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OVAM

EmConSoil
a Multi-stakeholder Network
for Emerging Soil Contaminants

Interactive Insights into the OVAM EmConSoil Initiative: Advancing Emerging Contaminant Management in Soils

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2. **Interactive poll**
3. **Methodology showcase**
    - Policy makers and enforcers
    - Problem owners
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5. **Summary and future directions**

Introduction to EmConSoil

emconsoil.eu

Introduction to EmConSoil

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a Multi-stakeholder Network for Emerging Soil Contaminants

News Publications Meetings & Events About Us More

Introduction to EmConSoil

International network EmConSoil

- "Challenges for emerging soil contaminant governance & policy"
- Established 2019 by OVAM (Public Waste Agency Flanders)
- Knowledge sharing and addressing challenges
- Stakeholders

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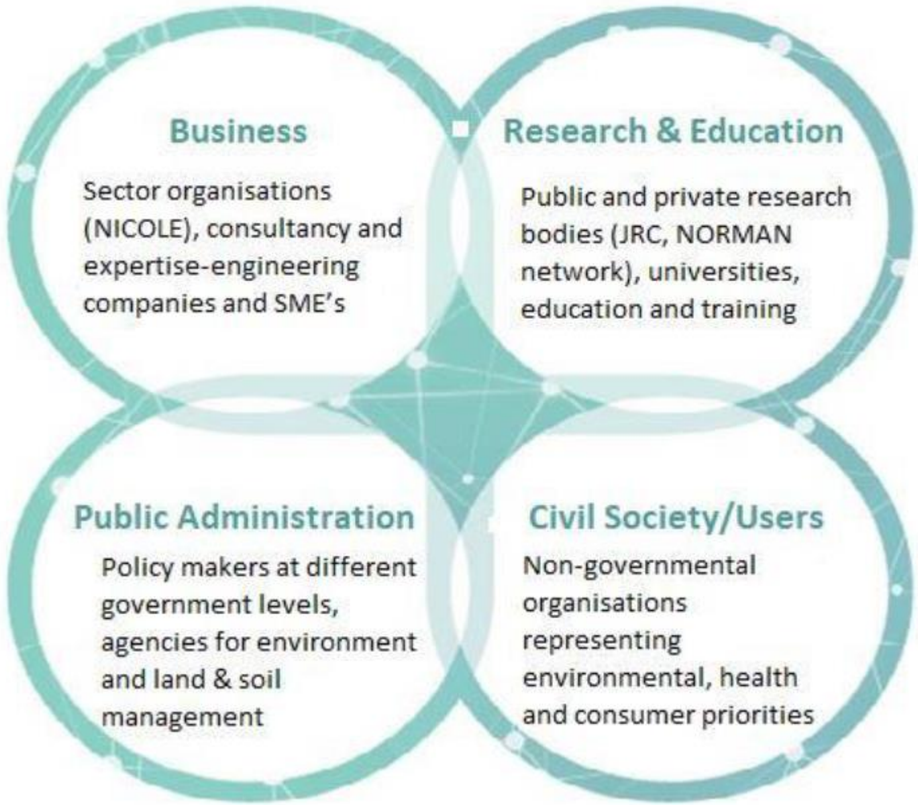

Introduction to EmConSoil

Goals and topics

- Promote/improve know-how about emerging substances and their remediation and policy challenges
- Gather information in a structured way (e.g. Publications - newsletters)
- Bring together expertise from different sectors and stakeholders: intermezzos - webinars - working groups
- Organize debate - taking a representative stand - weighing in on international policy

- Publication:

White paper: CHALLENGES FOR EMERGING SOIL CONTAMINANT GOVERNANCE & POLICY Creating a multi-stakeholder network

Introduction to EmConSoil

Participation

❖ **Participate!**

Participation is free of charge, and without obligation

Registration: Register now - Website

❖ **Access to**

Newsletters
Webinars
ENSOr workshops
White paper
Publications

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Interactive poll

Mentimeter

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Where are you from?

