitelné využívání a obnova vztahu k půdě a krajině

specifické výzkumné otázky

Významné zlepšení a obnova vztahu obyvatelstva k půdě a krajině prostřednictvím vzdělávacích a výzkumných aktivit; Více pozornosti environmentálnímu vzdělávání na základních školách

Část studie zaměřená na vztahy vědy a politiky identifikovala tyto významné body – I) problémy s identifikací, formulací výzkumných otázek tak, aby jejich bylo řešení co možná nejblížeji spojeno s dlouhodobými potřebami celé společnosti. Tento problem je způsoben nastavením soudobého uvažování o problémech, které je dáno spíše krátkodobými cíli a silně podléhá politickým rozhodováním. Jsou očekávány výsledky výzkumů v krátkodobém horizontu, což je v kontradikci s dlouhodobými výzkumnými strategiemi České republiky. II) další problém je spatřován v omezené viditelnosti výsledků výzkumů. Je obvyklé, že vyvinuté metodiky jsou často certifikovány, nicméně v reálném životě nikdy nevyužívány. Jasnější komunikace výsledků výzkumu směrem k veřejnosti, ale i k veřejné správě, by byla velmi vhodným krokem. Bylo by take vhodné podporovat tzv. pilotní projekty, které verifikují a dale rozvíjejí výsledky výzkumů s tím, že tlak na okamžitou nezbytnosti na generování zisku je omezen.

Část studie zaměřená na možnosti podpory výzkumu přinesla tyto poznatky. Jak častý problem výzkumu v České republice je uváděn nedostatek finančních zdrojů. V souvislosti s historickým vývoje se česká výzkumná Krajina rozvíjí v několika klastrech, které občas mívají vzájemně si konkurující tendence (university, Akademie věd). Tato diskrepance výzkumný sektor jako celek oslabuje. Časté problémy byly zmiňovány v souvislosti s administrativní zátěží při řešení projektů. Tato by měla být redukována. Tento názor byl relativně častý, nicméně objevil se zejména u spíše menších výzkumných institucí a univerzit, kde je budování infrastruktury pro management projektů teprve v záčátcích. Bylo by take žádoucí, kdyby mohly být výzkumné projekty podávány pouze v redukovaných verzích a dopracovávány teprve po kladném zhodnocení a výzvě oponenta. Tímto způsobem by s ohledem na velmi nízkou šanci výzkumých projektů na přijetí bylo ušetřeno mnoho práce a energie, které by mohla být směřována vhodnějším způsobem.

2.2 Methodology followed

This national report (i.e. INSPIRATION deliverable 2.5) reports the information collated for the Czech Republic. The information was collated in accordance with INSPIRATION D2.3 “Template for national information collation” and INSPIRATION D2.4 Report. 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 (61 participants) 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 – see above).

Structure of participants of the NKS workshop in the Czech Republic illustrates table 1. It has to be stressed that organizers of NKS workshop put their big effort to gather majority of relevant stakeholders to one place in one time to have mutual discussions on the INSPIRATION topics. In not all cases were organizers successful since not all NKS were open to share their ideas and discuss their opinions more deeply. Nevertheless, we believe that final study was prepared and all major topics and included. Programme of the NKS workshop respected sub-divisions of the INSPIRATION topics and can be found as Annex Ic of this study.

Draft version of this Deliverable 2.5 was reviewed by selected NKS, who were able to invest their time and effort. Explicitly, part focused on societal challenges was reviewed by Assoc. Prof. Zdeněk Szczyrba of Palacky University in Olomouc, part focused on research topics by Assoc. Prof. Barbara Vojvodíková of Technical University of Ostrava, part on science-policy interface by Mr. Jan Hladík of Regional Development Agency of the South

Moravia and part devoted to funding options by Assoc. Prof. Josef Kunc and Dr. Robert Osman, experts on research funding options from academia and NGO sector.

Table 1: Numbers of participants of the NKS workshop in the Czech Republic according to their affiliantion and expertise

Funders – 22	National, regional, local authorities – 21	Soil – 12
End user – 25	Universities, research institutes – 23	Sediment - 15
Knowledge providers - 28	SME, consultants - 15	Water – 18
	Business, Industry – 5	Land Use Management - 22
	NGO – 7	
	Network - 1	

2.3 Research and Innovation (R&I) needs

2.3.1 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 exampled 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 it is 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 owned of the land and started to be employees within stated 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 2: 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)

Table 2 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 2, 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).

2.3.2 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

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 (following the conceptual model of INSPIRATION):

Land Management:

- 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.

Demand:

- 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 law 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.

Net-impacts:

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

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

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 (following the conceptual model of INSPIRATION):

Land Management:

- There is need of research of brownfields and development of 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.
- 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.

