

2nd International Water Forum

The Challenge of Plastic Pollution in Drinking Water: A (Very) Complex Regulatory Problem

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**A TRADITION OF
INDEPENDENT
THINKING**



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The Problem: *Waste Plastics*

- Established environmental problem:
 - Accumulated non-recyclable, non-biodegradable waste – 1bn tonnes of plastic waste by 2040 / 961m tonnes discarded (Leeds University, 2020)
 - <10% of plastic ever produced has been recycled even once (*Scientific Advances*, 2017)
 - Growing problem of marine plastic pollution (MPP)
 - Climate and air quality impacts of ‘energy recovery’ processes
 - ‘Plastics Pipeline’ - Growth in investment in petrochemicals/plastics industry (exports to developing markets) in response to uncertain demand for fossil fuels due to climate regulation (Yale University, 2019):
 - <https://e360.yale.edu/features/the-plastics-pipeline-a-surge-of-new-production-is-on-the-way>
 - <https://www.nytimes.com/2020/08/30/climate/oil-kenya-africa-plastics-trade.html>
- Growing evidence of ecological impacts:
 - Choking / starvation hazard for wildlife (plastic found in gut of 90% of sea birds, over 50% of turtles, large number of cetaceans, etc.)
 - Transportation of toxic chemicals & invasive species (algae, etc.) to new locations worldwide

The Problem: *Toxic Plastics*



- Sept. 2021: UNHRC Special Rapporteur (waste & hazardous substances)
<https://undocs.org/A/76/207>
 - Impact on HRs at all stages of plastics cycle:
 - Extraction and refining;
 - Production;
 - Transport;
 - Use;
 - Waste.
 - Groups at-risk:
 - Workers (petrochemicals, manufacturing, waste management)
 - Children (susceptibility to toxins)
 - Coastal communities (marine plastic litter)
 - Future generations (environmental persistence)
 - Transition to ‘chemically safe circular economy’:
 - Reduce volume of plastics production & waste;
 - Control of hazardous additives to plastics

- Sept 2021: UNHRC Special Rapporteur – right to science in context of toxic substances: <https://undocs.org/en/A/HRC/48/61>
 - Inform toxics policy (best available science, precaution, assessments, *etc.*)
 - Engage independent scientific bodies (legislation, decisions evaluation)
 - Public disclosure of scientific info (prior to authorisation of release)
 - Human rights due diligence

The Problem: *Health Impacts*

- Growing evidence of human health impacts:
 - Contamination of seafood – each person may consume 11,000 microscopic fragments of plastic each year (Ghent University, 2014):
 - <http://www.expeditionmed.eu/fr/wp-content/uploads/sites/6/2015/02/Van-Cauwenberghe-2014-microplastics-in-cultured-shellfish1.pdf>
 - Microplastic pollution in rain:
 - <https://www.theguardian.com/environment/2019/dec/27/revealed-microplastic-pollution-is-raining-down-on-city-dwellers>
 - Microplastics revealed in placentas of unborn babies:
 - <https://www.theguardian.com/environment/2020/dec/22/microplastics-revealed-in-placentas-unborn-babies>
 - Plastics pollution in freshwater
 - Transfer of microplastics to food chain and rapid fragmentation into micro- & nanoplastics in freshwater environment:
<https://www.epa.ie/publications/research/environment--health/research-377-impacts-of-microplastics-in-the-irish-freshwater-environment.php>
Video summary: <https://www.youtube.com/watch?v=PQVVQoXP9wY>

‘Wicked’ Regulatory Challenge



- Env & health impacts uncertain (microplastics): ‘incomplete, contradictory and changing regulatory requirements .. complex interdependencies .. big picture thinking .. interrelated causal factors’ (Australian Public Services Comm., 2007)
- Highly fragmented legal landscape (overlapping/conflicting rules; reg. lacunae):
 - Vertically fragmented: measures at multiple levels of regulatory control (international, regional / EU, national)
 - Horizontally fragmented: measures addressing different problems & causal activities (waste management; chemicals / hazardous substances; sustainable consumption & production; marine / water pollution; biodiversity; air pollution; circular economy*)
- Transnational character of globalised supply/value-chains (regulate producers, manufacturers, exporters, importers, distributors, retailers, consumers, etc.):
 - Plastic materials & products
 - Treatment & disposal of plastic waste
 - All internationally traded goods (packaging, etc.)
- Piecemeal rules; normatively weak & uncertain (action-oriented); onerous duties

Fragmented International Legal Framework

- Calls for oil-based plastics treaty (Kirk & Popattanachai, *RECIEL* 2018) no international / global process:
 - Phase out certain plastics (toxic, non-recyclable – Montreal Protocol model)
- 1989 Basel Convention on Transboundary Movements of Hazardous Wastes
 - 2002 Technical Guidelines re Environmentally Sound Management of Plastic Wastes (UNEP)
 - 2018 proposals to amend Convention Annexes re ‘hazardous wastes’ to include (certain) plastics
- 2001 Stockholm Convention on Persistent Organic Pollutants
 - Chemicals used in / released by plastics listed in Convention Annexes, incl. polychlorinated biphenyls (PCBs), brominated diphenyl ethers, perfluorooctane sulfonic acid (PFOS)
- International Water Law: pollution of transboundary rivers, lakes, aquifers
- 1992 Convention on Biological Diversity; 1980 Bonn Convention on Migratory Species; 1982 UNCLOS & Regional Seas Agreements (1980 Athens Protocol on LBS); 1995 Global Programme of Action (GPA) (UNEP); UN Fish Stocks Agreement

