How do we address the microplastics problem?

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SBTi approved reduction targets consistent with the most ambitious goals of the Paris Agreement to keep warming below 1.5°C

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- Principal and global lead for Biodiversity & Ecosystems
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- Senior Managing Consultant and lead for UK Health Sciences
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- Based in Cheltenham, UK

Agenda

01 Plastics and microplastics in the environment

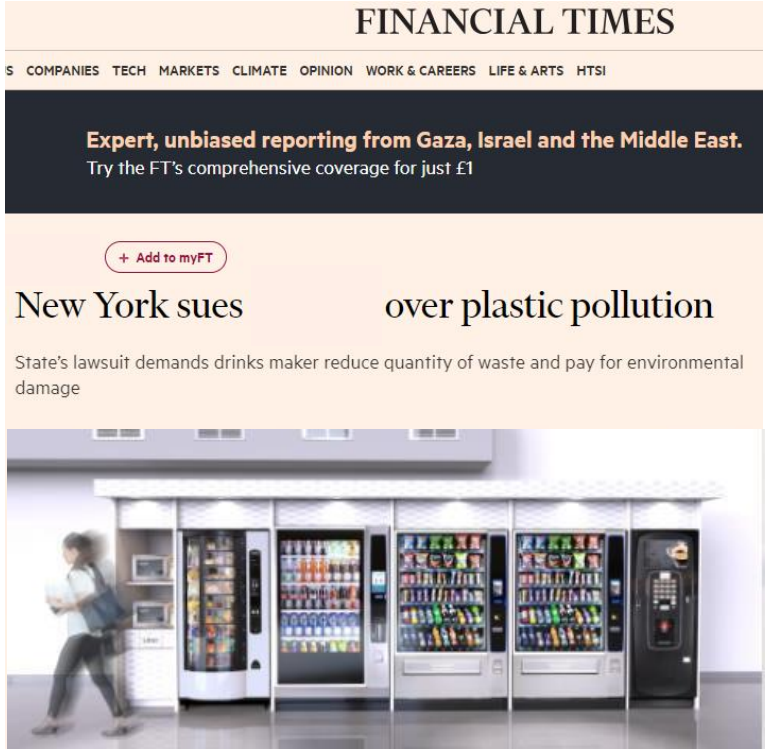
02 Microplastic in food

03 EU Restriction on Microplastics

04 Questions

Greenwashing

On 10 November 2023, a drinks manufacturer was sued by New York state in relation to plastic pollution along the Buffalo River allegedly contaminating the water and harming wildlife. The company had claimed it was reducing plastic usage and improving waste management. The courts sued for misleading environmental claims (greenwashing).



Microplastics are small pieces of plastics, smaller than 5mm. They are persistent, very mobile, but also accumulate, and difficult to remove from nature.

They are found in humans and in the environment, particularly marine ecosystems, also in food and drinking water; and all around the world.

Estimated time of degradation in basic fragments. This is often not (yet) decomposition in mineral and organic fragments reassimilated by the environment.

Quiz answers: How long until it’s gone?

1. Plastic bag

a) 1 year
b) 1-10 years
c) 10-20 years
d) 20-40 years

2. Photo-biodegradable beverage holder

a) 1 month
b) 6 months
c) 1-5 years
d) 5-10 years

3. Plastic bottle

a) Less than 50 years
b) 50-100 years
c) 350 years
d) 450 years

4. Fishing line

a) 250 years
b) 300 years
c) 600 years
d) 850 years

What are the consequences?
Environment

Plastics

- Altering habitats and natural processes, reducing ecosystem resilience
- Entanglement of marine and coastal species
- Ingestion by wildlife
  - New disease ‘plasticosis’ discovered in seabirds causing scarred digestive tracts
  - In 1970s & 80s, <10% of surveyed seabirds affected, now up to 90% with plastics in their gut
  - Marine Strategy Framework Directive recently published monitoring guidance for marine litter, including plastics and microplastics

Microplastics

- May carry pathogens
- Release toxic chemicals
- Move through food webs, and air, soil, ice, snow and water
- Sea ice is a temporary sink, then secondary source and transport

What are the consequences?
Supply chains

Raw materials

- Biodiversity loss from change in land & sea use due to natural resource extraction