Net-impacts:

- 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.

Demand:

- 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 (following the conceptual model of INSPIRATION):

Land Management:

- 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.

Natural Capital:

- 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 (following the conceptual model of INSPIRATION):

Land Management:

- 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.

Net Impacts:

- 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.

Natural Capital:

- 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.

Demand:

- 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 (following the conceptual model of INSPIRATION):

Land Management:

- 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.

Natural Capital:

- 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.

Demand:

- 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.

Specific research questions (following the conceptual model of INSPIRATION):

Net Impacts:

- 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?

Demand:

- 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.

Land Management:

- 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: Renewable energy vs. fossil fuels 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.

Specific research questions (following the conceptual model of INSPIRATION):

Net Impacts:

- 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?

Demand:

- 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.

Natural Capital:

- 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?

CZ-8: Sustainable use and renewal of population´s relation to soil and landscape

On the territory of the Czech Republic, the previous development caused that there is only weak relation between inhabitants and landscape (and soils), which they use every day. In other words, the majority of inhabitants do not care about their landscape if their interests are not threatened. The industrialisation process started already two centuries ago and the intensively industrialised country preferred needs of industries (e.g. mining of raw materials) compared to needs of agriculture. Moreover, the relation between inhabitants and their landscape was negatively influenced by complicated history during the 20th century. After the end of WWII, the German population (about 3 millions of inhabitants) in border regions of Czech lands was replaced by new population from inner parts of country, but the new inhabitants could not develop their relation to the landscape more significantly due to rule of communist regime between years 1948-1989. After 1948, there was process of nationalisation and collectivisation of agricultural production, which destroyed traditional farmers' families even in regions inhabited by Czech population. The process of nationalisation and collectivisation was extremely strong in comparison for example to the Poland, where system of small farms survived. In the period after 1989, the country focused on development of new industries (new industrial zones) and agriculture production is under control of large companies, which are oriented on short-term profit. The role of family farmers is only marginal. The result is that there is only a weak relation between inhabitants and their landscape and soils.

Specific research questions (following the conceptual model of INSPIRATION):

Net Impacts:

- Relation of population to soil and landscape shall be renewed and significantly improved. This could be achieved by set of wisely implemented educational and research actions.

  Why: How to improve relation of population to soil and landscape to avoid further press on landscape?

- More attention should be devoted to environmental education in primary schools. Interactive and smart environmental games could be attractive way how to make environmental education more attractive for school kids.

  Why: Young generation should be educated more pro-actively to ensure more sustainable way of use of soils and landscape in future.

2.4 Experiences regarding connecting science to policy/practice

2.4.1 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.).

2.4.2 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.

2.4.3 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 in 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.

2.5 National and transnational funding schemes

2.5.1 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 o 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 tend to support their own research institute,
- Short-term orientation of research – the government decrease 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 issues in media – if there is floods, the research on floods is supported, if there is drought, the research on drought is supported etc.

Table 3: Selected funding options collated for the Czech Republic on the national level (more options could be found in Annex 1d)(source: own research)

Research and Innovation funder	What and/or whom do they fund?	More info
Technology Agency of the Czech Republic	applied research projects	www.tacr.cz
Grant Agency of the Czech Republic	primary research projects	www.gacr.cz
National Agency for Agricultural Research	applied research projects	www.nazv.cz
Ministry for Regional Development of the Czech Republic	applied research projects	www.mmr.cz
Ministry of Interior of the Czech Republic	applied research projects	www.mvcr.cz
Ministy of Environment of the Czech Republic	applied research projects	www.mzp.cz
Ministry of Cultural of the Czech Republic	applied research projects	www.mkcz.cz
Operational Programme Research, Development and Education (2014-2020)	support for infrastructure of research	www.opvvv.cz
CEZ foundation	applied research projects	http://www.nadacecez.cz/cs/uvod.html
Ministry of Trade and Industry of the Czech Republic	applied research projects	http://www.mpo.cz/dokument160144.html
Czech Academy of Sciences	basic research projects	http://av21.avcr.cz/

Table 4: Selected Funding options collated for the Czech Republic on the regional level (more options could be found in Annex 1d)(source: own research)

Research and Innovation funder	What and/or whom do they fund?	More info
Support of regional authorities	applied research projects	For example http://www.msk.cz/cz/uredni_deska/podpora-vedy-a-vyzkumu-v-moravskoslezskem-kraji-2015-53798/
Support of big cities	applied research projects	For example http://www.brno.cz/sprava-mesta/dokumenty-mesta/koncepcni-dokumenty/
Internal programs of universities	basic research projects	For example http://www.vse.cz/veda/interni_grantova_agent.php

Applied research in the Czech Republic is funded by multiple sources on different levels – primarily were mentioned these sources (see table 3, table 4):

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.