11
Northern Europe

8
Central Europe

1
Southern Europe

1
Eastern Europe

0
Africa

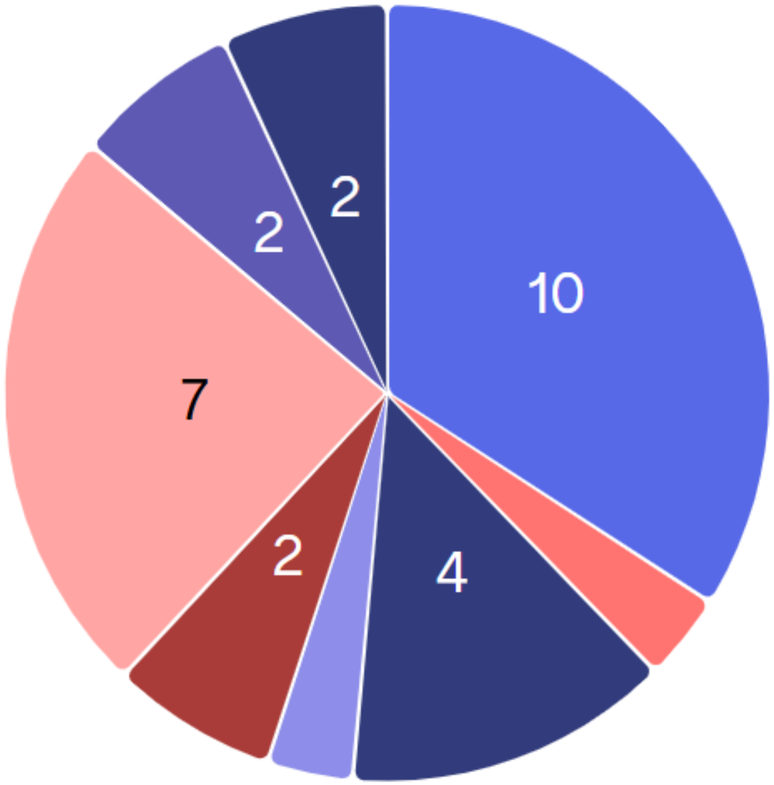
0
Asia

1
North America

0
South America

1
Australia

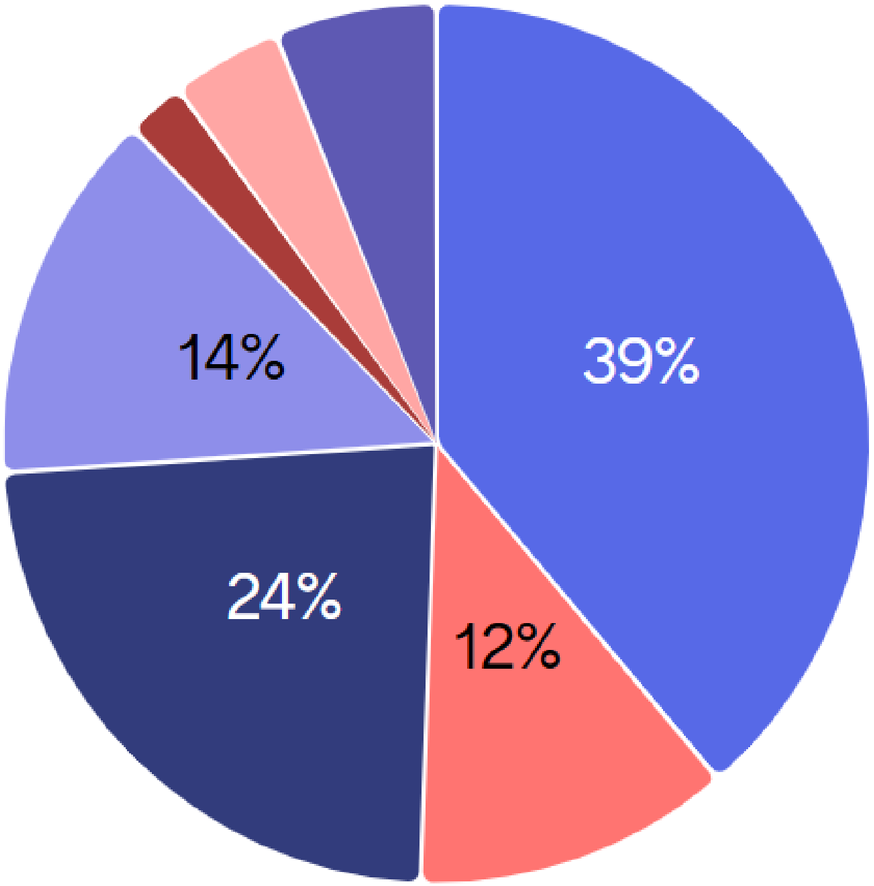
What is your professional role in relation to ECs?



10	Policy maker
1	Policy enforcer
4	Local or regional government
1	Consultant
2	Contractor
7	Researcher
2	Problem owner
0	Manufacturer
0	NGO
2	the Public

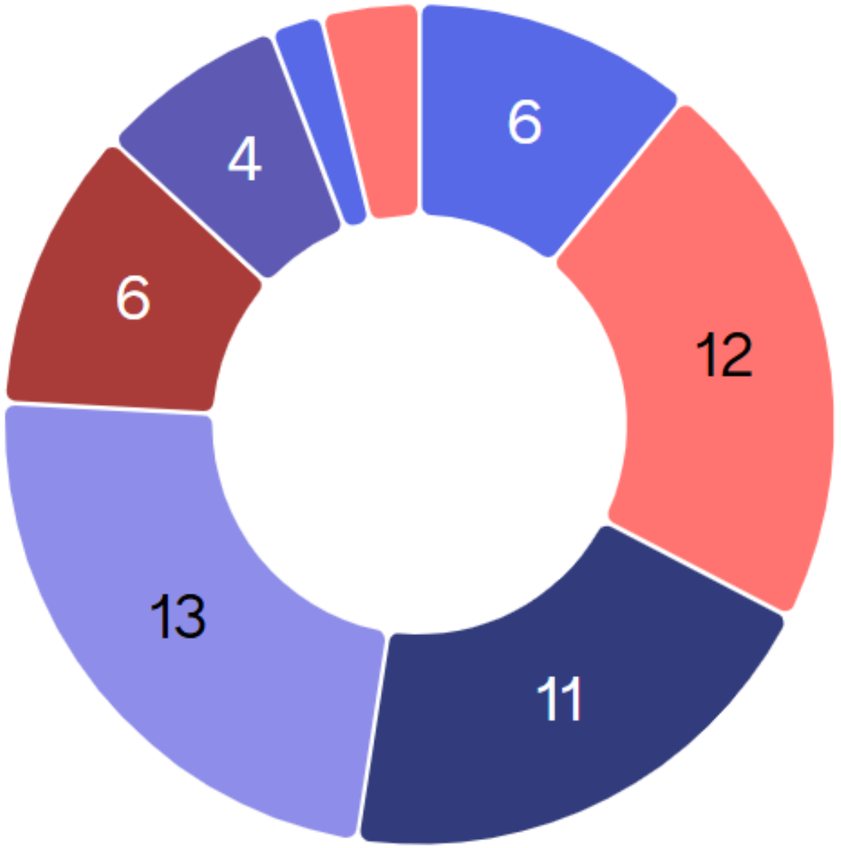
What is your interest in joining this session?

What are the ECs, you are currently focusing on?



