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EmConSoil
a Multi-stakeholder Network
for Emerging Soil Contaminants

Policy challenges related to the reuse of diffuse PFAS contaminated sediments

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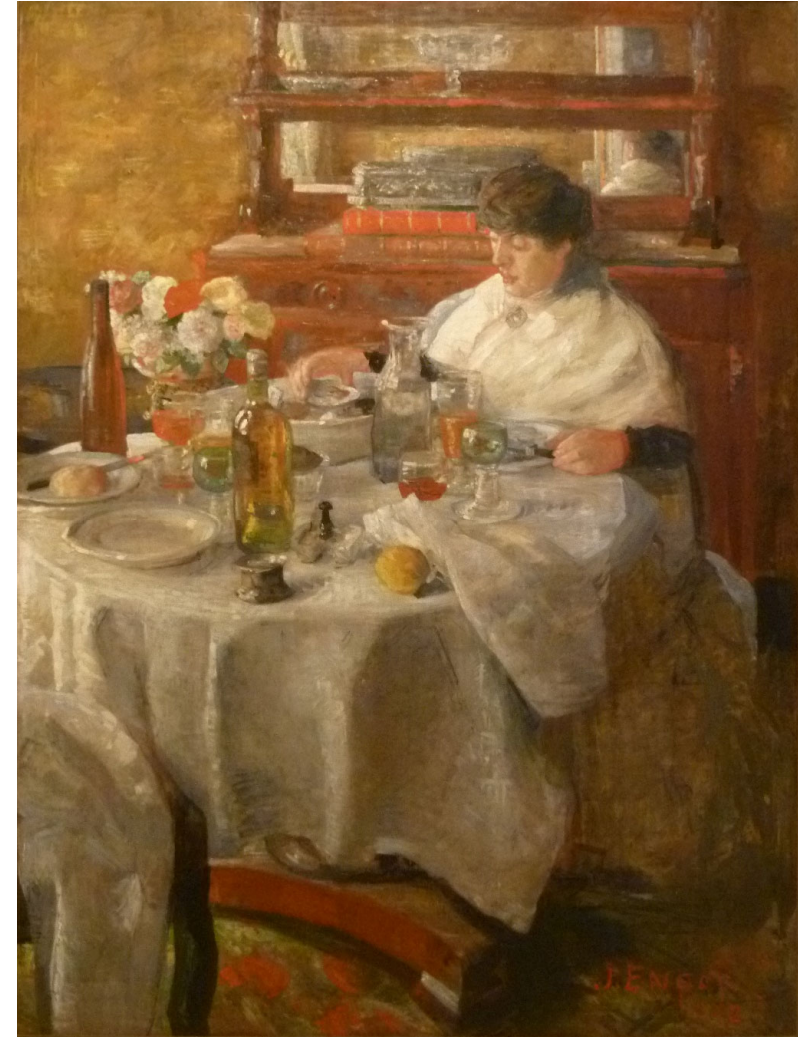
ENSO_r, Brussels 15 March 2024

Mathijs van de Waardt, Michiel Gadella



PFAS: a multifaceted problem

- > Issue apparent since 2012 (sites), 2019 (nationwide)
- > Dutch policy:
 - REACH restriction
 - Emission control
 - Looking for alternatives
 - Reducing exposure through food, drinking water and the environment
- > But: PFAS are ubiquitous substances, found in soil, water, dredged material





Menu

- › Short introduction on sediment management in the Netherlands
- › PFAS in sediments in the Netherlands
- › PFAS framework for action
- › Policy challenge: (circular) economy and water quality
- › Interaction: is there a common ground?



Sediment management in The Netherlands

Hoofdvaarwegennet

- Hoofdtransportas (552 km)
- Hoofdvaarweg (897 km)
- Overige vaarweg (4 353 km)



Ca. 100 M tonnes/yr

Local (bosom water, ditches)

Maintenance dredging related to water drainage capacity
→ Sediment used for soil improvement

National (Rivers, Canals, Harbours, Estuaria):

Maintenance dredging related to shipping
Maintenance dredging related to climate adaptation
Maintenance dredging related to harbour management
→ Sediment reallocated within fresh waterbody or in North Sea (background quality)
→ Sediment used for shallowing sand-mining pits (mildly contaminated)
→ Sediment disposed in disposal site (heavily contaminated)

Coastal protection and Elevation of dikes

Excavation of Clay and Sand
→ Products used in dikes and for sand supplementation on the beach (background quality)



PFAS in sediments in the Netherlands

- > Background values measured in floating sediments (at borderpassing rivers Rhine and Meuse) and main waterways

| Contaminant | Background | Based upon |
|-------------|----------------|------------|
| PFOS | 3,7 ug/kg d.w. | P95 |
| PFOA | 0,8 ug/kg d.w. | P80 |
| Other PFAS | 0,8 ug/kg d.w. | P80/PFOA |

