

Assessing the sustainability of water treatment systems

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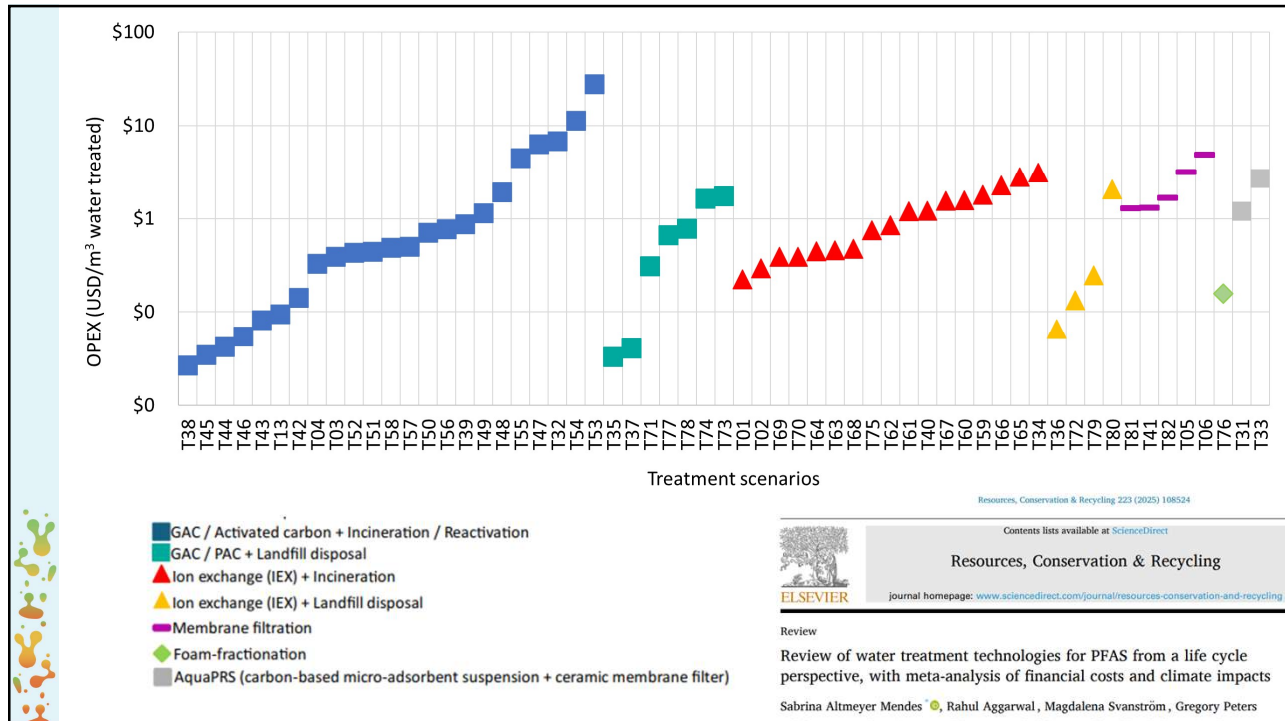


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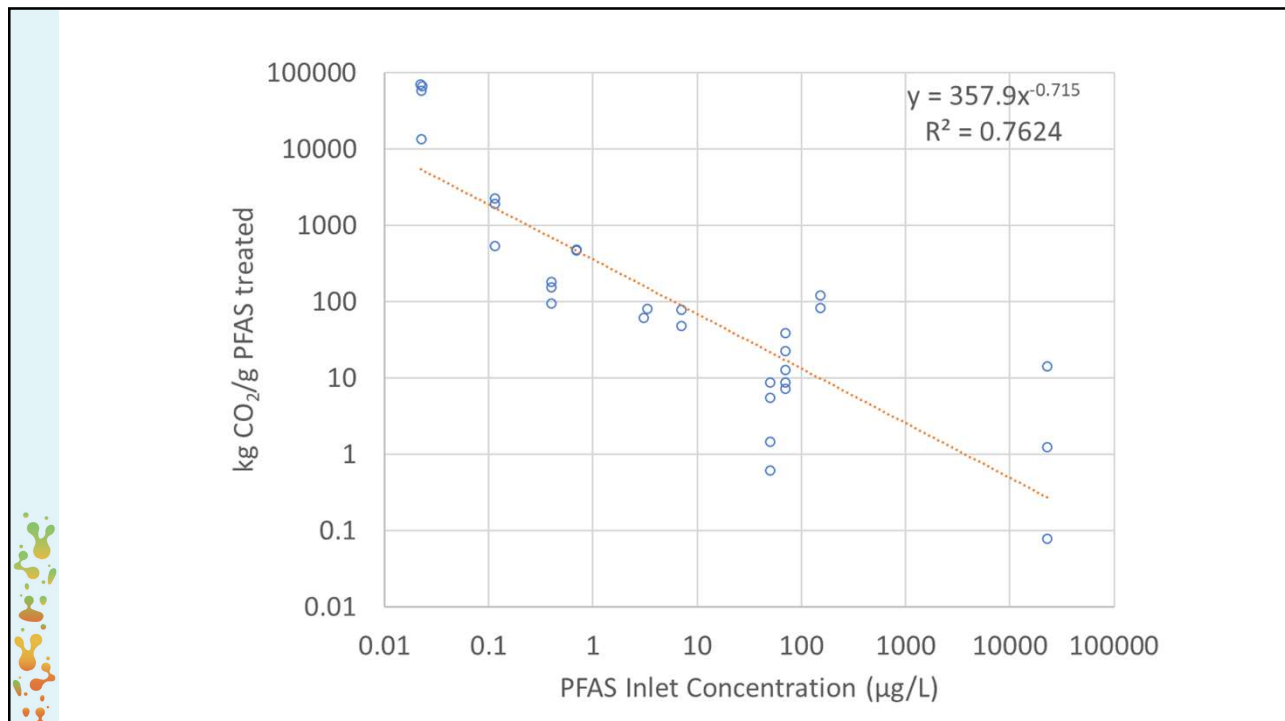
Some overarching questions...