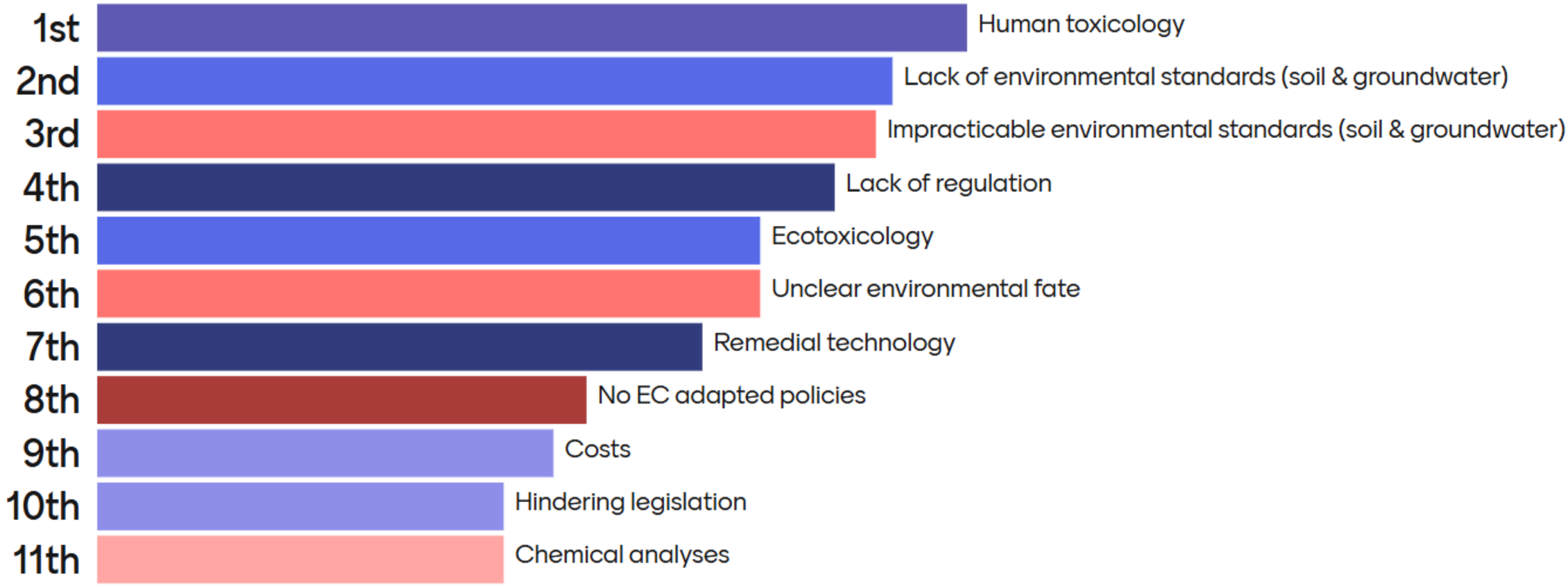
- 39% PFAS
- 12% Microplastics
- 24% Pesticides
- 14% Pharmaceuticals
- 2% Other halogenated hydrocarbons
- 4% Drugs (non-medical)
- 6% Others

What are the ECs that you believe will become hot topics in the near future?



6	PFAS (still?)
12	Microplastics
11	Pesticides
13	Pharmaceuticals
6	Bromated hydrocarbons
0	Drugs (non-medical)
4	Tyre wear
1	Dioxines
2	Other

What are the main issues you are confronted with in relation to EC?



What EC related topic do you want EmConSoil to focus on?

Methodology showcase

Methodology showcase

Experiences and point of view from different stakeholders:

1. Initial triggers requiring to act/change
2. Issues confronted with because of these initial triggers
3. Solutions developed to tackle these issues
4. Current new challenges
5. Ongoing developments and expectations
6. Future hurdles to take and collaboration opportunities

Methodology showcase

The 3 stakeholders:

- Policy makers and enforcers

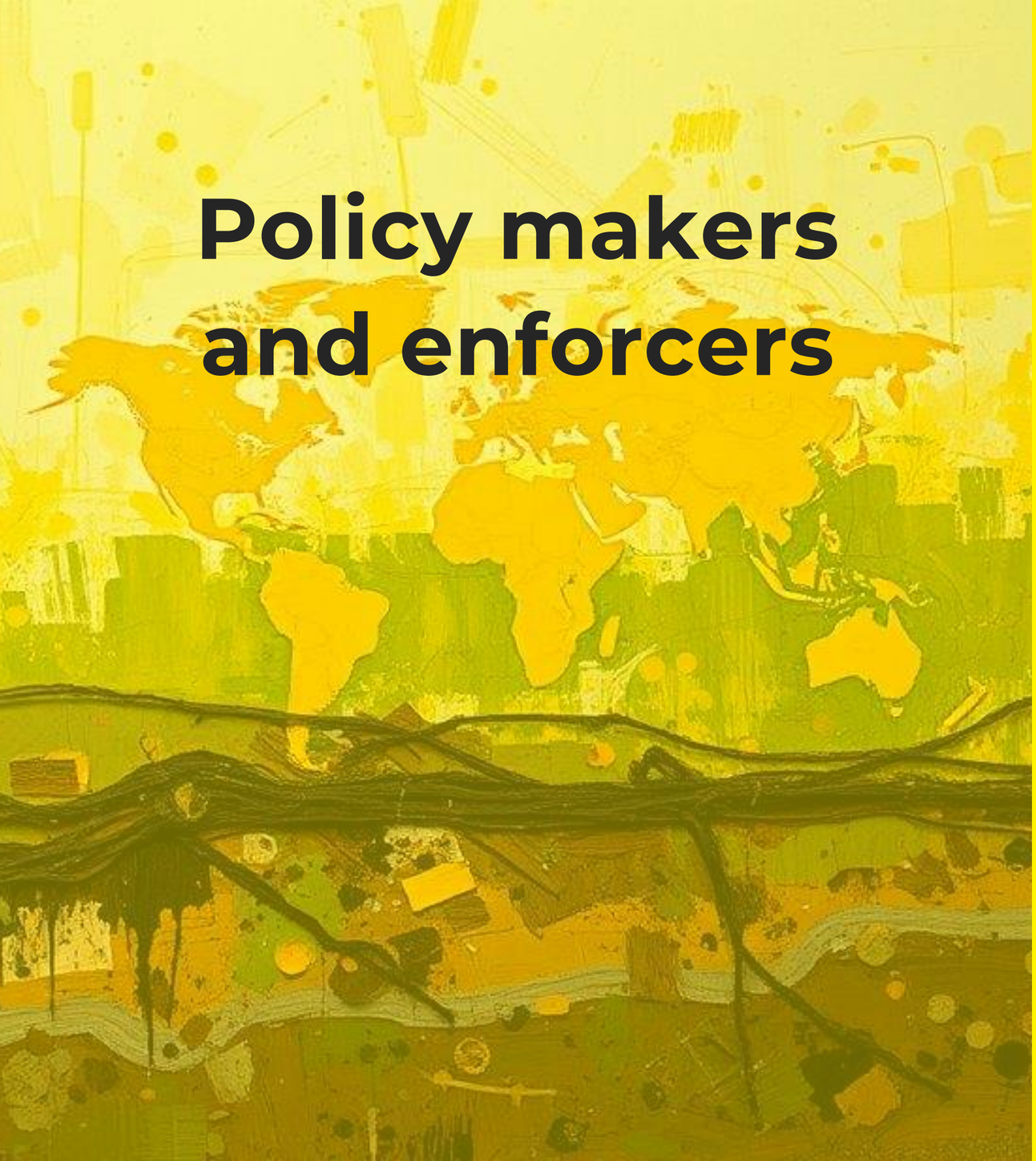
  Johan Ceenaeme – OVAM (Flemish Waste Agency (B))

