




Integrated Spatial Planning, land use and  
soil management Research ActTION





## INSPIRATION – Linking Europeans' Strategic Research Agenda on Spatial Planning and Land Use Management with AquaConSoil themes

Stephan Bartke, Paul Nathanail, Linda Maring,  
Sandra Boekhold, Uwe Ferber, Franz Makeschin,  
Valérie Guerin, Detlef Grimski, Corinne Merly,  
Margot de Cleen, Annette Gatchett

AquaConSoil conference, Lyon, 29 June 2017





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## Agenda of this session

1. Introduction: The unique INSPIRATION approach –  
Stephan Bartke
2. Key note: The importance of the soil-water-sediment  
system for land management – Linda Maring
3. INSPIRATION's Strategic Research Agenda,  
highlighting identified research topics related to  
integrated spatial planning, urban and contaminated  
land management – Paul Nathanail
4. Delegate discussions in facilitated groups focused on  
the AquaConSoil topics



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## Why we need another research agenda!?!

- **Aim: Knowledge for sustainable soil, land-use and land management in Europe**
- Current and future **societal challenges** need research for
  - informed land-use management and evidence-based policies
  - greener and smarter use of the services provided by the land and soil-sediment-water system
- Our means: **Strategic Research Agenda (SRA)**
  - **Bottom-up** development and implementation
  - Establishing a **transnational network**



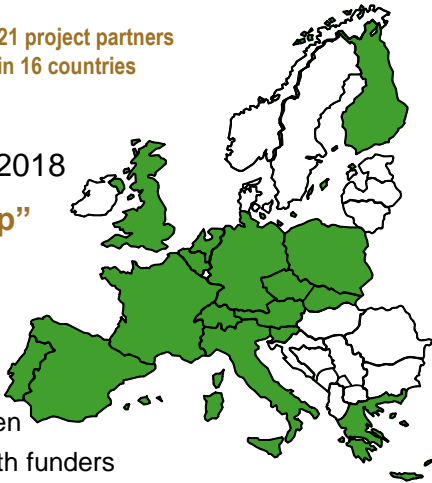
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## INSPIRATION – Integrated spatial planning, land use and soil management research action

21 project partners in 16 countries

- March 2015 to February 2018
- **Consequent “Bottom-up” approach:** needs of stakeholders define the of topics for the SRA
  - No silo-thinking
  - Relevance – demand-driven
  - Transfer – engagement with funders






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## INSPIRATION – a unique research agenda: Demand driven

- Involving >500 experts from politics, industry, end-users, science and funders
- In each country collection of
  - research and innovation demands
  - status science-policy and -practice links
  - national funding instruments
  - transnational funding instruments

22 project partners in 17 countries



Country	Project Partner
Sweden	Yvonne Ohlsson
Finland	Airtti Reihunen
The Netherlands	Linda Maring
Germany	Uwe Ferber
Czech republic	Petr Klusáček
Poland	Anna Starzewska-Sikorska
Slovakia	Maros Finka
Austria	Sophie Zechmeister-Bolozster
Romania	Mihail Dumitru
Slovenia	Boštjan Cotic
Italy	Matteo Tabasso
Spain	Gemma Garcia
Switzerland	Marco Pittz
France	Marie-Christine Dictor
Belgium	Nelle Bal
United Kingdom	Paul Nathanail
Portugal	Thomas Panagopoulos



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# The importance of the soil- water-sediment system for land management

Linda Maring  
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AquaConSoil  
Lyon 2017



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## Why we are making the SRA?

- Current and future societal challenges need research to close knowlegde gaps
  - Prerequisite for informed land use and evidence based policies
  - Smarter use of the services provided by land and the Soil Sediment Water (SSW) system




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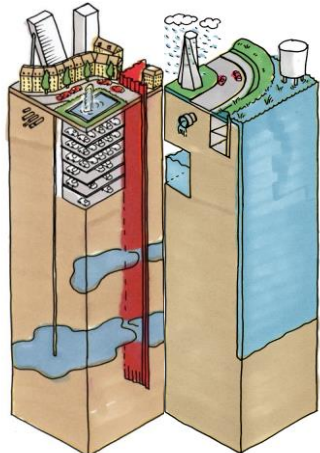
# SSW SYSTEM




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# SSW SYSTEM

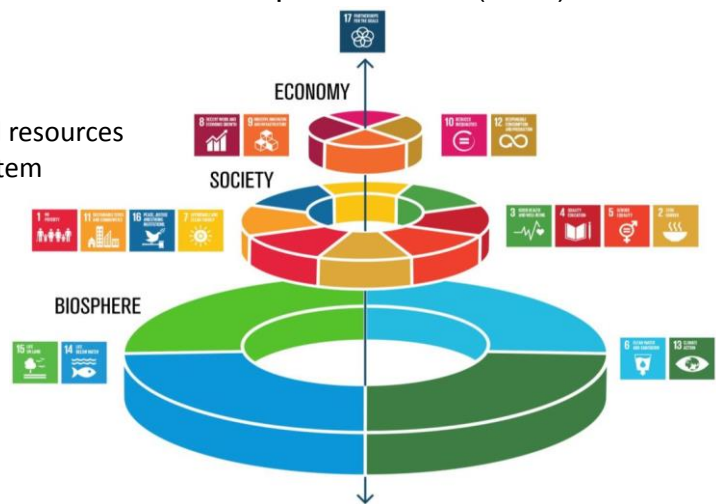


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- Soil and Sustainable Development Goals (SDG)
  - 4 x soil
  - 29 x land
  - 22 x water
  - 3 x natural resources
  - 10 x ecosystem




