



Tuesday, 23 September 2025

ADDRESSING THE STAGGERING COSTS OF PFAS POLLUTION



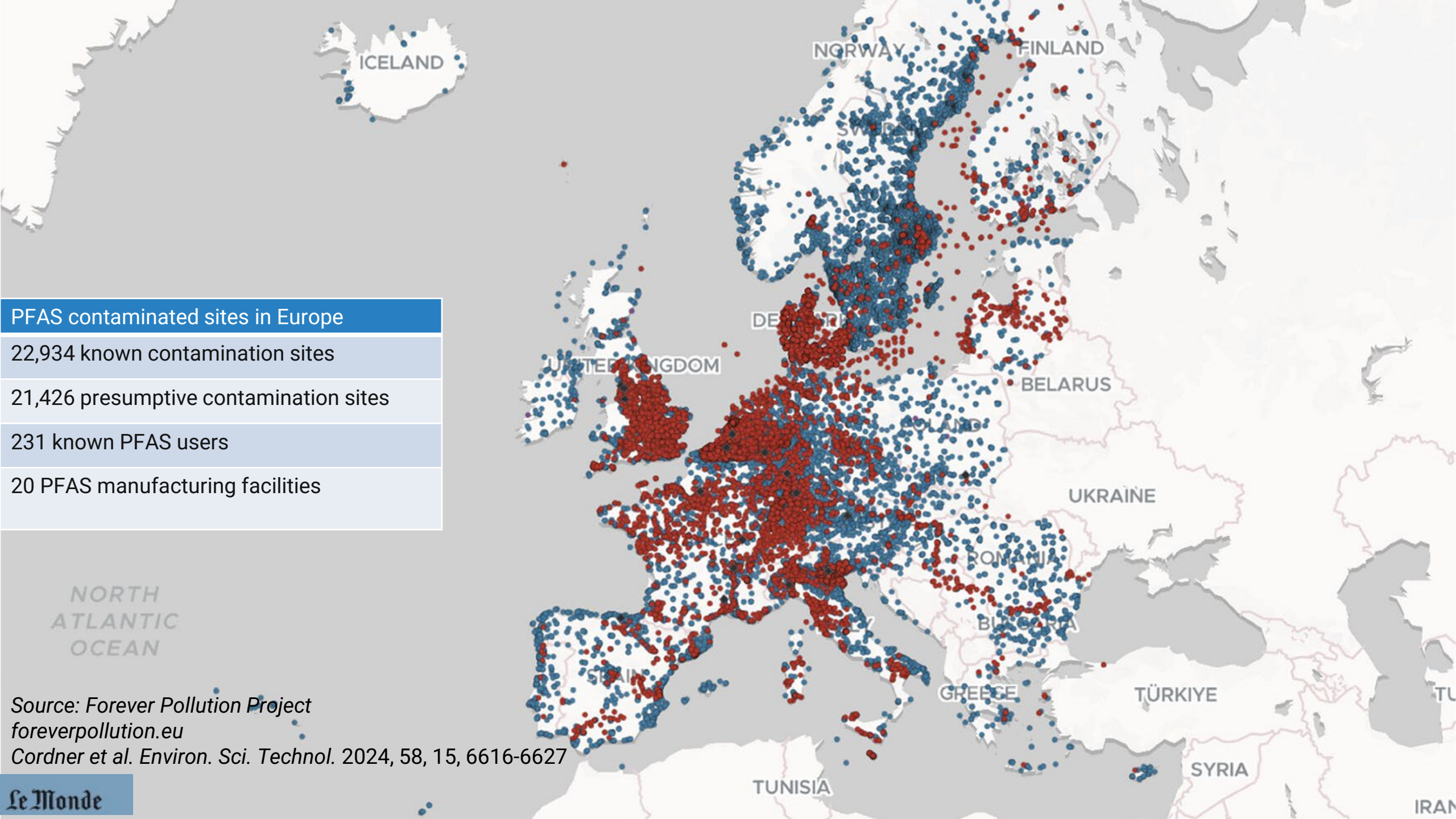
The staggering costs of PFAS remediation

