

Drivers of chemicals in the environment and research needs

A civil society perspective

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7 key challenges...

Exposure to mixtures

Contaminants of emerging concern

Soils and sediments as pathways

Implications arising from climate change

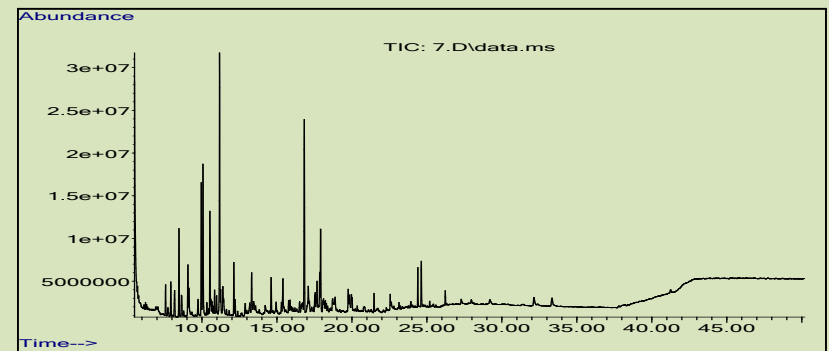
Maintaining a broad research agenda

Protecting & improving on regulation

Involving and engaging people

1. Dealing with exposure to chemicals as complex mixtures

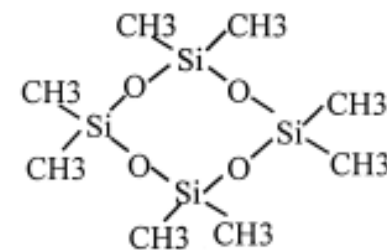
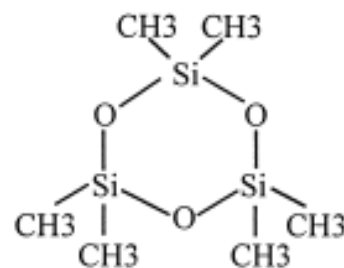
- In our environment (outdoor and indoor)
- In the workplace
- In our food and drink
- In consumer products



2. Identifying and prioritising contaminants of emerging concern

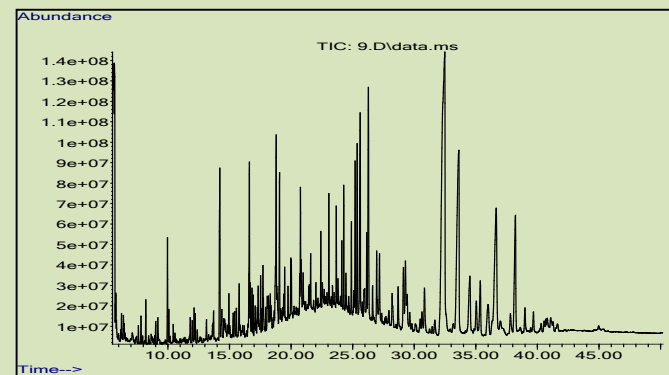
e.g.

- 'new' brominated and chlorinated flame retardants
- organofluorine (including perfluorinated) compounds
- organosilicon (siloxane) compounds
- new generation pesticides



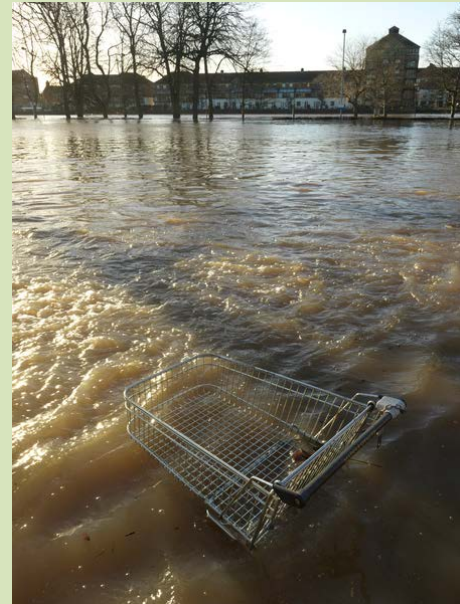
3. Taking better account of soils and sediments as pathways of exposure

- Transfer of contaminants in sewage sludges
- Relatively poor data on toxicity of chemicals to soil or sediment organisms
- Potential for impacts on microflora, meiofauna, etc. and consequent impacts on ecosystem processes
- Long-term reservoirs of legacy contaminants



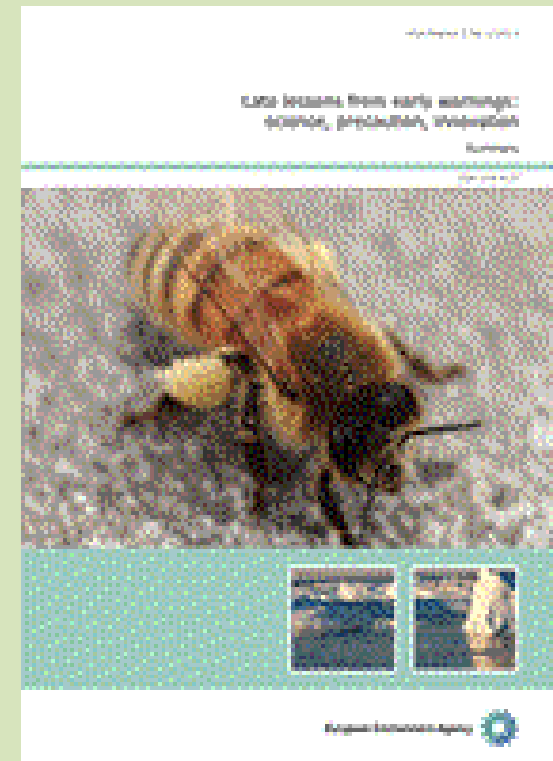
4. Implications of climate change, & implications for resilience

- Long-term changes in climate, acidification, oxygen saturation, etc. may affect mobility and bioavailability of contaminants, e.g.
 - Higher temperatures
 - Changes in REDOX
 - Intense rainfall and flood events
- Chemical exposures might reduce resilience to such changes, whether long-term trends or shorter-term intense events



5. Need to maintain & encourage a broad research & monitoring agenda

- Keep funding exploratory research, not just application-driven research
- Review and focus monitoring programmes, but don't lose them
- Share data more widely and more accessibly
- Maintain an effective RADAR for new & emerging chemicals and risks



6. Protect & improve on existing chemical regulations

- REACH was hard won, has broad support and is effective
- We should not seek to reinvent it after the UK leaves the EU
- Nevertheless - need for better empirical measures of effectiveness
- Issues of data gaps, data quality and blind-spots remain



7. Engaging the public in research

- Is there a role for citizen science in relation to chemicals in the environment?
 - Observation?
 - Sampling?
 - Data analysis?
- Is there value in direct attempts to monitor the human exposome?