Processing

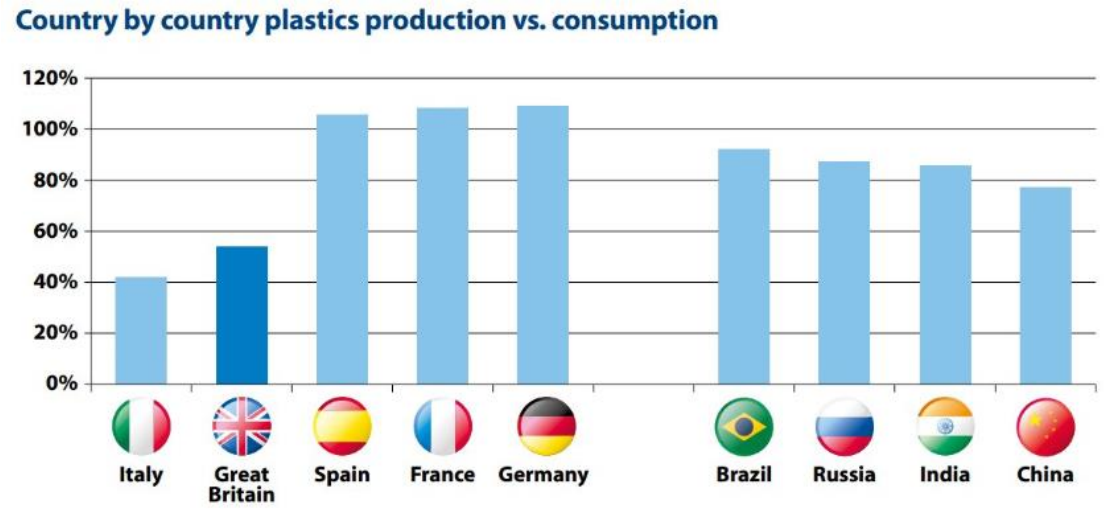
- Dependency on the natural environment for processing and mitigating emissions/discharges

Transport

- UK is reliant on imports of materials and products; also exports products around the world, leading to potential impacts on the natural environment (climate, invasive species)

Use and Waste Management

- British Plastics Federation is focussed on reduction of single use plastics and increased recycled content
- And, extended producer responsibility for packaging recovery with a goal of zero plastic packaging to landfill by 2030