Fragmented International Legal Framework



- Global Trade & Investment Law:
 - Permit trade restrictions (GATT Art XX)
 - Phase out subsidies & export credits (WTO)
 - Phase out investor protection / guarantees (BITs, FTAs, ICSID)
- Human Right to Water & Sanitation:
 - CESCR General Comment No. 15 (2002)
- 'Circular Economy' paradigm:
 - Emerging EU policy framework (2018)
- Agenda 2030 (SDGs):
 - SDG 6 (clean water & sanitation)
 - SDG 12 (sustainable production & consumption)
 - SDG Target 12.4 (chemicals & wastes)
 - SDG 14 (life below water)
- Transnational Environmental Law:
 - Mix of in/formal, voluntary/binding normative approaches

Fragmented EU Policy Framework

- Piecemeal existing framework: e.g. Dir 98/83 (Drinking Water Directive), as amended on 16 December 2020; Dir 2000/60 WFD ('good ecological & chemical status'); Dir 2015/720 (amending Dir 94/62 Packaging Waste) re lightweight plastic carrier bags
- New integrated / holistic EU approach: 2018 European Strategy for Plastics in a Circular Economy – multi-faceted, promote improved design & production re recycling & reuse: <https://www.europarc.org/wp-content/uploads/2018/01/Eu-plastics-strategy-brochure.pdf>
 - Research & innovation re less hazardous & more recyclable plastic materials
 - More efficient recycling processes
 - Boost demand for recycled plastics
 - Employ extended producer responsibility schemes
 - Improved collection and separation of plastic wastes
- Proposed regulatory measures:
 - Revision of Packaging & Packaging Waste Directive (Dir 94/62) - ensure recycling & reuse
 - New eco-design measures re recyclability of plastics (along lines of Dir 2009/125)
 - Restrictions under REACH Reg (1907/2006): oxo-plastics & intentionally added microplastics
 - Directive on single-use plastics (Dir 2019/904) – cutlery, straws, plates, cups, stirrers, buds.
 - Revised rules on shipment/export of plastic waste (Reg 2020/2174) - in force 1 January 2021
 - Review of Construction Products Regulation (305/2011)
 - Review of ELV Directive (2000/53)

EU Drinking Water Standards

- Revised Drinking Water Directive 2020/2184 (in force 12 Jan 2021): <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020L2184&from=EN>
 - MS must identify hazards and pollution sources (incl. microplastics – Art 8)
 - Harmonised analytical methods to be developed for ‘emerging pollutants’
 - Added restrictions on EDCs (Bisphenol-A)
 - Approval system & harmonisation of standards for materials in contact with water for human consumption
 - Measures to promote tap water (in public places) and reduce plastic bottled water

EU & Transnational / Global Env Law



- Strategy medium / longer-term aim: develop 'innovative circular plastics industry worldwide'
- Make use of policy dialogues; participate in global initiatives; utility of innovative (informal & voluntary) regulatory schemes & standards, transnational application / global effect; voluntary action by plastics industry (pledges re uptake of recycled plastics); stimulate market for sustainable plastics through certification & labelling schemes:
 - EU quality standards for sorted plastics waste & recycled plastics;
 - Ecolabel and Green Public Procurement;
 - Harmonised rules re defining & labelling compostable & biodegradable plastics;
 - Life-cycle analysis methodologies re compostable and biodegradable plastics;
 - Life-cycle analysis methodologies re alternative feedstocks for plastics production;
 - International industry standards re sorted plastics waste & recycled plastics;
 - Certification along plastics supply-chain re microplastics & plastic pellet spillage;
 - Certification scheme for recycling plants in EU and third States;
 - Voluntary national & industry commitments re uptake of recycled plastics;
 - Support to sustainable production and consumption in Asia & S.E. Asia;
 - Cross-industry dialogues (across value-chain) re product design, release of microplastics; *etc.*

