

**Wildlife and Countryside Link submission to Environmental Audit Committee
Impact of Toxic Chemicals in Everyday Life inquiry**

March 2019

Wildlife and Countryside Link (Link) is the largest environment and wildlife coalition in England, bringing together 49 organisations to use their strong joint voice for the protection of nature. Our members campaign to conserve, enhance and access our landscapes, animals, plants, habitats, rivers and seas. Together we have the support of over eight million people in the UK and directly protect over 750,000 hectares of land and 800 miles of coastline.

This consultation is supported by the following Link members:

- Angling Trust
- A Rocha UK
- CHEM Trust
- Environmental Investigation Agency
- Institute of Fisheries Management
- International Fund for Animal Welfare
- Marine Conservation Society
- MARINELife
- ORCA
- The Rivers Trust
- Salmon and Trout Conservation
- Whale and Dolphin Conservation

1. Why are toxic chemicals used in consumer products? What benefit do they offer? How are levels of toxicity measured?

1.1 Chemicals are used in consumer products to provide a function, e.g. acting as a surfactant¹, a fire retardant² or a dye. These functions may be essential to the working of the product, or may be there for other reasons such as marketing (e.g. shiny chrome coatings on lipstick). There are often many ways of providing such a function, and innovation can result in new approaches. Older chemicals are usually cheaper and their properties within the process concerned will be better understood, so they have a big market advantage against alternatives. This is one reason why regulation is so important to provide the market push towards innovation. One major problem is the tendency for companies to move from one restricted chemical to another restricted but similar chemical. *The UK Government and regulators should limit this by restricting groups rather than single chemicals*³.

1.2 Since the 1930s there has been a huge increase in the global production and use of chemicals in many kinds of consumer products and for many decades chemicals could be legally placed on the market without any demand for safety data. This has gradually changed in recent years, in particular with the implementation of the EU's REACH (Regulation, Evaluation, Authorisation of Chemicals) Regulation. Pre-REACH it was possible to use older chemicals without providing any safety data, but now the REACH phase-in period is completed, all chemicals produced or imported at more than 1 tonne per annum should include safety data. However, evidence shows many registration dossiers are missing safety data, and the information required can be limited (particularly for lower tonnage chemicals)⁴. *The UK Government needs to address this missing safety data and encourage producers to broaden the information available to include all quantities of chemicals.*

1.3 Toxicity can be established by computer modelling, in vitro tests and animal tests. Each has different levels of reliability for different endpoints, and toxicity towards complex body systems like the immune system or the brain is much more difficult to establish.

1.4 In addition to largely ignoring complex endpoints such as immune system effects, toxicity assessments do not usually consider the cumulative impacts of exposure to multiple chemicals. Assessments also vary in how they deal with vulnerable populations such as children, the foetus, or those that have genetic or other susceptibilities. *Toxic assessments need to be improved to increase understanding of cumulative impacts and effects on vulnerable populations.*

5. What is the environmental risk from toxic chemicals? As part of its commitment in the 25 Year Environment Plan, what measures is the Government taking to reduce harmful chemicals in the environment? Will these measures be effective?

5.1 Hazardous chemicals enter the environment through a variety of pathways including point source i.e. wastewater and diffuse sources i.e. air pollution. Their persistence and fate is controlled by many complex interactions. But we know that organisms – including humans - are exposed to combinations of chemical mixtures and other environmental stressors throughout their lifetime and the potential impacts of this exposure on individuals, communities, ecosystems and the services they provide, remain largely unknown and difficult to predict.

5.2 For example if we take the marine environment, chemicals enter it via atmospheric transport, run-off into waterways or by direct disposal into the ocean. It is estimated that 80% of marine

¹ <https://en.wikipedia.org/wiki/Surfactant>

² https://en.wikipedia.org/wiki/Fire_retardant

³ <https://www.chemtrust.org/toxicoup/>

⁴ <https://www.foodpackagingforum.org/news/toxicological-data-missing-in-reach-registration-dossiers>

chemical pollution originates on land⁵. The vast majority of the global land surface is connected to the marine environment via river systems, so chemical pollution of rivers is inextricably linked with ocean pollution.

