Chemical pollution in our water: what's needed in the Clean Water Bill to address it

Executive summary

Our rivers, lakes, ponds, streams and seas are widely contaminated by harmful chemical pollutants, which are poorly regulated. Chemical pollutants are a major contributing factor in freshwater losing biodiversity faster than any other ecosystem on Earth, and pose risks to people's health, as well as incur huge economic costs to society.

These chemicals are mainly products of a powerful chemical industry that is largely unaccountable for the water pollution for which they are responsible. Just a few companies profit from the production of these chemicals, which is dwarfed by the larger costs they generate to society from the harm pollution causes.

The government has promised a "once in a generation" reform to fix the water system. To achieve that they must address the growing threat from chemical pollution. Their vision for water reform promises a legal framework "future-proofed to adapt to changing pressures – such as emerging chemical and biological pollutants." This paper sets out three reforms needed to deliver this.

Recommendations:

1. **You can't manage what you don't measure: overhaul monitoring and regulatory standards for chemical pollutants** in water. Improvements to monitoring and the setting of regulatory limits for chemical pollutants in water are a prerequisite for understanding long-term trends, pathways into the environment and impact and helps drive interventions needed to reduce this pollution.

2. **Stop chemical pollution at source**. Preventative action remains significantly more effective than remediation after contamination has occurred. Removing chemicals once they've entered the environment is severely limited, can be hugely expensive and can't undo harm caused to people or wildlife. Wherever possible, pollution should be prevented by bans on groups of harmful and persistent substances – such as PFAS and flame retardants - which meet as a minimum the highest standards internationally.

3. **Make polluters pay for treating chemical pollutants in wastewater released into the environment.** Treating and remediating harmful chemicals in discharged wastewater and highly contaminated sites is urgently needed, for historic emissions and those that cannot be controlled at source. Because huge and growing remediation costs are

falling to the public, much of this work isn't happening. The funding gap should be paid by the major producers of these pollutants.

The stakes are high, but so are the rewards. Cutting chemical pollution is critical for healthy water ecosystems and wildlife, and for securing clean, resilient water supplies.

The problem of chemical pollution in our water

Chemicals can enter our waterways via different sources and from different pathways, which may be point sources of pollution or diffuse (non-point) sources. These include agricultural runoff, road runoff, sewage sludge applied to land, leaching from landfill and contaminated sites, and discharged treated and untreated wastewater.

Impacts on our environment: Freshwater has been losing biodiversity faster than any other ecosystem on Earth. The widespread contamination of our lakes, rivers, ponds, streams and seas with chemicals and pesticides is a major contributing factor for this rapid decline. While there have been signs of improvement in recent decades this is starting to plateau.

A wealth of research has shown that the presence of chemical pollutants has detrimental effects on aquatic life, including on growth, reproduction and immunity. Several of these toxic chemicals bioaccumulate, building up at greater concentrations in animals higher up the food chain, for example, in otters and marine apex predators. Some can disrupt sensitive hormone systems in a range of organisms, which can lead to neurological, developmental and reproductive impacts.

There are so many troubling examples. Widespread impacts have been documented in aquatic life from adverse effects on growth, metabolism and survival in water flea, reduction in size and increases in abnormalities in amphibians, thyroid disruption and developmental delays in fish, whilst 20% of male roach, a common coarse fish exhibit feminisation due to endocrine disrupting chemicals. Hazardous chemical flame retardants used in everyday products, have been found in the majority of English rivers tested and at unsafe levels in all fish analysed. The UK has some of highest levels of flame retardants in its environment, wildlife and homes. It is estimated the UK uses almost twice as much chemical flame retardants as the rest of Europe combined, which is driven by the UK's poor regulation including outdated furniture flammability rules. Pesticides used in tick, flea and worm treatments for dogs and cats find their way into rivers, lakes, ponds and streams from various routes and analysis shows that insecticides used widely in these treatments, e.g., fipronil and the controversial neonicotinoid imidacloprid – are present in English rivers in concentrations that exceed accepted safe limits for aquatic life. Moreover, these chemicals disrupt food webs with effects on amphibians, fish and birds that depend on aquatic invertebrates as a vital food source. Analysis of Environment Agency data has shown that toxic neonicotinoid pesticides - known for their harmful effects on bees – are found in 85% of those English rivers tested,

raising concerns for aquatic life. Levels were particularly high in the East of England where neonicotinoids are still authorised for emergency use on sugar beet.

