



# A UK Chemicals Strategy That's Fit for Purpose

Technical briefing, September 2022

*This briefing was written by Wildlife & Countryside Link and CHEM Trust, in collaboration with a range of environmental and health civil society organisations.*

## Summary

- Current chemicals policy is failing to address chemical pollution in the UK as well as the continued use of harmful chemicals in the modern UK economy. There is now an opportunity to strengthen protections for the environment and for human health.
- This should be done by ensuring that the UK Chemicals Strategy:
  1. Has the **Precautionary Principle at its core**.
  2. Is **broad in scope** to tackle the entire range of chemical uses (including consumer products, pesticides and pharmaceuticals) that result in risks to human and environmental health and pollution.
  3. Is coherent in its approach to all chemicals and **moves away from the current approach of regulating chemicals in silos** based on their use. It should set out a holistic vision for the UK Government's approach to chemicals management, both domestically and internationally.
  4. States a **clear aim to tackle chemical pollution at-source** as well as the detoxification of our economy **through the continuation and strengthening of a generic approach to risk management for the most hazardous chemicals**, where chemicals with particular structures and elements are known to have adverse effects on human or environmental health are controlled.
  5. Commits to a **clear timeline for phasing out the most hazardous chemicals from all non-essential uses and agricultural use**, and, where necessary, commits to investing in less hazardous alternatives.
  6. Commits to **taking a grouping approach to chemicals with similar structures, to avoid regrettable substitution** and to speed up regulation of hazardous chemicals. In particular, the Strategy should commit to urgently banning all unnecessary uses of all 'forever chemicals' such as PFAS.
  7. Sets out **plans with clear timelines for developing legislation that addresses combined exposure to chemicals**, including implementing a mixture assessment factor (MAF) in safety assessments.
  8. Adopts the other recommendations stated in the '12 Key Asks for the Chemicals Strategy'.<sup>i</sup>

## An opportunity to build a bold and ambitious Chemicals Strategy

### Key points:

- The UK Chemicals Strategy is an opportunity to take bold action to turn the tide on chemical pollution and harmful chemical use.



- Chemical pollution, biodiversity loss and climate change are all interlinked and must be tackled immediately.
- The harm caused by use of hazardous chemicals, including pollution are not emerging risks, they are present risks.

Scientists recently declared that chemical pollution had passed the safe limit for humanity, and have urged immediate action to reduce the production and release of novel entities including synthetic chemicals. Chemical pollution, climate change, and biodiversity loss are closely linked<sup>ii</sup>. Chemical pollution is one of five direct drivers of the biodiversity crisis, making our wildlife more vulnerable and less resilient, and is also fuelling the climate crisis<sup>iii</sup>. The United Nations Environment Program (UNEP) has stressed the interconnectedness of these three planetary crises and the need to deal with them together and simultaneously<sup>iv</sup>.

While many synthetic chemicals have important uses, from medicine to producing green energy, a chemical's lifecycle often stretches well beyond its initial use. Many, often hazardous, synthetic chemicals are ubiquitous in everyday life, from the overuse of pesticides and fertilisers in food production to their use in household items. The result is the pollution of rivers, seas, soil and wildlife, as well as putting human health at risk.

With global chemical production projected to double by 2030, the release of chemical pollutants in the environment is set to increase<sup>v</sup>. This is not an emerging risk, it is a present threat which requires a concerted and robust policy-oriented response. In its 25-Year Environment Plan, the Government committed to publishing a new Chemicals Strategy, and to ensure that "chemicals are safely used and managed, and that the levels of harmful chemicals entering the environment (including through agriculture) are significantly reduced". In April 2022, the Government launched a series of workshops to consult with stakeholders on the development of the Strategy.

The Chemicals Strategy is an important opportunity for the Government to avert the growing risks related to harmful chemical use and pollution through bold, preventative action. A transformative policy shift is needed to help meet the Government's environmental objectives such as halting the decline of species abundance by 2030 and Net Zero.