5.2.1 Ocean pollutants include persistent organic pollutants (POPs), endocrine disrupting chemicals (EDCs), mercury and heavy metal compounds, pesticides, pharmaceuticals, oil, plastic wastes and their related chemicals (e.g., Bisphenol A [BPA], phthalates), personal care products and other industrial and agricultural emissions. We are only just becoming aware of the identity, volume and scope of many ocean pollutants. Many of their hazards and complex ecological interactions are still unknown.

5.2.2 Many ocean pollutants do not have human health data or environmental fate information, and our understanding of the long-term impacts of endocrine disrupting chemicals on the reproduction and behaviour of fish and other marine organisms is still in its infancy. However, recent research has demonstrated that even 40 years after banning the production of Polychlorinated Biphenyls (PCBs), the POP remains a threat to ocean animals such as the Orca⁶.

5.3 For the aquatic environment, hundreds of chemicals are classified with regard to aquatic toxicity under the EU harmonized classifications - 1,045 chemicals are classified as “very toxic to aquatic life”; 933 are classified as “very toxic to aquatic life with long lasting effects”; 566 as “toxic with long lasting effects”; 406 as “harmful with long lasting effects”; and 252 as “may cause long lasting harmful effects to aquatic life”. It is suggested that at least 27% of total ecosystem losses are due to pollution by chemicals. The cost of inaction on chemicals for biodiversity is high⁷.

5.3.1 Adverse effects on aquatic animals include cancers, disrupted reproduction, immune dysfunction, damage to cellular structures and DNA, and gross deformities. Examples of adverse effects of water contaminants on aquatic vertebrates include feminisation of fish, amphibians, and reptiles; and developmental delays, acceleration, and malformations in amphibians exposed to agricultural chemicals. 45% of UK rivers could have ibuprofen levels found to be harmful to fish⁸ and the anti-depressant Prozac has been shown to lead to a reduction in starling foraging and breeding behaviour⁹. These tend to alter behaviour rather than cause death but impact populations through affecting reproductive success and reduced survival.

5.3.2. In the last river basin management plan assessment, over 1,000 water bodies in England assessed identified chemicals as a pressure contributing to not achieving Good Ecological Status under the Water Framework Directive.¹⁰

5.4 There are also huge gaps in our knowledge of how complex mixtures of pollutants disrupt hormones, growth and reproduction in wildlife.¹¹ Evidence has shown that chemicals in aquatic

⁵ https://ipen.org/sites/default/files/documents/ipen-ocean-pollutants-v2_1-en-web.pdf

⁶ <http://science.sciencemag.org/content/361/6409/1373>

⁷ http://www.unep.org/hazardoussubstances/Portals/9/Mainstreaming/GCO/The%20Global%20Chemical%20Outlook_Full%20report_15Feb2013.pdf

⁸ Exploiting monitoring data in environmental exposure modelling and risk assessment of pharmaceuticals (2014). A Boxhall, V Keller, J Straub, S. Monteiro, R Fussell, R. Williams. Environmental International [Volume 73](#), December 2014, pp 176–185

⁹ Behavioural and physiological responses of birds to environmentally relevant concentrations of an antidepressant (2014). T. Bean, A. Boxall, J. Lane, K Herborn, S. Pietravalle and K. Arnold. Philosophical Transactions of the Royal Society B: Biological Sciences. November 2014, Vol 369, issue 1656.

¹⁰ EA (2015) Update to the river basin management plans in England: National Evidence and Data Report

plants and animals can accumulate further up the food chain via predation and ultimately into human food. These exposures can lead to a variety of problems in predatory species, including thinning of eggshells, disruption of parental behavior, reproductive disorders, and cancers, among other effects. Laboratory studies also suggest that the effect of some endocrine disrupting chemicals can be transgenerational affecting subsequent generations. *The UK must ensure adequate monitoring of bioaccumulation and combination effects of chemicals in order to effectively understand the impact of chemicals on the environment. Monitoring of sub-lethal impacts such as those affecting reproduction and reduced fecundity should also be taken into account whereas currently only lethal doses are considered.*

5.5.1 The measures aiming to tackle chemical pollution in the 25 Year Environment Plan do not address chemical pollution and exposure from consumer products such as toys, furniture, cosmetics or leakage of plastic microparticles from textiles, tyres etc. They focus solely on POPs and merely include existing obligations under the Stockholm and other Conventions. In addition, the Government’s Persistent Organic Pollutants national implementation plan is unambitious, which was highlighted in the [Link submission](#) to the consultation in 2017.