These impacts are set to get worse because of more extreme weather events caused by climate change. For example, intense rainfall washes excess nutrients, chemicals, sewage and plastics into waterways, while drought with lower water flows means pollutants can become concentrated and their impact on both wildlife and implications for human health heightened. As extreme weather becomes more frequent, and weather events become more severe, these effects are likely to increase.

Impact on human health: Chemical pollution is linked to a rise in severe health problems throughout Europe that are adding billions to public healthcare bills, including some cancers, hormone or immune disruption, reduced fertility and developmental issues. Women and children face disproportionate risks from chemical exposure. Prenatal development and early childhood exposure are particularly sensitive periods during which exposure can cause irreversible harm with lifelong consequences.

The contamination of the environment plays a critical role in the build-up of chemical pollution in people's bodies, from the air we breathe, to the food we eat. Chemical pollution of fresh and coastal waters is also a route of exposure, including the contamination of drinking water sources, consumption of fish and shellfish and inadvertent swallowing of water via recreational uses such as swimming and paddling. Surfers have been shown to have 3 times as many resistant bacteria in their guts relative to non-surfers, a finding strongly linked to pharmaceutical use and release to the environment as well as levels of wastewater treatment. The Royal Society of Chemistry finds that while individual exposure might involve low levels of contaminants, the long-term effects are not well understood. The Government's Environment Improvement Plan acknowledges "growing concern about the potential public health risks associated with exposure to a range of contaminants being released into natural waterways" and commits to strengthening health protections within water regulation; however, details are light.

The economic costs of chemical pollution are marked, from the damage they cause to the environment and ecosystem services, and the industries such as fisheries which depend on them, to rising costs of treating health impacts. The Forever Pollution project has estimated that it would cost €18 billion per year to treat PFAS in drinking water if emissions remain unrestricted.

In numbers:

- The societal costs of chemical production are far in excess of the profits they generate.
    - Four groups of toxic chemicals – phthalates, bisphenols, pesticides and PFAS – impose up to $3 trillion a year in preventable costs.

    - Only a dozen companies are responsible for the global production of PFAS, generating about £30 billion a year.
- In terms of cancers, a report commissioned by the government estimated that between 7,000 to 21,000 annual UK cancer diagnoses could be attributable to past occupational exposure to carcinogenic chemicals, and their associated monetary costs could be between £3 billion and £32 billion.
- Water UK says that the cost of removing PFAS from drinking water is already over £70 million a year and rising, and water companies have committed to £2.6 billion in capital expenditure from 2025-2045 and £0.4 billion operating expense to mitigate PFAS pollution in drinking water. Ofwat has said some of this additional expenditure will be recovered in part by an increase in water bills paid by the public.
- Wastewater treatment plants were not designed to remove chemical contaminants, the estimated cost of upgrades is an eye-watering £21billion.
- A water source near Duxford airfield is now so polluted with PFOS (a type of PFAS now banned internationally) that Cambridge Water had to remove that water source from use altogether, in a water-stressed area. The River Mersey has some of the highest levels of PFAS recorded anywhere in the world.

1. You can't manage what you don't measure

Out of the tens of thousands of chemicals on the market, currently just 45 chemicals (termed "priority substances") are systematically monitored and are subject to regulatory controls that set out 'safe limit' concentrations. These, however, represent only a fraction of chemicals of concern to the water environment, and many are 'legacy chemicals' that have long been banned but persist in the environment. As defined by even this small handful of chemicals, not a single English river or coastal water is in good chemical status.

Hundreds of other chemicals, without limits or standards, are found in our fresh and coastal waters with examples of impacts above. Regulatory standards provide the main framework for driving upstream action needed to reduce levels of pollutants in surface and groundwater to within safe limits. For example, the Environment Agency can impose conditions to require lower emission limits via environmental permits on factories discharging the substance into water bodies, or river basin management plans can target measures at sources of those substances, such as restrictions on the spraying of pesticide priority substances near watercourses.

