

Managing chemicals throughout their commercial and environmental life cycles

Presentation to the UK Chemical Stakeholder Forum (21/7/22) by Nigel Haigh, Honorary Fellow of the Institute for European Environmental Policy UK¹

1. The UK Chemicals Strategy – an opportunity for an ambitious approach

In a submission to DEFRA a year ago I proposed that the strategy should take a broad approach to pollution by chemicals so as to cover their commercial and environmental life cycles.

ENDS Report wrote it up and I summarized it in a Guest column published by ChemicalWatch and an article in UKELA's elaw. It has so far received no official response, so I am glad to be invited by DEFRA to present my ideas to this expert audience. I am adding further ideas on life cycles.

This is not a new idea. President Nixon's message to the US Congress used it when he proposed the creation of the Environmental Protection Agency (EPA) in 1970, and the phrase 'commercial and environmental life cycles' appears in the OECD Council Resolution on 'Integrated Pollution Prevention and Control' of 1990².

2. A limited role for REACH

We know that REACH is the most powerful tool for controlling chemicals, but we must be clear about what it can and cannot do.

REACH is unique among EU environmental legislation in creating an agency (ECHA) that does two things:

- It maintains a database of information provided by manufacturers when they register chemicals (including that supplied by downstream users) about uses and effects on all the environmental media
- With the help of the EU Member States, it bans and restricts sale and use of some chemicals.

Neither REACH nor ECHA:

- controls chemicals that are not banned or restricted;
- controls chemicals released before restrictions were in place;
- conducts monitoring campaigns;
- polices the sale of banned or restricted chemicals.

¹ I am speaking in a personal capacity

² Both quoted in the Chapter on 'Integrating Pollution Control' in my book *EU Environmental Policy – its journey to centre stage* (Routledge 2016).

Those are tasks for the authorities in individual countries who control and monitor pollution. ECHA can never do that in the EU, and neither can HSE when replicating ECHA's role in the UK.

I will not talk about UK REACH other than to say that HSE's database on uses and effects will always be emptier than ECHA's and so of less use. But 70% of ECHA's database is publicly available.

3. The commercial and environmental life cycles

Chemicals become pollutants when they are released and cause harm to receptors in the environment (air, water, land, or in food).

Releases occur at many stages during the **commercial life cycle** of a chemical (mining, transport, manufacture, formulation by downstream users, incorporation into consumer products, use, disposal, recycling). Some of these stages are authorized by public authorities. Some are not.

The **environmental life cycle** starts whenever a chemical is released into the environment at any point along its commercial life cycle. The chemical then enters an environmental medium and travels along pathways through these media, and between them, and along the food chain to reach a vulnerable receptor often at long distances. Along the pathway the chemical can degrade to become harmless or may be concentrated as it moves up the food chain or may be transformed into a more harmful state.

4. The UK authorities that regulate releases

Releases from industrial plants have long been controlled because acute and local problems became very obvious. In recent years the focus has shifted to releases from products that can cause long term and long-range problems.

Below is a probably incomplete list of relevant authorities:

The **Environment Agency (EA)** authorizes major industrial plants (discharges to air, water and the generation of waste) to minimize effects on the environment as a whole. It authorizes all discharges to rivers, and it licenses waste management sites. It has rarely used powers to control the input of chemicals to major industrial processes as well as outputs so it can stimulate substitution by less harmful chemicals. It can therefore promote clean technology.

Local authorities authorize some smaller industrial plants and use their powers over nuisances to control other processes (dry cleaners for example). Their trading standards officers can check the safety of products on sale though this is a low priority.

HSE, as well as managing UK REACH, can control concentrations of chemicals in the workplace to protect the workforce using the COSHH Regulations.

The **Office for Product Safety and Standards (OPSS)**, which is answerable to BEIS, is fairly new. I know nothing about its work. BEIS can control products under the Consumer Safety Act as can DEFRA under the Environment Protection Act 1990.

Some potentially dangerous processes are probably not regulated. I doubt that anyone oversees a pizza carton manufacturer who applies PFAS to grease proof the product to ensure that only the minimum is used.

5. The UK authorities that monitor chemicals

When the House of Lords reported on the EU White Paper that preceded REACH in 2002 it recommended that the Government should develop a policy on post-marketing surveillance for industrial chemicals. They were surprised at the uncoordinated state of monitoring at that time, and it is not clear how much has changed in the last 20 years.

The EA has powers to monitor the quality of air, water and land. Although it has powers to conduct -biomonitoring of wildlife such as birds and mammals this is normally done in cooperation with others: Natural England leads on birds and terrestrial mammals; Centre for Environment, Fisheries and Aquaculture Science (Cefas) leads on marine mammals. EA bio-monitor in freshwater wildlife.

EA has no powers to bio-monitor humans although it may need that information when authoring industrial plants that may affect humans such as incinerators. The responsibility to bio-monitor humans now rests with the newly formed UK Health Security Agency (UKHSA) which has a team of toxicologists that advises the Government about the health effects in drinking water, waste management, contaminated soil and consumer products.

An official from UKHSA spoke at the recent launch of the report of the Europe-wide project called HBM4EU (which I think stands for ‘human biomonitoring for Europe’). This is a growing subject and perhaps UKCSF could ask UKHSA to explain what they do and how they gather data from abroad.

6. Reservoirs - a legacy issue

During its life cycle between manufacture and ultimate disappearance, a chemical may sit for years in what we can call a reservoir.

When it became known that CFCs were destroying the ozone layer a global ban was placed on CFC production. There was nothing that could be done about the CFCs already released from aerosol cans, but there remained a huge reservoir of CFCs in domestic fridges. A response was for local authorities to collect old fridges so the CFCs could be

destroyed. There had been an earlier scheme to destroy PCBs stored in electrical transformers.

Today we have a huge reservoir of persistent hormone-disrupting fire retardants in domestic furniture. Is it realistic to require such furniture to be collected? I do not know.

There are old landfill sites around our coastline which over time will be submerged as sea levels rise. I remember visiting the UK's largest co-disposal landfill site in the 80s at Pitsea in Essex and watching hazardous liquid waste being pumped on a 'mattress' of domestic waste and being assured that it would degrade and become harmless. I was sceptical then and remain so now. EU legislation banned that practice. Should we allow such sites to slowly wash into the sea? I do not know the answer, but I am not aware of any authority who sees it as their task to ask such questions, commission the research and put in place a plan. Again, this could be the task of a new Chemicals Agency.

7. A new Chemicals Agency

At present the UK has no institution charged with taking an overview of all the effects of chemicals, capable of assessing achievements and pointing to problems ahead. That is why I have proposed a new Chemicals Agency which would not replicate the work of existing bodies but could coordinate and stimulate them. I doubt that an Agency with the necessary powers can be created without new legislation.