5.7 The Government should set targets and strategies for the reduction into the environment from all sources of all substances of regulatory interest (e.g. all substances of very high concern on European Chemicals Agency’s candidate list, all substances in the REACH Restrictions process). They also need to *address emerging chemicals of concern* (persistent, mobile, pharmaceutical, endocrine disruptors etc) that are found in everyday products such as many “new” bisphenols.

5.8 Link want Government to show international leadership on chemical pollution and waste by including new, ambitious, actions and targets in a new UK chemicals strategy.

5.9 In addition, continued and concerted action is needed to address the toxic chemicals associated with plastics. A recent study identified potential health impacts associated with every stage of the plastic supply chain and lifecycle including through chemical additives, processing agents and the by-products of plastic production.¹² Chemical additives can include stabilizers and plasticizers, such as phthalates, as well as chlorinated, brominated and fluorinated compounds, which pose risks to human health and can leach into the environment.¹³ A study on plastic packaging (the most common single-use plastic) documented that 63 of the chemicals associated with plastic packaging rank highest for human health hazards.^{14,15} 34 of the chemicals are recognized as EDCs or potential EDCs. The study noted that seven of the substances associated with plastic packaging “are classified in the EU as persistent, bioaccumulative, and toxic (PBT), or very persistent, very bioaccumulative (vPvB)”¹⁶.

5.9.1. Certain polymer types have been identified as particularly harmful. The plastic products that are most hazardous based on carcinogenic monomer release include: polyurethanes (flexible foam

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https://www.oxfordmartin.ox.ac.uk/downloads/restatements/Oxford_Martin_Restatement6_Endocrine_Disrupting_Chemicals.pdf

¹² CIEL, 2019. Plastic & Health: The Hidden Costs of a Plastic Planet. Available at: <https://www.ciel.org/wp-content/uploads/2019/02/Plastic-and-Health-The-Hidden-Costs-of-a-Plastic-Planet-February-2019.pdf>

¹³ Ellen MacArthur Foundation, The New Plastics Economy: Rethinking the Future of Plastics (2016), pp. 29-30.

¹⁴

<https://www.sciencedirect.com/science/article/pii/S0048969718338828?via%3Dihub>

¹⁵ Groh, Ksenia J. et al (13 July 2018). *Chemicals associated with plastic packaging: Inventory 1 and hazards*. PeerJ Preprints. Available at: <https://doi.org/10.7287/peerj.preprints.27036v1> [accessed 01 August 2018]

¹⁶ Ibid. 42

in furniture, bedding, and carpet backing), polyvinyl chloride (PVC pipes, packaging, wire and cable coatings, the monomer being vinyl chloride), epoxy resins (coatings, adhesives and composites, such as carbon fibre and fibreglass), and polystyrene (e.g. in food packaging, CD cases, hard plastic in consumer products, the monomer being styrene).¹⁷ PVC is one of the world's largest dioxin sources, and this group of chemicals comprises some of the most toxic chemicals ever released into the environment.¹⁸ Further, PVC recycling is neither technically nor financially feasible. While a number of retailers have voluntarily phased out the use of PVC in packaging it is still used in the UK in trays and pots and an estimated half a million tonnes are used in packaging applications across Europe.¹⁹

5.9.2. Through the Resource and Waste Strategy, the UK government is looking to decrease use of hazardous materials, with a focus on prevention, in line with the waste hierarchy.²⁰ Action should be taken to identify and phase out plastics that are particularly toxic to environmental health (including *inter alia* PVC and polystyrene). Through reforms to the Extended Producer Responsibility scheme for plastic packaging, the government is considering an 'approved' list of recyclable packaging.²¹ Measures could be implemented through this process to strongly disincentivise and/or prohibit harmful plastics from being placed on the market.

5.9.3 Among the needed actions to begin addressing toxic chemicals in plastics are those to ensure transparency and compel disclosure. Currently, assembling a complete inventory of chemicals in plastics remains elusive for two reasons: first, some specific formulations are considered proprietary; and, second, information is not passed along the supply chain. In the report *Considerations and Criteria for Sustainable Plastics from a Chemicals Perspective*, prepared for the Organization for Economic Co-operation and Development (OECD), identifying the chemicals in plastics and creating a system for passing this information along the supply chain were considered priority actions.²² However, these should be accompanied by other measures, including uniform labelling, global standards and, where appropriate, restrictions on the use of certain additives and/or problematic polymers, e.g. those exceeding agreed-upon concentration thresholds for residual monomers and oligomers.