- Researchers, consultants and contractors

  –

- Problem owners

  Dr. Nanette Schouw – Region Sjaelland and ATV soil and groundwater (DK)



Policy makers and enforcers

NAME

Johan Ceenaeme

ROLE

Policy and legislation coordinator OVAM

EC experience

Chair PFAS team Common Forum

Policy makers and enforcers

1. Initial triggers requiring to act/change

PFAS measuring campaign 2016-2018

Inventory of risk activities → 24 sites were selected
Soil and groundwater were analyzed for 21 PFAS's

Conclusions

→ Especially on **firefighting training grounds** soil & groundwater are contaminated with PFAS
→ PFAS must be included as a **suspect substance** in soil investigations

These actions were started:

- **preventive actions** in collaboration with fire brigade organizations
- development of **limit values** for PFAS in soil & groundwater
- identification and inventory of PFAS contaminated sites
- development of **guidelines for soil investigation**

Accelerated by the 2021 crisis !

Policy makers and enforcers

2. Initial issues

Calls for inventory - OVAM and local authorities (July, 2021)

Call 1 (July, 2021): Use of fire extinguishing foam

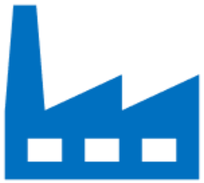
- ❖ Fire fighting training sites
- ❖ Fire fighting facilities (industry)
- ❖ Fire extinguishing calamities
- ❖ Military training areas and airports

→ 826 locations (fire fighting training sites & calamities)

Call 2 : PFAS producing and processing industry

Risk activities as determined in the study of 2018: textile industry, paper industry, galvanic industry, …

→ more than 7500 locations



Policy makers and enforcers

3. Developed solutions

- **Investigations** of **firefighting** related site
- **Investigations** of sites with **PFAS processing or producing** industry
- **Communication** – no regret measures
- **Temporary legal framework PFAS** (soil remediation and reuse of soil materials) - guidelines
- Investigation **anthropogenic background values** in soil and groundwater
- **Cofinancing** descriptive soil investigations
- Designation of activities with PFAS as risk facilities
- New study on **PFAS risk activities**

Policy makers and enforcers

4. Current, new challenges

- Development of a **robust legal framework** for PFAS
- **Remediation technologies**
- Concepts for remediation of PFAS
- Investigation of **pesticides**
- Investigation of **micro- and nanoplastics**

Policy makers and enforcers

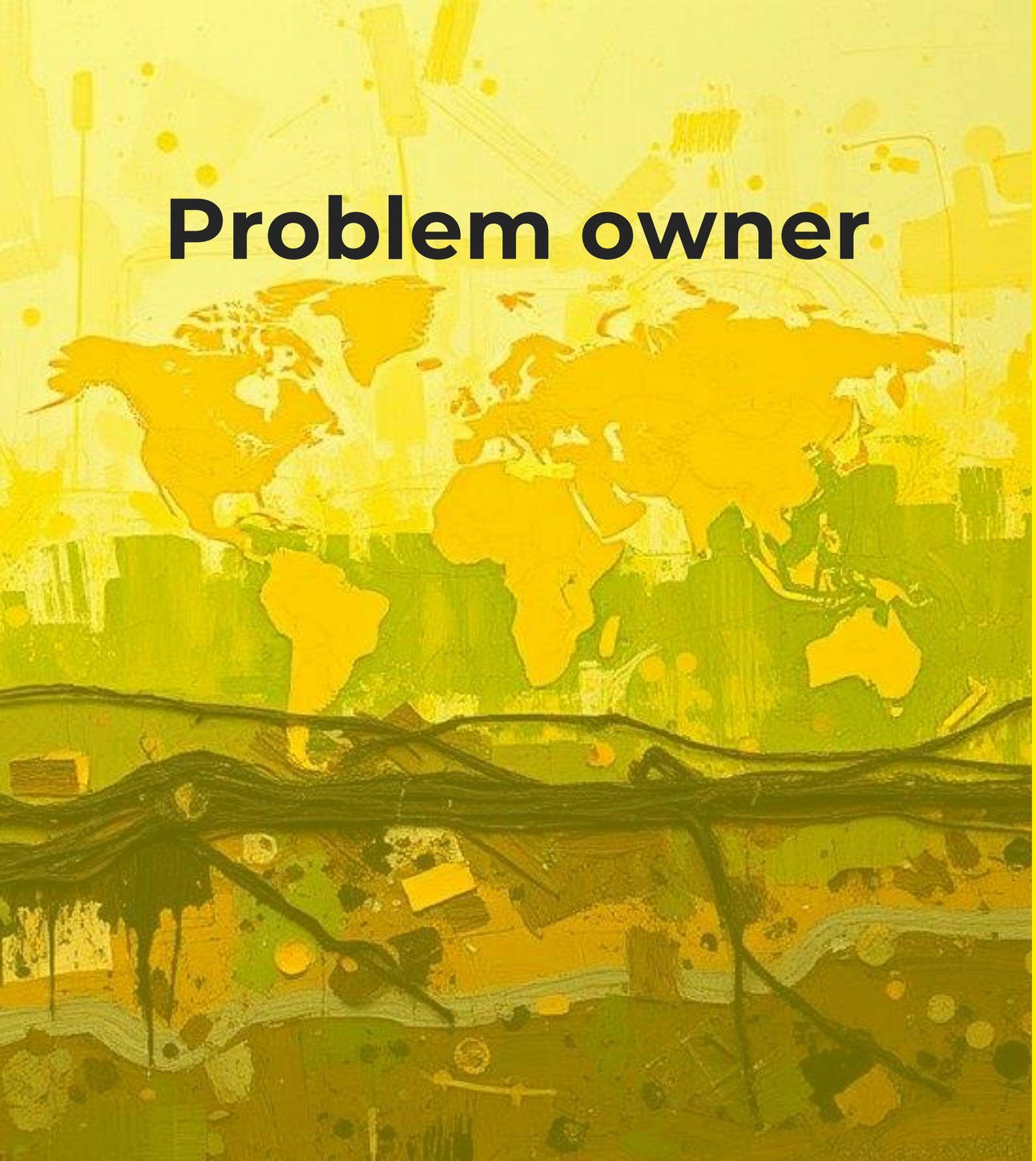
5. Ongoing developments and expectations