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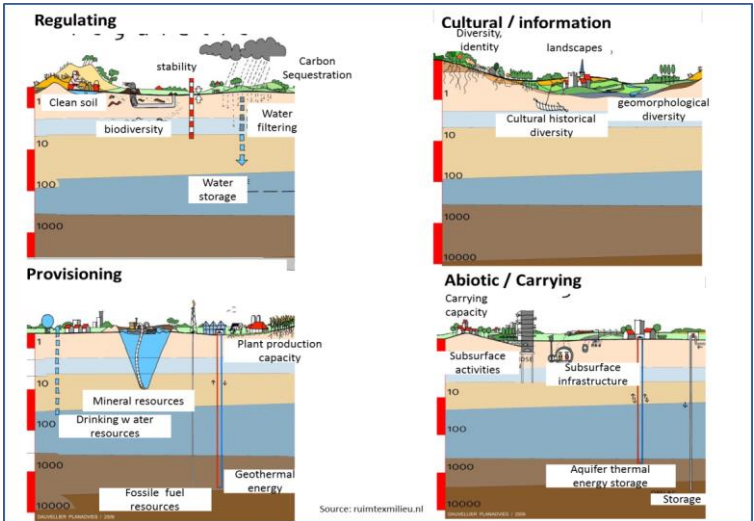


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# Ecosystem functions and services



The diagram illustrates four ecosystem functions and services, each represented by a cross-section of the soil profile with a vertical scale on the left (1, 10, 100, 1000, 10000 cm):

- Regulating:** Includes Clean soil, stability, Carbon Sequestration, biodiversity, Water filtering, and Water storage.
- Cultural / information:** Includes Diversity, identity, landscapes, geomorphological diversity, and Cultural historical diversity.
- Provisioning:** Includes Plant production capacity, Mineral resources, Drinking water resources, Fossil fuel resources, and Geothermal energy.
- Abiotic / Carrying:** Includes Carrying capacity, Subsurface activities, Subsurface infrastructure, and Aquifer thermal energy storage.

Source: ruimtexmilieu.nl

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# Cultural



Landscapes  
Identity, diversity  
Information

(Irreversible) damage  
Loss of value




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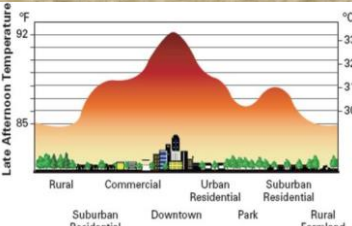





## Regulating

Cycles  
Climate mitigation



(Irreversible) damage  
Decreased resilience  
Shortages / surpluses





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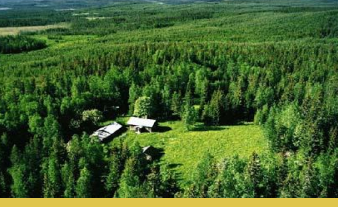




## Provisioning

Production of food, fibre and  
fodder  
Water supply for different  
purposes



Decreased resilience  
Shortages  
Exhaustion of the system





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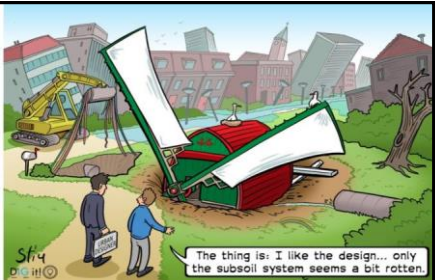
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# Abiotic

Resources  
Sustainable energy  
Carrying functions  
Space


(Irreversible) damage  
Unexpected effects of activity  
Limited supply  
Support of the public




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# Thank you



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
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**Driving Forces**  
Nature, Land-Use, Society & Policy

**Demand**  
Exploitation of natural capital and ecosystem services provided by the SSW-system\*

**Natural Capital**  
Defining and assessing natural capital and ecosystem services



**Land Management**  
Options for integrated, cross-sectoral concepts to balance demand and natural capital



**Net-Impacts**  
Impacts on global, regional and local as well as temporal scales

\*SSW = soil, sediment, water

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# UN Sustainable Development Goals (SDG)

1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION
13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	Peace and Justice	Partnership for the goals	THE GLOBAL GOALS For Sustainable Development

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# UN Sustainable Development Goals (SDG): INSPIRATION