5.10. Microplastics (small plastic fragments <5mm) can concentrate PBT chemicals such as PCBs (polychlorinated biphenyls) and DDEs (metabolites of DDT, dichloro-diphenyl-trichloroethane) from seawater and often also contain additives with endocrine disrupting properties.²³ There is scientific evidence of adverse effects in a range of marine and freshwater species, including impacts on growth and reproduction in species that perform vital ecosystem functions and are important in commercial fisheries.²⁴

¹⁷ Delilah Lithner, Åke Larsson, & Göran Dave, Environmental and health hazard ranking and assessment of plastic polymers based on chemical composition, 409(18) *Sci. of The Total Env't* 3309, 3309-24 (2011), <https://doi.org/10.1016/j.scitotenv.2011.04.038>.

¹⁸ AEA Group, 2009. Review and Update of the UK Source Inventories of Dioxins, Dioxin-Like Polychlorinated Biphenyls and Hexachlorobenzene for Emissions to Air, Water and Land – Annex.

¹⁹ <http://www.bpf.co.uk/article/bpf-responds-to-waitrose-ban-on-pvc-use-in-packaging-267.aspx>

²⁰ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/765914/resources-waste-strategy-dec-2018.pdf

²¹ <https://consult.defra.gov.uk/environmental-quality/consultation-on-reforming-the-uk-packaging-produce/>

²² Organization for Economic Cooperation and Development (OECD), *Considerations and Criteria for Sustainable Plastics from a Chemicals Perspective Background Paper 1* (Copenhagen, 29-31 May 2018)

²³ Ananthaswamy, A. 2000. Junk Food - a diet of plastic pellets plays havoc with animals' immunity. *New Scientist*, 20/01/01.

²⁴ Galloway, T. & Lewis, C. 2016 (and references therein). Marine microplastics spell big problems for future generations. *PNAS*, 113, 2331-2333;

5.10.1 The UK ban on microbeads in rinse-off cosmetics and personal care products came into effect in 2018, in an important step towards reducing a major source of microplastic pollution. In 2019, the European Chemicals Agency (ECHA) proposed an EU-wide restriction of intentionally added microplastics in a wider range of products beyond rinse-off cosmetics.²⁵ As a next step, *the UK government should extend the scope of the current microbeads ban to cover all types of products covered in proposed EU-wide restriction, including household cleaning products and leave-on cosmetics.* This is an action many of the UK's leading grocery retailers have already taken.²⁶

5.10.2 To ensure the effectiveness of measures to reduce microplastic pollution, legislative action is required to prevent the loss of plastic pellets (also known as nurdles), which are the second-largest direct source of microplastic pollution to the ocean by weight. A comprehensive approach is needed to ensure that actors handling pellets across the entire supply chain commit to thorough and transparent implementation of best management practices, building on the [Operation Clean Sweep](#) toolkit. A 'supply chain approach' has been recommended as the most promising systemic solution to pellet loss in an in-depth independent review of all policy options.²⁷

7. Is current legislation on producer responsibility and management of waste sufficient for recyclers to identify toxic chemicals in products? Should materials treated with flame retardants be available for use as recycled material in consumer products?

7.1 We strongly believe that materials treated with flame retardants and other chemicals of very high concern, should not be available for use as recycled materials in any products.

7.1.2 The Circular Economy will only be successful in the long term if customers – including the public – are confident in the quality of recycled material. To maintain the credibility and safety of the circular economy, recycling should not perpetuate the use of legacy substances. Chemicals which have been assessed to pose an unacceptable risk, or have properties of very high concern, should not be redistributed in society and environment, but rather collected and disposed of in a safe way. There must be acceptance that some substances, e.g. POPs and substances of very high concern, should not be recycled.