- PFAS have challenged us to **renew legislation and policies** surrounding the management and remediation of soil contamination
- OVAM started a **social cost-benefit analysis** on soil remediation and the use of soil materials
- **Cooperation at the international level** is crucial for exchange of experiences and acquired knowledge, regarding scientific developments, soil policy, risk assessment, remediation techniques, communication, health impacts, …
- **Harmonization** of the approach can be strengthened by European and international policy, such as through the Soil Monitoring Law

Policy makers and enforcers

6. Future hurdles to take and collaborative opportunities

- PFAS are perhaps not ‘everywhere’ but in most cases they are where we don't want them
- It is difficult to **develop legislation** and trigger values for substances around which **new knowledge is constantly growing**. This creates **legal uncertainty** for those involved in real estate management and the use of soil materials
- PFAS production sites have received a lot of attention as sources of PFAS contamination in the environment, but the number of sites where **PFAS has been used** (fire fighting, textiles, paper production, etc.) are **much larger**, are mainly in **living areas** or have in many cases been converted into homes due to economic developments



Problem owner

NAME

Dr. Nanette Schouw

ROLE

Chair of the board *ATV Soil and Groundwater*
Chief consultant, Region Sjaelland

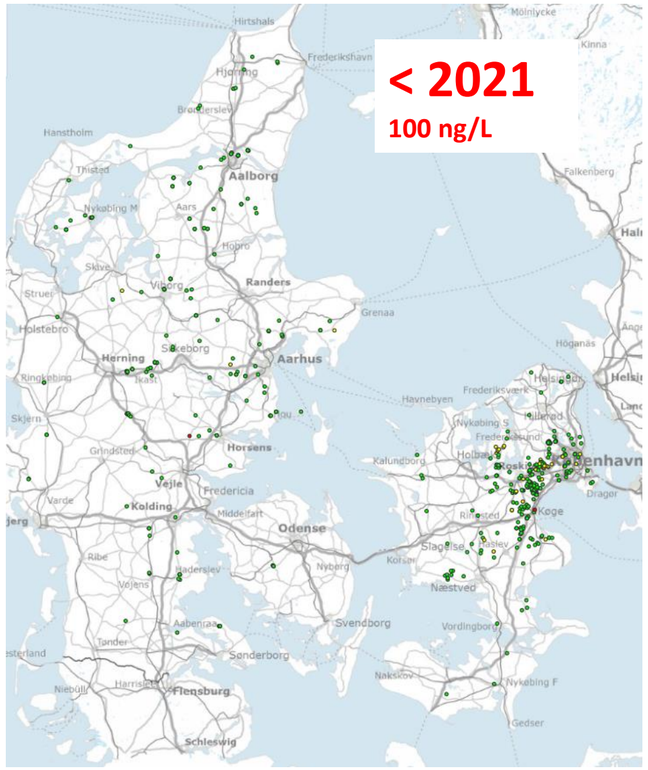
EC experience

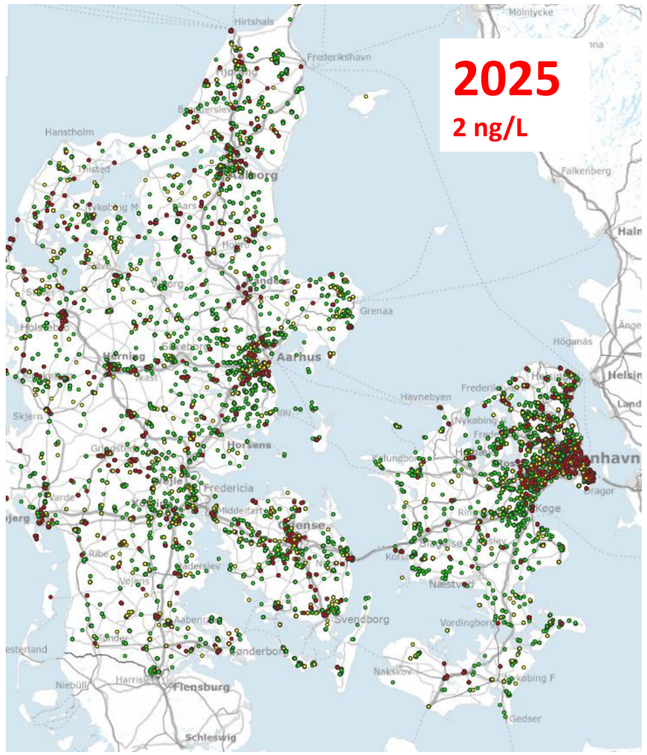
- Master of Environmental Engineer: pesticides in groundwater
- PhD Environmental Engineer: contaminants in sludge on agricultural land
- Consulting Engineer: hydrocarbons from petrol stations
- Public administrator: PFAS, pesticides, non target screening, industrial and pharmaceutical residues in soil and groundwater