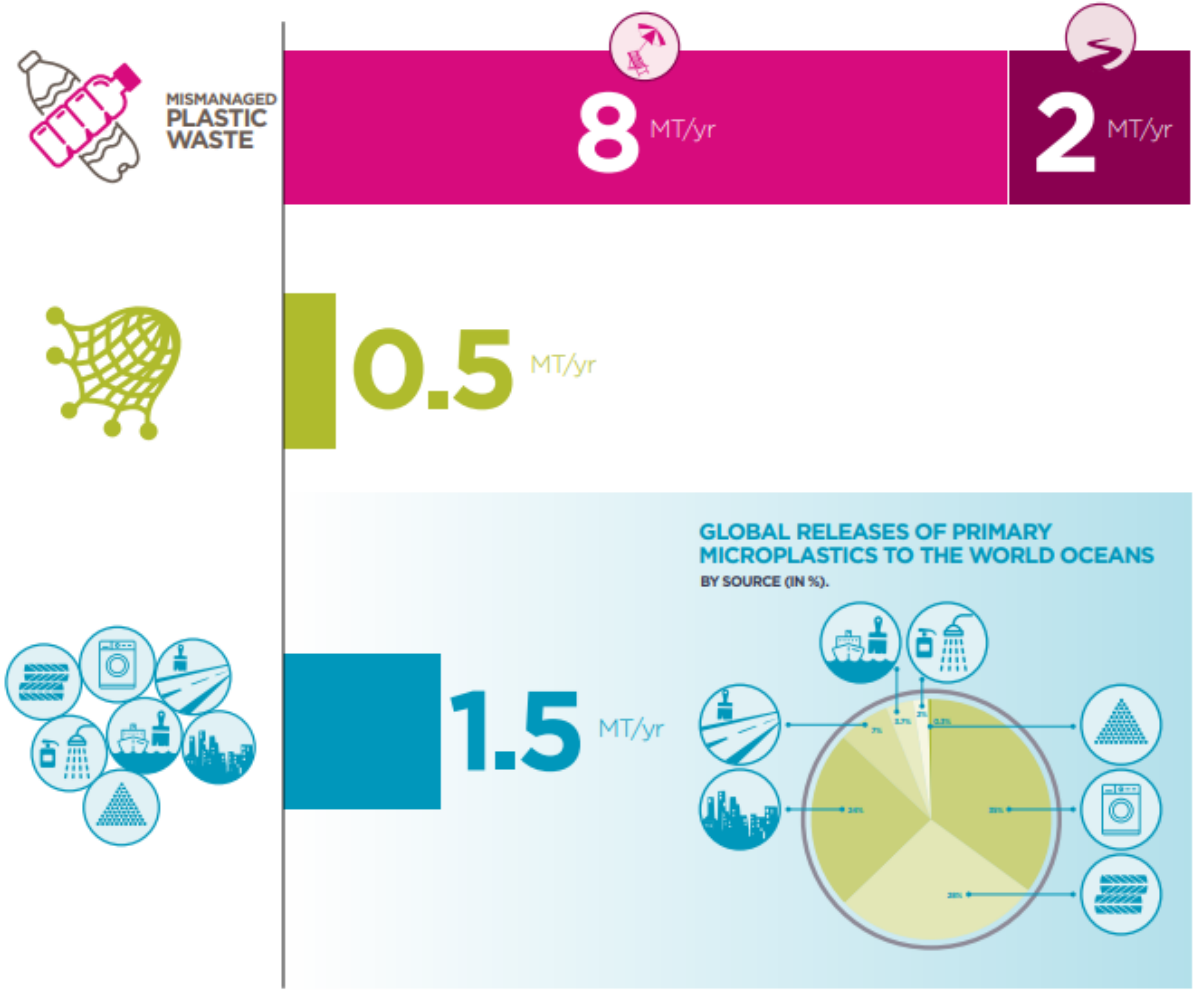


The UK currently produces around half as much polymer as it consumes (in 2020 this was 1.67M tonnes produced vs 3.3M tonnes consumed) and is therefore heavily reliant on imports of raw material

British Plastics Federation

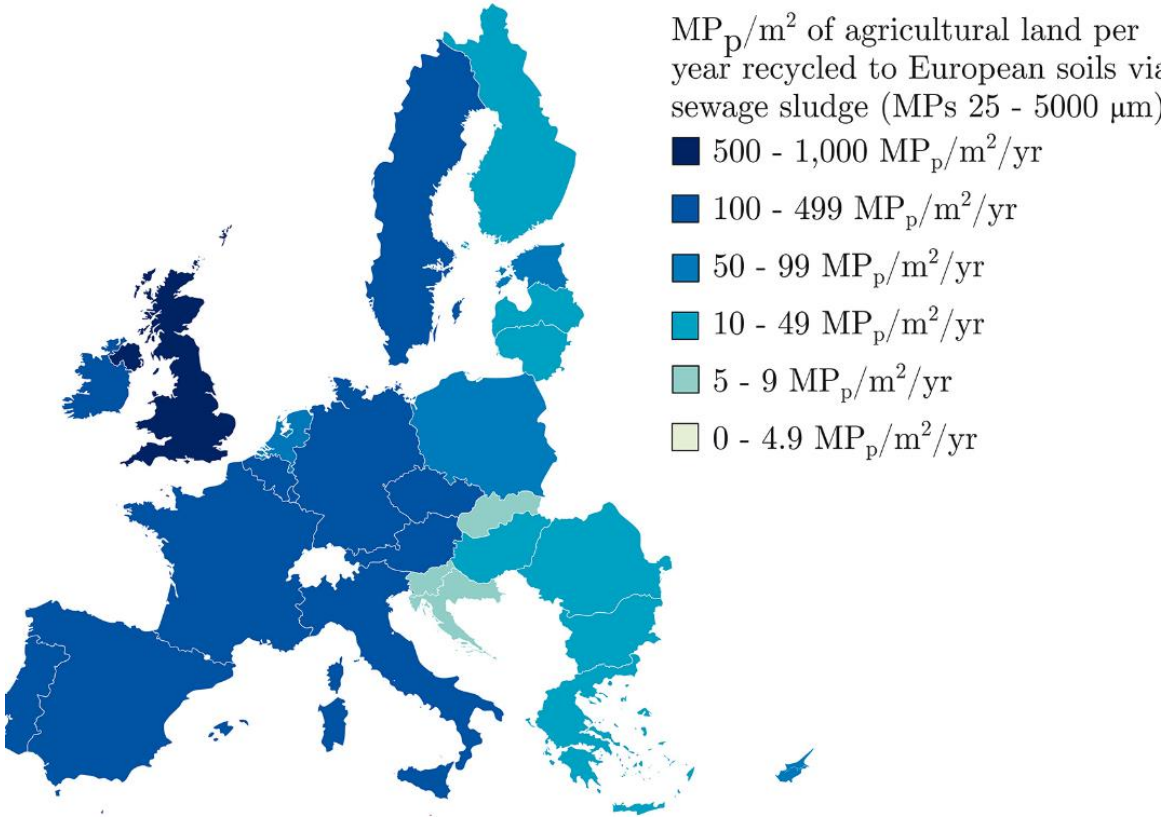
What is the scale of the problem?

