

# LESSONS LEARNED WITH THE FLEMISH PFAS POLICY FRAMEWORK

*Johan Ceenaeme,*  
Policy Coordinator  
Dep. Soil Management OVAM Flanders  
(Belgium),  
Co-chair of the Common Forum PFAS team,  
Founder network EmConSoil

WE MAKE  
TOMORROW  
BEAUTIFUL  
**OVAM**



CONVEGNO  
**Assoreca**  
ASSOCIAZIONE AMBIENTE . ENERGIA  
SICUREZZA . RESPONSABILITÀ SOCIALE

**OSSERVATORIO PFAS ASSORECA**  
RIFLESSIONI PER UN APPROCCIO  
METODOLOGICO

19.09.2024 | H 14.00

---

**REMTECH EXPO 24**  
FERRARA FIERE

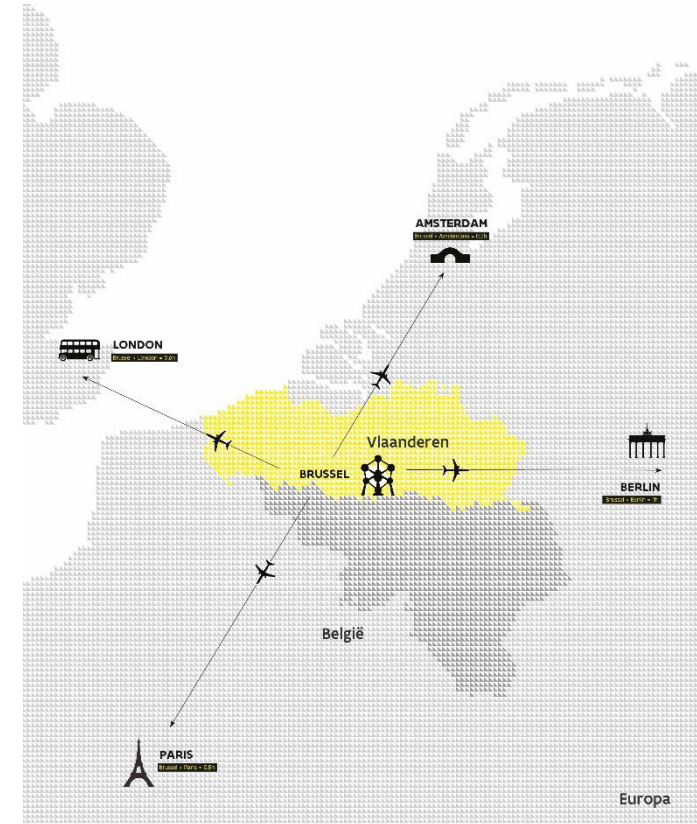
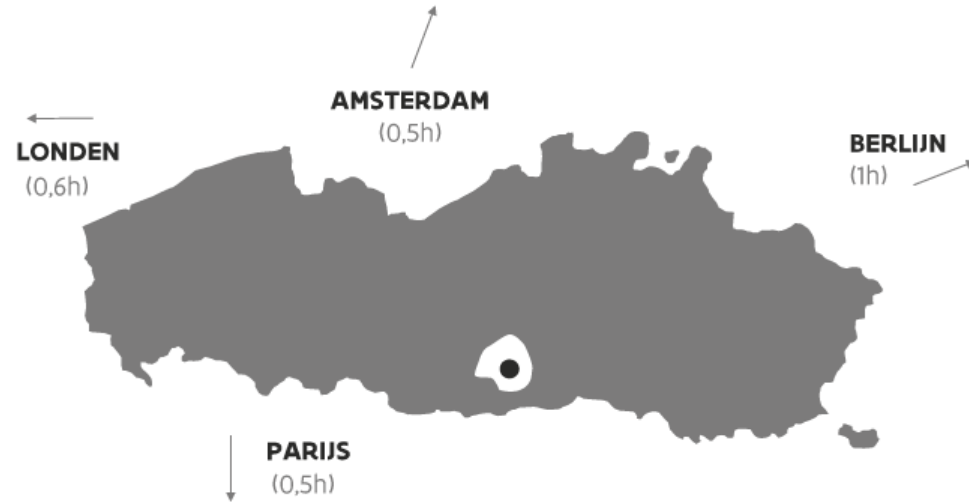