2.5.2 Gaps in financial resources for research

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

2.6 Annexes

Annex 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 Hladík		/		/										/
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 Kundrata		/						/				/		
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 NUTS2 Moravia-Silesia	Vladimír Gelnar	/			/										/
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	Liberecky 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

See Chapter1, Annex I for the introduction to the questionnaire and for the questionnaire in English language

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):

O orgán veřejné správy na národní, regionální, lokální úrovni

O univerzita/výzkumný ústav

O malý a střední podnik /konzultant

O obchod a průmysl

O nezisková organizace

O zástupce sítě subjektů

O v jiné pozici, uveďte konkrétně: ……..

2. Jak dlouho působíte v této roli / pozici?
Pracujete sám/ v týmu – jaká je jeho velikost?

3. Oblast Vaší specializace/ odbornosti (je možné zvolit více odpovědí):
O půda
O voda
O sedimenty
O městské plánování
O krajinné plánování
O územní management
O jiná - jaká: …..

4. Poskytuje vaše organizace financování výzkumu?

O Ano, prosím specifikujte *(jako správce programu, příležitostně, z veřejných zdrojů, ze soukromých zdrojů)*……..

O Ne

D. SVA = Strategická výzkumna 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?
[Myslete na časové rozpětí výzkumných potřeb, současný stav výzkumu, analýzu stakeholderů, témata typický pro ČR a témata pro více zemí EU, přehled národních agend, příležitosti financování výzkumu….

6. Vaše očekávání ohledně SVA?
[Na jaké strategické cíle by se měla zaměřit?]

7. Vaše preferovaná témata spojená s SVA?
[typ oblastí, význam – váha oblastí, společenské výzvy, potřeby, …]

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?

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

See Chapter1, Annex II

Annex Ic: Programme of the NKS workshop in the Czech Republic (October 22, 8:30-18:00), conference room of the Institute of Geonics of CAS in Ostrava

Programme:

8:30-9:00 – registration of participants
9:00 – official welcome speach
9:15-9:40 – introduction to the INSPIRATION project (Petr Klusáček)
9:40-10:15 – summary of present state of results based on interviews (Stanislav Martinát)
- i) strategic research agenda (SRA)
- ii) science-policy interface (SPI)
- iii) funding options

10:15-10:30 **– coffee break**
10:30-12:00 – discussions (World Café) on individual topics (Petr Klusáček, Stanislav Martinát, Bohumil Frantál)
- i) strategic research agenda (SRA)
- ii) science-policy interface (SPI)
- iii) funding options

12:00-12:20 – summary of discussions (Stanislav Martinát)

12:20-13:20 **– lunch break**

13:20-15:20 – work in paralel sections 1
- i) strategic research agenda (SRA)
- ii) science-policy interface (SPI)
- iii) funding options

15:20-15:35 **– coffee break**
15:35-17:00 – work in paralel sections 2
- i) strategic research agenda (SRA)
- ii) science-policy interface (SPI)
- iii) funding options

17:00-17:45 – summary and final discussion on results of workshop (Petr Klusáček)
17:45-18:00 – final conclusions

Annex Id: R&I funding options collated for the Czech Republic

R&I funding options collated for country: Czech Republic

	Name*	Research and Innovation funder**	What and/or whom do they fund?***	More info****
Regional				
1	Fund for rural development	Public body	Small projects for rural development, support for LEADER programme	https://www.szif.cz/cs/prv2014
2	Support for research and development in the Moravian-Silesian Region	Public body	Support for young researchers from region, attraction for foreign researchers, support for new technologies and services, cooperation with companies	http://www.msk.cz/cz/uredni_deska/podpora-vedy-a-vyzkumu-v-moravskoslezskem-kraji-2015-53798/
3	Fund for mobility of researchers	Public body	Support for mobility of young, talended scientist	http://www.econ.muni.cz/zamestnanci/zahranicni-mobility/mobility-akademickych-pracovniku/program-na-podporu-mobility-akademickych-pracovniku
National				
4	Technology Agency of the Czech Republic	Public body	funding for research projects with high applicability	www.tacr.cz
5	Grant Agency of the Czech Republic	Public body	primary research projects	www.gacr.cz
6	National Agency for Agricultural Research	Public body	applied research projects focused on new technologies in agriculture	www.nazv.cz
7	Ministry for Regional Development of the Czech Republic	Public body	applied research projects on regional policy and regional development	www.mmr.cz
8	Ministry of Interior of the Czech Republic	Public body	applied research projects with focus on security issues	www.mvcr.cz
9	Ministy of Environment of the Czech Republic	Public body	applied research projects, very limited amount of money – more focused on environmental studies	www.mzp.cz
10	Ministry of Cultural of the Czech Republic	Public body	applied research projects	www.mkcz.cz