Data from UNEP for World Environment Day 2023



What is the scale of the problem for the Food & Drink industry

- Plastics in packaging to protect products
- Microplastics found in soil, and in fruits and vegetables, meat, and in water and fish
  - could relate to contaminated feed (fishmeal)
  - ploughed in plastic sheeting
  - open burning of plastics
  - sewage sludge from wastewater treatment plants
    - 83% in sludge + 17% in scum (by mass)
    - 61-75% of total sewage sludge recycled to agricultural land in UK
    - range of solutions include removing scum, improved monitoring to avoid hotspots, incineration



References
Lofty J, Muhawenimana V, Wilson CA, Ouro P. Microplastics removal from a primary settler tank in a wastewater treatment plant and estimations of contamination onto European agricultural land via sewage sludge recycling. Environmental Pollution. 2022 Jul 1;304

New measures to restrict intentionally added microplastics

25 September 2023

- EU REACH legislation
- Expects reduction of 0.5 MT of microplastics over 20 years
- Prohibit the sale of microplastics added *on purpose* and products that *release* those microplastics when used
  - Granular infill material used on artificial sport surfaces
  - Cosmetics with microbeads or specific texture, fragrance or colour
  - Detergents, fabric softeners, paints, glitter, fertilisers, plant protection products, toys, medicines and medical devices

Next Steps

- Ban on loose glitter and microbeads from 17 October 2023
- In other cases, transitional sales ban from 4 to 12 years to develop alternatives
- UK already banned microbeads since July 2018

Further measures to address plastic pollution

UN Treaty on Plastic Pollution

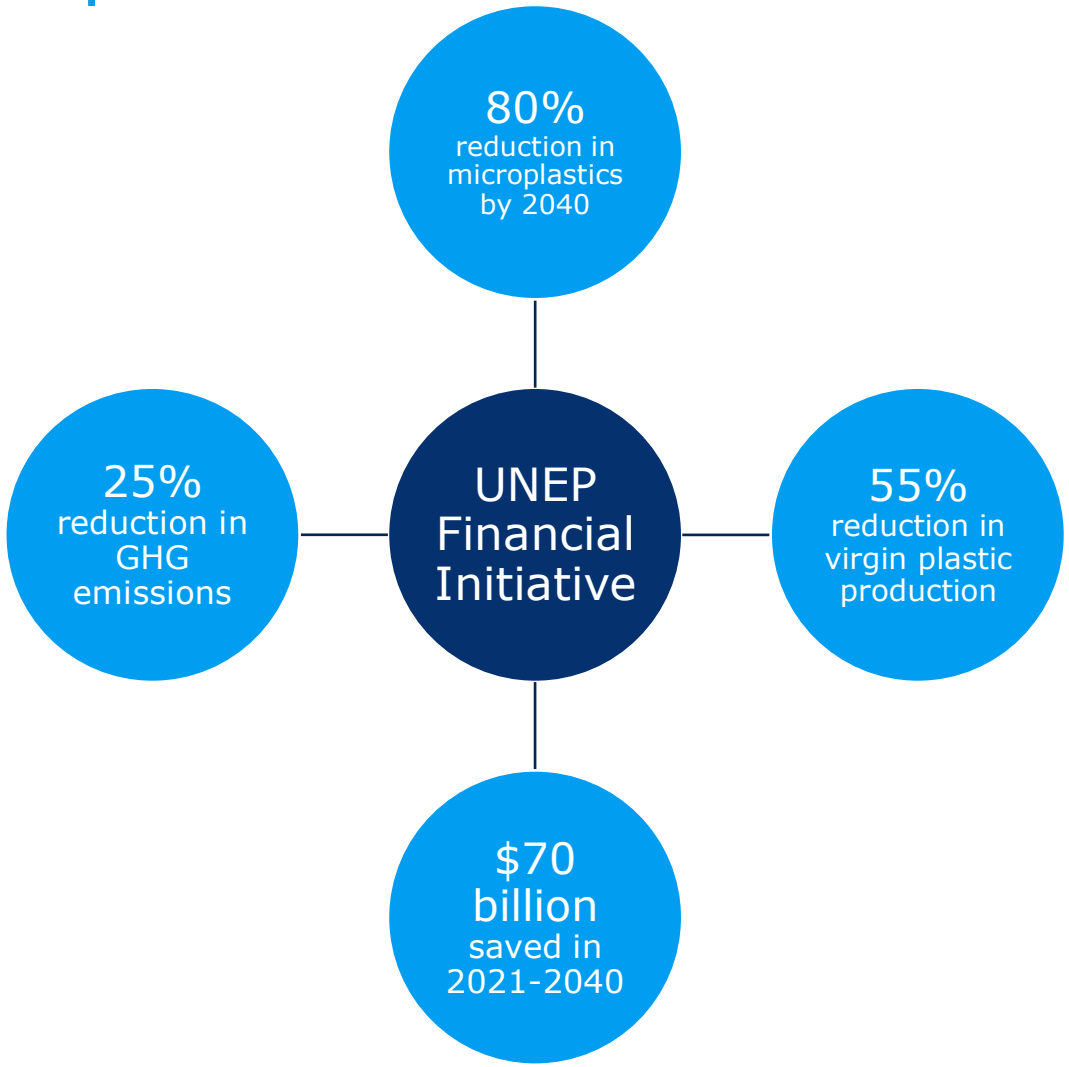
- Due in December 2024
- Full lifecycle of production, design and disposal
- Translate into legally-binding National Action Plans