### **A vision for the Strategy**

#### **Key points:**

- The UK Chemicals Strategy must have the Precautionary Principle at its core, and should not compromise its application for the sake of economic considerations.
- Preventative action is key to tackling human health and environmental harm caused by chemical pollution.
- Robust, ambitious and measurable targets for the reduction of chemical pollution should be included in the Strategy and incorporated into the Environmental Improvement Plan.

#### ***Embedding the Precautionary Principle***

DEFRA has prepared a chemicals strategy "theme paper", setting out broad approaches to the strategy. The current draft 'Vision' for the Strategy is weak on environmental and human health risks, focusing instead on the benefits of chemicals and the positive economic impacts of the chemicals sector. It also fails to recognise the importance of the Precautionary Principle.

The precautionary principle is particularly important to effective chemicals management because (1) the use of innovative and highly complex substances increases uncertainty; (2) the combined effect of multiple chemicals



in the environment, as well as the effects of long-term exposure are hard to test and quantify; and (3) there is a high degree of potential for harm. A precautionary approach does not stand in the way of technical progress or the wise use of synthetic chemicals; rather, it allows for the application of rigorous safety rules where there is evidence of the potential for harm, but uncertainty in scientific understanding.

The UK does not currently have a robust regulatory framework for managing chemical risks. The Strategy must set out reforms to regulation to prevent chemical harm and pollution at source and to speed the regulatory process up and get ahead of the curve by putting the Precautionary Principle at its core.

### ***Preventing costs to the environment, public health and the public purse through preventative action***

A preventative approach would ensure that the public purse does not bear the brunt of the consequences of poor chemicals management in the form of increased costs to health services and environmental protection. For example, the cost of cleaning up PFAS contamination in water would cost the UK water industry an estimated £21 billion, a bill which would ultimately fall onto consumers.<sup>vi</sup>

The Vision also places too much reliance on consumer choice. Enabling society to make informed and sustainable choices is important, but alone it will not drive the change that is needed. Consumers currently have very limited awareness of harmful chemicals in products they are using, the products used within their home or wider environments, or the food they are consuming.

The Government should ensure that the public is well informed about chemical risks where necessary, but this should not come at the cost of preventing exposure in the first instance. Rather than placing the burden of responsibility on consumers, the most hazardous chemicals must be phased out to ensure that they are not used in agriculture, consumer products and for other non-essential uses in the first place.

As part of a preventative approach, the Strategy must support the research, development and promotion of non-chemical alternatives. For example, supporting farmers with alternative measures to control pests in agriculture as part of an Integrated Pest Management approach, rather than always choosing a pesticide. Similarly, promoting a reduction in unnecessary consumer items such as food packaging, and incentivising non-chemical alternatives, is vital.

### ***Robust, ambitious and measurable targets***

Given that the lifecycle of the 25YEP will end in 2042, it is fitting that the Vision is set out for 2040. However, in order to prevent delayed progress in the short to medium term, the Vision of the Strategy should set out interim goals and targets for each of its objectives, including a timetable for the phase-out of the most hazardous chemicals from non-essential and agricultural uses. As well as driving action on pollution, this will drive innovation within the sector.

### **Effective regulation to tackle chemical harm and pollution**

#### **Key points:**

- UK REACH must be improved so that it:
  - Phases out the most hazardous chemicals from non-essential and;
  - Takes a grouping approach to chemicals regulation.
- There needs to be a greater focus on generic approaches to risk management. It will be ineffective, time-consuming and costly to move toward regulating chemicals predominantly through specific risk assessment.



- The UK Chemicals Strategy should tackle the whole suite of chemical regulation and chemical uses, including pesticides, veterinary medicines and pharmaceuticals.

### ***Improving UK REACH***

The UK REACH regulation is transposed from EU REACH 2007 legislation, which - while providing the highest standards globally - has nonetheless failed to meet its original objective of speeding up protections in the face of rapidly growing use of hazardous chemicals<sup>vii</sup>.