# Overview presentation

- ▶ **1/ Introduction: Flanders and the Soil Decree**
- ▶ **2/ Temporary legal framework for PFAS**
- ▶ **3/ Main actions regarding inventory and investigation PFAS**
- ▶ **4/ Assessment framework for the reuse of soil materials with PFAS**
- ▶ **5/ Some lessons learned**

# **1. Introduction**

# Flanders in Belgium

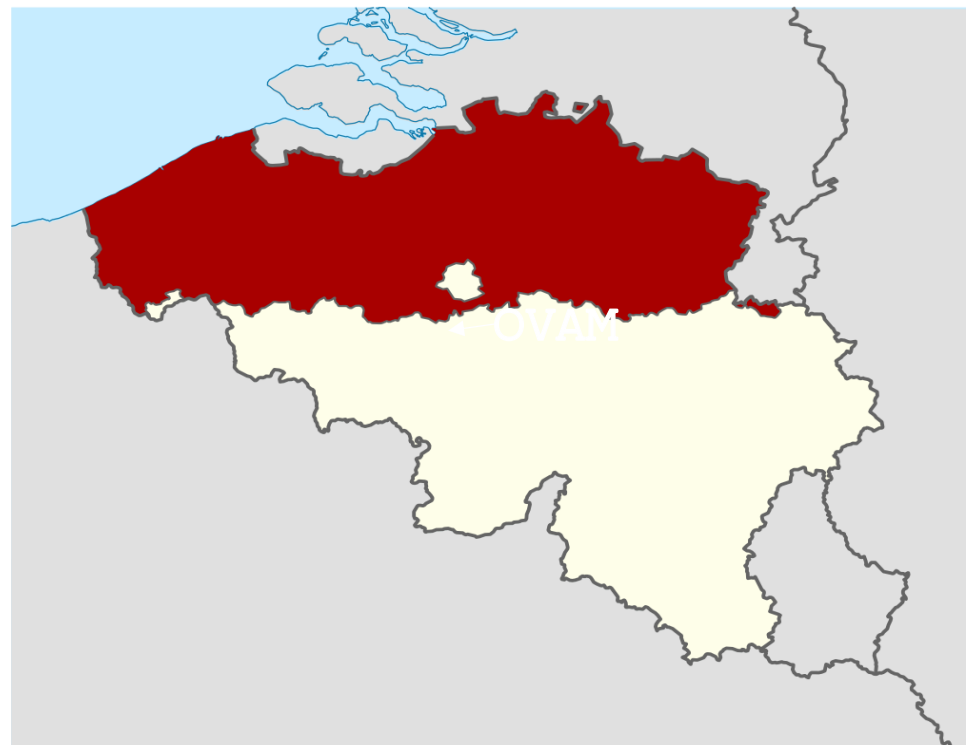


- ▶ Surface region: 13 522 km<sup>2</sup>
- ▶ Population: 6,6 million inhabitants
- ▶ Estimated potentially contaminated sites: 85 000
- ▶ Investigated sites: nearly 56 000

# Jurisdiction of OVAM

**Centralised competence  
of OVAM to:**

- **create policy**
- **take decisions on**
- **and carry out  
investigation and  
remediation of  
contaminated land**



# Legislation on soil contamination

## Aims of Flemish Soil Decree

### Remediate historical soil contamination

before 1995

remediate over a period of 40 years, starting in 1996

remediate in case of risk



### Prevent and clean up new soil contamination

after 1995

immediate remediation when concentrations are higher than soil remediation values

### + Rules on the re-use of soil and sediments



# PFAS measuring campaign 2016-2018

## Exploratory measuring campaign on PFAS



Inventory of risk activities

→ 24 sites were selected; soil and groundwater were analyzed for 21 PFASs



## Conclusions:

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

**Accelerated by the 2021  
crisis !**

## **2. Temporary legal framework PFAS**



# Soil remediation values PFOS & PFOA – soil

Applicable since April 19, 2022

Soil remediation criteria Land use type	I/II nature / agriculture	III residence	IV recreation	V industry
PFOS (µg/kg dm)	3,8*	3,8** / 18	110	110
PFOA (µg/kg dm)	4,3	4,3* / 89	643	643