UNEP Financial Initiative

- Engaging the global financial sector to scale up financing of pollution-free and circular solutions in business transitions
- In April 2024, 160 financial institutions and two industry stakeholders - representing 15.5 USD trillion in assets - called on governments to negotiate an ambitious treaty to end plastic pollution
  - to address the full lifecycle of plastic
  - take a scientific approach
  - create the framework to align all economic participants with its objectives
  - include harmonised targets across the plastics value chain
  - ensure that companies assess and disclose plastic-related risks and opportunities
  - an enabling transition policy environment e.g. EPR schemes

Voluntary Frameworks

- Science-based Targets for Nature
- Taskforce for Nature-related Financial Disclosure



Regulatory landscape and frameworks for biodiversity and ecosystems

The regulatory landscape is changing with new legislation, voluntary frameworks and guidance documents appearing frequently. Some important ones are:

International level: Kunming-Montreal Global Biodiversity Framework

Target 7

Aim of "preventing, reducing, and working towards eliminating plastic pollution"

Target 15

Take legal, administrative or policy measures to encourage and enable business and financial institutions:

a) Regularly monitor, assess and transparently disclose their risks, dependencies and impacts on biodiversity, along their operations, supply chains, and portfolios;

b) Provide information needed to consumers to promote sustainable consumption patterns;

c) Report on compliance with access and benefit-sharing regulations and measures, as applicable;

… to progressively reduce negative impacts on biodiversity, increase positive impacts, reduce biodiversity-related risks to business and financial institutions, and promote actions to ensure sustainable patterns of production.

Regional level: Europe

Strategies

- Biodiversity Strategy
- Forest Strategy
- …

Regulations

- EU Taxonomy
- Nature Restoration
- Invasive Alien Species
- Deforestation

Directives

- Habitats
- Birds
- Corporate Sustainability Reporting (CSRD)
- **…**

Voluntary Frameworks

Science Based Targets Network (SBTN)

SCIENCE BASED TARGETS NETWORK
GLOBAL COMMONS ALLIANCE

Taskforce on Nature-related Financial Disclosures (TNFD)