- > Background values measured in local waterbodies

| Contaminant | Background | Based upon |
|-------------|----------------|------------|
| PFOS | 1,1 ug/kg d.w. | P80 |
| PFOA | 0,8 ug/kg d.w. | P80 |
| Other PFAS | 0,8 ug/kg d.w. | P80/PFOA |



PFAS-framework for action

- > Reuse of PFAS-contaminated sediments is generally allowed when:
 - Reuse or redistribution of diffuse PFAS-contaminated sediments within the same waterbody or downstream waterbody
 - Reuse or redistribution of PFAS-contaminated sediments in another waterbody: comply with background values for PFOS 3,7 ug/kg and other PFAS 0,8 ug/kg
 - Reuse of sediments on land: comply with background values or risk values:
 - PFOA 1,9 ug/kg (background, agriculture) or 7 ug/kg (residential, industry)
 - PFOS 1,4 ug/kg (background, agriculture) or 3 ug/kg (residential, industry)
 - Other PFAS 1,4 ug/kg (background, agriculture) or 3 ug/kg (residential, industry)



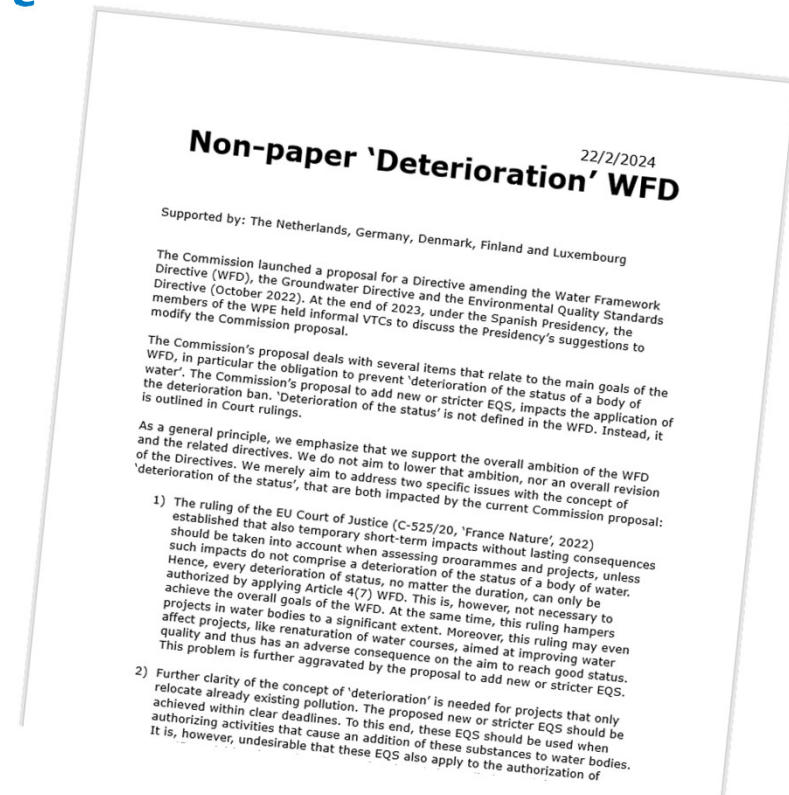
Policy challenge

- > (Circular) economy
 - Maintenance of water system, harbours and estuaries
 - Climate adaptation
 - Reuse of 100 M tonnes sediments/year → *Concentrations* $\approx 0-10 \text{ ug/kg}$
- > Chemical quality of waterbodies
 - Standards for PFOS in EU-WFD → *Concentration* = $0,65 \text{ ng/l}$ → $0,007 \text{ ng/l}$
 - Reuse of sediments is considered a discharge
 - Discharges can be in conflict with EU-WFD goals of establishing a good water quality and 'non-deterioration'



Member states call for amendment WFD

- > Definition 'deterioration of the status of a body of water' in the WFD is needed
- > Now no distinction between industrial emissions (new additions) and relocation of pollution
- > Needed for (e.g.):
 - discharging previously abstracted groundwater at building construction site onto surface water
 - discharges of previously abstracted cooling water
 - redeposition of previously dredged sediments
- > We call for a discussion in the WPE on the proposal to include a definition of this concept of 'deterioration of the status' in the WFD.





Discussion

[ENSOr 15 maart 2024 - Mentimeter](#)



Discussion

- Reuse of diffuse PFAS-contaminated sediments within the same waterbody:
 - Should be possible, the sediments are already within the waterbody
 - Only possible if it does not affect the goal of establishing a good water quality and non-deterioration
- Establishing good water quality, the way forward:
 - Focus on dealing with point sources and industrial discharges
 - Periodically evaluate background levels and use them as reuse standards for sediments in waterbodies



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