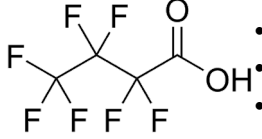
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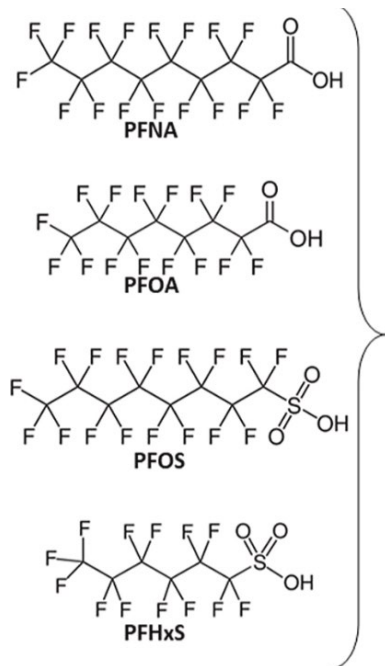
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101036756.



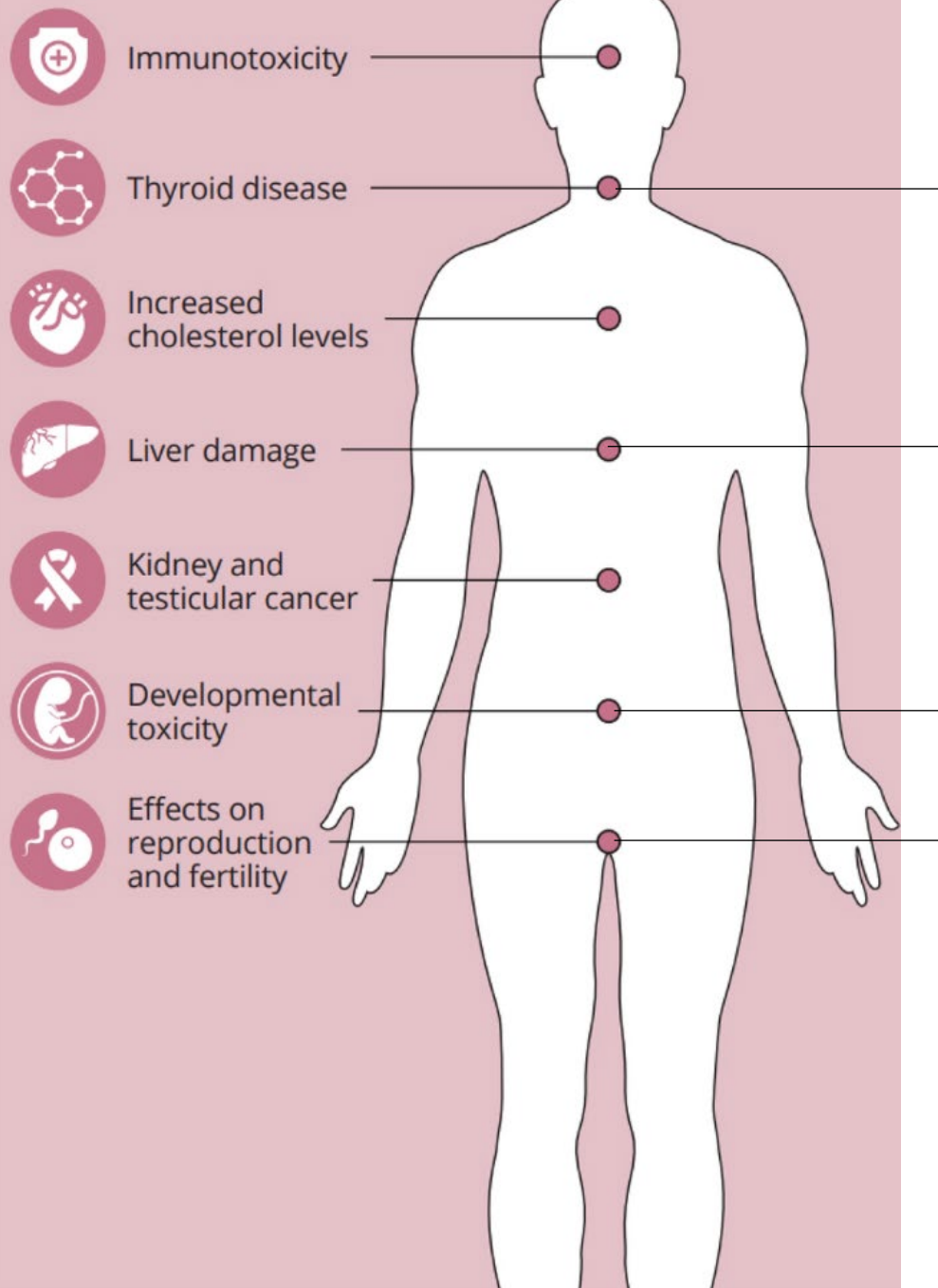


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- PFBA**
- Persistent
 - Mobile
 - Bioaccumulative
 - Toxic
- Chemical Structure:** CCCC(=O)O (Perfluorobutanoic acid)
- Exposure Pathways:**
- Direct and secondary poisoning:** Inhalation of PFBA vapors from a tractor or direct contact with contaminated soil/water.
 - Secondary poisoning:** Ingestion of PFBA-contaminated food (e.g., crops, livestock) or water.
 - Biomagnification:** PFBA concentration increases as it moves up the food chain (e.g., from soil to plants to cows to humans).