By comparison, the current monitoring by the Environment Agency of a wider range of chemicals in water via the Prioritisation and Early Warning System (PEWS) provides only semi-quantitative data due to the type of laboratory analysis undertaken and hence is only reliably used to indicate presence or absence of chemicals. Most critically, it does not trigger regulatory action to actively address the harmful contaminants identified. Monitoring also excludes chemicals in river sediment, despite several types of chemicals preferentially attaching to sediment, making sediment a major store of chemical pollutants. Regulation also

ignores the combined effect of mixtures of chemicals which can cause harm even when each single chemical is present at levels considered to be safe by regulators. This leaves major holes in understanding, managing and preventing the long-term threat they pose to freshwater ecosystems. In the face of such gaps a precautionary approach is needed to the use of chemicals alongside further investment in monitoring.

Since leaving the EU, the government has not matched new additions to the EU's Priority Substances List that reflect the latest science about chemicals of concern in the water environment. It also has not matched more stringent water quality standards (EQSs) for some of the chemicals on the list nor established an equivalent to the EU's 'Watch List' of substances. The Watch List provides an early warning of emerging pollutants before they become widespread that triggers a requirement to monitor the listed substances in surface waters, generating comparable data across EU countries on frequency, concentrations and geographical trends. The latest version of the EU Watch List, updated in March 2025, added another 12 new substances or sets of substances, identified as having potential risk to human health and the environment.

However, the UK government has not matched any of these improvements or provided a direct replacement for the EU's watch list in England. The UK is now left using outdated safety limits, weak regulation and is failing to adequately monitor and protect ecosystems and human health from substances that are having significant negative effects on both. A 'wait and see' approach on contaminants is not good enough.

TABLE 1: Improvements to EU monitoring of and regulatory standards for chemical pollutants in water

In March 2026, the EU updated its regulatory standards for chemical pollutants in the water environment adding new substances to the Priority Substances list and updating Environmental Quality Standards for substances on the list, and updated the 'EU Watch list' used for gathering better EU-wide data on pollutants that might pose a significant risk.

24 individual substances have been added to the EU list of priority substances on 30 March 2026. Examples include:	
Three **estrogenic pharmaceuticals added as priority substances - ethinylestradiol, estradiol, estriol**	Scientific evidence links exposure to these steroid oestrogens used in contraceptives and HRT to sexual disruption in fish, such as feminisation of male fish and disruption of normal reproductive development.
Bisphenol A classified as a Priority Hazardous Substance, for which	Bisphenols are endocrine-disrupting chemicals that require urgent attention as exposure during critical developmental windows like foetal growth and puberty—when hormones

discharges must cease within 20 years of its listing.	govern brain development—can lead to irreversible effects that may not surface until years later. Research has shown that bisphenols are widespread in the aquatic environment (frequently detected in surface water, sediment, sewage and sludge), the pollution levels of many "increases year by year "and that their presence poses "risks to the aquatic ecosystem and human health".
Glyphosate added for the first time.	Exposure of aquatic life and plants to this herbicide widely used for killing weeds includes adverse effects on DNA and impairment of physiological and behavioural functions, that have been detected even at very low concentrations.
For the first time, the EU legislation requires an assessment of the combined risk of a chemical mixture — aligning standards better with current scientific understanding of combined chemical pressures.	
A group EQS for 24 PFAS, including Trifluoroacetic acid (TFA) due to its high toxicity and persistence	Despite the widespread concerns associated with PFAS, currently just a small sub-group, PFOS, which is banned internationally, is subject to UK regulatory standards in fresh and coastal waters. Analysis by Link and Rivers Trust in 2025 found that 94% of English rivers would fail these EU standards for PFAS in surface water – up from 77% of sites in 2023. A recent scientific paper found widespread PFAS contamination UK fish and water, including a hotspot in Moreton-in-Marsh where contamination levels exceeded drinking water safety thresholds.
A sum EQS for listed pesticides of concern	When pesticides occur in mixtures, toxicity can accumulate through additive and synergistic interactions, while measuring them each in isolation as they are currently in England misses significant impacts on ecosystems. This combined value includes two families of insecticides (neonicotinoids and pyrethroids), two herbicides (glyphosate and nicosulfuron), and one antifungal biocide (triclosan). They are all known to have undesirable impacts on the environment, e.g. neonicotinoids are a significant concern for pollinators such as bees, and pyrethroids are acutely toxic to aquatic species.

