



OUTSIDE THE BOX THINKING FOR AN INNOVATIVE RESE-ARCH AGENDA

Paul Nathanail (University of Nottingham) Co-Authors from INSPIRATION consortium



Motivation and problem statement

Soil is a finite threatened resource. Land is limited and once built on is hard to return to soft uses. Spatial planning has a key role to play in how our soils are protected and our land is managed.

European citizens are increasingly realising that they both need and want: Net land degradation neutrality; Zero waste; Circular land economy; Protected soils, waters & sediments; Biodiversity and Clean air.

A bottom up approach has led to the development of a strategic research agenda to improve the way we plan, manage and use our land and the soil-sediment-water system.



Approach, results and key messages

Business as usual will at best slow down the rate of land consumption and soil loss. Delaying the inevitable is not compatible with the principle of sustainable development nor would it contribute to achieving the United Nations sustainable development goals (SDG). The SDG consider ab initio how to mobilize of financial resources, how to build capacity, ways of transferring environmentally sound technologies and ultimately tackling the societal implications of climate change.

Research and innovation needs have been identified in the way we understand the supply of natural resources and ecosystem services; how we call on, or demand from, them; how we manage land use and how we measure and evaluate the impact of such use. In addition to these thematic research and innovation needs, cross cutting activities were also identified.

Such activities need to result in a step change in policy and practice and to do so relatively quickly.



Conclusion and take home message

Co-funding is essential if the identified research and innovation is to take place and do so at a pace that will allow it to have the impact it needs within the next 10-15 years. INSPIRATION partners remain committed to helping Europe's funders, end users and researchers deliver on the bottom-up inspired strategic research agenda.









Outside the box thinking for an innovative research agenda



Paul Nathanail, University of Nottingham

Soil Natural Natural Spatial Planning Resources La and-Use







Topical knowledge gaps and research needs of Europeans towards sustainability in spatial planning, land use and soil managemen: The INSPIRATION Strategic Research Agenda



Outside the box thinking for an innovative research agenda



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The University of **Nottingham**





World soil day is coming... is here!







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my people,

there asking

people;

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soil management Research ActTION

This Land Is Your Land Woody Guthrie

As I went walking I saw a sign there And on the sign it said "No

Trespassing."

But on the other side it didn't say nothing,

That side



Nobody living can ever stop me, As I go walking that freedom highway; Nobody living can ever make me turn back

In the shadow of the steeple I saw

As they stood there hungry, I stood

Is this land made for you and me?

By the relief office I seen my

This land was made for you and me.





The box...

- What is the box?
- Where is it?
- Who is in it?
- When was it finished?
- Why was it made?
- How can we work outside it?



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The box...

Umwelt 60 Bundesamt

What is the box?

Where is it?

you

Who is in it?

When was it finished?

Why was it made?

How can we work outside it? Mind blowing

Silos

Take a look around

We are, by default

Boiling a frog

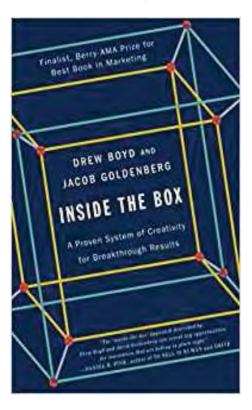
Mind limits

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Thinking inside the box





Systematic Inventive Thinking **Five Thinking Tools**

- Subtraction
- Multiplication
- Division
- Task Unification
- **Attribute Dependency**



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What do we want?

- Net neutrality
- Zero waste
- Circular land economy
- Protected soils, waters & sediments
- **Biodiversity**
- Clean air

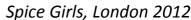






What do Europeans, really, really want?

- Peace & security (Bosnia)
- Wholesome Food & water (Slovenia)
- Health (EHIC cards)



- Education (Marie Curie; Erasmus; Tempus)
- Pleasant environment (my university's campus)
- Fast wifi and cheap mobile access (no roaming charges)
- A better future for their children (or nephews nieces...)
- Hope! (Pandora's box!)





