



SUSTAINABILITY

Drivers and scope for a UK chemicals framework

To be considered alongside our vision
for a sustainable chemicals strategy

What are the drivers?

The drivers to develop a new UK chemicals framework that is fit for the future of the UK and international trade ambitions are **economic prosperity, wellbeing and quality of life** improvements for citizens and wildlife, and related to ‘**trust in chemicals**’ for the purposes of business and trade. In detail they are as follows:

Enabling sustainable innovation

- **To generate economic prosperity**, through responsible innovations that improve our quality of life. When chemicals are used responsibly and at safe concentrations in products, they bring many benefits to our lives and significant economic returns.
- **To develop people and provide jobs** for those that are skilled in the chemical sciences at all levels. They need to work in new strategic directions that support an industrial strategy and new growth in the UK chemicals sector.
- **To aid a green economic recovery during COVID-19** so we improve air, land and water quality for increased wellbeing for humans and wildlife. This needs to be achieved through well managed chemical manufacture and use, and innovation to find sustainable and less hazardous alternative chemicals.

Economic benefits of chemicals

95% of all manufactured goods rely on a chemical process and there are an estimated 40,000 to 60,000 industrial chemicals in commerce globally (ICCA-UNEP, 2019). Our 2020 research report with Cambridge Econometrics on the chemistry-using workforce found that chemistry knowledge, through 275,000 chemistry-using professionals in the UK, impacts the generation of an average of £83bn annually for the UK economy.

Science-led chemicals regulation to protect health and environment

- **To build trust with citizens that chemicals are used safely and pollution will be reduced**, through science-led regulation. Citizens should feel confident that chemicals are important and well regulated in the same way as they do with foods and medicines.
- **To draw upon the best science** to develop chemicals policy that is robust and evidence-based, using data that is generated to high standards. This must be interpreted by the best scientists and policymakers for effective and impactful regulation through high profile science diplomacy.
- **To build trust for international trade deals** by regulating chemicals manufacture, import and use effectively in a post-Brexit UK. This will be delivered by creating trusted relationships and partnerships for new international trade deals, including with the EU, built on effective collaborations for regulatory cooperation.

Wellbeing and quality of life

From EU REACH analysis in 2018, ‘chemicals with properties hazardous for human health still represented 74% of the total chemical production in Europe, a percentage overall unchanged since 2004’; ‘a growing number of hazardous chemicals are found in human blood and body tissues and ecosystems’; ‘3.5 million sites around Europe [which would have included UK data] are contaminated by hazardous substances’ (European Commission Study, 2017).

Citizens' role in open and transparent policymaking

- **To ensure people have access to information and education** enabling them to understand and have confidence in the way its government takes decisions relating to chemicals manufacture and use in products
- **To enable citizens to contribute through citizens' assemblies**, in open and transparent chemicals policy and regulation development.

Public attitudes to chemicals

“People don't necessarily feel strongly negative about chemicals – at the surface they are mostly neutral. However, they recognise that they are not very knowledgeable about how chemicals are used, in industry or food production for example, and this can make them feel uneasy. These feelings are deeply embedded and strongly felt, and based on a rational assessment of risk and their need to rely on regulators and industry to act in the long-term public interest.”

[Public attitudes to chemistry](#), Royal Society of Chemistry (2015)

The UK's place in global circular economy supply chains

- **For the UK to be trusted as a world leader** in sharing our scientific and policy knowledge and experience with others in an open and transparent way for the benefit of citizens' health, environmental quality, and in facilitating trusted trading partnerships with the world.
- **For the UK to be seen as world leaders in developing circular economy operating models** – implementing successful economically viable circular economy models in the areas of plastics, electronic waste and food wastes. This will require new infrastructure, and new business and taxation models, to enable the implementation of new technologies that already exist.
- **To be responsible global citizens in how we use chemicals and manage waste** – our actions in the UK can impact adversely on other parts of the world. We need to be responsible in the parts we all play in using and disposing of chemicals through changing behaviours and building infrastructure that make it easier as a part of everyday life.

Chemistry's roles in the circular economy

The white paper from the 2019 Chemical Sciences in Society Summit – titled “[Science to enable sustainable plastics](#)” – highlighted the essential, central role of chemistry in creating a circular economy for plastics.

Our 2019 campaign “[Elements in Danger](#)” gained significant media coverage in the UK and beyond, as it explored and exposed people's desire to preserve the critically endangered elements that are essential in today's consumer electronics, but also the knowledge barriers to them doing so effectively.

What should be in scope?

A chemical framework should include the following areas that aim to develop ‘trust in chemicals’ between the government, industry, citizens and international trading partners to support economic prosperity and our wellbeing and quality of life. Chemicals are so important to our daily lives that we call on UK government to give this area focused attention and equal importance to medicines and foods.

Build trust through agency and science

- **Establish a dedicated UK Chemicals Agency** for all things ‘chemical’ (ie – not food or medicines, and where ‘chemicals’ includes pesticides and biocides to ensure consistent regulation). It must be authoritative, as independent of government as possible (akin to the Foods Standards Agency (FSA)) and adequately resourced to identify, prioritise, manage and regulate chemical issues of national concern.