TNFD Taskforce on Nature-related Financial Disclosures

Others

Align, GRI, CDP, ISO, EMAS

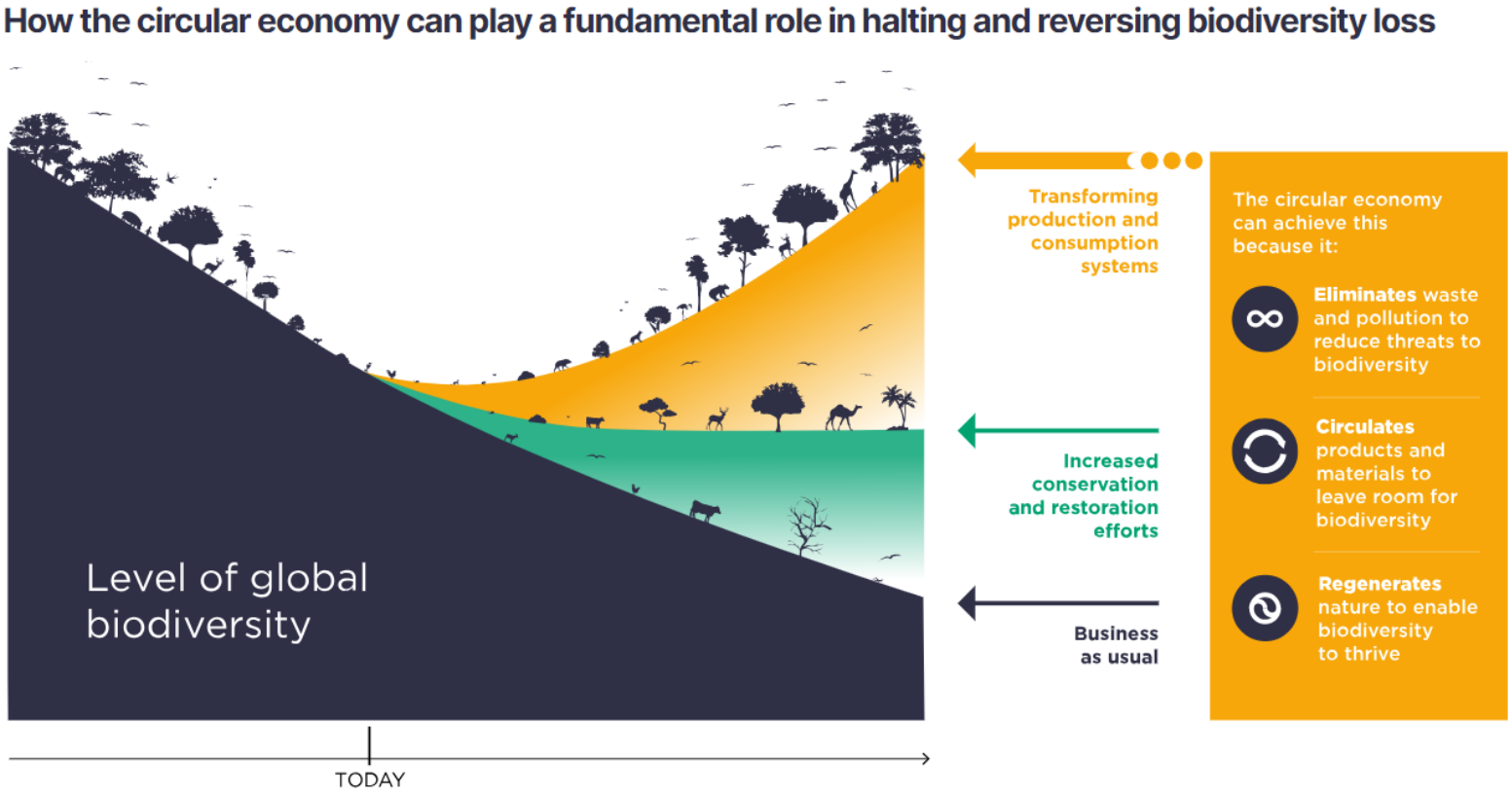
Regulating corporate greenwashing

- European Directive on Empowering Consumers for the Green Transition (ECGT)
  - Agreed in mid-January 2024 for transposition into national laws across EU
  - EC Directive places restrictions on misleading green claims and labels preventing unfair company tactics that stop consumers from making sustainable choices, including climate neutral claims
- UK Competition & Markets Authority introduced the Green Claims Code in 2021
  - Initial focus on fashion, food & drink, household and personal care products, and to be extended to digital sector
  - The CMA is currently unable to fine companies; it can only ask them to make changes and take them to court if they refuse, but the government is consulting on introducing fines under consumer law
- UK Financial Conduct Authority
  - Anti-greenwashing rule comes into force on **31 May 2024**
  - Guidance launched this week to Financial Institutions to align financial product labelling with sustainability claims.
- Science-based evidence
  - Important for companies to align with Science-Based Targets (climate & nature) to ensure targets are achievable, measurable, and know your baselines
  - Ensure our advice is underpinned by science and that the company checks 'marketing' wording with their senior management and lawyers