EU changes to the environmental quality standard (EQS) for 16 substances: more stringent in 14 cases and less stringent in two cases, including	
A lower EQS for a combination of PAHs Polycyclic Aromatic Hydrocarbons	PAHs are formed from burning coal, gas, oil, food, e.g. from vehicle exhausts in combustion engines, several of which are carcinogenic, mutagenic or toxic to aquatic organisms**,** are often persistent and can accumulate in sediments. The lower EQS is expected to trigger new exceedances that should target better source-control on combustion and metallurgy and disruption of pathways from road and field run-off.
6 substances removed from the priority substances list	Six substances including alachlor and atrazine have been removed from the list as "they no longer pose a widespread risk to or via the aquatic environment". This will reduce costs attached to monitoring these substances and ensure limited resources are prioritised on substances of most concern.
Added to the EU Watch List in 2025	
A group of 10 azole fungicides used as pesticides or for treating fungal infections in humans and other uses.	Their use as pesticides are increasingly considered a source of growing resistance to fungicide treatments – particularly in immunosuppressed patients - presenting a global health threat. In the water environment, many fungicides prefer to attach to sediment, but there is no monitoring of this
Antimicrobial resistant genes (indicators will be added by end of 2027)	Anti-microbial resistance (AMR) is one of the top global public health threats this century, and the environment can act as a reservoir for anti-microbial resistance, with bacteria and genes entering water from sources such as urban wastewater and hospitals. This update recognises AMR as a concern for water quality, with the aim of generating data on where it is occurring, concentrations and geographical patterns and trends over time, to build evidence base for future regulatory decisions.
Microplastics (indicators will be added by end of 2027)	This is another example of the EU expanding the list beyond conventional chemical pollutants. Microplastics are a potential risk to human health and significant source of irreversible environmental pollution. Chemicals added to plastics can leach from particles and contribute to harmful effects on wildlife including energy depletion, impaired fertility and behavioural changes, and microplastics can also concentrate other persistent

	pollutants from the environment, potentially increasing wildlife exposure to chemical mixtures

In his review, Cunliffe flagged that the "current WFD monitoring framework does not provide adequate data on pollutants of concern from a public health perspective, nor their sources". In the Water White Paper, the Government said it would explore setting new ambitious targets for the water environment and would "optimise the current monitoring framework to improve our ability to assess the condition of the whole water environment, understand the pressures affecting it".

Recommendation 1: Overhaul monitoring and regulatory standards for chemical pollutants in water.

- The **Secretary of State must update the Water Environment (Water Framework Directive) Regulations 2017 to add new priority substances and introduce more stringent Environmental Quality Standards (EQSs) for some existing priority substances in line with the latest scientific evidence, which meets or exceeds new updates to the EU's Water Framework Directive and EU Watch List**. It must be stressed that these changes are too slow for acting quickly on substances of concern that are causing damage to our water environments, which require changes set out in recommendation 2 below. In the recent EU update that must be transposed into national law by December 2027, Member States have until 2039, with the possibility to delay until 2045, to comply with the new standards.

- There must also be **much stronger enforcement of these regulatory standards, as well as much more effective fines for pollution incidents**, which are currently so low they are seen as cost of doing business. Violation Tracker shows that the UK, compared to other countries, has issued few or low value fines on chemical companies for pollution incidents and breaches of permits for industrial discharges. With no water bodies in England in Good Chemicals Status, this lack of enforcement action is not because pollution is adequately prevented at industrial sites. As pollution from industrial activity in Thornton Cleveleys in Lancashire and Bentham in Yorkshire has demonstrated. Good Jobs First recommend strengthening enforcement, which should include permit revocation and equity fines (where law-breaking companies are forced to issue new shares) to disincentivise pollution and ensure polluters pay.

2. Preventing chemical pollution at source

Scientists have concluded that the release of chemical pollutants (including plastic) is increasing and has breached its planetary boundary. The priority must be to prevent their release at source.

The PCB scandal shows what happens when governments fail to act on persistent chemicals. Decades of delay in banning them left communities living with harmful pollution that persists today. For example, the UK's killer whale population has not had a calf in almost 30 years, which has been linked to PCB pollution.

Cunliffe Recommendation 10: Government should consider legislative changes to drive a more coherent approach to 'pre-pipe' solutions to stop pollutants and rainwater entering the system, via a future bill. In 'A new vision for water', the Government has also committed to stop pollution early and shift towards pre-pipe solutions.

Preventing chemical pollution at source is considerably more effective and cost-efficient than addressing its impacts, but regulation does not currently phase out the most harmful chemicals or adequately support innovation in safer alternatives and green chemistry. Strict regulation with clear phase-out deadlines has repeatedly proven to be the main driver of substitution toward safer alternatives. The Government should ensure that substances which are particularly hazardous - where there is evidence of persistence, toxicity, mobility, endocrine disruption or bioaccumulation – should trigger regulatory action so they are not used in a broad range of applications including consumer products.

