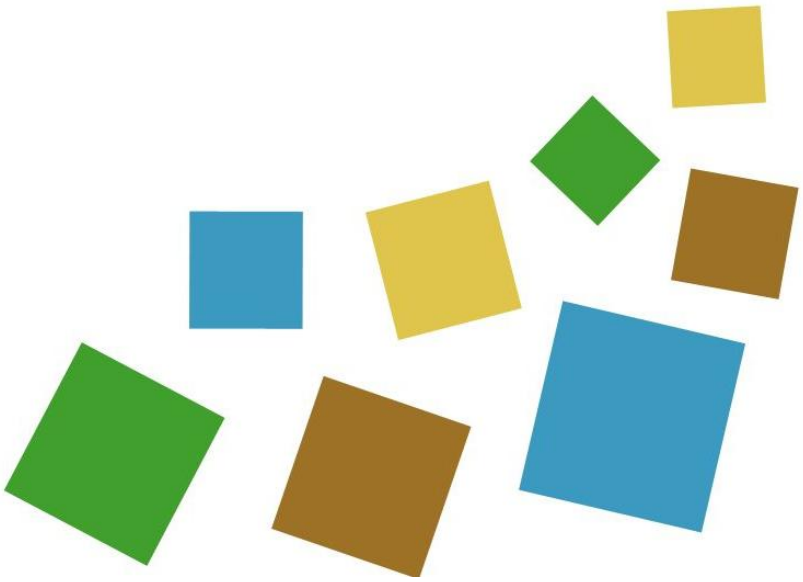
D2.5

National reports with a review and synthesis of the collated information

Romania



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

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.

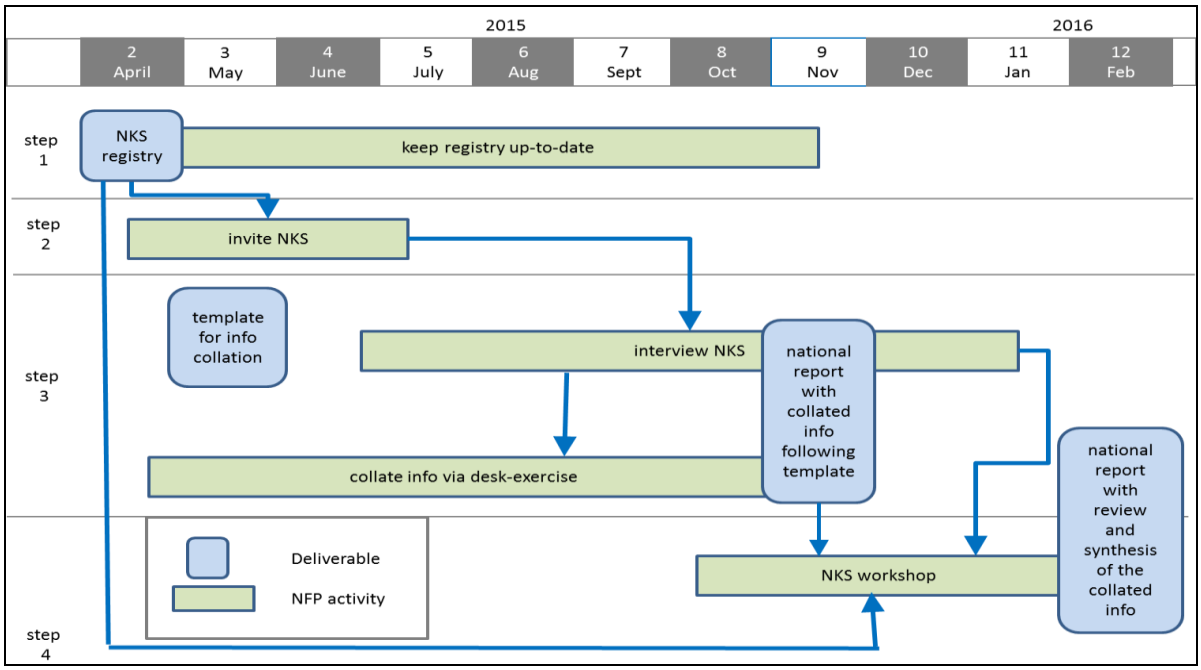

Figure 1: *INSPIRATION's WP2 workflow.*

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?

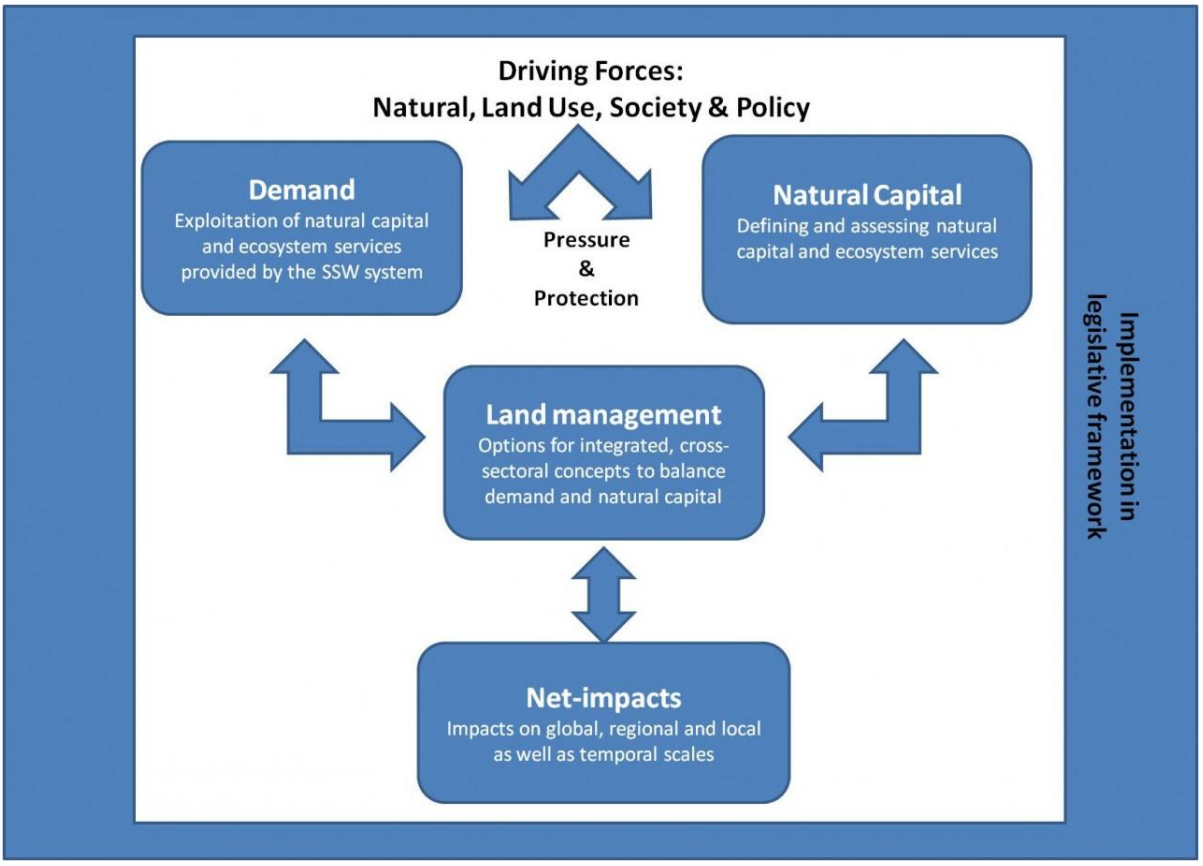

Figure 2: *INSPIRATION's conceptual model.*

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]

INSPIRATION acknowledges the received funding from the
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Annex II: NKS hand-out: INSPIRATION interview at a glance

INSPIRATION interview at a glance

Aim of INSPIRATION:

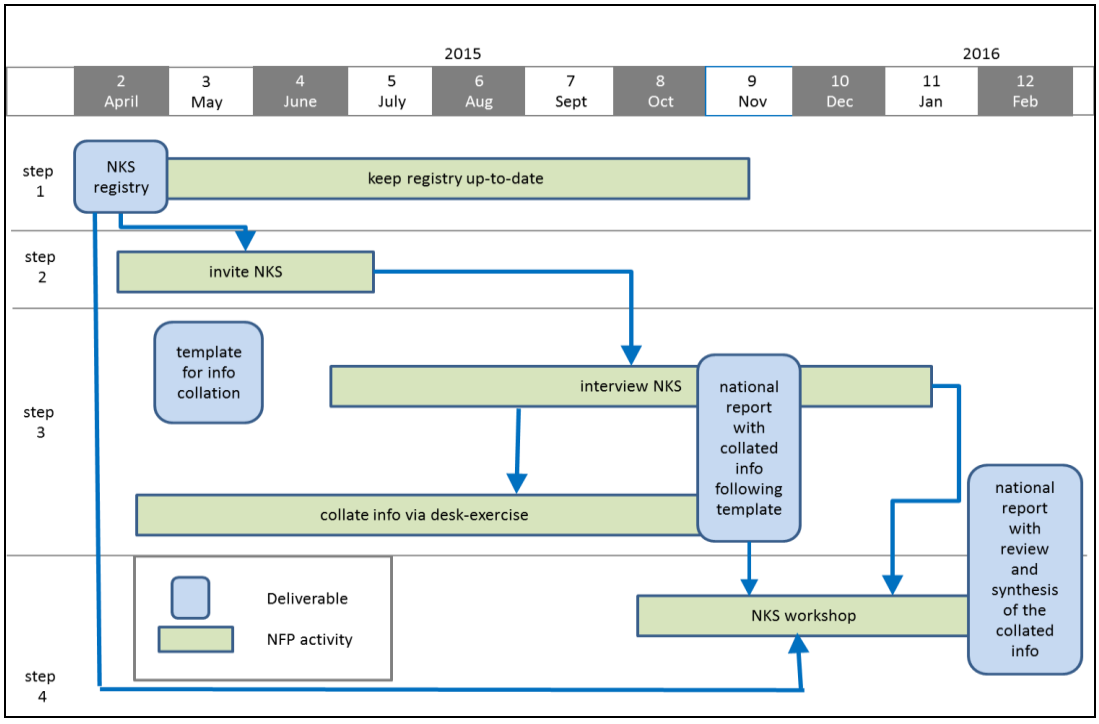
The main purpose of the EC-funded INSPIRATION project is to formulate an end-user driven strategic research agenda (SRA) for land-use, land-use changes and the related, impacted compartments of the Soil-Sediment-Water (SSW) system in order to meet current and future societal challenges and needs. Next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

Report by Mihail Dumitru, Sorin Liviu Stefanescu, Andrei Vrinceanu, Valentina Voicu, Nicoleta Vrinceanu

2.1 Executive summary

2.1.1 English version

The Romanian National Focal Point has launched its assigned activities within the frame of the INSPIRATION project by organizing a National Workshop in September 2015 in Agigea-Constanta. During the debates, the participants identified three fields of issues with regard to SSW-system and the existing research agenda: (i) the many small farmers in Romania are poorly informed about environmental practices whilst the research and innovation sector is not sufficiently adapted to the specific needs of farmers; (ii) the good natural environment of Romania provides opportunities scarcely used and (iii) the low productivity in agriculture relates, among others, to the low use of the inputs in agriculture or the unsufficient/unproper use of alternative and environment friendly inputs.

The questionnaire based study has revealed that overall, the societal challenges and needs perceived as important by the respondents (NKSs) follow a pattern of priorities fairly conected with the one of the issues debated within the national workshop. The “Contribution to food security and food safety“ is seen (quantitatively) as the highest priority. Some respondents commented additionally on this particularly topic that “soil fertility conservation, degraded land remediation, crop technologies for polluted soils are ever lasting important research issues.” The second ranked priority is shared by “Reduce raw material and resource consumption, Ensure efficient use of natural resources” (with comments like “soil quality monitoring contributes to the decrease of fertilizers consumption”), and “Contribute to a healthy living environment” (with additional comments like ”it is the highest challenge of the modern society”, “pollution sources monitoring and the pollutants impact on agro-systems and food are seen as important research topics by EC”, or “organic farming is a fair alternative”). The two secondly ranked options are followed close on third place by “Contribute to climate change mitigation and societal adaptation”. The last priority is given to “Ensure secure infrastructure”.

The three areas of issues discussed during the national workshop of September 2015 were conected with the main (“top three”) societal challanges and options, as perceived by the respondents to the questionnaire. Finally, three related important topics/research needs were selected and accordingly drafted.

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

The proposed research topic is grounded by assessments revealing a need for more practical farm-oriented approaches and development of decision support tools for farmers. The related key questions/issues to be answered on this particular topic are (i) how food security and food safety simultaneously can be achieved with a minimum impact on soil, water and biodiversity?, (ii) development of practical tools able to respond to the risks induced by soil degradation processes under the global climate change impact and (iii) fresh

water: how soils can be managed with regard to an intelligent use of continuously decreasing water resources?

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

The proposed topic stems from the fact that organic farming has become an important aspect of the European agri-environmental policy. Over the last years, Romania has seen a steady and rapid rise in the amount of land and number of holdings adhering to organic standards but yet the organic farming national share is almost three times less then EU average. The relative low level of pollution in Romanian's agriculture continues to provide good opportunities for conversion to organic practices. The key questions/issues to be answered on this topic are related with (i) establish at least two long term trials/demo fields (in plain and hilly side of the country, respectively) for organic vs. conventional farming, to get a multidisciplinary approach in terms of soil quality, environmental impact of inputs use, energy consumption, productivity levels, biodiversity conservation or restoration and trends of GHG emissions, (ii) improve the level of awareness and understanding regarding the environmental benefits of organic farming in agricultural schools and universities and among farmers by a multi-leveled curriculum developed for technical, vocational and continuing training, (iii) develop a large-scale research, extension and implementation program for small and medium grassland holdings converting to organic farming and (iv) develop a private-public partnership cluster research/inspection bodies/farmers associations for organic farming inputs certification.

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

The related key questions/issues refer to (i) the optimized use of synthetic fertilizers under the global climate change impact, (ii) waste recycling: a better use of soil as bio-geo-chemical reactor to prevent its contamination and sustain its productive potential and (iii) climate change: how soils productivity and resilience will be affected?

The NFP study revealed that some respondents see for a prospective improvement that "SRA agenda should be applied in all MS, not only in the developed MS" and "The widening of the gap in terms of research, between different MS" should be avoided. Also a Soil Directive and a European Research Program for SSW system is seen as very much needed.

By conecting the content of discussions held in the National Workshop with the results of the questionnaire based study, the following top of the most important national Science-Policy-Interface documents came front:

I. National Strategy for Research, Development and Innovation 2014-2020;
II. National Rural Development Program 2014 – 2020;
III. Strategy for the agri-food sector medium and long term development – horizon 2020/2030.

The majority of respondents of the questionnaire based study agreed with the fact that a significant number of areas of research and innovation (R&I) are not (yet) covered by current funding mechanisms in Romania. Little attention is given to the soil issues, with particular emphasize to water and plant relationship. With regard to the sediment, there is no interest recorded at all.

Under the present circumstances with no clear European legislation regarding soils, the only national financial sources for research rely on the Ministry of Education and Research and the Ministry of Agriculture and Rural Development, and in a lesser extent, on the Ministry of Environment, Waters and Forestry (rather on contractual basis then through periodically competition based grants).