- EU's view: New EU law empowers consumers against corporate greenwashing (eeb.org)
- A national perspective, UK Green Claims Code: Misleading environmental claims - GOV.UK (www.gov.uk)
- Competition and Markets Authority: Competition and Markets Authority: https://www.gov.uk/government/publications/green-claims-code-making-environmental-claims/green-claims-and-your-business
- Financial Times (June 2023) 'The repercussions of breaking the Green Claims Code are significant': https://www.ftadviser.com/ftadviser-focus/2023/06/06/the-repercussions-of-breaking-the-green-claims-code-are-significant/
- FCA (2024): https://www.fca.org.uk/news/press-releases/fca-confirms-anti-greenwashing-guidance-and-proposes-extending-sustainability-framework

Bending the curve on biodiversity loss

- FDF is a founding signatory of the UK Plastics Pact
- Extended Producer Responsibility (EPR) reducing excessive packaging, increasing recyclability and recycling rates, reduce waste that is littered
- Consider appropriate methods to improve the plastic circular economy and increase the use of biodegradable products
- Monitor microplastics (and plastics) in the environment, evaluate exposure, and potential for adverse effects
- Set measurable and achievable Science-Based Targets
- Ensure your claims and labelling are underpinned by science



European Commission adopted the restriction on microplastics on 25 September 2023

Impact of Regulation of Microplastics on Food and Drink Sector

Dr Meera Cush, Senior Managing Consultant Health Sciences
(mcush@ramboll.com)

Agenda

01 Microplastics in food

02 EU regulation - microplastic

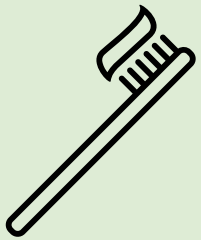
03 Timelines

04 Derogations

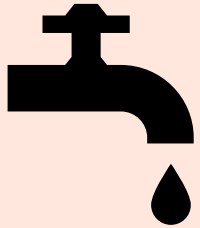
Some sources of exposure

Clothing

Food container

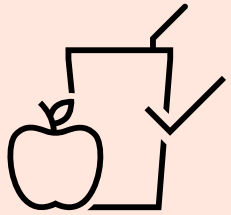


Toiletries



Tap water

Bottled water



Food and drink

By Isabelle Gerretsen 4th January 2023

Plastic pollution is one of the defining legacies of our modern way of life, but it is now so widespread it is even finding its way into fruit and vegetables as they grow.

Microplastics have infiltrated every part of the planet. They have been found buried **in Antarctic sea ice**, within the **guts of marine animals inhabiting the deepest ocean trenches**, and in **drinking water around the world**. Plastic pollution has been found on **beaches of remote, uninhabited islands** and it shows up in **sea water samples** across the planet. One study estimated that there are around **24.4 trillion fragments of microplastics** in the upper regions of the world's oceans.

But they aren't just ubiquitous in water – they are spread widely in soils on land too and can even end up in the food we eat. Unwittingly, we may be consuming tiny fragments of plastic with almost every bite we take.

In 2022, **analysis by the Environmental Working Group**, an environmental non-profit, found that sewage sludge has contaminated almost 20 million acres (80,937sq km) of US cropland with per- and polyfluoroalkyl substances (PFAS), often called "forever chemicals", which are commonly found in plastic products and do not break down under normal environmental conditions.

Sewage sludge is the byproduct left behind after municipal wastewater is cleaned. As it is expensive to dispose of and rich in nutrients, sludge is commonly used as **organic fertiliser in the US and Europe**. In the latter, this is in part due to **EU directives promoting a circular waste economy**. An estimated **8-10 million tonnes of sewage sludge** is produced in Europe each year, and roughly 40% of this is spread on farmland.

Due to this practice, European farmland could be the biggest global reservoir of microplastics, according to a **study by researchers at Cardiff University**. This means between 31,000 and 42,000 tonnes of microplastics, or 86 trillion to 710 trillion microplastic particles, contaminate European farmland each year.

Spreading sewage sludge, or bio-solids, onto fields is common practice in many parts of the world (Credit: RJ Sangosti/The Denver Post/Getty Images)

The researchers found that up to 650 million microplastic particles, measuring between 1mm and 5mm (0.04in-0.2in), entered one wastewater treatment plant in south Wales, in the UK, every day. All these particles ended up in the sewage sludge, making up roughly 1% of the total weight, rather than being released with the clean water.

The number of microplastics that end up on farmland "is probably an underestimation," says Catherine Wilson, one of the study's co-authors and deputy director of the Hydro-environmental Research Centre at Cardiff University. "Microplastics are everywhere and [often] so tiny that we can't see them."