\* adjusted for background value & target value

\*\* for residential area with vegetable garden / free range chicken coop

## ► Implementation in legal documents

Approved by Flemish government, but has not yet come into force

Soil remediation criteria Land use type	I/II nature / agriculture	III residence	IV recreation	V industry
PFOS (µg/kg dm)	3,8*	4,9	110	268
PFOA (µg/kg dm)	2,5*	7,9	632	303

\* adjusted for background value & target value

# Soil remediation criterium - groundwater

Soil remediation criterium for groundwater is set at the European limit for drinking water:

**0,1 µg/l** for the sum of **20 PFAS** (Drinking Water Directive)  
&  
**0,5 µg/l** for the sum of all quantitative measurable **PFAS**

Applicable since April 19, 2022

Same values in temporary legal framework

**Approved by the Flemish government, but has not yet come into force**

# Background values – Target values

## Soil

	Background values (µg/kg dm)	Target value (µg/kg dm)
PFOS	1,5	3
PFOA	1,0	3/2
Sum PFAS (quantitative measurable)		8

## Groundwater (background)

**No values in legal framework,**  
but proposed values for ‘anthropogenic’  
background  
based on observations in nature & rural areas,  
away from PFAS suspected sites



	Background values (P90) (ng/l)
PFBA	21,0
PFBS	9,4
PFOA	8,0
PFOS	5,0

### **3. Main actions regarding inventory and investigation PFAS**

# Two calls for inventory to local authorities

## First call (July, 2021): Use of fire extinguishing foam

- Fire fighting training site
- Fire fighting facilities (industry)
- Fire extinguishing calamities
- Military training areas and airports
- Civil airports

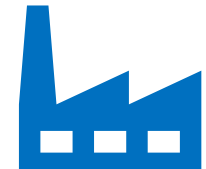


→ **826** locations (fire fighting training sites & calamities)

## Second call: PFAS processing or producing industry



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



→ more than **4000** locations

Screening and prioritisation is ongoing

## Update of list of risk activities

**52** (2018) to **>300**

categories:

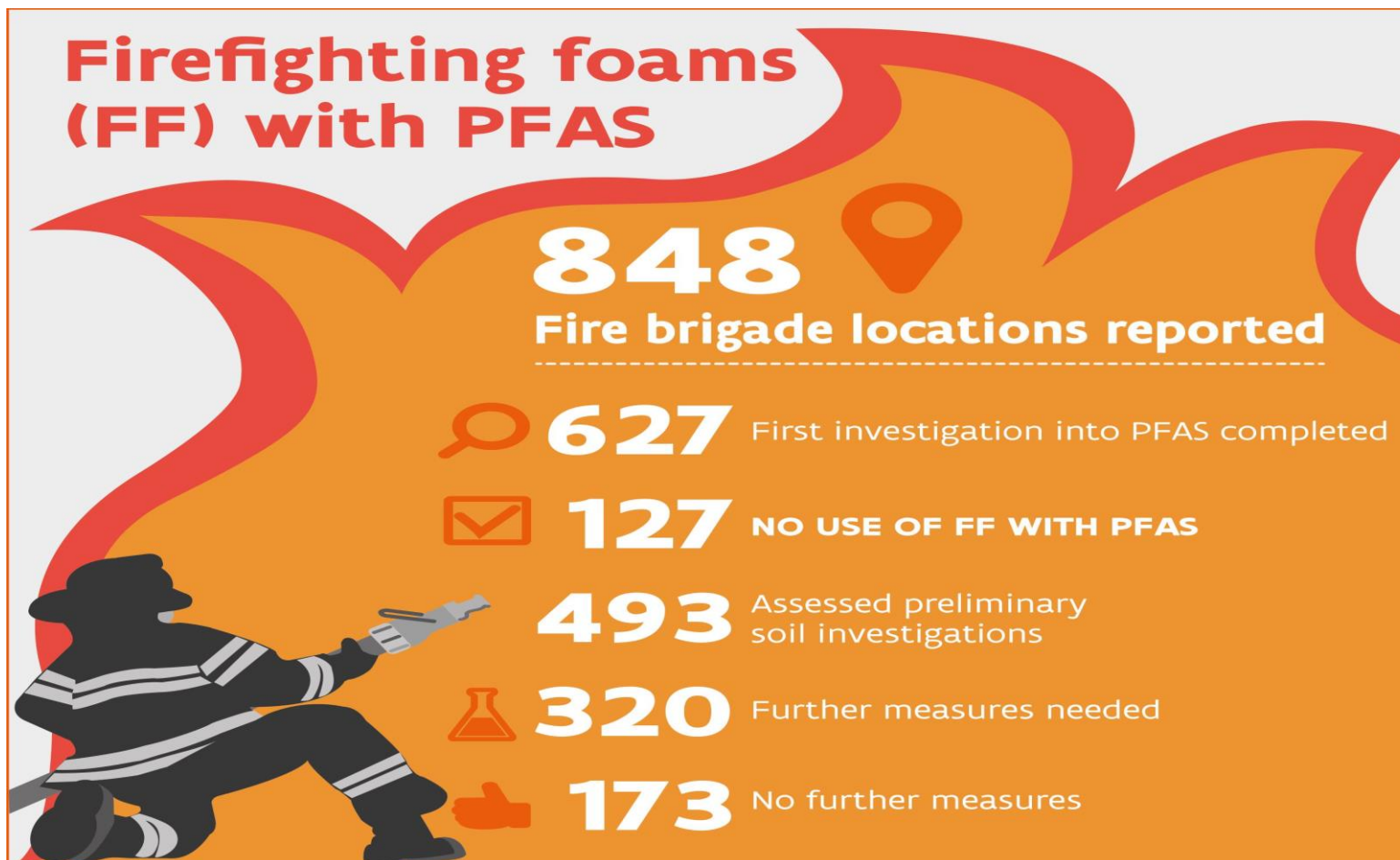


**Flanders**  
State of the Art

TOGETHER WE  
MAKE TOMORROW  
MORE BEAUTIFUL

**OVAM**

# Investigation of fire fighting related sites

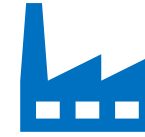


**Flanders**  
State of the Art

TOGETHER WE  
MAKE TOMORROW  
MORE BEAUTIFUL

**OVAM**

# Investigation of sites with PFAS processing or producing industry



- Large sites:**
- PFAS producing site in **Zwijndrecht** (3M)
  - former paper mill **Willebroek**

## PFAS integrated in existing obligations for soil investigation

more than **8000** locations - preliminary investigations on **745** locaties

**Questions:** Many sites have been investigated & remediated before.  
How and when to initiate investigation for PFAS?  
Who is responsible?

**Prioritization !**

# **5. Assessment framework for the reuse of soil materials with PFAS**



# Existing framework PFAS



- ▶ The current framework for reuse of soil materials is based on guidelines issued by OVAM
- ▶ For soil materials – free use of excavated soil

	Free use ( $\mu\text{g}/\text{kg dm}$ )
PFOS	3
PFOA	3
Sum PFAS	8

Expectations from the sector (soil remediation experts, contractors, owners, builders, initiators of infrastructure works, ...) for a more legally secure framework

# Temporary legal framework PFAS



- ▶ For soil materials – free use of excavated soil

	Free use ( $\mu\text{g}/\text{kg dm}$ )
PFOS	3
PFOA	2
Sum PFAS (quantitative measurable PFAS)	8

- ▶ Restriction: + Quality test for underwater applications & for use of soil materials in drinking water protection zones
- ▶ For use in construction purposes & use within project zone: max. concentrations & decision based on leaching concentrations (max. 80% of mean concentration in groundwater in project zone)

# Challenges for reuse of soil materials with PFAS

- ▶ There is a need from the sector for more **legal certainty**
- ▶ Due to the **rapidly evolving knowledge** about PFAS, a temporary legal framework has been chosen
- ▶ For PFAS, the **leaching properties** are determining factors for the possibilities for reuse of soil materials
- ▶ **More than 10%** of the soil materials can no longer be used for free use due to increased PFAS concentrations
- ▶ For PFAS, both the **standstill** provisions for the quality of **soil and groundwater** are important

## **5. Lessons learned**

## Conclusions



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

# Conclusions



PFAS have challenged us to **renew policies** surrounding the management and remediation of soil contamination

**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 and the Chemicals Strategy for Sustainability

# Thank you for your attention!

Johan Ceenaeme  
OVAM  
Public Waste agency of Flanders

[www.ovam.be](http://www.ovam.be)  
[johan.ceenaeme@ovam.be](mailto:johan.ceenaeme@ovam.be)

*“Judge a man by his questions  
rather than by his answers”*  
Voltaire