Fragmented Domestic Regulatory Framework

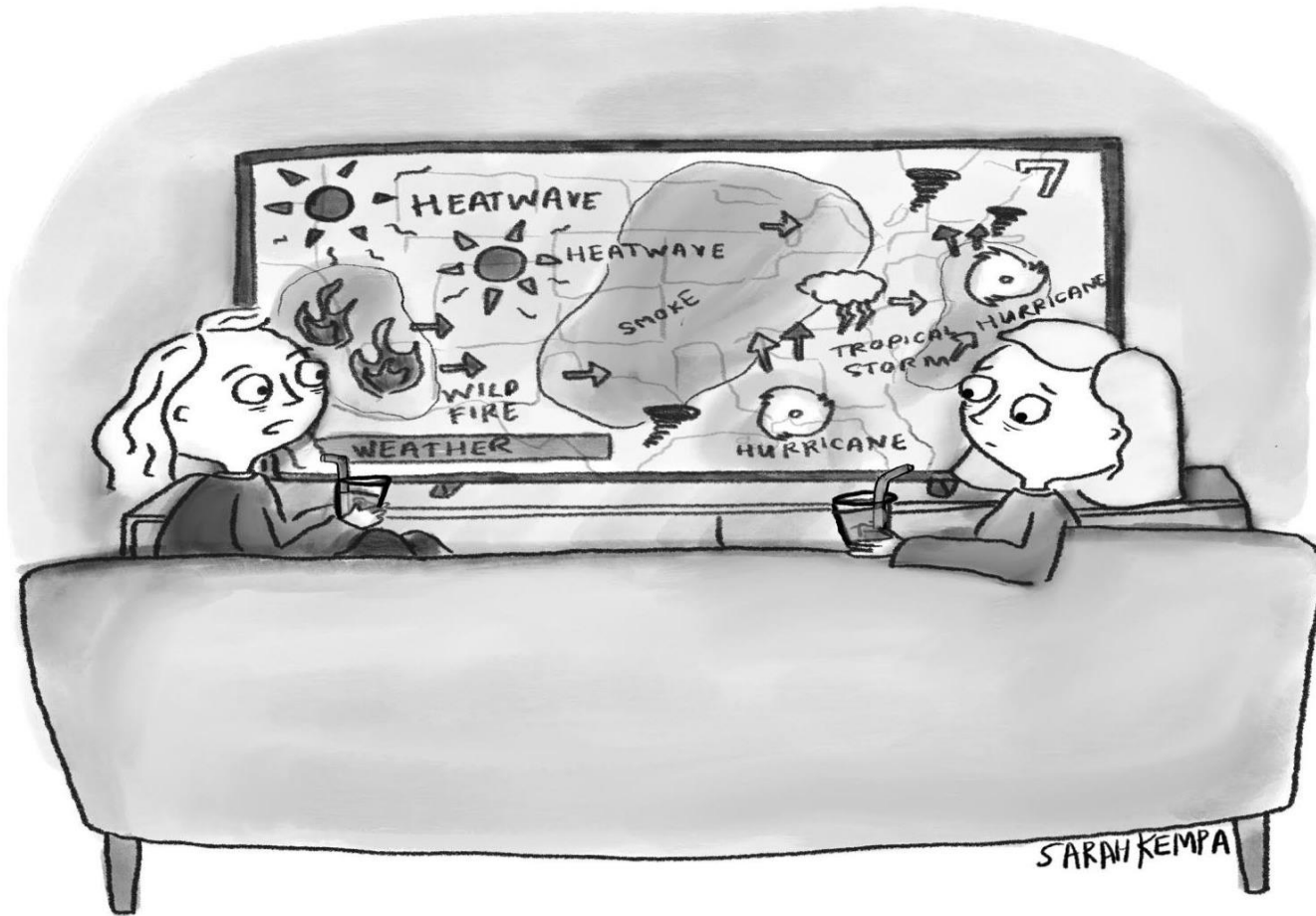


- Cross-sectoral environmental problem:
 - Water quality (EU WFD)
 - Good ecological & chemical status (WFD Annex V & Annex IX)
 - Drinking water quality
 - Waste management:
 - No special rules on composition / handling of plastics waste
 - Chemicals management:
 - REACH Regulation (production of plastics)
 - Priority substances (on breakdown of plastics)
 - 'Circular Economy' paradigm:
 - EU Policy:
 - Improving economics & quality of plastics recycling (design, *etc.*)
 - Curbing plastic waste & littering (SUPD, EPR, *etc.*)
 - Investment & innovation towards CE (LCA across value-chain, *etc.*)
 - Harnessing global action (multi/bilateral coop., intl trade, TEL, *etc.*)
 - Domestic Law:
 - Waste management (end-of-waste criteria; landfill / incineration standards)
 - Chemicals management
 - Green Public Procurement

Concluding Observations

- ‘Globalisation’ and ‘Circular Economy’ – producing profound changes in regulatory approach:
 - Global problems, but lack of technical & regulatory capacity in developing States
 - Effective regulatory action at international level not politically / practically possible
 - Greater reliance on novel, innovative governance approaches:
 - UNEP/UNEA Resolutions re plastic pollution (2018 & 2019)
 - Role of SDGs: SUPD proposal refers to SDG 12 & SDG 14
 - Facilitates engagement with key non-State actors (NGOs, industry, consumers, *etc.*)
 - Non-linear, participative policy-making based on ‘direct democracy’ (Bergkamp & Stone, 2015)
 - Experiential learning / policy-making laboratories (Esty, 2006)
 - Examples include:
 - Partnership for Plastic Waste (established under Basel Convention)
 - Global Partnership on Marine Litter (implementation of UNEP Honolulu Strategy)
 - Global Tourism Plastics Initiative (UNEP / UNWTO)
 - Commonwealth Clean Ocean Alliance (sign-up to London Protocol, *etc.*)

The Challenge!



“I don’t think reusable straws are going to be enough.”