The Defra Chemicals Strategy theme paper rightly acknowledges chemical threats are “in many cases, outstripping the current pace of regulation”, and a recent EEB report ‘The Need for Speed’ analyses why EU REACH 1.0 regulation is failing to keep step with chemical threats<sup>viii</sup>. The Strategy should address why the current pace of regulation is failing to keep in step with chemical threats and how this should be addressed. The reasons for this slowness include a lack of safety data and an unwillingness to act on this limited data.

Almost all chemicals on the EU market (93%) lack critical information about their potential hazards, including carcinogenicity.<sup>ix</sup> Instead of regulating chemicals of high concern on the data available, they are put on hold based on data not being available. The result is that exposure to a hazardous chemical continues for many years.

Once on the market, it takes officials decades to prove “unacceptable risk” and phase out chemicals known to be dangerous. If a ban is finally agreed, the industry often substitutes one banned chemical with another unregulated one from the same chemical group. The substituted substance may be notionally distinct, but can have similar properties and function and prove just as harmful – a process known as “regrettable substitution”.

Instead of officials spending years proving chemicals pose an “unacceptable risk”, a grouping approach to regulating hazardous chemicals should be implemented throughout, to avoid regrettable substitution and accelerate the restrictions process by preventing the ‘no data, no problem’ situation that pervades many aspects of REACH. The burden of evidence required for controls and classification must be reduced to create a more protective and responsive system.

The Government seems interested in integrating New Approach Methodologies (NAMs), which are methods and test protocols that do not include animal testing, into regulatory risk assessment. Currently, industrial chemicals are currently deemed safe until regulators have provided overwhelming, often animal-based, evidence of unacceptable risks, e.g. identifying a substance as a carcinogen Categories 1A and B under the Globally Harmonised System of Classification and Labelling always requires animal testing.

If NAMs are to be integrated while continuing to make progress on chemical safety, they must be accepted by industry and regulators for removing a substance from - as well as placing it on - the market, despite uncertainties. For proper protection this will require, the use of positive NAMs for mandatory classifications, as well grouping and read-across, which must be done in a precautionary way, taking the data from the most hazardous chemical in a group.

### ***Strengthen the balance between generic and specific risk assessment***

There is a push from some in industry for the UK to pursue an exclusively ‘risk-based’ (specific risk assessment)<sup>x</sup> approach to chemicals regulation and to reject generic approaches to risk management (GRA)<sup>xi</sup>. Specific risk assessment requires both hazard identification and exposure assessment, which requires information on the use to which it is put. An accurate specific risk assessment requires a lot of data and resources and inevitably includes uncertainties and ambiguities – and generally takes many years, during which time exposure continues (and may increase).



Uncertainties may include unintended and unknown uses, the ‘cocktail’ effect of chemical mixtures, the harm caused by a substance (which may not be fully identified in toxicity tests) and what is a safe exposure limit. For example, PFOA and PFOS safety levels have decreased significantly as new evidence emerges and some chemicals, such as EDCs, can trigger reactions in the human body at low doses that increase people’s chances of developing many illnesses. Knowing the use to which a chemical will also be put is increasingly challenging as the UK moves towards a circular economy promoting re-purpose, and recycling of goods and materials. Chemicals often end up as contaminants in recycled goods.<sup>xii</sup>

Even though a specific risk-based approach can ultimately lead to more scientific certainty, it can lead to time-consuming evaluations and adds to the problem of “paralysis by analysis”, where regulatory action is stalled in favour of increasingly expensive and complex analysis. Given the uncertainties, it is important to regulate groups of the most hazardous chemicals in a generic way to prevent the exposure of vulnerable people and the wider environment to these chemicals.