There are no regional funding options. The external (international or European) funding has low values and the national private funding options are close to zero.

2.1.2 Romanian version

Punctul Focal Naţional al României şi-a lansat activităţile desemnate din cadrul Proiectului INSPIRATION prin organizarea unui Atelier Naţional de Lucru în luna septembrie 2015, în localitatea Agigea, Constanţa. În timpul dezbaterilor, participanţii şi-au concentrat discuţiile pe trei probleme centrale relaţionate sistemului Sol-Sediment-Apă şi agendei existente de cercetare: (i) micii fermieri din România sunt puţin informaţi despre practicile agricole benefice pentru mediu iar sectorul de cercetare şi inovare nu este suficient de adaptat nevoilor fermierilor, (ii) calitatea general bună a mediului în România furnizează oportunităţi prea puţin utilizate şi (iii) randamentele scăzute în agricultură au legătură, printre altele, cu folosirea unui nivel scăzut de aporturi sau folosirea insuficientă/necorespunzătoare a aporturilor alternative, prietenoase cu mediul.

Studiul realizat prin completarea unor chestionare de către reprezentanţi ai grupurilor de interes a evidenţiat faptul că provocările societale şi necesităţile identificate de respondenţi urmează un tipar al priorităţilor destul de asemănător cu cel al problemelor dezbătute la atelierul de lucru. Opţiunea “Contribuţii la securitatea şi siguranţa alimentară“ a fost considerată (cantitativ) cea mai importantă prioritate. Unii respondenţi au avut comentarii adiţionale la acest subiect: “conservarea fertilităţii solurilor, remedierea terenurilor degradate sau tehnologiile de cultivare a solurilor poluate constituie tematici permanente de cercetare“. Cea de-a doua prioritate este împărţită egal între “Reducerea consumului de resurse şi materii prime şi asigurarea utilizării eficiente a resurselor naturale“ (cu comentarii adiţionale ca “monitorizarea calităţii solurilor contribuie la scăderea consumului de îngrăşăminte“) şi “Contribuţii la un mediu de viaţă sănătos“ (cu comentarii adiţionale ca “aceasta e cea mai importantă provocare a societăţii moderne”, “monitorizarea surselor de poluare şi impactul surselor de poluare asupra sistemelor agricole sunt considerate de către CE subiecte de cercetare importante“ sau “agricultura ecologică este o alternativă serioasă“), urmate la mică distanţă pe locul trei de “Contribuţii la atenuarea schimbărilor climatice şi adaptarea societăţii“. Pe ultimul loc al selecţiei respondenţilor se află opţiunea “Asigurarea unei infrastructuri securizate“.

Cele trei domenii ale problemelor şi necesităţilor discutate pe parcursul atelierului naţional din septembrie 2015 au fost conectate celor mai importante trei provocări societale şi opţiuni, aşa cum au fost percepute de respondenţi prin chestionarele completate. Pe baza acestora, au fost selectate şi configurate pe scurt, trei subiecte/necesităţi de cercetare.

RO-1: Securitate şi siguranţă alimentară. Practici ambientale de gestionare a solului si apei: necesitatea pentru dezvoltarea unor instrumente practice destinate fermierilor.

Subiectul propus este fundamentat pe evaluări ce susţin necesitatea unor abordări mai practice pentru fermieri şi dezvoltarea unor instrumente de sprijin al deciziei de management. Întrebările/problemele cheie relaţionate acestui subiect particular se referă la (i) cum pot fi asigurate simultan securitatea şi siguranţa alimentară cu un impact minim asupra solului, apei şi biodiversităţii, (ii) dezvoltarea unor instrumente practice capabile de răspuns la riscurile induse de procesele de degradare a solului în contextul schimbărilor climatice globale şi (iii) apă proaspătă: cum pot fi gestionate solurile în condiţiile unei utilizări inteligente a resurselor de apă aflate într-un proces continuu de epuizare.

RO-2: Un mediu viu şi sănătos. Agricultura ecologică este o alternativă potrivită nivelului actual al calităţii solului şi folosinţei terenurilor în România? Ei bine, da!

Subiectul propus rezultă din situaţia în care agricultura ecologică a devenit un aspect important al politicii europene de agro-mediu. În ultimii ani, România a cunoscut o creştere constantă şi rapidă a suprafeţelor de teren ce aderă la standardele ecologice. Totuşi, proporţia la scară naţională este aproape de trei ori mai mică decât media UE. Nivelul relativ scăzut al poluării în agricultura românească furnizează bune oportunităţi pentru conversia la agricultura ecologică. Întrebările/problemele cheie cu privire la acest subiect se referă la: (i) stabilirea a cel puţin două loturi experimentale/demonstrative pe termen lung (pentru zona de şes, respectiv colinară) pentru studiul comparativ ecologic vs. convenţional, în vederea unor evaluări multidisciplinare privind calitatea solului, impactul ambiental al aporturilor agricole, consumul de energie, randamente, conservarea biodiversităţii şi tendinţele emisiilor de gaze cu efect de seră, (ii) îmbunătăţirea nivelului de conştientizare şi înţelegere privind agricultura ecologică în educaţia în şcoli şi universităţi agricole dar şi printre fermieri printr-o programă multistratificată dezvoltată pentru instruirea tehnică, vocaţională şi continuă, (iii) dezvoltarea unui program complex de cercetare, extensie şi implementare a conversiei fermelor mici şi medii de pajişti permanente şi (iv) dezvoltarea în parteneriat public-privat a unui cluster al cercetării/inspecţiei/asociaţii de fermieri pentru certificarea aporturilor în agricultura ecologică.

RO-3: Materii prime şi consumul resurselor. Nutrienţi: menţinerea şi îmbunătăţirea fertilităţii solului sub presiunea cerinţelor de recolte din ce în ce mai ridicate şi creşterii continue a ratelor de export al nutrienţilor.

Întrebările/problemele cheie se referă la: (i) utilizarea optimizată a fertilizării sintetice în condiţiile impactului schimbărilor climatice, (ii) reciclarea deşeurilor: o utilizare îmbunătăţită a solului ca reactor bio-geo-chimic pentru prevenirea contaminării şi susţinerea capacităţii sale productive şi (iii) schimbările climatice: cum vor fi afectate productivitatea şi rezilienţa solurilor?

Studiul sociologic realizat a evidenţiat faptul că respondenţii au aşteptări privind o eventuală îmbunătăţire a politicii europene care va lua în considerare ca “agenda de cercetare să fie aplicată în toate Statele Membre, nu numai în cele mai dezvoltate” iar “creşterea diferenţelor în cercetarea efectuată în Statele Membre” va fi evitată. Deasemenea, o Directivă a Solului şi un Program European de cercetare în domeniul sistemului Sol-Sediment-Apă sunt văzute ca necesare.

Conectând conţinutul discuţiilor purtate în timpul atelierului naţional din septembrie 2015 cu rezultatele studiului bazat pe implementarea chestionarelor, a fost formulată lista celor mai importante documente naţionale de Interfaţă Ştiinţă-Politică din domeniu:

I. Strategia naţională de cercetare, dezvoltare şi inovare 2014-2020
II. Programul Naţional de Dezvoltare Rurală pentru perioada 2014-2020 şi
III. Strategia pentru dezvoltarea sectorului agroalimentar pe termen mediu și lung – orizont 2020/2030.

Majoritatea respondenţilor au semnalat că un număr semnificativ de domenii importante de cercetare şi inovare nu sunt finanţate (încă) corespunzător. Este acordată puţină atenţie problemelor de sol şi cu atât mai puţin relaţiilor acestuia cu apa şi culturile.