There are over 40 chemical-related regulations, but the most important regulatory tool is to restrict (or ban) harmful chemicals through REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals. Also very important is the CLP Classification Labelling and Packaging of chemical substances regulation, which classifies substances as hazardous – e.g. carcinogenic or mutagenic – and is linked to and triggers regulatory protections in areas from worker safety to transportation.

TABLE 2: PERSISTENT CHEMICALS

Persistent chemicals - such as PFAS, PCBs, mercury and flame retardants - are particularly problematic for the water environment because they resist breakdown and remain in the environment for generations. This can lead to continuous and sometimes lifelong exposure of humans and wildlife, increasing health impacts which emerge over time. The German Environment Agency (UBA) helped to develop the EU's new Persistent, Mobile and Toxic hazard class, which found these intrinsic properties allow them to spread to drinking water sources where they can cause irreparable contamination. The Environment Agency has shown how they can continue to exceed 'safe thresholds' long after they've been banned and accumulate in sediments and wildlife. The fact that not a single English water body meets good chemical status and is not predicted by the Environment Agency to meet it until 2063,

is due to the handful of persistent chemicals that determine this status, even though many of these chemicals are now banned or severely restricted, some decades ago. This shows that hazardous persistent chemicals in use today must be urgently addressed so we do not irreversibly pollute water now with chemicals that last into the next century.

Per-and polyfluoroalkyl substances (PFAS) are a group of over 10,000 highly persistent chemicals which are used in a wider variety of consumer products and industrial processes for their oil and water-repelling properties. The most studied PFAS have been linked with serious health problems including hormone disruption, certain cancers, immune system dysfunction and thyroid disease. Drinking water is a key pathway of human exposure to PFAS. Concentrations of one PFAS, Trifluoroacetic acid (TFA), (which is itself formed from the breakdown of other PFAS, including certain pesticides), have been found in UK rivers in globally significant concentration levels and are rising in European groundwater, posing a growing threat to drinking water. Once PFAS have entered the environment, treatment can be hugely expensive, and can be carbon-intensive. Treatment also generates waste PFAS which can only be safety disposed through high-temperature incineration, that is only available at limited sites in the UK and risks generating potent greenhouse gases. Treatment after contamination cannot undo harms to health and ecosystems, no technology exists to remove PFAS from soils, restore watersheds or extract it from the oceans or atmosphere.

A recent study published by the Royal Society of Chemistry found that, even under the most ambitious (and costly scenario) using emerging technologies at scale, less than 2% of ongoing PFAS emissions could be removed from the environment.

Prevention is therefore not only far cheaper, but the only approach capable of protecting human health and ecosystems at the scale required. Deferring regulatory action on PFAS will mean their continued release and build up in our environment, rising levels of exposure and health impacts on people and wildlife, as well as a mounting burden of toxic waste.

Recommendation 2: Stop chemical pollution at source.

The **government must as a minimum match EU regulation for classifying, banning and restricting harmful substances**, specifically:

- **Adopt new EU hazard classifications including for endocrine disruptors (EDC) and persistence (PMT)**, which have been followed by regulations that act on warnings from scientists to protect people and the environment from exposure to substances with these properties. For example, recent EU legislation automatically bans substances classified as endocrine disruptors from toys, and the proposed classification of Trifluoacetic Acid (TFA) as PMT should lead to restrictions on PFAS in pesticides. In a recent parliamentary debate, the Government committed to legislate

to incorporate new EU hazard classes by June 2027, we will keep a close watching brief on this as the chemicals regulator the Health & Safety Executive makes and implements CLP policy and has previously opposed their introduction.

- **EU restrictions in REACH including its Restrictions Roadmap which sets out restrictions of groups of widely used chemicals of concern** such as bisphenols, those with specific hazards from childcare products, and groups of persistent chemicals such brominated flame retardants (on which the EU has initiated a restriction). It has also restricted or is in the process of restricting other key substances of concern to freshwater and marine environments. For example, on 1,4-dioxane (identified by the Office for Environmental Protection as 'high-risk' to English waters, on which Germany is planning to submit a restriction proposal) and microplastics intentionally-added to products, a significant source of microplastic pollution in water bodies (in force in the EU since October 2023).