 - Uptake in plants:** PFBA is absorbed by plants from the soil.
 - Leaching to groundwater:** PFBA moves from the soil into the groundwater.
 - Groundwater discharge:** PFBA is released from the groundwater into surface water bodies.
 - Surface runoff:** PFBA is carried from the soil into surface water bodies.
 - Uptake in aquatic organisms:** PFBA is absorbed by fish and other aquatic life.
 - Bioaccumulation:** PFBA builds up in the tissues of aquatic organisms over time.

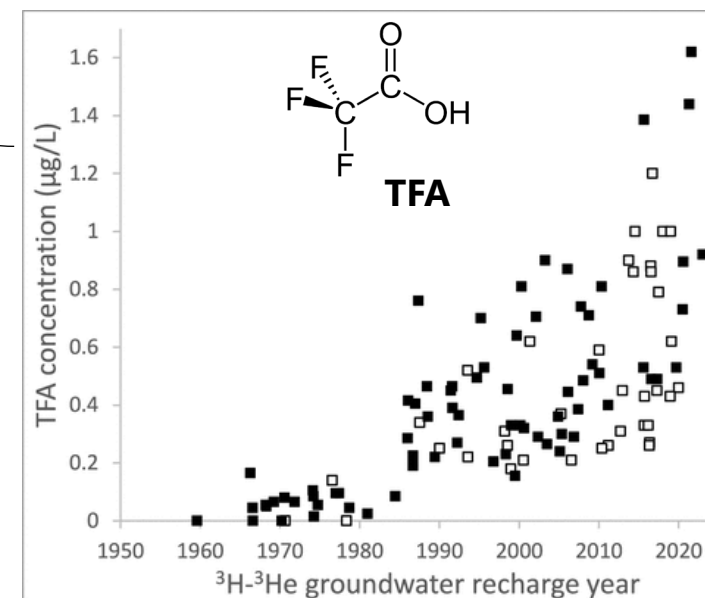
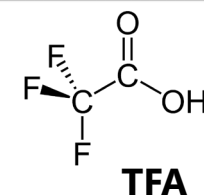
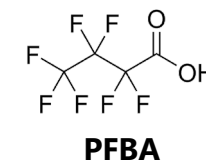
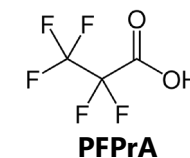
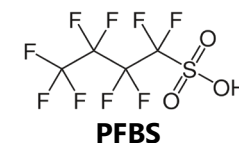
Legacy scenario



Brunn, H., Arnold, G., Körner, W. *et al.* . *Environ Sci Eur* **35**, 20 (2023). <https://doi.org/10.1186/s12302-023-00721-8>