În circumstanţele existente, fără reglementări europene clare în domeniul solului, principalii contributori financiari ai cercetării sunt Ministerul Educaţiei Naţionale şi Cercetării Ştiinţifice şi Ministerul Agriculturii şi Dezvoltării Rurale şi într-o mai mică măsură, Ministerul Mediului, Apelor şi Pădurilor (pe bază de contracte mai degrabă decât pe licitarea periodică competitivă de proiecte).

Nu există opţiuni de finanţare regională în domeniu. Finanţarea externă (internaţională sau europeană) are un nivel scăzut iar opţiunile de finanţare privată naţională sunt aproape inexistente.

2.2 Methodology followed

The present national report (the deliverable D2.5) presents the reviewed and synthesized information collated for Romania. It follows the previously submitted deliverable 2.4 - "National report on collated information following the template - Romania" which includes information collated in accordance with INSPIRATION D2.3 "Template for national information collation".

The Romanian D2.5 report includes: 1) results of a National Workshop organized by NFP in-between 10-13 September 2015 in Agigea-Constanta; 2) results of the NKS interviews; 3) the desk exercise performed by the NFP in Romania.

In September 2015, 15 participants representing different stakeholders groups attended the National Workshop held in Agigea-Constanta. In the opening stage, the NFP made a presentation of the INSPIRATION Project aims and objectives as well as the expected outcomes of the Project's WP2, WP3 and WP4 and the connected assigned activities for the NFP and the Romanian team involved. The second point of the agenda was dedicated to a comprehensive NFP's presentation given with regard to the available figures, statistics and assessments emphasizing the status of the SSW system in Romania. The last presentation was held by a leading soil scientist on the soil and water quality assessment based on the recent SWOT analyses of the "Romanian National Rural Development Program 2014–2020".

A first round of debates allowed the participants to become acquainted with each other and to raise answers and get a more clear insight of the INSPIRATION approach. They discussed toghether what should be the content of the Romanian contribution and inputs for the Project and shared views on the impact of the societal challanges and pressures on the public and policy makers interest regarding land use, soil and water management and environment quality. Some of the commonly agreed discussions' contents were included in the desk study. An important topic has been raised with regard to the public perception of the researcher's profile in Romania and its low potential to influence the policy makers' agenda.

The second part of the workshop was dedicated to the presentation of the last updated version of the Project's NKS questionnaire template. The workshop agenda made room available for questions regarding ways for methodologically adequate filling up answers in the questionnaire. Couple of the first questionnaires were completed individually in the last part of the workshop.

The participants have welcome the Project strive for an improved agreements and coordination between EU and Member States in terms of tackling the priorities of research and innovation programs as well as research funding opportunities.

Using the INSPIRATION D2.3 "Template for national information collation", overall 23 NKS were interviewed in Romania; the information collected in the interviews has been processed and fed the questionnaire based study.

The draft version of the Romanian deliverable D2.5 – National report with a review and synthesis of the collated information, was sent for review, comments and improvements to all the 23 interviewed NKS.

Details on the interviewed NKS are provided in Annex I. The desk study was based on documents as suggested by NKS. These are listed in Annex II. In Annex III is provided a tentative list of research and innovation funding options in Romania.

2.3 Research and Innovation (R&I) needs

2.3.1 Societal challenges and needs

The questionnaire based study reveals that overall, all the topics (options) listed in the NKS questionnaire template under the question "Which societal challenges do you regard as important?" are seen by respondents as important. Couple of respondents has ticked all the options: (i) Contribute to food security and food safety; (ii) Ensure secure supplies of safe drinking water; (iii) Secure energy supply and distribution; (iv) Reduce raw material and resource consumption, Ensure efficient use of natural resources; (v) Contribute to climate change mitigation and societal adaptation; (vi) Contribute to a healthy living environment; (vii) Ensure secure infrastructure.

The *"*Contribution to food security and food safety*"* is seen (quantitatively) as the highest priority. Some respondents commented on this particularly topic that "*soil fertility conservation, degraded land remediation, crop technologies for polluted soils are ever lasting important research issues."* The second ranked priority is shared by "Reduce raw material and resource consumption, Ensure efficient use of natural resources**"** (with comments like *"soil quality monitoring contributes to the decrease of fertilizers consumption"), and "*Contribute to a healthy living environment" (with comments like *"it is the highest challenge of the modern society"*, "*pollution sources monitoring and the pollutants impact on agro-systems and food are seen as important research topics by EC*", or "*organic farming is a fair alternative"),* followed close on third place by *"*Contribute to climate change mitigation and societal adaptation" (with comments like *"agro-forestry measures on degraded lands and anti-erosion undertakings limit the effects of climate changes").*The last priority is given to "Ensure secure infrastructure", maybe related to the fact that no respondent is somehow directly related with infrastructure on a professional basis.

Additionally, there are recorded many other or alternative challenges suggested by the respondents, as following: nature conservation, sustainable use of the eco-systemic services, stopping the biodiversity losses, organic farming and the use of organic fertilization for preventing soil degradation and soil nutrients depletion, decrease of the agricultural superficies due to the inadequate land use, improper use of the forestry resources, remedial fertilization used in agriculture without compliance to agro-chemical needs, conservation and protection of renewable natural resources (soil, water, air, biodiversity) and sustainable use of agricultural natural resources, use of higher quality seeds and seedlings (drought and pest resistant) for climate change adaptation, development of a set of indicators for the international (cross-border) use of agricultural lands, upscale the rural located public agricultural advisory system and compliance of the national education and research system with EU-15 countries.

2.3.2 Topics / research needs to include in the SRA

During the national workshop of September 2015, the most intensive debates were dedicated to the following fields of interest considered to be highly relevant according to the issues identified in the available assessments (e.g. Romanian National Rural Development Program 2014–2020):

- Most farmers in Romania, especially those who own small and medium-sized holdings, do not have the proper knowledge in the field of management methods, modern production technologies and food safety standards, focusing mainly on traditional practical experience. In addition, they do not have sufficient knowledge about the environmental practices that bring benefits to biodiversity, soil and water and do not have information on agricultural practices that contribute to a better adaptation to climate change in risky areas and reduction of GHG emissions. The research and innovation sector is not sufficiently adapted to the specific needs of farmers. The modest collaboration between farmers and stakeholders promoting innovation and research has led to a limited research and innovation transfer from suppliers to farmers. It is therefore necessary that the specific problems of farmers in terms of environmentally-friendly practices, the optimal use of resources and production factors find solutions in the development of innovative products and processes.
- The natural environment of Romania is generally characterized by a good preservation of natural resources of soil and water, variety of traditional landscapes and a remarkable biological diversity. Romania has one of the richest resources of agricultural land that can be classified as having high nature value (ranked 5th in EU-27 with a surface of over 5 mil ha). However, some of these resources are subject to pressure factors impacting on their productive potential, quantitatively and qualitatively. Regarding the area of land fund, between 2006 and 2012 there was a slight decrease of agricultural area and an increase of the area covered by unproductive and degraded lands (by 11.6%). Whilst Romania has good quality soils (however threatened by various negative phenomena), the freshwater resources are reduced and unevenly distributed, which puts Romania in the category of countries with scarce water resources. The land management alternative with the best soil and water protection performances is organic farming but the area cultivated under organic farms is still low, compared with EU-27.

- The yields in the Romanian agriculture have a modest level, indicating a use of production factors far below the optimum values. The average cereal production per ha in Romania continues to be 30% below the EU level (2013). The are couple of reasons for the low agriculture productivity. One is that the average size of a Romanian farm is more than 4 times lower than the European one and the fragmentation degree is very high, the average size of a parcel being of 0.45 hectares (each farmers owning, on average, 4.8 parcels). Other reasons are related with the low use of the inputs in agriculture or the unsufficient/unproper use of alternative input sources. However, in Romania, the pressure exerted by fertilizers and pesticides on soil and water is low, but the use of chemical fertilizers in agriculture has a tendency to increase by 13% in 2012 compared to 2007. The SWOT analyses of the "Romanian National Rural Development Program 2014 – 2020", signals many issues like: low yields of field crops in relation to production potential and high variations in productivity for some species on cultivated areas, improper management of waste from agricultural activities especially in small-scale farms, increased negative impact of agricultural activities on environment as a result of intensification of agriculture (especially on the most productive farmlands), accentuation of the negative effects, particularly on water resources, resulting from the use of bad technology or not-adapted technology to local conditions and the insufficient correlation of agricultural research sector (including the research relevant for the specific challenges related to climate changes mitigation and adaptation) with the agricultural practice.