- **The EU's proposed broad ban on the use and manufacture of all PFAS as a group of 10,000+ substances** to prevent at source their further build-up in the environment, although with some derogations for essential uses for which alternatives are still in development.

Despite the long-term consequences and burden placed on future generations from inaction, regulation of chemicals in Great Britain is beset by delays. Since exiting the EU regulatory system (which, while far from perfect, set the highest standards globally), the UK has fallen sharply behind its regulatory protections with this gap set to widen with proposed EU restrictions of groups of chemicals in the pipeline, such as PFAS. In December 2025, NGOs were therefore relieved when the government committed to 'reforming UK REACH to enable protections that address chemical pollution to be applied "more quickly, efficiently and in a way that is more aligned with our closest trading partners, especially the EU, by December 2028". However, we are concerned by signs that the Government may be considering broader exemptions than the EU and the extended timeframe for implementing reforms that could make it difficult to catch-up with important EU restrictions in this Parliament. The reforms do not include primary legislative powers for adopting EU restrictions, that could make adopting complex and protective protections harder and more vulnerable to legal challenge.

Stopping emissions at source may not always be possible or desirable and other approaches may be needed, depending on the pollutant and ways in which it enters the environment. Set out below are approaches that are needed in relation to pesticides, pharmaceuticals and urban run-off.

Pesticides: The use of pesticides needs to be significantly reduced to prevent their impact on aquatic life and ecosystems, in line with national and international targets to reduce "the overall risk from pesticides and highly hazardous chemicals by at least half" by 2030". Taking

the important first step of improving pesticide EQSs in line with the EU updates outlined above will provide an important trigger for exceedances to be addressed via land-based 'at source' reductions. This would also need to be accompanied by much better monitoring of land-based pesticide use that could empower river catchment partnerships to act on local sources of pollution harming water quality. But data on pesticide use is not good enough for making or monitoring policy decisions especially at a local level and urgently needs improving.

As well as improving targets for monitoring of much-needed reductions, farmers need financial and practical support to transition to Integrated Pest Management and reduce their use of chemical inputs. Such as public and private policy incentives including whole farm planning, enhanced peer to peer learning between farmers on pesticide reduction. Incentives into R&D are also vital for future-proofing UK crop production as pests and disease challenges shift with changing climate conditions, for example as warmer wetter winters are driving more fungicide use. Even with a greater focus on control at source, some emissions into the environment will continue and nature-based solutions could play a greater role in their attenuation. Such as larger scale implementation of broader grass buffer strips around waterbodies to reduce levels of pesticides entering ditches, rivers, lakes, ponds and streams from arable land and greenhouses.

Urban and road run-off: The urban environment gives rise to a range of chemical contaminants that pollute local waterways, including, for example, hydrocarbons, metals and microplastics transported in road runoff. The Royal Society for Chemistry (RSC) has highlighted new research indicating alarming trends. Tyre wear is one such example, having been identified as one of the most significant sources of microplastics in coasts and oceans. The chemical 6PPD (a rubber preservative in tyres) is transformed to 6PPD-quinone in the environment, which has been linked to mass deaths of salmon in the US.

Adopting a 'sponge city' approach is key to address the issue, so that green-blue infrastructure (nature-based solutions) and sustainable urban drainage (SuDS) features such as wetlands are widely implemented. These intercept urban runoff, prevent it from reaching the sewer or river, lakes, ponds and streams directly, attenuating pollution and reducing flood risk. Designed well, such features can also enhance community health and wellbeing and build resilience against rising urban heat. Much more can be made of water industry's drainage and wastewater management plans that should be collaborative in approach and seek SuDS features throughout the catchment. Local Authorities should be supported to play a key role here.

Pharmaceuticals: Pharmaceuticals enter water bodies from urban wastewater treatment plants, where they impact upon aquatic life and pose potential risks to human health. For example, antidepressant pharmaceuticals can alter fish behaviour, making them less risk averse and more susceptible to predation. Their presence in the environment is also contributing to rising levels of antimicrobial resistance, a global threat to public health.

Their major health as well socioeconomic benefits compel other approaches in addition to prevention at source, as measures to reduce unnecessary use are more limited. For example, ending disposal of medicines down toilets or sinks by increasing awareness of medicine 'take-back schemes' whereby unwanted drugs can be returned to a pharmacy. A recent academic paper published in The Lancet identified 37 interventions, including measures to incentivise investment in alternatives with less environmental impact, to – critically – improvements to wastewater treatment that can remove them using technologies such as ozonation.