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Bottom-up inspiration

WP IV INSPI-SRA

match-making

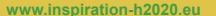
Prioritization of clustered and integrated research needs

WP III

Analyse R&I demands to define Clustered Thematic needs & Integrated Research needs (IRNs) WP III

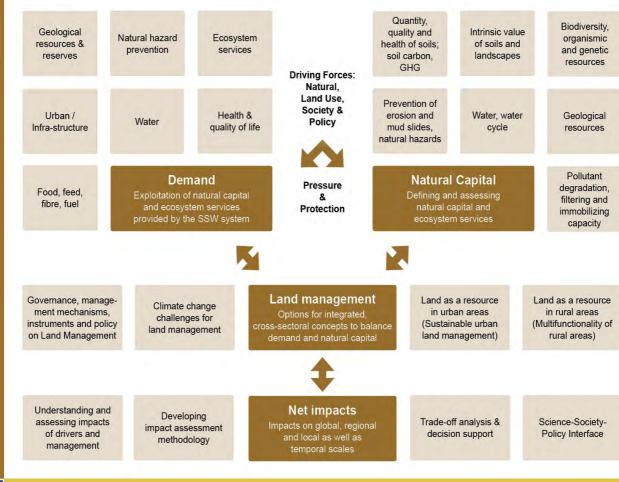
Synthesis of national Research and Innovation (R&I) demands WP II





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From information to implementation

IRN-1: Integrated Environmental Assessment and Soil Monitoring for Europe

IRN-2: Recognizing the value of ecosystem service in agricultural land use

IRN-3: From indicators to implementation: Integrated tools for a holistic impact and land use assessment

Integrating research Needs (IRNs)

FFFF: demand, potentials and risks

IRN-4: Bio-Economy – unleashing the potentials while sustaining soils

IRN-5: Integrated scenarios for the Soil-Water-Food nexus under societal challenges

IRN-6: Assessing the efficiency of the Soil-Sediment-Water nexus of resources

IRN-7: Maintaining soil fertility by organic farming to in food

Challenge: Integrated urban management

IRN-8: Circular land management

IRN-9: Developing effective policies to combat urban seaw

IRN-10: Facilitating the implementation of urban general structure through stakeholder participation

IRN-11: Integrated management of soils in urban areas

IRN-12: Environmentally friendly and socially sensitive urban development

IRN-13: Urban Metabolism – Enhance resource efficiency through a closing of urban material loops

Disturbed landscapes

IRN-14: 'Emerging contaminants' in soil and groundwater

IRN-15: Sustainable management and valorization of degraded land

IRN-16: Innovative technologies and eco-engineering 4.0: Challenges for a sustainable use of rural and urban landscapes and the SSW system

Climate change challenges

IRN-17: Climate change challenges - improving preparedness, response for climate conditions and related hazards





The 17 United Nations Sustainable Development Goals (SDGs)







































The World's To-Do List by 2030



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MDG vs SDG

millennium vs sustainable



- Deeper
- Global
- Implementation considered up front
 - mobilization of financial resources
 - capacity-building
 - transfer of environmentally sound technologies
 - Tacking climate change is key





The Global goals...

- 1. need you us
- 2. will change how we do business
- 3. are one for all and all for one
- 4. will address climate change
- 5. will eradicate extreme poverty by 2030
- will leave no one behind
- 7. are hands-on: planned, costed, buy-in
- 8. are "Global"
- 9. are the people's goals
- 10.are the world's ultimate to-do list for the next 15 years



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Life below water

Life on land





More on this tomorrow!





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Geological resources & reserves

Urban /

Infra-structure

Food, feed,

fibre, fuel

Natural hazard prevention

Water

Ecosystem services

Health & quality of life

Demand

and ecosystem services provided by the SSW system

Driving Forces: Natural, Land Use, Society & Policy



Pressure Protection

Quantity, quality and health of soils; soil carbon, GHG

Prevention of erosion and mud slides natural hazards

Water, water cycle

Intrinsic value

of soils and

landscapes

Geological resources

Biodiversity,

organismic

and genetic

resources

Natural Capital

Defining and assessing natural capital and

Pollutant degradation, filtering and immobilizing capacity





Climate change challenges for land management Land management

I and as a resource in urban areas (Sustainable urban land management)

Land as a resource in rural areas (Multifunctionality of rural areas)



Understanding and assessing impacts

of drivers and management

Developing impact assessment methodology

Net impacts

Impacts on global, regional and local as well as temporal scales

Trade-off analysis & decision support

Science-Society-Policy Interface





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quality of life

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8 DECENT WORK AND ECONOMIC GROWTH

Demand





Exploitation of natural capital and ecosystem services provided by the SSW system



Quantity. quality and health of soils; soil carbon,

Intrinsic value of soils and landscapes

Biodiversity, organismic and genetic resources

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orces:

Prevention of erosion and mud slides, natural hazards

GHG

Water, water cycle

Geological resources



Pressure & Protection Natural Capital

Defining and assessing natural capital and ecosystem services

Pollutant degradation, filtering and immobilizing capacity



provided by the SSW system









Governance, management mechanisms. instruments and policy on Land Management

Climate change challenges for land management

Land manageme

Options for integrated cross-sectoral concepts to b demand and natural cap



Understanding and of drivers and management

Developing impact assessment methodology

Net impacts

Impacts on global, regio and local as well as temporal scales

assessing impacts

ecosystem services













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Options for integrated, ectoral concepts to bal nand and natural capita 1 🛍