The three areas of issues discusessed during the national workshop of September 2015 have been conected with the main societal challanges and options as perceived by the respondents to the questionnaire ("top three"). Finally, three related important topics/research needs were selected and drafted, as following:

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

The continuous growing world demands for food consumption and the last decades public concerns on environment issues linked to an increased number of "food scares" has led to a committed seek for achieving a sustainable agriculture and viable agricultural systems as critical issues for both food security and food safety, if not in all, but for sure in most of the developed countries, where the technological products of modernity have produced innumerable benefits as well as unforeseen risks. Improvement in agricultural sustainability requires, alongside effective water and crop management, the optimal use and management of soil fertility and soil physical, chemical and biological properties. Carried assessments reveal a need for more practical farm-oriented approaches and decision support tools are recently used for farmers up taking of soil and water management practices and experiences.

Specific research questions:

Land management

- How food security and food safety simultaneously can be achieved with a minimum impact on soil, water and biodiversity?
  Why: Viable technical support is needed to respond to the most common farmer's questions: Where we can produce more? Which are the types of holdings with the highest growth potential? Where this kind of growth puts the lowest pressure on soil, water and biodiversity resources?

Net impacts

- Development of practical tools able to respond to risks induced by soil degradation processes under the global climate change impact.
  Why: At country level, there are recorded significant soil degradation processes developed in the agricultural area: soil erosion, organic matter and biodiversity losses, soil contamination, soil cover with low-permeability artificial structures, soil compaction, soil alkalinity/salinity.

Land management and Net impacts

- Fresh water: how soils can be managed with regard to an intelligent use of continuously decreasing water resources?
  Why: There is a certain need for an improved water use in the farms. A better insight of the soil-water-sediments-plant system will lead to a better shaped range of water stress resistant crops and varieties. It is expected that water deficit during drought periods will lead to an increased number of dams built on almost all rivers across the country. The occurring run off erosion and dam lakes silting (with sediments) have to be assessed and predicted by a long-term plan for minimizing the impact of soil erosion in the collector river basins.

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

Introduction or maintenance of organic farming is often, together with extensive farming systems, applied in order to maintain and enhance soil functionality. Organic farming tends to conserve soil fertility and system stability better than conventional farming system, mainly due to higher organic matter contents, higher biological activity and higher erosion control potential. Soil pollution associated with manufactured pesticides is absent. Moreover, organic farming performs better than conventional farming in respect to natural ecosystems, floral and faunal diversity and provides potentials that result in positive effects on wildlife conservation and landscapes. In response to the recent increasing concern for the environmental issues, particularly with regard to biodiversity loss, climate change, soil, water and air pollution and depletion of natural resources, organic farming has become an important aspect of the European agri-environmental policy. The positive effects of organic farming practices to the environment have been systematically studied during the last decades. Since late 90's, Romania has also joined the European research area concerning the environmental benefits of organic farming but not much has been done lately in terms of continuity and systematic approaches. Even if Romania the share of "potential fertile soils" is significant (Chernozems and Phaeozems are roughly 1/3 of UAA), the present use is highly unsustainable (degradation, poor management, nutrients depletion etc).

Specific research questions:

Net impacts

- Establish at least two long term trials/demo fields (in plain and hilly side, respectively) for organic vs. conventional farming, to get a multidisciplinary approach in terms of soil quality, environmental impact of inputs use, energy consumption, productivity levels, biodiversity conservation or restoration and trends of GHG emissions.

Why: DG-AGRI noted in September 2014 on the observations on the Rural Development Program 2014-2020 in Romania that particular attention should be paid to the aid calculation as consistent technical and economical information on organic farming are not available in the country and the calculation is based primarily on expert assumptions. Romania should set in place the necessary systems to collect and reinforce data on the Romanian situation for any future revision of the aid calculations under the measure for organic farming. Moreover, as the calculation is made at country level only, the regional specificity is almost missed and there are debates whether Romania should tackle the support for organic farming on a regional based approach.

Demand

- Improve the level of awareness and understanding regarding the environmental benefits of organic farming in agricultural schools and universities and among farmers by a multi-leveled curriculum developed for technical, vocational and continuing training.

  Why: Still in schools and universities the Agro-chemistry topics overwhelming prevails and prejudgments for scholars/students are set on long term without a drafted choice balanced curriculum. There is a need for including theoretical and practical topics environment oriented and an increased societal awareness (with stakeholders in the first place) on the side-effects of the chemical inputs use. On the other hand, the public advisory agricultural system (significantly small sized famers oriented), lacks a proper expertise on organic farming.

Natural capital

- Develop a large-scale research, extension and implementation program for small and medium grassland holdings converting to organic farming.

  Why: Over the last years, Romania has seen a steady and rapid rise in the amount of land and number of holdings adhering to organic standards but yet the organic farming national share is almost three times less then EU average. The relative low level of pollution in Romanian's agriculture continues to provide good opportunities for conversion to organic practices. In spite its highest bio-geographical diversity in EU-27 as well as its semi-natural ecosystems cover (47% of the entire area of the country), the amount of 3.4 mil ha grasslands plus 1.5 mil hayfields (34 % of the entire Romanian agricultural area) is very, very low converted to organic (less than 100,000 ha). Organic farming provides also better employment rates than conventional agriculture in rural areas.

Demand

- Develop a private-public partnership cluster research/inspection bodies/farmers associations for organic farming inputs certification.

  Why: More diversified organic farming inputs await to be certified (fertilizers and pest-control inputs). The research institutions have the needed expertise and share a certain public trust on its findings; the private inspection bodies have the legal means for certification whilst the farmers associations have the larger practical experience of input use. A legal and clear frame for organic farming inputs is very much needed.

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

Soil nutrient levels can decrease over time when crop plants are harvested, as nutrients are not returned to the soil. Essential nutrients needs to be compensated either through the natural process of decomposition or by the easy means of adding fertilizers. Chemical fertilizers increase crop production but their overuse may have harmful effects on the soil and water, especially when they are very concentrated and water soluble and may ultimately end up leaking into our water bodies, ponds, streams, groundwater and contaminate water supply. The increasing costs for energy are another point of concern for chemical fertilizers consumption. Seeking for alternatives, largely accessible organic wastes can be turned into valuable compost products for raising crops organically and replacing the use of chemical fertilizers. With higher urbanization, continuous growing cities and increased agricultural productivity, the municipalities, industries and agriculture farms are generating huge amounts of organic wastes but their disposal and use may pose serious threats to the environment and societal risks to the human health.

Specific research questions:

Net impacts

- Optimized use of synthetic fertilizers under the global climate change impact.
  Why: Energy and raw materials are scarce every day, everywhere. Costs for fertilizers are continuously increasing. Prevention of soils and groundwater pollution from chemical fertilizers use is mandatory.

Natural capital

- Waste recycling: a better use of soil as bio-geo-chemical reactor to prevent its contamination and sustain its productive potential.
  Why: The proper management of agricultural, urban and industrial is one of the most important challenges of the last decade's modern society. The most recent approaches focus on the design of systems able to convert the wastes into resources. Developing locally adapted waste recycling systems (connected with local soil remediation needs), will reduce the risks related to waste long distance transportation. As the entire world population is getting more and more urbanized, the sewage sludge use in agriculture needs to fit better to soil, water bodies/groundwater and yields environmental quality.