3. Make Polluters Pay

In his review, Cunliffe highlighted how current wastewater treatment standards do not account for pollutants "which are becoming increasingly present across the water system" and which can have associated health risks which are not effectively managed in the current framework. The review found that as of 2022, 40% of wastewater treated in England received only primary and secondary treatment, whilst 60% received tertiary treatment (capable of treating phosphorus and nitrogen, important for preventing eutrophication). Only a couple of UK sites have recently established quaternary treatment for chemical pollutants.

While treated wastewater is one route by which chemical pollutants enter water bodies, it is a key pathway and provides - as EEB puts it - the "last filter" protecting receiving waters. Quaternary treatment can improve chemical and ecological status of the receiving water bodies, reducing risks to human health and providing an important pollution-mitigation measure.

In 2024, the EU revised **its Urban Wastewater Treatment Directive** (UWWTD) in 2024 to include mandatory requirements for removing a broad spectrum of chemical pollutants from wastewater. This also included a polluter pays mechanism (EPR, Extended Producer Responsibility) for recovering the costs of monitoring and quaternary treatment upgrades from the producers of pharmaceutical and cosmetic products. These provisions will start to come into effect from next year, with implementation of upgrades staggered through the 2030s and 2045 depending on plant size and risk.

While cleaner water can come at the expense of an increasingly contaminated sewage sludge product (whereby contaminants in wastewater concentrate within sludge during wastewater treatment), this can be avoided in part by extended producer responsibility obligations incentivising better source control. Where this is not possible, the application of contaminated sewage sludge on land should be prohibited until proven safe.

In its recent inquiry on PFAS, the Environmental Audit Committee found **"the Government has not applied polluter pays principle properly on PFAS"** and identified a significant shortfall in funding to tackle the remediation of PFAS in the environment. The EAC illustrated the difficulties of making the polluter pay for remediating PFAS, either because the company may no longer exist or problems apportioning responsibility for pollution from multiple sources

"used in thousands of products and processes over many decades". While the cost of remediation is substantial and growing, it currently falls to the public. For example, the cost of removing PFAS from drinking water falls on water billpayers and the costs of remediating contaminated land falls on the council if the liable business cannot be held legally responsible.

In 'The Last Witness', Dan Ashby has underlined the difficulties of implementing the Environmental Protection Act 1990, which requires local councils to identify **contaminated land** and powers to go after polluters to pay clean-up costs. He finds that of the 781 sites declared 'contaminated', in only five cases did the polluter end up paying. Given the sizable difficulties making huge mostly US corporations legally and financially accountable for this pollution, he argues that "increasingly .. councils are opting not to open Pandora's box at all. It is hardly reassuring to the people who live near these sites, though many of them have no idea". Contaminated land can have serious impacts on local waterways, and remediation work often involves water decontamination and protection work.

Leigh Day has also highlighted the **lack of legal routes for communities most affected by chemical pollution** and living close to contaminated sites to redress against polluters. It identifies a wider range of legal routes in other European jurisdictions where "PFAS litigation is more advanced than in the UK". For example, a legal judgement in Italy in 2025, which resulted in the conviction of 11 former Miteni executives imposing a combined 141 years of imprisonment and substantial sums in compensation to individuals and public authorities, for groundwater contamination from the manufacture of PFAS.

Case examples of remediation funds: The EAC recommended the Government should "apply the polluter pays principle to prevent ongoing and historic PFAS contamination and consult .. on establishing a national PFAS Remediation Fund". In its response, the Government agreed that recommendations on funding "warrant serious consideration" and are informing policy development. One example is a French law that will phase-out industrial PFAS discharges by 2030 and applies a levy on emissions in the meantime (of €100 per 100g of PFAS discharged), to be used by public water authorities to fund remediation of contaminated drinking water. Another example the Government could look at is the United States Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) 'Superfund' for contaminated land, which is funded by a tax on certain chemicals and fines for violations. The CERCLA law gives the US Environmental Protection Agency the authority to seek out and hold accountable parties who are responsible for pollution on a site, or if they cannot find a legal liable party, they can use the superfund to pay for that cleanup. In the US, legal routes for holding companies accountable are also more developed. More than 350 companies have been sued in the US over PFAS, with executed or proposed settlements over $17 billion – which are primarily related to public water systems seeking damages for increased costs of providing clean water.