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Land as a resource in urban areas (Sustainable urban land management)

Land as a resource in rural areas (Multifunctionality of rural areas)



Net impacts

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Trade-off analysis & decision support

Science-Society-Policy Interface





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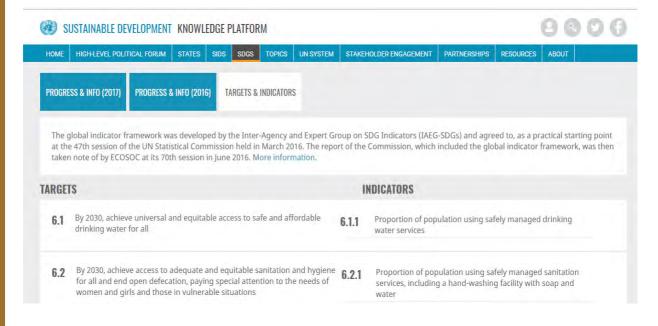
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If you don't know where you are going, how will you know you have got there?



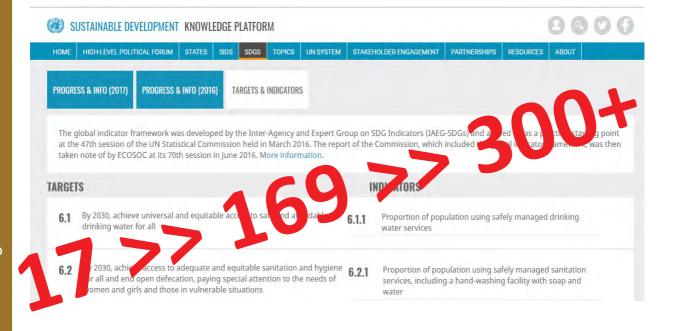






If you don't know where you are going, how will you know you have got there?







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Funding models

- International funding
- Bilateral
- EU
 - Fwk
 - ERANets
 - COST
 - JPI
 - Article 185
- National Research foundations/ councils
- Public/ Private (eg Innovate UK)
- Third sector
- Crowd funding



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Woodie Guthrie was wrong





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Gonna give you barley, carrots and pertaters

Pasture fer the cattle Spinach and termayters!

Brand new state!

Flowers on the prairie where the June bugs zoom

Brand new state, gonna treat you great!

Plen'y of air and plen'y of room Plen'y of room to swing a rope! Plen'y of heart and plen'y of hope

Ev'ry night my honey lamb and I Sit alone and talk and watch a hawk Makin' lazy circles in the sky

We know we belong to the land And the land we belong to is grand!

And when we say Yeeow! Ayipioeeay! We're only sayin' You're doin' fine Oklahoma! Oklahoma O.K

Oklahoma, where the wind comes sweepin' down the plain And the wavin' wheat can sure smell sweet

When the wind comes right behind the

rain

Oklahoma







Ntegrated Spatial PlannIng, land use and soil management Research ActTION

Schedule: 3 months to go!