Problem owner

1. Initial triggers requiring to act/change

Lowering of threshold limit values for PFAS in drinking water due to new scientific toxicity knowledge

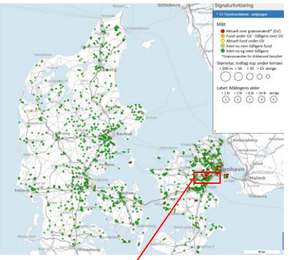


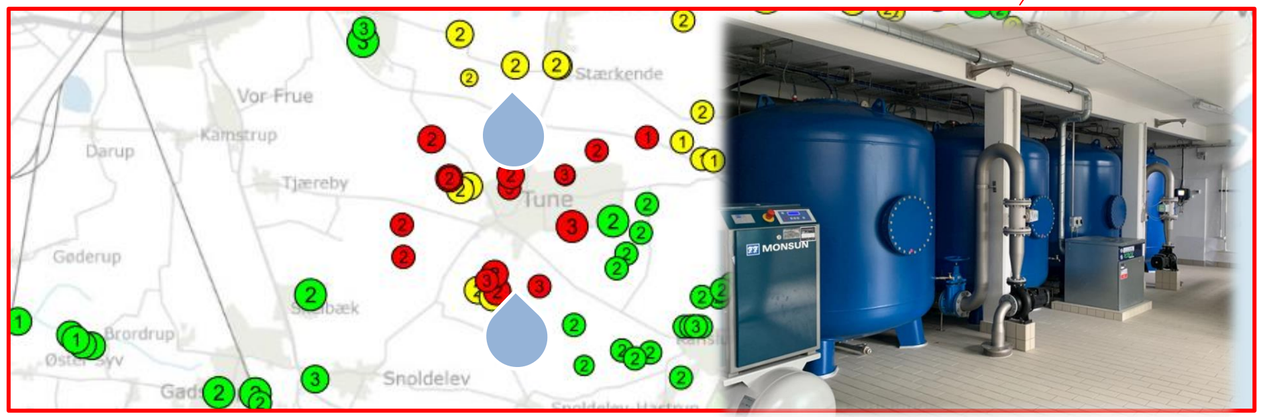


Problem owner

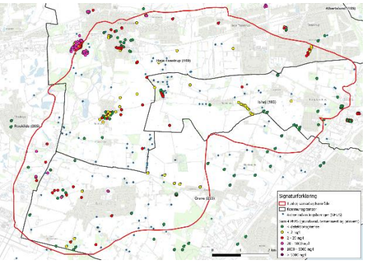
2. Initial issues

PFAS ground zero of DK: Korsør Fire Academy and Tune water utility





Problem owner



3. Developed solutions

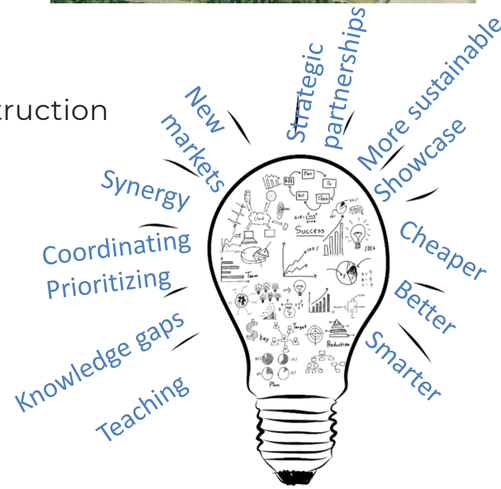
=>Establish strategic alliances and collaboration agreements with relevant stakeholders: TunHøj collaboration and Korsør PFAS test center

=>Sharing data and experiences

=>Extreme focus on prioritizing the worse cases first and if possible stopping the contamination source

=>Funding for development of remediation techniques: stabilization, separation, degradation, destruction

=>Development of new analytical methods with extreme low detection limits



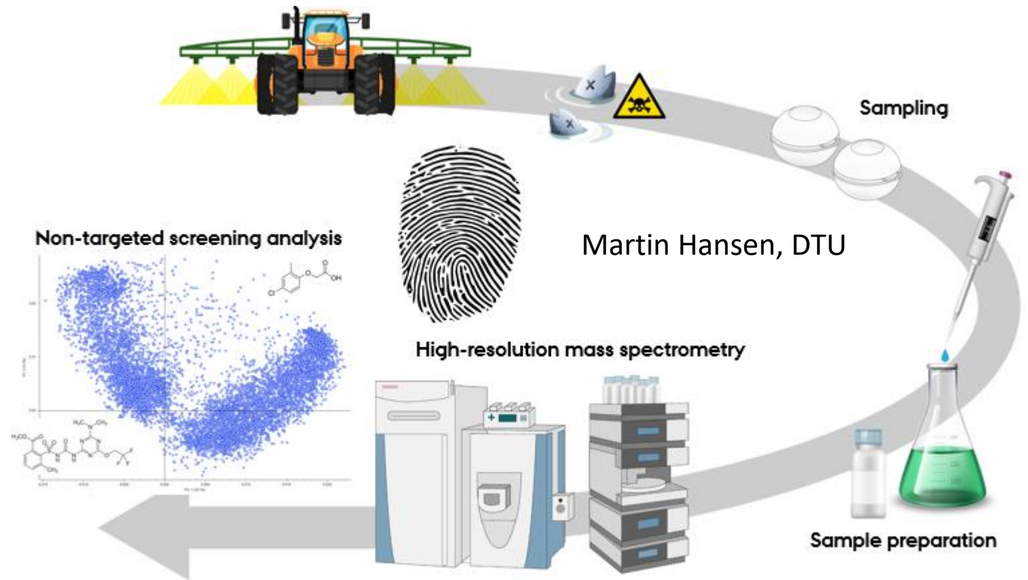
From sins of the past to solutions of the future

Problem owner

4. Current, new triggers

Development of new analytical techniques: **non target assessment**/fingerprinting

⇒ Thousands of ‘newly-known/unknown’ compounds in environmental samples and fewer in drinking water – Industry? Pharmaceutical residues? Pesticides? Natural?