Net impacts

- Climate change: how soils productivity and resilience will be affected?
  Why: The human induced impact on environment is raising more and more public concerns. Even the smallest environmental changes should be identified and carefully assessed, as they might grow to an extent and magnitude unable to be controlled. Proper land use management systems have to be design in order to mitigate the climate change impact with regard to carbon sequestration in agricultural and forestry lands, reducing agricultural land CH_4 and NO_2 gases emissions, biomass for bio-fuels.

Among the responents' answers related with important/relevant documents, research agendas, research programmes underpinning these topics, the stakeholders have listed The National Plan for Rural Development 2014 - 2020, the National Strategy for Agri-food Sector Development on Medium and Long Term, the UEFISCDI National Plan for Research, Development and Innovation 2014-2020, The Research Sectorial Plan of the Ministry of Agriculture and Rural Development, the National Programme of Research PN II - developed by the Executive Agency for Higher Education, Research, Development and Innovation (UEFISCDI): (i) Capacity, (ii) Partnerships in priority areas and (iii) Human Resources and also, the EU Directives.

Some of the listed documents have received more weight in respondents explanation like for the National Plan for Research and Innovation 2015-2020 which acts in coordination, coherence and implementation of national policies on research and development and knowledge; the program is run by the National Authority for Scientific Research and Innovation (NASR) under the Ministry of Education and Research, having the role of synthesis and coordination in implementing the Strategy and Governance Program in scientific research, technological development and innovation. It comprises five programs: Development of the national research and development, increasing competitiveness of the Romanian economy through R & D and innovation, European and international cooperation, and Frontier and fundamental research in areas of strategic interest.

2.4 Experiences regarding connecting science to policy/practice

2.4.1 Use of knowledge

In the questionnaire based study there is recorded no standard answer for defining the scientific knowledge. Some answers were extensively given like "*Scientific knowledge can be defined as a laborious process of observation and measurement of phenomena, of accumulation and arrangement of materials, of hypothesis and patterns creation and validation through experiments, tests, assays, of acknowledgement or invalidation of hypothesis, of issuing the obtained results so that they can be validated, of modification or development of the model according to the obtained practical results and the final users opinions*" or very short like "*An explicit undertaking to reach a précised task".*

Most commonly scientific knowledge is seen as "*An assembly of ideas, hypothesis, issues, verified through studies and experiences which lead to a new model for solving theoretical and practical issues and the emergence of new ideas and outputs"* or "*An assembly of ideas, hypothesis, theories, issues, which through different studies and trials may become technologies, new or improved products, contributing to theoretical and practical progress*" or "*A knowledge pool filled in time through experiences, hypothesis and scientific based theories".*

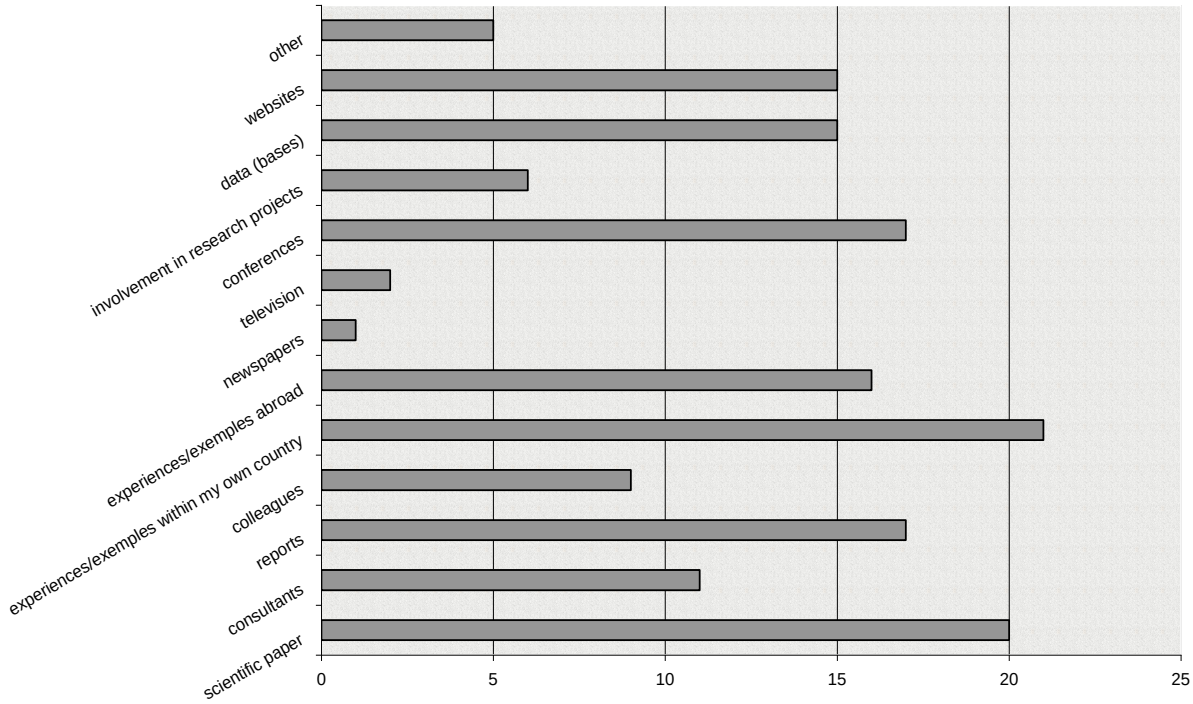
The most acknowledged scientific sources are "*experiences/examples within my own country"* (95% of respondents) and "*scientific paper" (90% of the respondents). "Television"* and *"newspapers"* are the lowest ranked. The last two options were ticked by farmers, suggesting a potential very low impact of the national agricultural advisory services.

Scientific knowledge is used for a deeper development of the own professional expertise skills, to the development of knowledge base specific to the own professional needs or to collect, cumulate and analyze information for resolving an issue and/or develop some research topics.

The most recent/new scientific knowledge is used in a significant extent, the most common answer being "*As much as it is possible, related to the needs*" or "*As much as possible, for a successful research and education performance".*

The extent of the use of the most recent scientific research for the formulation of the existing policies ranges wide from not having knowledge of the issue to a medium or significant extent.

RO answers weight (nr.) to question ,, Which sourses of (scientific) knowlwdge do you use for doing your job?"