7.2. Contaminated recycled material²⁸ in e.g. toys²⁹ and food contact materials³⁰ have frequently been identified by NGOs³¹, not regulators. This reveals a lack of effective legislation for producers and waste management which is an unacceptable situation. Such *recycling should be unlawful and this needs to be enforced.*

7.3 Industry should be responsible for phasing out substances and chemicals of concern at the design stage. This principle should be pursued effectively by policy makers through product policies. *Easy access to information for the whole supply chain, including for consumers and recyclers, needs to be a requirement.*

²⁵ <https://echa.europa.eu/documents/10162/decfbb48-7240-9aa2-d0fa-7f18582fce36>

²⁶ As reported in: Environmental Investigation Agency and Greenpeace UK, 2018, Checking out on plastics. Available online at: <https://checkingoutonplastics.org/wp-content/uploads/2018/11/Checking-out-on-plastics.pdf>

²⁷ <https://www.nurdlehunt.org.uk/images/Fidra---Pellet-Loss-Prevention-Options---Final.pdf>

²⁸ "Toxic Loophole: Recycling Hazardous Waste into New Products" Arnika/IPEN, 2018, <https://ipen.org/documents/toxic-loophole-recycling-hazardous-waste-new-products>

²⁹ "POPs Recycling Contaminates Children's Toys with Toxic Flame Retardants" IPEN, 2017,

<https://ipen.org/documents/pops-recycling-contaminates-childrens-toys-toxic-flame-retardants>

³⁰ <https://www.foodpackagingforum.org/news/hazardous-chemicals-in-black-plastic-food-containers>

³¹ "Toxic Soup: Dioxins in Plastic Toys" Arnika/IPEN, 2019, <https://ipen.org/documents/toxic-soup-dioxins-plastic-toys>

7.4 The 'polluter pays' principle should ensure that companies selling chemicals, which are later banned, pay for the decontamination of products – e.g. PCBs in buildings or brominated flame retardants in furniture. The current situation still incentivises use of harmful chemicals and maximises their volume in products.

7.5 The UK should support the establishment of an international database of substances of very high concern in products to facilitate transparency and traceability in legacy chemicals. It should also explore further development of recycling technologies and analytical testing methods. This could be considered as part of reforms to the Extended Producer Responsibility legislation for packaging, whereby companies will be obligated to pay the full costs of treatment of packaging they place on the market.

12. What steps can the Foreign and Commonwealth Office take to influence other countries to reduce the manufacturing and improve control of toxic chemicals in consumer products?

12.1 The Foreign and Commonwealth Office should encourage global implementation of chemicals good practice – such as the REACH approach to chemicals regulation and use of the safety data resulting from REACH.

12.2 The UK can support the proposal put forward by the Government of Norway to the Secretariat of the Basel Convention to include the export of mixed plastics within the Basel Convention control regime for international waste shipments, so that all mixed plastic waste is notifiable to both the exporting and importing countries, and any intermediary countries through which the waste is transported would need to agree the export in advance.³² This would be an important step towards addressing the environmental and social problems associated with the UK and other countries' current reliance on exporting plastic waste to countries with lower labour and processing costs, often without oversight of the working conditions involved, or whether the plastic is ultimately recycled.³³

12.3 Through the United National Environment Assembly (UNEA) process, the UK can support the prevention of plastic pollution as the primary mandate of a new legally binding global instrument, with control measures on the use of toxic additives in plastics, such as through global market restrictions. Through this process, the UK could support standards for labelling, certification schemes, and product design (e.g. to promote safer design, recycling, and secondary markets for recyclates).³⁴

12.4 The UK Government should show global leadership by strongly opposing the continued recycling of BDE chemicals and other flame retardant substances through the Stockholm Convention. In turn, they should encourage other member states to also oppose this exemption and request an end to this recycling in 2020, not 2030 as previously agreed by parties.³⁵

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³² <http://www.basel.int/TheConvention/ConferenceoftheParties/Meetings/COP14/tabid/7520/Default.aspx>

³³ For example, see: Greenpeace Malaysia, 2018. The recycling myth: Malaysia and the broken global recycling system. Available at: <https://www.greenpeace.org/seasia/PageFiles/936685/The%20Recycling%20Myth%20-%20Malaysia%20and%20the%20Broken%20Global%20Recycling%20System.pdf>

³⁴ For more information, please see: <https://www.ciel.org/wp-content/uploads/2018/11/Thought-starter-for-a-new-global-convention-with-a-multi-layered-governance-approach-to-address-plastic-pollution-Nov-2018.pdf>

³⁵ <https://chemicalwatch.com/55378/un-treaty-listed-flame-retardants-found-in-recycled-plastic-toys>