### ***Addressing chemical mixtures***

UK citizens are exposed to hundreds of chemicals from multiple sources, including food, consumer products, air pollutants, household dust and drinking water.<sup>xiii</sup> Similarly, our environment, in particular freshwater and marine systems, are pathways and sinks for the multitude of chemical contaminants used in everyday life and from agriculture practice.<sup>xiv</sup>

Scientific research has shown that mixtures can pose new problems, with mixtures of chemicals creating combination effects, or the ‘cocktail effect’, even if each individual chemical is present at levels below what is known to cause a negative effect.<sup>xv</sup> However, by focusing on single chemicals in isolation, chemical regulation currently underestimates the risks from cumulative exposure to multiple chemicals.

The UK Chemicals Strategy should set out plans with clear timelines for developing legislation that addresses combined exposure to chemicals, including implementing a mixture assessment factor (MAF) in safety assessments performed by registrants of chemicals put on the UK market. The MAF acts as a safety net to account for the mixture toxicity that would result from combined exposure to a specific chemical with other known and unknown chemicals. It is a pragmatic and effective way to manage the reality of mixture exposure when the assessment of all possible mixture scenarios is realistically impossible. The MAF must be high enough to truly increase the level of protection of human health, wildlife and the environment from real-life chemical cocktail exposures, and should be applied for human health, as well as the environment.

### ***Breaking down the silos in chemicals regulation***

After leaving the EU, the UK now has the opportunity to break down the silos in the way that we regulate and govern chemicals. Until now, the UK has been bound by regulatory parameters defined by the EU which regulates pesticides, pharmaceuticals and other chemical uses separately.

A siloed approach to-date has led to mismatched policy outcomes and inefficiencies. For example, fipronil and the neonicotinoid imidacloprid are commonly used as domestic pet flea treatments, yet they are banned for agricultural use due to their environmental impact. The discrepancy is due to the assumption that the amount used domestically will not cause harm. However, this is not the case as research shows flea treatments are causing harm to freshwater invertebrates and environments.<sup>xvi</sup> There are many examples such as this which demonstrate the need for better joined-up policy on chemicals.



If several areas of chemical regulation remain outside of the scope of the Strategy, it will fail to address chemical mixtures. In the environment chemicals interact, with potentially damaging combined effects, regardless of which regulation they are governed under. For instance, one lab study on rats simulated long-term, low levels of exposure to multiple chemicals, and showed that liver function and body weight were adversely affected.<sup>xvii</sup> Due to a lack of research and monitoring in this area, chemical mixture impacts in the environment are little known, however, it is clear that chemicals in the environment come from a whole range of different sources, and not only a select few.

The Strategy cannot drive an effective grouping approach to chemicals unless it is comprehensive. PFAS are a prime example of a group of chemicals that have a similar structure, with a range of different uses regulated under various legislations that collectively have an impact on the environment. For instance, a recent study found over 50 different PFAS in otters in England and Wales, likely to have come from industrial processes and from agriculture. Taking this as an example, if pesticides, pharmaceuticals and veterinary drugs remain out of scope for the Strategy, any commitment to a grouping approach is unlikely to tackle PFAS pollution holistically.<sup>xviii</sup>

### **Managing chemicals throughout their lifecycle**

Key points:

- Voluntary labelling schemes are ineffective. Only by phasing out the most hazardous chemicals can the UK avoid the risks posed by chemicals throughout their lifecycle.
- Full materials disclosure with transparency on traceability of chemicals in products is needed to enable a safe circular economy.
- Phasing out the most hazardous chemicals from non-essential uses mitigates negative chemical impacts in a circular economy

The life-cycle approach should consider the entire environmental lifecycle of a chemical, and the points at which it can be released along its commercial lifecycle, for example during manufacture, by downstream users. It is also important to assess the end-of-life impacts and the ways in which a chemical can enter the environment (air, water, soil, food) where it may reach vulnerable organisms.