Not the end, or even the beginning of the end, but the end of the beginning

		Primary Month since start of the project (x indicates the delivery date)																			Т	Т														
Brie	ef description		responsible			Т	Υ	ear	1				П				Т	Ye	ar 2	2				Т		Т	Т	Т	Y	ear:	3				٦	
D =	Deliverable; M = Milestone	D#	partner	1	2 3	3 4	5	6	7 8	3 9	10	11	12	13	14 1	5 16	3 17	18	19	20	21	22	23 ;	24 2	25 2	26 2	27 2	8 29	30	31	32	33	34	35 3	36	37 38
	WP1 Project management																																			
D	1/2 year activity reports	1.1a_c	UBA			Т	П	П	2	C					Т	Т	Т			x	П	П	Т	Т	Т	Т	Т		Т		x				Т	
D	yearly management reports	1.2a_b	UBA	П		Т	П	П		Т	Т		П		х		Т				П		T			х	Т	Т	Т				П			
M	Conference & final verification event	-	UBA			Т		П		Т	Т				П		Т				П		T		Т	Т	Т	Т	П				х			
D	Conference report	1.3	UBA			Т		П		Т	Т						Т				П					Т	Т	Т	П					Х		
D	final report	1.4	UBA			Т		П		Т	Т					Т	Т				П					Т	Т	Т	П					П		X
	WP2 national state-of-the-art																Т				П		T	T	T		Т	Т	Т				П			
D	MoU on NFPs task execution	2.1	Deltares		х	Т	П	П	Т	Т			П				Т						T	T	Т	Т	Т	Т	Т				П			
D	National Key Stakeholders registry	2.2	Deltares		х	Т		П		Т	Т						Т							T		T	Т	Т	Т				П			
D	Template national info collation	2.3	Deltares)	•		П		Т			П				Т									T	Т	Т	Т							
D	Collated national info in line with template	2.4	Deltares			1	Т	П	\top	X							T				\neg		\neg		\top	\top	\top		Т				П			
D&M	Synthesis of collated national info	2.5	Deltares	П		Т	П	П		Т	Т		х				Т				П	П	T		Т	Т	Т	Т	Т				П			
	WP3 transnational commons					T	П	П	T	Т	Т										\neg	П	\neg	T	T	1	T	Т	Т				П		T	
D	Evaluation approach WP2 reports	3.1	DIU			Т	П	П	T	Т	Т			х			Т				П	П	T	T	T	T	Т	Т	Т				П		T	
D	1st transnational shared state-of-art overview	3.2	DIU	П		T	П	П		Т	Т					Т	x				\neg		T		T	1	T	Т	Т				П			
D&M	enriched & prioritized overview	3.3	DIU			T		П	\top	T	Т					T	П		х		\neg	\neg	\top		\top	\top	\top	T	Т				П			
D&M	selected topics for matchmaking	3.4	DIU			T		П								T	T			х	\neg		\top		\top	\top	\top	T					П			
	WP4 SRA & matchmaking							П																												
D	Scope of SRA	4.1	UON					П																х		Т									7	
D	Identified matches & willingness to fund	4.2	UON			\top		П																	\top	\top	\top	T					П		х	
D&M	SRA to be verified (a), and verified (b)	4.3a b	UON			T	Т	П		\top							T				\neg		\neg		\top	\top	\top		Т			х	П		х	
D&M	SRA delivery models to be (a), and verified (b)	4.4a b	UON			T	Т	П			Т						Т				\neg		\neg		\top	\top	\top	T	Т			х			x	
D	Outcome stakeholders workshop	4.5	UON	T	T	T	T	П	\top	T	Т				1	Т	T	П	\neg		╛	T	\top	T	\top	\top	T	T	т	П			П		x	
	WP5 dissemination & communication																	Т																		
М	First IAB meeting	-	BRGM	х		Т			Т	Т							Т							Т		Т			П						7	
D&M	Website & intranet operational	5.1	BRGM			х		П	\top	\top						T	T				\neg		\top		\top	\top	\top	T	Т				П			
М	Policy oriented workshops	-	BRGM			Т		х									T								\top	\top	\top	\top	х				П			
D	Results policy workshops & IAB recommendation	5.2	BRGM			T		х																	\top	\top	\top	T	Г							
D&M	Communication plan & updates	5.3a_c	BRGM								х											х												3	х	
D	Annual IAB reports	5.4a_c											х											x											х	
D&M	Recommendations for SRA implementation	5.5	BRGM		1			П	\top	\top														T	7	\top	\top		T	П				х	1	
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dialogue, come to

the UK... poster

Continue to













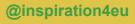












Which **INSPIRATION SRA topics** contribute to what the **UN SDGs require**





brgm















DIU



























tecnalia) inspiring















SPECTRA







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INSPIRATION Research Agenda





Integrated reasearch topics

Geological resources & reserves

Natural hazard prevention

Water

Ecosystem

Quantity, quality and health of soils; soil carbon **Driving Forces:**

Intrinsic value of soils and landscapes

Biodiversity, organismic and genetic **Emerging contaminants** in soil and groundwater

Stakeholder participation

From indicators to

implementation

Urban / Infra-structure

Food, feed,

fibre, fuel

Health & quality of life

Natural. Land Use, Society &

Prevention of Policy

Water, water

resources Policies to effevtively reduce land consumption

erosion and natural hazards Geological resources

Environmental assessment and soil monitoring

Urban metabolism

Indicators soilsediment-water-energy

Pressure Protection

Natural Capital Defining and assessing natural capital and

degradation, filtering and Farming systems

change challanges

Ecosystem services in land use decisions

> Environmental and social urban development

Governance, management mechanisms,

challenges

Inspiration

Land as a resource in urban areas (Sustainable urban land management)

Land as a resource in rural areas (Multifunctionality of Management of soils in urban areas Circular land

Innovative technologies and eco-egineering 4.0

Sustainable manage-

instruments and policy

Climate change

Trade-off analysis & decision support

Science-Society-Policy Interface

managemant

Integrated scenarios

Understanding and assessing impacts of drivers and

Developing impact assessment methodology

Bioeconomy