=> **Emerging concern**:

- Novel
- Persistent
- Bioaccumulative
- Widespread use/mobile
- Toxicity

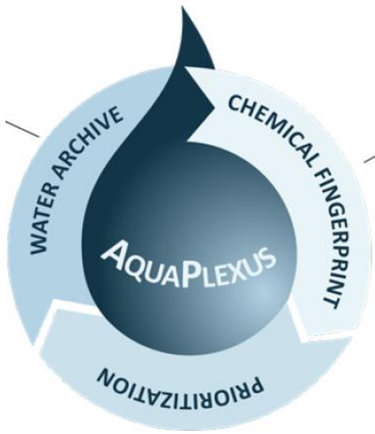
=> **Challenge**: Utilities: is the drinking water still ‘good’?, Regions: do we need to reevaluate and remediate already ‘closed’ contaminated sites?

Problem owner

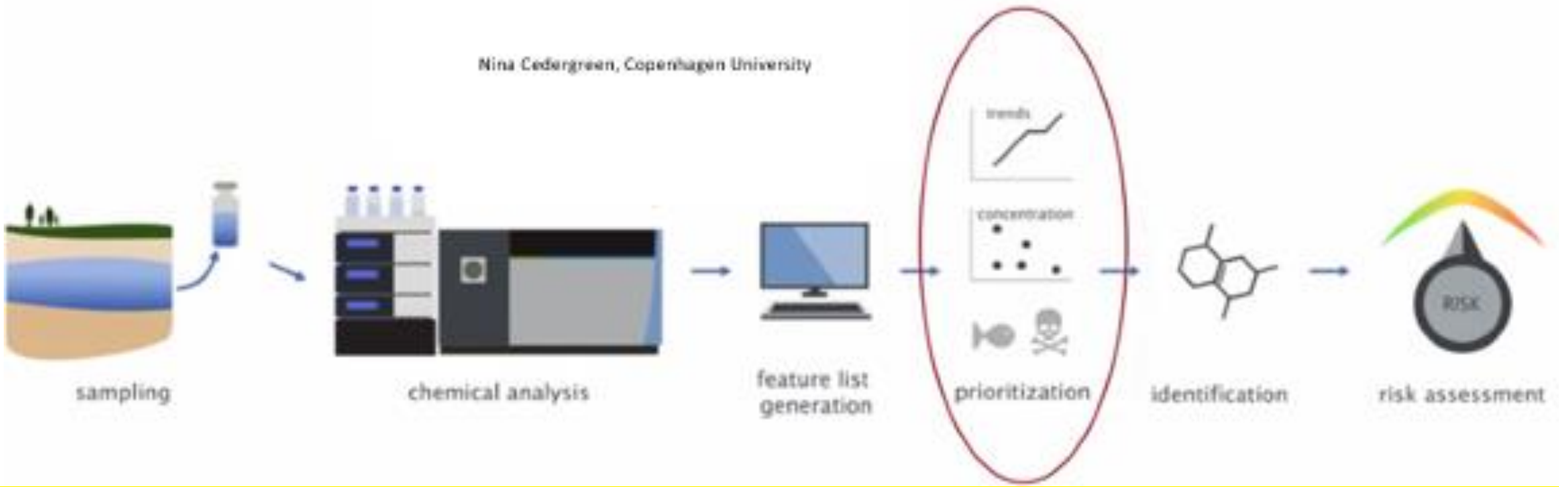
5. Ongoing developments and expectations

⇒ Coordination of sampling, data interpretating and national data storage databases of non target analysis: scientific researchers, authorities, water utilities, laboratories

⇒ Collaboration on prioritizing research on toxicity of each of thousands of features from NTA based on known toxicity of compounds with similar structures, charge ratio, retention time or alternatively toxicity test on mixtures



https://aquaplexus.dk/



Problem owner

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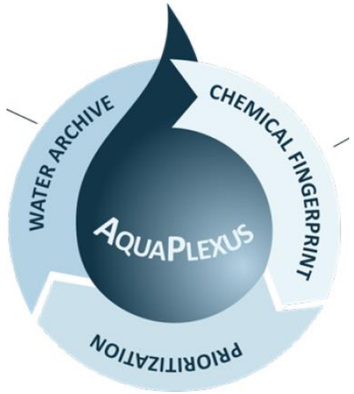

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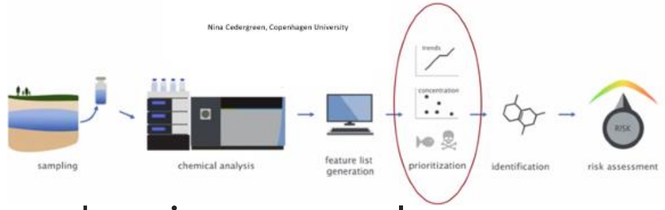


⇒ Act on newest scientific data, but often on an uninformed knowledge basis – people need drinking water, and we can't eliminate all scientific uncertainties at once

⇒ Risk communication: realistic but not causing paralysis of actions. Maintain credibility of public authorities and trust in clean drinking water