Hazardous chemicals can limit the success of a circular economy by risking the safety of secondary products. For example, chemicals approved for use in one product may wind up in products unsuitable for that substance, such as bisphenols in thermal paper receipts contaminating paper recycling and ending up in pizza boxes. Long-lived items may also contain chemicals that have since been restricted and so if recycled, may reintroduce banned substances into secondary products, resulting in a build-up of toxic waste. However, this could all be avoided by phasing out the most hazardous chemicals from non-essential and agricultural uses and ensuring transparency and traceability along supply chains.

A voluntary labelling scheme would not enable effective traceability for substances in products. This is because it would be very difficult to trace hazardous chemicals in articles at the end of their lifecycle, particularly electronics and plastics.<sup>xix, xx, xxi, xxii</sup> Ensuring products are safe by design requires phasing out the use of the most hazardous substances in household items, which require concerted regulatory action.

Once highly persistent chemicals have entered the environment, they are nearly impossible to clean up and will continue to contaminate the environment for many generations. Methods for managing chemicals throughout their lifecycle will only prevent a certain level of harm, and therefore should not come at the expense of taking preventative action.



## **Driving innovation, alternatives and sustainable chemistry**

Key points:

- 'Safe and sustainable by design' (SSbD) requires robust definitions of what constitutes both 'safe' and 'sustainable'.
- Innovation will be driven by phasing out the most hazardous chemicals from non-essential and agricultural uses, to create a prosperous circular economy.
- Setting reduction targets, for example for pesticide use in agriculture, will also drive this innovation into alternatives.

The development of criteria for what makes a product safe and sustainable by design, in order to encourage innovation in the development of safe and sustainable chemicals, needs strong definitions for 'safe', as well as 'sustainable'. There is no trade-off between safe and sustainable; something which is unsafe can't be sustainable. As the United Nations Environment Programme (UNEP) has stressed, we must deal with the three interlinked planetary crises of climate change, biodiversity loss and chemical pollution together and simultaneously.

Pesticides for example are designed to kill living things. Many farmers are becoming uncomfortable about the amount of pesticides they have been using, and their impact on the environment, their health and the health of their farm assets such as soil. Using nature-based alternatives such as creating habitat for natural pest predators can all contribute towards reducing reliance on synthetic pesticides. Innovation to find more ways to reduce pesticide use - including technology and cropping decisions - will be driven faster by setting targets for reduction, and removing the most hazardous chemicals from market.

Definitions under development at EU level rightly accept that most hazardous chemicals should not be labelled SSbD. EU policies on sustainable finance, for example, includes the objective of phasing out most hazardous substances from consumer products and professional use products.<sup>xxiii</sup>

