• Regulatory mechanisms and frameworks for emerging pollutants: Priorities and needs

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What is the problem?

Emerging understanding:
Combinations at low levels

Scale: 100,000’s substances / products registered in EU

300mt synthetics discharged annually;
500t antibiotics in EU agriculture;
400 active pesticides

NORMAN list 1036 entries;
WHO / UNEP 800 endocrine disruptors;
EU Priority Substances controls 45
Multiple typologies....

How to control?

Chemistry –
Synthetics,
In/Organics, heavy metals...

Users –
households, industry, agriculture...

Product types –
solvents, pharmaceuticals, insecticides, plastics...

Size –
nanoparticles, microbeads...
Sources and Pathways

Human wastes
- WWTP? Large / municipal? Small onsite?
- Untreated? 90% in developing countries
- Household chemicals, PPCPs

Agri / animal wastes
- Pesticides, pharmaceuticals
- WWTP?
- Surface runoff; air pollution

Industry / traffic / solid waste
- Air pollution, solid waste management
- Diffuse urban pollution
- Also to aquatic environment...
Multiple control regimes...

- **Waste** – solid, hazardous; special regimes; transport; certification...
- **Air** – industrial emissions; quality standards; specialist regimes...
- **Chemicals** – general, specialist; pharmaceutical, PCPs; manufacturers / producers
- **Water** – quality standards; emission / technologies; DWQ / human health; aquatic ecosystems; specialist WWT regimes....
- **Agriculture** – pesticides, nutrients, pharmaceuticals....
International Frameworks

General Policy
- Agenda 21
- Johannesburg Declaration
- Sustainable Development Goals

Specific Policy / Strategy
- UNEP Strategic Approach to International Chemical Management
- WHO International Programme on Chemical Safety

Conventions and Standards
- Chemicals Conventions – Basel, Rotterdam, Stockholm
- Geneva LRTAP Convention & Protocols
- ILO –H&S, Industrial accidents
- UN/ECE – Classification/ Labelling
EU frameworks

- REACH and related chemicals management
- Consumer protection, product standards
- Food safety
- H&S, workers, accidents
- Solid waste management
- Industrial air pollution, air quality standards
- Agricultural pollution – nitrates, pesticides, pharmaceuticals
- Water pollution – WFD; DWQD and UWWTD; PSD, GWD
EU water law – UWWTD and PSD

- UWWTD – secondary treatment as norm
- Some countries, larger WWTP have tertiary treatment
- Revision of PSD – ‘watch list’
- Precautionary principle?
Liability? Responsibility...

• Wicked problem...
• Polluter pays; user pays; Prescriber pays?
• Water services providers? Health services?
• Consumers? Education, awareness... simple messages – just use less?
• Product control? Manufacturers – evidence base?
• Multi-pronged approach – need to recognize scale and take precautionary approach