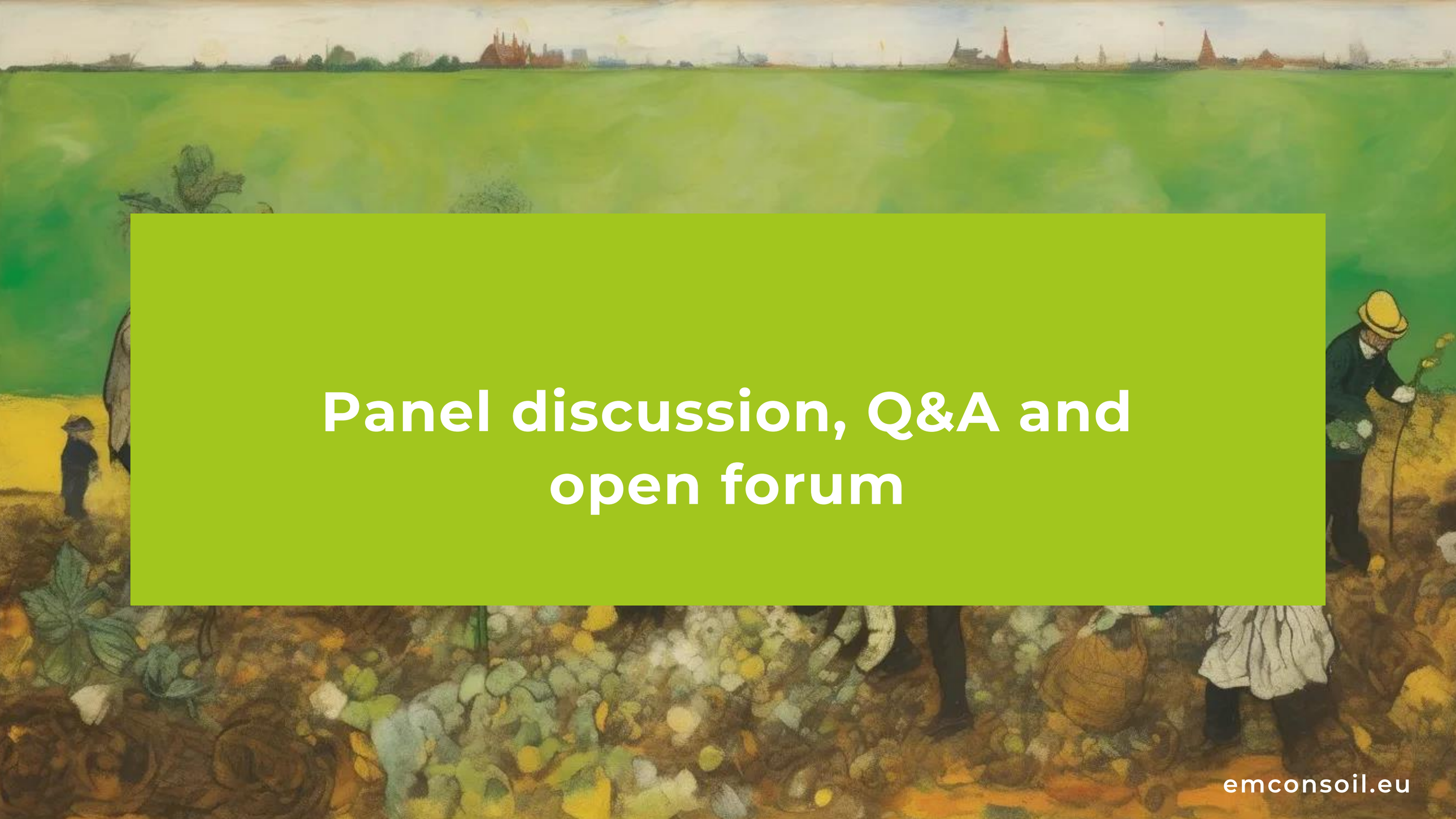
Problem owner

6. Future hurdles to take and collaborative opportunities

=>Acknowledge new scientifically based insights: anthropogenic pollution has left detectable traces across nearly all parts of the environment.
Approach: Ambitious => realistic => pragmatic =>Temporary tolerance of presence

=>Holistic approach: are we causing more sever problems by acting the usual way? e.g. Green transition, regrettable substitutes? Encourage integrated system and break down silos thinking

We problem owners need to **continue acting**: removing contamination mass from sensitive land use and groundwater for drinking purpose and supplying ‘good enough’ drinking water. Large investments, and still embrace mistakes as part of the developing journey? – but can authorities **accept uncertainties and changes as part of future administration**?



Panel discussion, Q&A and open forum

Past

1. Do you think that a different approach to tackle the 2021 PFAS crisis could have benefitted the current management of ECs? If so, how?

2. Prioritization of EC-impacts based on risk is key. Do you believe the current knowledge on past EC use/sources is good enough to identify all relevant sources and to provide sufficient guarantee so that the risks to the public can be identified? Is qualitative historical information/know-how available to be able to set up such an inventory?

Present

1. Current legislation and procedures generally apply the polluter pays principle and the remediation of source zones and plumes back to no risk levels. Do you think this approach is still applicable for the more diffuse and omnipresent ECs? Is there a (better) alternative? What about already remediated and developed sites, where initially EC where not considered relevant?

2. Human exposure to ECs (ex. PFAS) comprises multiple exposure pathways, of which some are linked to soil & groundwater, while others are not (consumer products, packaging, textiles, …). Studies have shown that in several cases the non soil & groundwater exposure pathways represent already a potential health risk. Do you feel that currently addressing the human health risk from ECs is too focused on soil & groundwater? Or do you think that addressing ECs in soil & groundwater is the basis for a risk-free environment?

Future

1. Industry has created innovative compounds with unclear environmental impacts for over several decades. More of these compounds will pop up in the environment as screening becomes more elaborate, norms become more stringent and detection limits go down. What do you think the future challenges will be as a result of this evolution (for legislation, research, liability, public safety, …)?

2. It feels if were only scratching the surface of the EC environmental impact. Every step we take brings more questions and challenges. What do you think are the future opportunities in tackling these issues? Is there a need for pulling together different resources? What would be the most urgent steps to take to safeguard the environment and human health from ECs?

Q&A and Open Forum

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