### **This briefing is supported by the following organisations:**

Angling Trust

Alliance for Cancer Prevention

Buglife

Cancer Prevention Society

CHEM Trust

Fidra

Hazards Campaign

Marine Conservation Society

Pesticide Action Network UK

The Pesticide Collaboration

The Rivers Trust

Soil Association

Whale & Dolphin Conservation

Wildlife and Countryside Link

Womens Environment Network

Wild Fish

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- <sup>i</sup> CHEM Trust et al (2021). '12 Key Asks for the UK Chemicals Strategy' [online]. Available online at: <https://chemtrust.org/wp-content/uploads/12-Key-Asks-for-the-UK-Chemical-Strategy-1.pdf>
- <sup>ii</sup> Persson, L. et al 'Outside the Safe Operating Space of the Planetary Boundary for Novel Entities'. *Environmental Science & Technology* **2022** 56 (3), 1510-1521. DOI: 10.1021/acs.est.1c04158
- <sup>iii</sup> CHEM Trust, (2020). 'Chemical pollution, a key driver of the biodiversity crisis' [online]. Available at: [https://chemtrust.org/biodiversity\\_strategy/](https://chemtrust.org/biodiversity_strategy/)
- <sup>iv</sup> CHEM Trust (2021) 'Climate change and chemicals: what are the connections?' [online] Available at: <https://chemtrust.org/climate/>
- <sup>v</sup> UN Environment. (2019). *UN report: Urgent action needed to tackle chemical pollution as global production is set to double by 2030*. [online] Available at: <https://www.unep.org/news-and-stories/press-release/un-report-urgent-action-needed-tackle-chemical-pollution-global#:~:text=The%20second%20Global%20Chemicals%20Outlook> [Accessed 16 May 2022].
- <sup>vi</sup> UKWIR (2022). Leading the Water Industry Research Agenda [online]. Available at: <https://ukwir.org/water-research-reports-publications-viewer/788b25d7-10e6-4ffd-8a4c-18c5e9cbc637>
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- <sup>viii</sup> Santos, T. Buosante, V. Loonen, H. Borja, G. 'The Need for Speed: why it takes the EU a decade to control harmful chemicals and how to secure more rapid protections' [online]. Available at: <https://eeb.org/need-for-speed-on-chemical-protections-in-europe/>
- <sup>ix</sup> Santos, T. Buosante, V. Loonen, H. Borja, G. 'The Need for Speed: why it takes the EU a decade to control harmful chemicals and how to secure more rapid protections' [online]. Available at: <https://eeb.org/need-for-speed-on-chemical-protections-in-europe/>
- <sup>x</sup> *The 'generic approach to risk management' means that regulatory action (such as restriction) kicks in to prevent harmful impacts from a chemical based on its hazardous properties and generic considerations of the exposure due to certain uses.*
- <sup>xi</sup> *Specific risk assessments' are based on the hazardous properties of a chemical and are derived by considering specific exposure scenarios for humans and the environment, often with the aim of establishing exceedance of risk first before taking action. Depending on the data available on the adverse effects and exposures, the resulting assessments often have considerable uncertainties and vary depending on the studies used or endpoints considered (example: different BPA assessments over the years).*
- <sup>xii</sup> IPEN (2018). 'Toxic Loophole: Recycling hazardous waste into new products' [online]. Available at : <https://ipen.org/documents/toxic-loophole-recycling-hazardous-waste-new-products>
- <sup>xiii</sup> CHEM Trust, 2022. Chemical cocktails - The neglected threat from toxic mixtures and how to fix it [online]. [https://chemtrust.org/wp-content/uploads/Chemical-cocktails\\_CHEMTrust-report\\_March-2022.pdf](https://chemtrust.org/wp-content/uploads/Chemical-cocktails_CHEMTrust-report_March-2022.pdf)
- <sup>xiv</sup> PAN UK and the Soil Association, 2019. The Cocktail Effect [online]. Available at: <https://www.pan-uk.org/the-cocktail-effect/>
- <sup>xv</sup> EDC-MixRisk policy brief, March 2019 <https://edcmixrisk.ki.se/wpcontent/uploads/sites/34/2019/03/Policy-Brief-EDC-MixRisk-PRINTED-190322.pdf>
- <sup>xvi</sup> Perkins, R. Whitehead, M. Civil, W. Goulson, D. 'Potential role of veterinary flea products in widespread pesticide contamination of English rivers', *Science of The Total Environment*, Volume 755, Part 1, 2021, 143560, ISSN 0048-9697, <https://doi.org/10.1016/j.scitotenv.2020.143560>. (<https://www.sciencedirect.com/science/article/pii/S0048969720370911>)





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- <sup>xxii</sup> Turner A. Black plastics: Linear and circular economies, hazardous additives and marine pollution. *Environ Int* 2018;117:308-318
- <sup>xxiii</sup> Platform on Sustainable Finance: Technical Working Group (2022). 'Part A: Methodological Report' [online]. Available at : [https://ec.europa.eu/info/sites/default/files/business\\_economy\\_euro/banking\\_and\\_finance/documents/220330-sustainable-finance-platform-finance-report-remaining-environmental-objectives-taxonomy\\_en.pdf](https://ec.europa.eu/info/sites/default/files/business_economy_euro/banking_and_finance/documents/220330-sustainable-finance-platform-finance-report-remaining-environmental-objectives-taxonomy_en.pdf)