There are technical and other challenges with implementing polluter pays mechanisms, and it will take a clear-eyed government with commitment and vision to implement this principle.

Applying schemes to wastewater omits polluters responsible for pollutants that enter the environment from other routes, such as hydrocarbons in road-runoff. Developing a clear evidence-base for apportioning and assigning responsibility for pollution is difficult, especially when impacts occur years after exposure. This difficulty is often exploited and challenged by polluting companies, resulting in delays to and difficulties implementing proposals. For example, legal challenges against the UWWTD dispute the fairness of the allocation and the exclusion of other sectors that contribute to micropollutants, arguing it disproportionately targets the pharmaceutical sector and will have an impact on the affordability of widely used medicines. The aim is to make polluting expensive and to incentivise innovation in cleaner products, which would be evidenced by declining revenue and pollution. The European Commission has estimated these changes will produce a net economic annual benefit of €6.6 billion, and the scheme will reduce costs on businesses and consumers (via taxes and water bills for paying for clean water). The reality is that the UK status quo - where the public largely pays for pollution - is deeply unfair and unsustainable. Measures for funding remediation are not about establishing a principle – that was formally incorporated in UK law via the Environment Act 2021 – but enforcing a responsibility that already exists.

In legal action taken by Poland, a recent non-binding judgement questioned the evidence for making cosmetics and pharmaceutical sectors responsible for 80% of the costs, but did not recommend that the European Court of Justice (ECJ) reject responsibility on polluters for paying for upgrades. The final ECJ judgement is still to come and unlikely to unpick the logic of the EPR, but the original design does leave scope for including additional chemical producer groups in it.

Preventing pollution at source must remain the priority**,** as by far the most effective - as well as cost-efficient - way of preventing the harm to ecosystems and human health. But that this does not eliminate the need for advanced wastewater treatment to reduce levels of pollutants entering our water bodies (particularly for those which cannot be prevented at source) and the remediation of contaminated land, to reduce leachate entering water bodies. We urge the Government to demonstrate bravery in applying the polluter pays principle for recovering their costs.

Recommendation 3: Make polluters pay for treating chemical pollutants in wastewater released into the environment and remediating contaminated water

We recommend **the Government**:

- **Commits to a timeline to align with the EU's Urban Wastewater Treatment Directive.** This would help to minimise trade friction with the EU and within the UK's internal market, and our shared waterways not achieving good status from continued pollution in England and Wales. The EU UWWTD is in force in the Republic of Ireland and Northern Ireland. The Scottish Government has set out its intention to align with

it as far as possible, acknowledging that use of the EPR "may require a UK-wide approach in practice".

- **Introduces a levy on major polluting sectors that would implement the polluter pays principle**. This should fund improvements to monitoring and treatment.

- Ensure regulators put water health at the core of permitting decisions, by much stricter permits for industrial discharges and much better enforcement of any breaches. There must be stronger disincentives to pollution and consequences to non-compliance to better protect water.

- Integrate improvements to monitoring into the **devolved catchment partnership regional structure**, enabling regional bodies to understand and act on chemical pollutants. The proposal could draw on the Netherlands' Water Pollution Levy, that charges industry, agriculture and households according to their pollution load, with revenues reinvested in water-quality improvements and compliance enforced through monitoring, audits and penalties. The system is grounded in monitoring by regional authorities, which could also be harnessed in the UK by drawing on wealth of data and evidence already collected locally by NGOs and citizen scientists. This would also comply with the recent 'Costa Beck' High Court ruling that underlined legal responsibilities on each water body to take action to address pollution, including failure to reach good chemical status.

Wildlife and Countryside Link (Link) is the largest nature coalition in England, bringing together 94 organisations to campaign for nature, climate, animal welfare and a healthy environment for everyone. Wildlife and Countryside Link is a registered charity number 1107460 and a company limited by guarantee registered in England and Wales number 3889519.

For questions or further information please contact:
Chloe Alexander, Policy & Advocacy Lead (Chemicals) Wildlife and Countryside Link E: chloe@wcl.org.uk

The following organisations have inputted into this briefing and support:
Angling Trust
CHEM Trust
Fidra
Froglife
IFM
Marine Conservation Society
PAN UK
Rivers Trust

Surfers Against Sewage