Building on the current strong regulatory framework, this new UK agency must be adequately resourced to lead and act as the primary national point of cooperation and collaboration with other chemicals agencies in the world (eg the European Chemicals Agency (ECHA) and the US EPA’s Office of Chemical Safety and Pollution Prevention (OSCP)).

- **Establish a new independent government-funded UK Institute for Chemicals Safety Assessment** to lead on all areas of new science for assessing exposures, hazards and risks of chemicals to humans and wildlife. It should be a central institute independent of government, sited in academia, that can liaise with other scientific bodies such as the EC Joint Research Centre (JRC) and help to manage the provision of independent scientific advice in the UK by connecting to the world’s best scientists and scientific networks, keeping abreast of all latest developments and leading in priority science areas.
- **Ensure state-of-the-art science and talent is visibly at the heart of the framework.**
- **Provide high quality independent science reviews** into government for chemicals of national and global concern.
- **Establish independent and authoritative scientific advisory mechanisms** drawing on the world’s best scientific evidence; **create a register of specialists.**
- **Collaborate on international research programmes** on chemicals in the environment with trusted global partners.
- **Work with high-level stakeholder groups such as the UK Chemicals Stakeholder Forum** to test strategies and policies relevant to the UK chemicals sector.
- **Work collaboratively across the world** to do two-way capability building and data/knowledge exchange.

Build trust, economic prosperity, wellbeing and quality of life through four pillars of strategy and investment



EDUCATION

Education

- **Develop citizens' knowledge through school education and beyond**, so they can help to better manage chemicals through making informed choices, and gain an increased awareness and an understanding of the nature of hazard and risk.
- **Develop the next generation of world-leading scientists** that can innovate, develop sustainable chemistry solutions and assess safety and risk using both established and new types of evidence.
- **Ensure a skilled and specialist scientific workforce is developed**, such that industry, government and academia can draw on the best talent at all levels to implement a chemicals framework.
- **Provide communications to the public** on the benefits, hazards and risks of chemicals in our lives, so consumer demand drives sustainable product innovation through informed choice.



INNOVATION

Innovation

- **Establish a Sustainable Chemistry Advisory Network** funded by government, to help SMEs and entrepreneurs assess the social, financial, environmental and regulatory requirements for a new concept before any product or process enters mainstream society.
- **Provide practical support**, including targeted funding and guidance, for innovative SMEs and entrepreneurs working on sustainable chemistry solutions and new materials and products to overcome technical and regulatory barriers to scale-up.
- **Provide government incentives to support collaboration** between academia, SME and big industry to innovate new safe and sustainable materials.
- **Connect innovators in regional hubs and networks** to enable the co-location of related businesses (links to a circular economy model).
- **Connect innovators with international collaborators and trading partners** to help in scaling up new innovations.



Circular economy

- **Support the development of a [National Materials Datahub](#)**, which has already begun in the UK with DEFRA, BEIS and the Office for National Statistics (ONS), and ultimately link globally, so manufacturers know who has available chemicals and waste feedstocks in global supply chains.
- **Develop models of taxation that incentivises the use of safe feedstocks for chemicals from wastes** and dis-incentivises the use of virgin raw materials in products and processes.
- **Collect data and know what chemicals are in the UK economy in any year** – manufactured, imported, exported, transported, stored and used in products.
- **Develop a transport network to support circular economy supply chains** that supports the efficient movement of chemicals or chemical feedstocks to where it is needed.
- **Develop infrastructure and sites where industries can co-locate** to support a circular economy.
- **Devise practical circular economy business models** in areas such as sustainable plastics, precious metals and critical elements in electronic waste.
- **Encourage citizens to play a part in making a circular economy work.**
- **Develop life cycle assessment tools** to know if a new chemical really is more sustainable than what it is replacing.



REGULATION

Regulation and standards

- **Maintain high standards of protection** for citizens and the environment to assure that improvements in environmental quality and human health are realised and demonstrable.
- **Promote a strategy for the provision of open safety data** for chemicals globally.
- **Generate and evaluate chemicals data through a UK regulatory regime that builds on existing strong foundations like EU REACH.**
- **Seek globally harmonised testing of chemicals** where there are priority data gaps and share data with the world.
- **Be a world leader in the development of New Approach Methods (NAMs)** for safety evaluation without the use of animals.
- **Monitor presence and persistence of chemicals of concern in the environment** (air, land, water, waste).
- **Perform human and wildlife biomonitoring** of chemicals of concern in UK populations.
- **Develop exposure modelling** of chemicals in citizens, workers and wildlife.
- **Identify substances of concern and develop a prioritisation management plan** based on either high exposure and/or hazard potency.
- **Use transparent risk assessment frameworks** to inform whether exposure to a given chemical is acceptable or unacceptable to citizens and wildlife.
- **Take decisions on the basis of open, transparent evidence-based risk assessment** for authorisation and restriction on the use of chemicals of concern in products and processes.
- **Prioritise regulatory action on legacy hazardous chemicals of real concern.**
- **Lead globally harmonised regulatory action** on chemicals of international concern.
- **Promote industry product stewardship** and voluntary due diligence approaches based on scientific evidence, for assuring human and environmental safety of chemicals that are not considered 'priority concerns' by a UK Chemicals Agency.
- **Develop new guidance documents** and advice for the safe use of chemicals.
- **Devise new risk assessment frameworks** to support decision-making using NAMs.

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