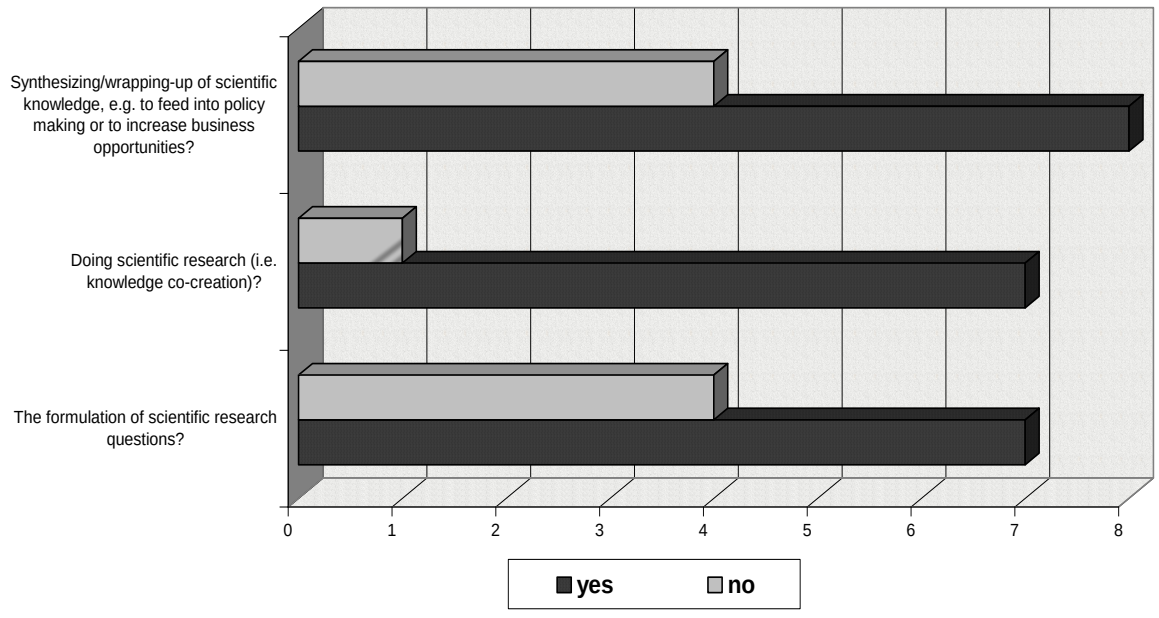


2.4.2 Possibilities to set the agenda

Generally, the capacity of the respondents to influence the setting of scientific research policies/agendas in the country is low.

Few respondents were involved in “doing scientific research”.

RO answers weight (number) to the question ,, have you ever been involved in:"



The answer to the question *"To which extend do our national policies/agendas reflect your specific needs and priorities?"* is somehow split in different views but frequently, the respondents make an immediate connection with EU Directives in answers like *"Our national agendas mirror the specific needs and priorities in the field of genetic plant improvement and the enforcement of the European Directives"* and *"The agenda mirrors the requests set by EU Directives; whether soil and sediments topics should be considered and get funded, an European Directive on soils should also be set"* or comments like *"The enforcement of the EC Directives, with regard to environment and agriculture, should take into account the national specific of the traditional practices maintenance as well as to the shaping of research requirements to bring the agricultural performance and environment preservation to the level of the international standards".*

2.4.3 Science – policy – practice

The societal impact of scientific research related to the scope of INSPIRATION is commonly assessed ranging from neutral to very satisfactory but the option "*Very successful/satisfying"* is the most ticked. Some respondents see for a prospective improvement that "*SRA agenda should be applied in all MS, not only in the developed MS"* and "*The widening of the gap in terms of research, between different MS"* should be avoided. Also a Soil Directive and a European Research Program for SSW system is seen as very much needed.

When conecting the content of discussions held in the National Workshop held in September 2015 with the results of the questionnaire based study, the following top of the the most important national Science-Policy-Interface documents came up:

I. National Strategy for Research, Development and Innovation 2014-2020;
II. National Rural Development Program 2014 – 2020;
III. Strategy for the agri-food sector medium and long term development – horizon 2020/2030.

The National Strategy for Research, Development and Innovation 2014-2020 states that *"environment protection is a priority of any present policy with regard to the massive investments that have to be pursued in recycling and de-pollution techniques and in water bodies and wetlands management*." Moreover, "*the agri-food products safety and optimization, development of the horticultural, forestry, husbandry and fishery sectors or the better use of biomass and bio-fuels represent sub-domains with a clear potential*."

The sustainable management of the natural resources is also a priority of the Strategy for rural development 2014-2020 in the National Rural Development Program for the 2014 – 2020 period as well as the Strategy for the agri-food sector medium and long term development – horizon 2020/2030 drafted by the Ministry of Agriculture and Rural Development. The country needs identified by these documents refer to the maintaining the biological diversity and environmental value of agricultural and forestry lands, maintaining and improving water resources, protecting and improving soil resources, adaptation to the effects of climate change, lowering the level of greenhouse gase (GHG) emissions from agriculture and the transition towards a low carbon economy.

2.5 National and transnational funding schemes

2.5.1 Funding schemes and possibilities for research funding

To the question "*Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and - management and related impacts to Soil-/Sediment-/Water-systems",* the majority of respondents have chosen to tick "Nationally"" and "European".

The increase of the added value of different financial resources is seen to be done by some respondents by setting multi-disciplinary consortiums, increase the level of expertise of the research teams, increase performance of the funding through an optimal use of resources, encourage the research staff to increase its personal value, improvement of the stability and predictability of the financial sources at European and national level.

Some respondents think that the relation soli-sediments-water may be studied locally, regionally and national, as there are specific local features of this relationship. They also see that all the results will be analyzed at EU level and then EU will synthesize the conclusions and draw a document applicable in all MS. If we seek for a fair use of resources, the huge differences between MS should be leveled. The destruction of the national research network in some less developed countries fuels higher differences between MS and lower the value of the index of resources use. Equalizing the rate of development in this field will induce leveling the analyze methods, assessments and interpretation of results which finally lead to an increased efficiency of the financial resources. A scientific sound assessment of the results will lead to a multiplication of the area of application, thus to an increased economic efficiency.

In Romania, over 60% of the agricultural land is used by subsistence farmers. If the soil and agro-chemical surveys are done at commune level, the price will be times lower as at farm level. Here, the investment should be done by the State. Without a proper legislation, neither the large farmers (which in fact are tenants) are interested in the evolution of the soil quality; they look only to the profit increase. They are never interested in studies. For farmers, the relation agriculture-environment is not an interesting topic. There are no funds available for such issues and if there are, these are very, very scarce.

The take up and use of knowledge resulting from execution of the SRA is seen by respondents as *"neutral",* on the average. Lots of critic views were shared by respondents that tempted to be rather skeptical. Research in Romania is done mostly based on former and aged results; there are no private investors in research. New scientific findings are brought by the multinational companies, which have no interest to support the research in Romania. Only the State can support the national research costs. The multitude of existing foreign farmers is provided with research outputs from their own countries, they show no interest for soil as an environment factor but they treat soil like a commodity and a capital good. There is no a significant experience in Romania regarding private donors. Between 1995-2000, when this has been tried, lot of research entities collapsed and have been closed. Practically, there are no private donors, nor the legislation has a clear frame on this issue. The societal demands cannot be met either then through the national budget intervention, as more than 60% of the Romanian agriculture is a subsistent one and the large sized farms are in direct connection with multinational companies. Romanian capital is short, so is the interest for such a research field. The SSW field does not benefit of private funding for research. Also,

hardly national funds are involved and extremely rare, international ones. Without the issue of a Soil Directive or a legal framework for SSW as well as a core funding from National Plan for Rural Development, there is no way to progress, at least in Romania.The potential investors need to be convinced that funds allocation for SSW research will turn, among the environment protection, to economic benefits.

2.5.2 Gaps in financial resources for research

The majority of respondents of the questionnaire based study agreed with the fact that a significant number of areas of research and innovation (R&I) are not (yet) covered by current funding mechanisms.

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

Regarding integrated approaches, the respondents view as some improvements the EU support, like the one for Rural Development, and request for Directives which may set certain conformities to be complied in terms of research not only for reporting. Whether a Soil Directive or a clear legal frame at EU level would be in place, maybe the Romanian leaders will understand the importance of the relation soil-sediment-water. For the water, the things are much clear because of the existence of a Common regulatory framework. There is less interest and consideration for soil and sediment. A higher awareness degree is seen as needed among the direct target groups, regarding the benefits of the environmental friendly practices.

There are also recorded issues raised by the participants in the National Workshop held in Agigea, Constanta:

- Lack of a coherent legislation in the field of soils, at national and European level;
- Lack of a research strategy in Romania concerning SSW;
- Continuous low funding (beneath the real needs) of the research entities with soil expertise;
- Low concerns on the development of urban spatial planning, landscape design and land management;
- No real prospects can be envisaged since there are no plans on short, medium and long term;
- An abrupt increase of the agricultural land purchased by foreign companies and foreign private holders (over 40% of the total UAA, out of which 10% non-EU holders);
- Big holdings managers' lack of interest about the soil quality and its evolution;
- An insufficient cooperation between researchers and farmers;
- Low access to specialized information due to the scarce availability of agricultural reviews; most of the professors and researchers submit articles for ISI indexed reviews (written in English), farmers hardly can access this kind of information.