- What are the impacts of treatment methods?
- At what point are we doing more harm than good?
- How can we do the assessment (better)?
 - Classic product/process developer sustainability tools:
 - Environmental life cycle assessment
 - Life cycle costing / levelized cost of water
 - Issues with these tools:
 - Missing operational data
 - Missing effect and characterisation factors

2

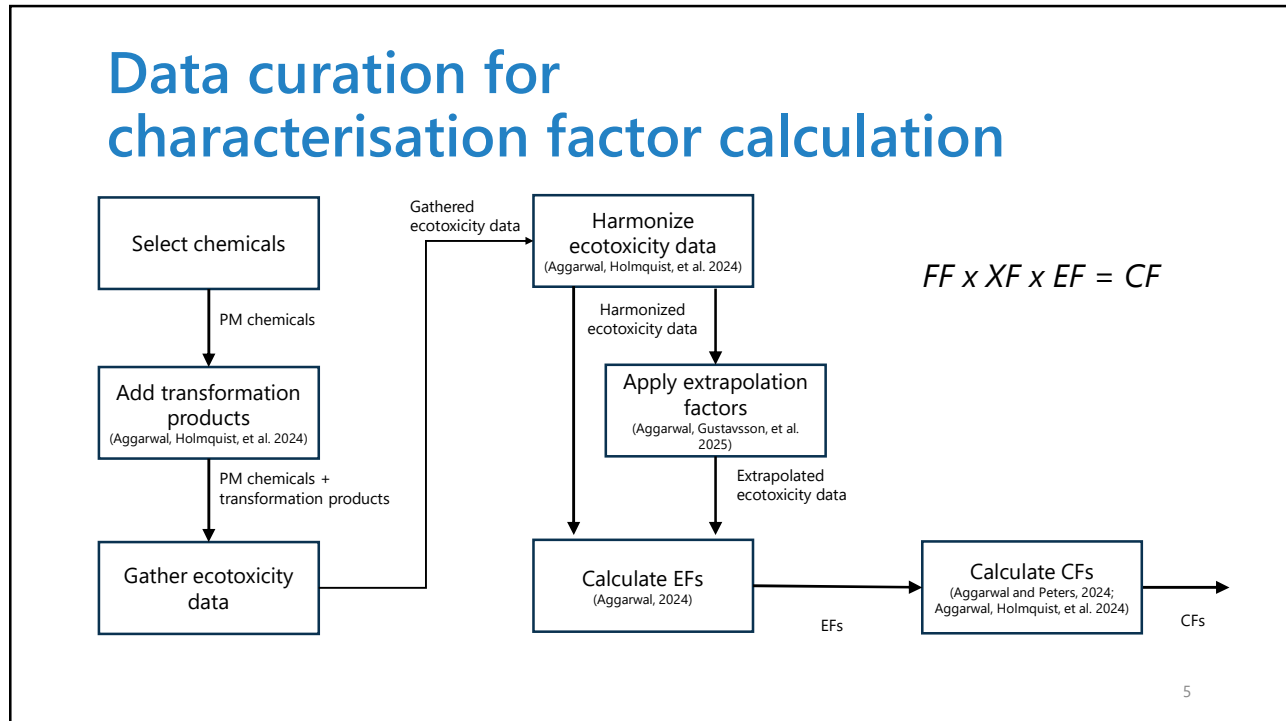


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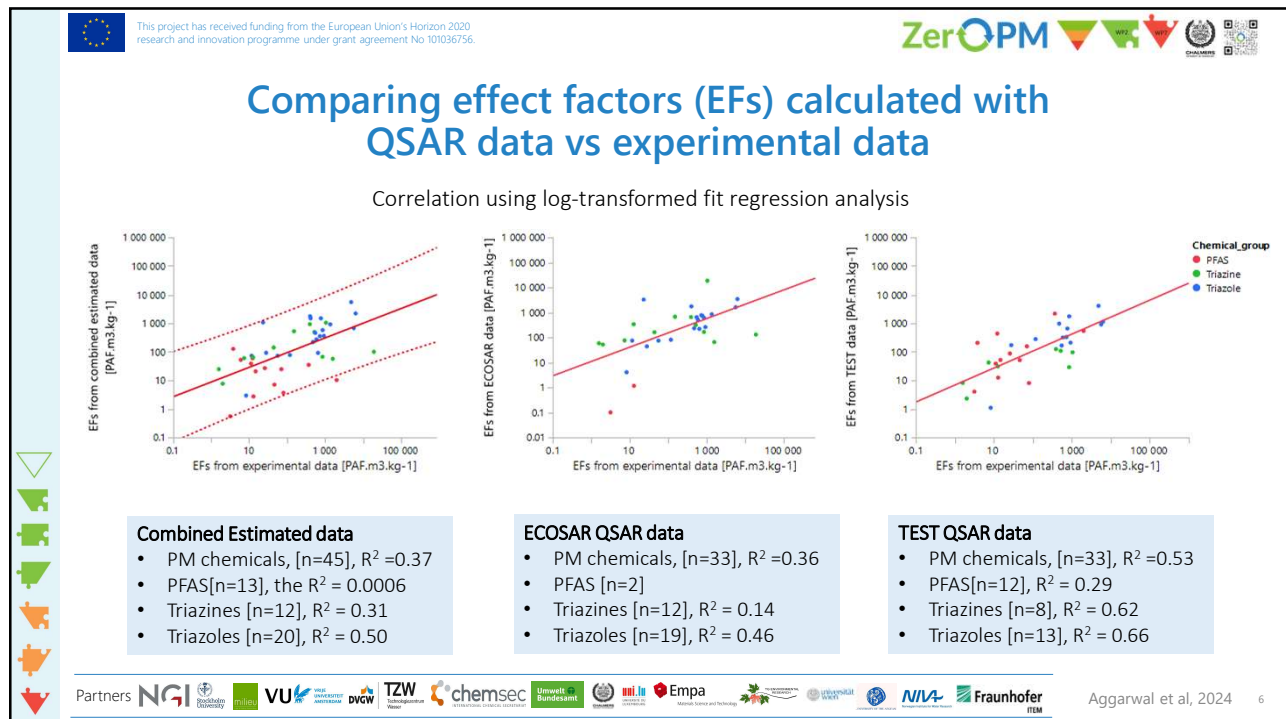


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Data curation for characterisation factor calculation