11	Operational Programme Research, Development and Education (2014-2020)	Public body	support for infrastructure of research	www.opvvv.cz
12	CEZ foundation	Private body	small applied research projects	http://www.nadacecez.cz/cs/uvod.html
13	Ministry of Trade and Industry of the Czech Republic	Public body	applied research projects	http://www.mpo.cz/dokument160144.html
14	Czech Academy of Sciences	Public body	basic research projects	http://av21.avcr.cz/
15	CzechInvest	Public body	applied research projects, cooperation for business and public research institutes, support for transfer of technologies	http://www.czechinvest.org/podpora-vyzkumu-a-vyvoje
European/International				
16	Horizon 2020 (and before EU Framework Programmes).	EU and private investments	EU Research and Innovation programme (2014 to 2020). Open for consortia, with different parties on different topics (e.g. societal challenges)	https://ec.europa.eu/programmes/horizon2020/
17	JPI - Joint Programming Initiatives	Member States commit to Joint Programming Initiatives (JPIs)	open for consortia of the contributing member states	http://ec.europa.eu/research/era/joint-programming_en.html
18	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/
19	ERANET - European Research Area Network	instrument under Horizon 2020	instrument 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	http://ec.europa.eu/research/era/era-net-in-horizon-2020_en.html
20	LIFE +	instrument under Horizon 2021	EU's financial instrument supporting environmental, nature conservation and climate action projects throughout the EU	http://ec.europa.eu/environment/life/

21	European structural funds	EU	Structural Funds play a substantial role to help all regions build research and innovation capacities corresponding to their situation and priorities: Operational Programme Quality of the Environment, Research and Innovation, Education...	http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=structural_funds
22	COST - European Cooperation in Science and Technology	EU	European framework supporting trans-national cooperation among researchers, engineers and scholars across Europe.	http://www.cost.eu/
23	Norway Fund / EEA - Iceland, Liechtenstein, Norway Fund	Norway Grants / EEA Grants - Bilateral Fund at National Level aimed at the implementation of activities for strengthening of the bilateral relations between the Slovak Republic and the Donor States (Norway, Liechtenstein and Iceland).	Increasing competitiveness of green enterprises and green job creation. The Programme also focuses on adaptation to climate change issues, the protection of water retention capacity of soil, forest and meadows; restoring forest ecosystems, increased soil erosion protection and revitalising waterways; improving the definition of flood plains and areas at disk during flooding; and informing the public about flood prevention measures and preparedness.	http://eeagrants.org/Where-we-work/Slovakia
24	Future Earth	the International Council for Science (ICSU), the International Social Science Council (ISSC), the Belmont Forum of funding agencies, the Sustainable Development Solutions Network	international research platform providing the knowledge and support to accelerate our transformations to a sustainable world	http://www.futureearth.org/who-we-are

		(SDSN), STS forum, the United Nations Educational, Scientific, and Cultural Organization (UNESCO), the United Nations Environment Programme (UNEP), the United Nations University (UNU), and the World Meteorological Organization.		
25	'Intergovernmental Platform on Biodiversity and Ecosystem Services' (IPBES)	United Nations	mechanism recognized by both the scientific and policy communities to synthesize, review, assess and critically evaluate relevant information and knowledge generated worldwide by governments, academia, scientific organizations, non-governmental organizations and indigenous communities.	http://www.ipbes.net/index.php/about-ipbes
26	Man and the Biosphere Programme (MAB)	UNESCO	develops the basis within the natural and social sciences for the rational and sustainable use and conservation of the resources of the biosphere and for the improvement of the overall relationship between people and their environment. It predicts the consequences of today's actions on tomorrow's world and thereby increases people's ability to efficiently manage natural resources for the well-being of both	http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/man-and-biosphere-programme/about-mab/

			human populations and the environment.	
27	Visegrad Fund	Visegrad countries	short and long term grands supporting collaboration among Visegrad countries in the culture, research and other activities. The purpose of the fund is also to facilitate and promote the development of closer cooperation among citizens and institutions in the region as well as between the V4 region and other countries, especially in the Western Balkan and Eastern Partnership regions.	www.visegradfund.org

* Include full name and (if available) acronym of the R&I funding option

** Include name of the R&I funder/funding institute or authority

*** Detail which type of programme, projects, partners or infrastructures they are funding

*** Include weblink and/or other reference for more information on this R&I funding option

Annex II: Documents used for the Czech Republic desk study

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