1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 Clean water and sanitation
7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	Sustainable cities and communities	12 RESPONSIBLE CONSUMPTION
13 Climate action	14 Life below water	15 Life on land			THE GLOBAL GOALS For Sustainable Development

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## The AquaConSoil themes at a glance

Assessment and monitoring of soil, water and sediment quality


Risk assessment

Advances in remediation technologies

Strategies & policies for pollution management & remediation



Reuse & upgrading of land, water & sediment: circular economy

Sustainable use & spatial planning of the subsurface




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Assessment and monitoring of soil, water and sediment quality – Valérie Guerin (BRGM)




IRT 1 Harmonised, statistically robust soil assessment & monitoring

D 2 Map, assess, regulate ecosystem services

IRT 15 Restoring ecological & socio-economic value of degraded land



IRT 16 Innovative technologies & eco-engineering for on-site monitoring, soil quality & plant cover

NI 1.1 Net impact of changing SSW on human well-being & prosperity; effects of contaminants on organisms & ecosystem services




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## Risk assessment

– Annette Gatchett (US EPA)




IRT 14 Harmonized methods for sampling, analyses and risk assessment of **emerging contaminants** in SSW

NI 1 Health risk assessment with **uncertain inputs**



NI 1.3 Systematic and comprehensive risk assessments of combined risks (ecological, technological & economic)

NI 2.3 Understanding effects from diffuse contaminant sources? cumulative contributions from many "small" sources"? Effect of contaminant mixtures? Impact of contaminant sinks?




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## Advances in remediation technologies

– Corinne Merly (BRGM, FR)




IRT14 **Emerging contaminants** in soil and groundwater – safeguarding drinking water, soil and freshwater ecosystem services

IRT15 Sustainable management to **restore** ecological and socio-economic **value** of degraded land

IRT16 Technologies and **eco-engineering of SSW** for sustainable use of agricultural, forest & urban land



IRT17 **Climate change challenges** - improving preparedness and response for climate conditions and related hazards

NC4 **Pollutant degradation**, filtering and immobilisation capacity




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## Strategies and policies for pollution management and remediation – Stephan Bartke (UBA, DE)




- IRT13 Urban Metabolism – Enhance efficient use of soil-sediment-water resources through a closing of urban material loops
- D2 Regulating Ecosystem Services
- D3 Urban / infrastructure land
- D7 Health and quality of life (living environment)
- LM 1 Governance, management mechanisms, instruments and policy
- LM 3 Land as a resource in urban areas (Sustainable urban land management)
- LM 4: Land as a resource in rural areas (Multifunctionality of rural areas)
- NI 3 Trade-off analysis & decision support


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## Reuse & upgrading of land, water & sediment in a circular economy – Margot de Cleen (RWS, NL)




- IRT2 Recognizing the value of ecosystem services in land use decisions
- IRT5 Integrated scenarios for the Land-Soil-Water-Food system under societal pressures and challenges
- IRT6 Indicators of Soil-Sediment-Water-Energy system efficiency
- IRT8 Circular land management
- NC6 Geological resources
- D1 The 4 F's: Food, feed, fibre, (bio)fuel
- D3 Urban / infrastructure land
- D4 Water
- NI4 Science-Policy-Society Interface

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## Sustainable use & spatial planning of the subsurface – Linda Maring (Deltares, NL)



IRT3 Integrated tools for a holistic assessment of agricultural and forest land use

IRT4 Bio-Economy – unleashing potential while sustaining soils

IRT9 Policy to effectively reduce land consumption by settlements

NC1 Quantity, quality & health of soils, soil C, greenhouse gases


NC3: Water, water cycle

NC5: Prevention of erosion and mudslides

NC6: Geological resources

D5: Geological (and fossil) subsurface resources

D6: Natural hazard prevention and resilience


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## Delegate discussions – objectives



- Delegate discussions in six tables focused on the AquaConSoil topics.
- At each table participants will
  - identify topics of **particular interest**,
  - identify **potential funders** and funding interests,
  - indicate their **willingness to become engaged** in implementing a key topic




## Delegate discussions


- Method: World Café style group discussions:
  - Select a group (max 3 \* 15 min)
  - Write comments on flip-over
  - Facilitators guide discussion
  - Change to next table
  - Facilitators report interim result
  - Add your thoughts
- Session chair summarizes in plenum.







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Assessment and monitoring of soil, water and sediment quality – Valérie Guerin




Risk assessment – Annette Gatchett




Advances in remediation technologies – Corinne Merly




Strategies & policies for pollution management & remediation – Stephan Bartke





Reuse & upgrading of land, water & sediment in the circular economy – Margot de Cleen




Sustainable use & spatial planning of the subsurface – Linda Maring


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  - Subscribe to INSPIRATION newsletter
  - Receive invitation to final conference
- b. Contact your national contact points
  - Find them on our website [www.inspiration-h2020.eu](http://www.inspiration-h2020.eu)
- c. Join our final conference


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# World Soil Day

## 5 December 2017

# INSPIRATION Conference

## 4 – 6 December 2017

## Brussels, Belgium





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