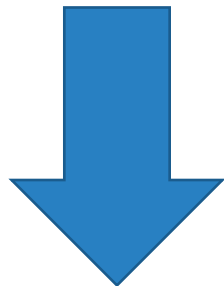


Emerging scenario



Technological and cost limitations

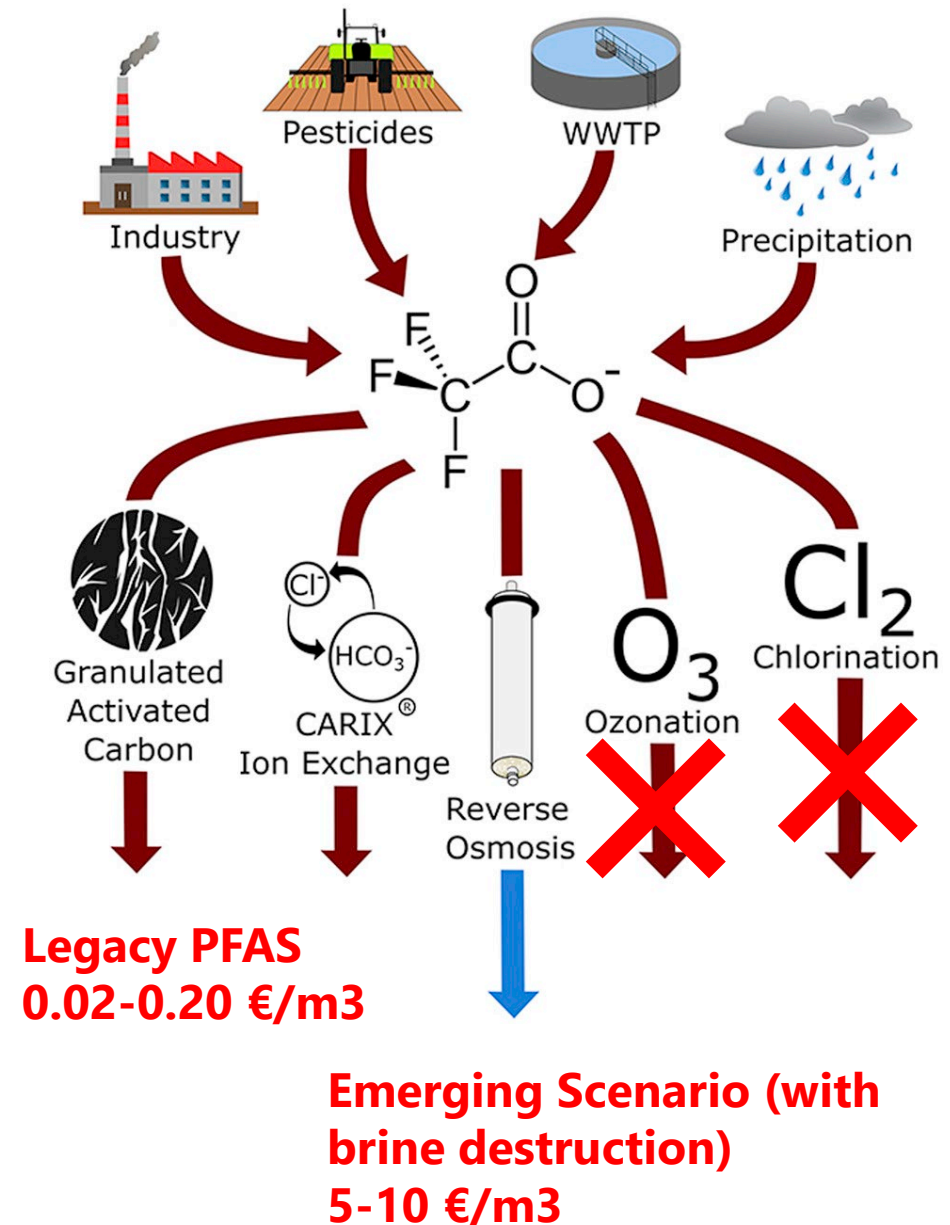
- TFA removal from water is Reverse Osmosis followed by Supercritical water oxidation (ca 8 €/m³)