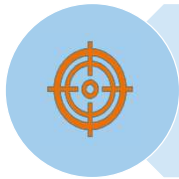


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Bioassays account for mixture effects and unknowns



Various endpoints:
-estrogenicity,
-mutagenicity,
-oxidative stress, etc.)



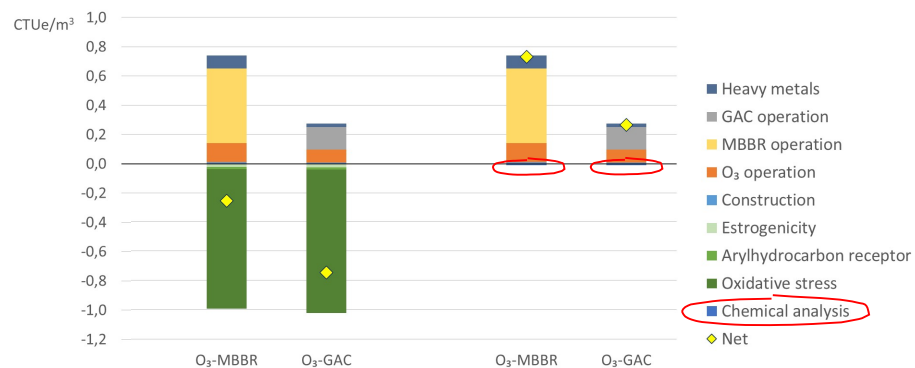
Reference substances
obtained from dose-response
curves used as input to LCA,
e.g. ethinylestradiol



7

Ecotoxicity balanced when bioassays included but not with chemical analysis

Preliminary results
from Högstrand et al
(2024)... paper soon!



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