The participants discussed also about the research financial sources. Under the present circumstances with no clear European legislation regarding soils, the only sources rely on the Ministry of Agriculture and Rural Development, the Ministry of Education and Research and in a lesser extent Ministry of Environment, Waters and Forestry (rather on contractual basis then thorough periodically competition based grants).

There are no regional funding options. The external (international or European) funding has low values and the national private options are close to zero.

2.6 Other remarks made by interviewees

Related to question nr. 9, an interesting point came from a ministerial representative: "*Scientists, professors, civil servants, farmers, holding owners are always invited when drafting the development strategies and the national plans. Unfortunately, less are those with soil expertise due to the low number of soil profiled organizations. Therefore, the number of proposals regarding soil topics is limited, and no priority can be given to them. Most usually, in Romania, the research topics are simply copied from EC, little we can influence these topics which sometime are unfit with the national conditions and issues".*

2.7 Annexes

Annex I: NKS interviews in Romania

Date of the interview	Name of the entity	Contact person	funder	end user	knowledge provider	national-regional-local authority	university/ research insitute	SME /consultant	business and industry	NGO	network	other	soil	sediment	water	land use-management
5/10/2015	Ministry of Environment and Climate Change	Istrate Gabriela	1			1							1	1	1	
12/9/2015	Romanian Farmers Association	Popescu Oprea Adelina		1							1					1
N.a.	Romanian National Institute of Marine Geology and Geoecology-GeoEcoMar	Stanica Adrian			1			1						1	1	
5/10/2015	University of Agronomic Science and Veterinary Medicine - Bucureşti	Mihalache Mircea			1		1						1			1
5/10/2015	University of Agronomic Science and Veterinary Medicine - Bucureşti	Ilie Leonard			1		1						1			1
10/9/2015	University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca	Paulette Laura			1		1						1			1
11/9/2015	University POLITEHNICA of Bucharest	Constantin Carolina			1		1						1		1	
12/9/2015	Ministry of Agriculture and Rural Development	Morarescu Viorel	1			1							1		1	1
12/9/2015	Ministry of Agriculture and Rural Development	Tatomir Elena	1			1							1		1	1
1/10/2015	Ministry of Education and Sciences	Dinu Iuliana	1			1							1			
1/10/2015	Ministry of Education and Sciences	Soriga Iuliana	1			1									1	
8/10/2015	Soil Testing Laboratory Timis	Tarau Dorin		1							1		1			1

12/9/2015	Soil Testing Laboratory Gorj	Craioveanu Gheorghe		1							1		1		1
5/10/2015	Soil Testing Laboratory Gorj	Creanga Ion		1							1		1		1
6/10/2015	Association of Cereals and Oleaginous Crops Producers	Lamureanu Gheorghe		1					1						1
12/9/2015	AGROLIFE	Vasile Nicu		1					1				1		1
2/11/2015	AGROFAM HOLDING SRL	Poenaru Stefan		1					1						1
24/09/2015	Romanian National Society of Soil Science	Toti Mihai			1					1			1		1
13/09/2015	Agricost SRL	Buzdugan Lucian		1					1				1	1	1
8/10/2015	Politehnica University of Timisoara	Rogobete Gheorghe			1		1						1	1	1
23/09/2015	National Research and Development Institute for Soil Science, Agro-chemistry and Environment - ICPA Bucharest	Vranceanu Andrei			1		1						1		1
10/11/2015	The Academy of Agriculture and Foresty Sciences	Jelev Ioan			1		1							1	1
6/10/2015	Farmer, Agigea	Banu Ionica		1					1						1
			5	**9**	**9**	**5**	**7**	**1**	**5**	**1**	**4**	**0**	**16**	**4**	**9**	**17**

Annex II: Documents used for the RO desk study

Anuarul Statistic al Romaniei (2014), Institutul National de Statistica (Romanian Statistical Yearbook).

Ministerul Agriculturii si Dezvoltarii Rurale, Directia Generala de Dezvoltare Rurala (2015), Programul National de Dezvoltare Rurala pentru perioada 2014-2020, versiunea aprobata 26.05.2015 (National Rural Development Program for the 2014 – 2020 period, 26.05.2015), http://www.madr.ro/

Ministerul Educatiei Nationale si Cercetarii Stiintifice (2014), Strategia naţională de cercetare, dezvoltare şi inovare 2014-2020, Hotărârea nr. 929/2014 (Guvernul României), publicată în Monitorul Oficial, Partea I, nr. 785 din 28.10.2014 (The National Strategy for Research, Development and Innovation 2014-2020), http://www.research.ro/ro/articol/3343/strategia-nationala-de-cercetare-si-inovare-2014-2020

Ministerul Agriculturii si Dezvoltarii Rurale (2015), Strategia pentru dezvoltarea sectorului agroalimentar pe termen mediu și lung – orizont 2020/2030, Bucuresti (Strategy for the agri-food sector medium and long term development – horizon 2020/2030), http://www.madr.ro/strategia-pentru-dezvoltarea-sectorului-agroalimentar-pe-termen-mediu-si-lung-orizont-2020-2030.html

National Research and Development Institute for Soil Science, Agrochemistry and Environment Protection (2015), Strategia de cercetare-dezvoltare a Institutului National de Cercetare-Dezvoltare pentru Pedologie, Agrochimie si Protectia Mediului – ICPA Bucuresti pentru perioada 2015-2020 (Research and Development Strategy of the National Research and Development Institute for Soil Science, Agrochemistry and Environment Protection-ICPA Bucharest, for the period 2015-2020), http://www.icpa.ro/

Annex III: Romanian R&I funding options

R&I funding options collated for country:	Romania	(Fill out your country name in this box)

	Name*	**Research and Innovation funder****	**What and/or whom do they fund?*****	**More info******
Regional				
1				There is no regional funding identified.
National				
1	Programe Nucleu (Core Programs)	Ministerul Educatiei Nationale si Cercetarii Stiintifice, Autoritatea Nationala pentru Cercetare Stiintifica si Inovare (Ministry of National Education and Research, National Autority for Research and Innovation)	Research institutions of public right (legal entities)	http://www.research.ro/ro/articol/3768/programe-na-ionale-programe-nucleu
2	Planul Sectorial pentru cercetare-dezvoltare din domeniul agricol si de dezvoltare rurala (Sectorial Plan), ADER 2020	Ministerul Agriculturii si Dezvoltarii Rurale (Ministry of Agriculture and Rural Development)	Juridical research and development entities/research and development authorised individuals	http://www.madr.ro/cercetare-inovare.html
3	Planul National de Cercetare-Dezvoltare si Inovare pentru perioada 2014-2020 (National Plan for Research, Development and innovation), PNCDI III	UEFSCDI, Ministerul Educatiei Nationale si Cercetarii Stiintifice (UEFSCDI, Ministry of National Education and Research)	Parnerships of research institutions of public right, universities, SME and/or LE, NGOs, legal professional associations	http://uefiscdi.gov.ro/articole/4270/Programe-PNCDI-III.html
4	Planul National de Dezvoltare Rurala 2014-2020, Masura 16, Cooperare (Rural Development National Plan 2014-2020, Measure 16, Cooperation, compling with Art 35 of the Regulation (UE) nr. 1305/2013)	Ministerul Agriculturii si Dezvoltarii Rurale (Ministry of Agriculture and Rural Development)	Operational groups (research entities/farmers/farmers' groups/cooperatives/advisors/private enterprises/NGOs)	Arrangements in progress (still to be open)

* 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

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