Upscale to all water from PFAS contaminated sites

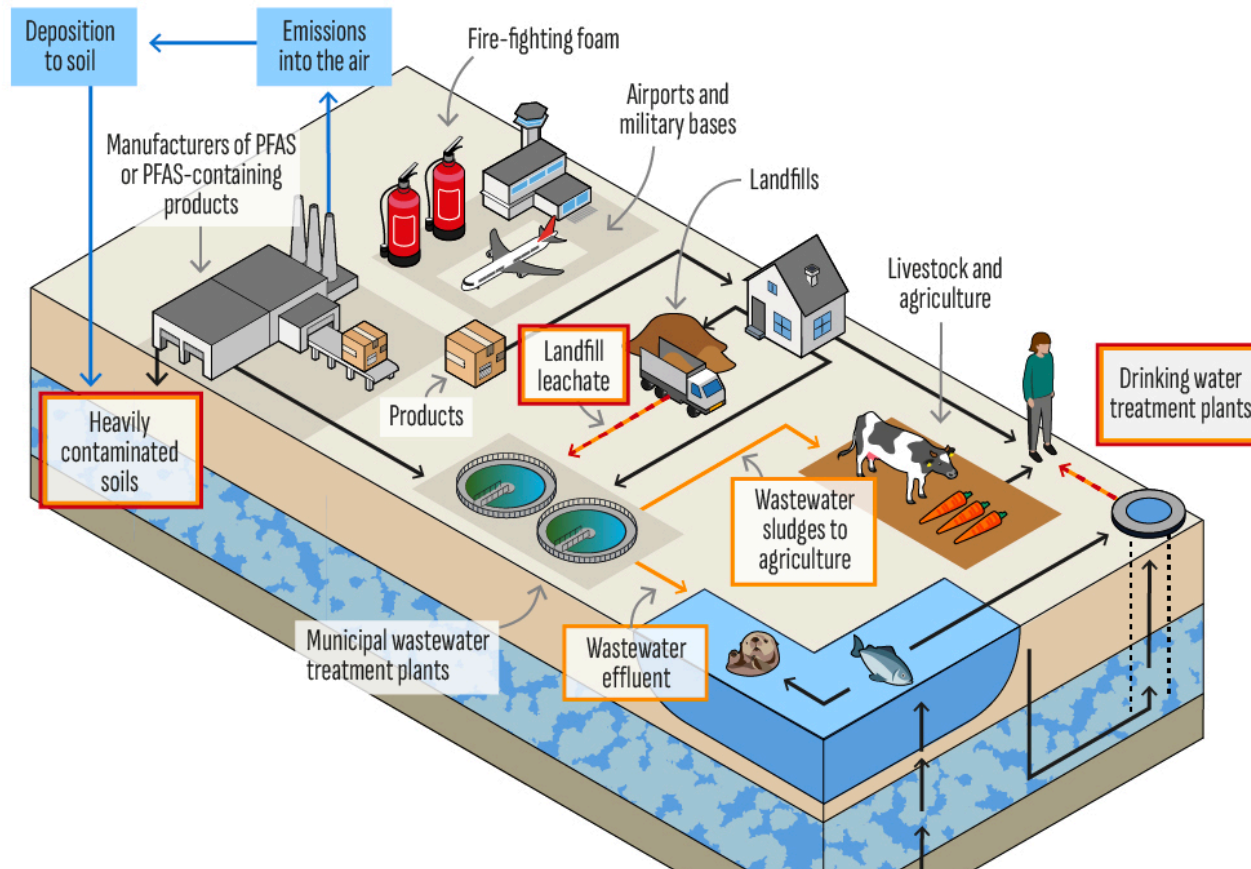
ca. 100 billion € /year

+ *all water synthetic*
+ *huge impact from green house gas emissions*
+ *Infrastructure upgrade not realistically plausible*



The cost of inaction increases as PFAS spreads

- **Legacy Scenario**
€38 - 100 billion over 20 years
- **Emerging Scenario**
€2 trillion over 20 years
- Would address less than 1% of current PFAS uses in the EU
- Prevention/Reduction only feasible option
- Who will pay?



	Legacy Scenario	Emerging Scenario
	Targeting long-chain PFAS	Targeting all PFAS, including TFA
Heavily contaminated soils	1-5 B €/year	5-30 B €/year
Drinking water	0.2-0.7 B €/year	16-65 B €/year
Landfill leachate	0.0004-0.01 B €/year	0.02-0.7 B €/year
Wastewater effluent	Not included	20-70 B €/year
Wastewater sludges to agriculture	Not included	8-20 B €/year

Acknowledgements

 the forever pollution project

Ali Ling (University of St. Thomas School of Engineering)

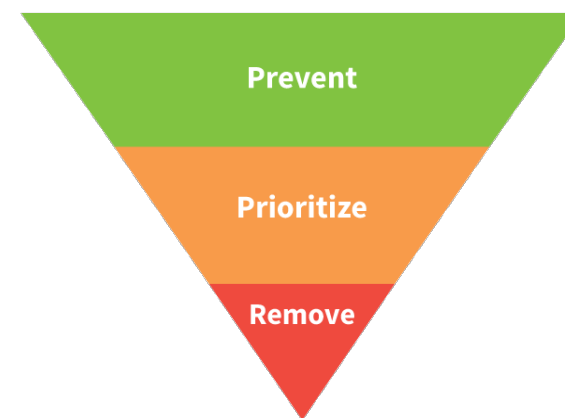
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foreverpollution.eu/

ZeroPM



2021-2026

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<https://zeropm.eu/>



7 - 8 October 2025 in Mytilene, Lesbos, Greece

<https://zeropm.eu/removal-workshop/>