

# Parliamentary and Scientific Committee

## ‘How to tackle Contaminants of Emerging Concern (CECs) in water?’

A meeting held in partnership with the Royal Society of Chemistry

Our world is under threat from ever increasing pollution; antimicrobial resistance, microplastics, and marine and freshwater pollution featured in this evening’s meeting on Contaminants of Emerging Concern (CECs) in water. We heard how scientists are investigating the issue, raising awareness, and identifying solutions; emphasis was on adopting a One Health holistic approach encompassing both environmental and human health which cannot be studied in isolation.

Tanya Sheridan, Head of Policy and Evidence, Royal Society of Chemistry, described the work of the Society and its policy towards CECs. Water covers 71% of the world’s surface, but is increasingly contaminated. CECs are often not controlled or monitored in the environment; they may be harmful even in small amounts. Diverse sources of CECs include sewage, treated wastewater, agricultural runoff, landfill, and industry; their potential toxicity, persistence, and ability to accumulate in organisms is a serious concern. Expert presentations from 3 specialists followed; Professor Barbara Kasprzyk-Hordén, Environmental and Analytical Chemistry, University of Bath; Professor Tamara Galloway, Ecotoxicology, University of Exeter; and Dr Leon Barron, Analytical and Environmental Sciences, Imperial College London.

New tools to evaluate pollution impacts were described by Professor Kasprzyk-Hordén; the One Health LIVING LAB platform provides a water-based early-warning system for health protection. Avon catchment wastewater was studied to identify content of household chemicals, and medication. Water was sampled before reaching rivers, identifying hotspots like hospitals. The One Health approach could provide information on occupational exposure, and industrial discharges. Drug consumption contributes to pollution; over use of antibiotics can cause antimicrobial resistance (AMR), and disposal of medication and household substances down drains can damage aquatic species.

Professor Galloway spoke on the impact of marine pollution on living creatures. 80% of marine

pollutants originate from the land; untreated sewage is often discharged into rivers and seas, and UK marine water quality poor. Micro- and nano plastics like cosmetic microbeads, and fibres were not studied until recently, but are found in all marine samples. In the food web, they are ingested by many creatures, but are they harmful? Her studies of sharks found fibres from sewage effluents in 98% of fish. Synthetic clothing produces 14% of all global plastic pollution; effort is needed to make the fashion and textiles industry more environmentally friendly.

51% of the population have pets, often treated monthly for fleas and ticks. Work studying pet parasiticides in water was described by Dr Barron. Only 2% of pets have fleas; he suggests regular treatment is unnecessary. Imidacloprid used is a high-risk neonicotinoid, found everywhere, hard to remove by water treatment, and harmful to aquatic species. Prescribing these products should be discouraged, only used for real need. The Great UK Water Blitz, large scale pollution monitoring by the public has promoted greater awareness of risks.

Preventing pollution of rivers with untreated sewage, and agricultural runoff was identified in the Q&A session as priority. It needs to be tackled at source, with heavier polluters targeted. Safe disposal, sustainable effective wastewater treatment solutions, reduced sewage overflows and better catchment management are needed. Greater care should be taken with both human and animal prescribing, with more testing of new pharma products; regulatory review of substance use loopholes is required, and maritime dumping restricted. Continuing research is needed to assess CEC damage to living creatures, and raising public awareness of pollution issues sources could bring benefits.

*Sue Wharton*

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