And microplastics can stay there for a long time too. One recent study by soil scientists at Philipps-University Marburg found **microplastics up to 90cm (35in) below the surface** on two agricultural fields where sewage sludge had last been applied 34 years ago. Ploughing also caused the plastic to spread into

SENSORY OVERLOAD

From the microplastics sprayed on farmland to the noxious odours released

RECOMMENDED ARTICLES


The insects that can digest plastic as food


The rivers cleared by conveyor belt in Ecuador


Can we clean up forever chemicals?


How 'forever chemicals' get into tap water

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Microplastics in the food chain: How harmful are they?

Jun 29, 2022

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Science & Environment

Microplastics: Seeking the 'plastic score' of the food on our plates

13 October 2019

Plastic from Almaciga Beach, on the north coast of the Canary Island of Tenerife

By Helen Briggs
BBC News

Microplastics are found everywhere on Earth, yet we know surprisingly little about what risks they pose to living things. Scientists are now racing to investigate some of the big unanswered questions.

Daniella Hodgson is digging a hole in the sand on a windswept beach as seabirds wheel overhead. "Found one," she cries, flinging down her spade.

She opens her hand to reveal a wriggling lugworm. Plucked from its underground burrow, this humble creature is not unlike the proverbial canary in a coal mine.

A sentinel for plastic, the worm will ingest any particles of plastic it comes across

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Environmental investigations
Plastics

This article is more than 2 years old

It's on our plates and in our poo, but are microplastics a health risk?

The omnipresent plastic is rife in dust, rice, placentas and tap water, but experts say it's hard to untangle whether it's harmful to humans

Graham Readfearn
Sat 15 May 2021 21.00 BST

Recycled, shredded plastic is pictured on a dinner plate, equivalent to the amount of microplastic a person could consume in a year, according to a WWF study. Experts are still in the dark as to how the plastic contamination of the food chain affects human health. Photograph: Reuters Staff/Reuters

As much as the idea might be unpalatable, all of our diets are now likely to include tiny servings of plastic.

The places where microplastics and plastic fibres have been found is beginning to read like a supermarket shopping list.

Studies have found microplastics - that is, pieces or fibres smaller than 5mm - in foods including tea, salt, seaweed, milk, seafood, honey, sugar, beer, vegetables and soft drinks. Tap water contains plastic. Bottled water contains

Microplastics in food

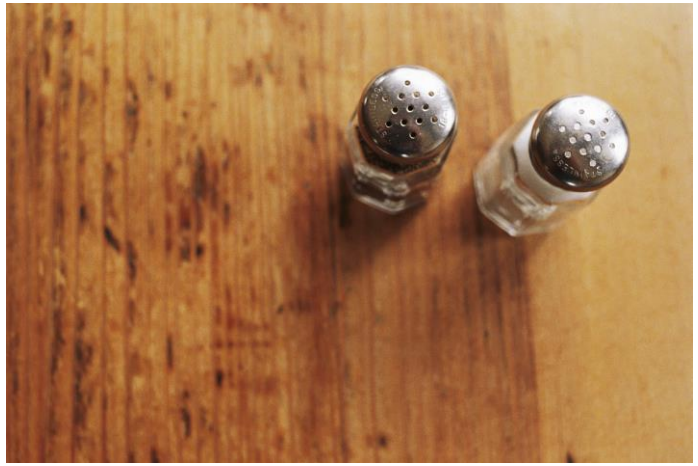
Pthalates

Dioxins

Bisphenol A

Polypropylene

Polyethylene



Up to **600 particles** of microplastics per kilogram of salt

Up to **660** microplastic fibres per kilogram of honey

~ **109** microplastic fragments per litre of beer

Kuna and Sreedhar (2019)

EU REACH Annex XVII Restriction of intentionally added microplastics

Entry into force – 17th October 2023

COMMISSION REGULATION (EU) 2023/2055

of 25 September 2023

amending Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards synthetic polymer microparticles

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC ([1]), and in particular Article 68(1) thereof,

Microplastic – definition

"*The terms plastic or plastics do not have a precise meaning because they reflect rather complex formulated systems whose exact composition is generally unknown*."
European Committee for Standardisation (CEN) technical report on vocabulary (2006)

"*material which contains as an essential ingredient a high polymer and which, at some stage in its processing into finished products, can be shaped by flow*."
International Standards Organisation (ISO) technical report on plastics vocabulary (2013)

Microplastic – regulatory definition

- **‘microplastic’** means particles containing solid polymer, to which additives or other substances may have been added, and where ≥ 1% w/w of particles have
  - all dimensions *[0.1 µm]** ≤ x ≤ 5 mm, or
  - a length of *[0.3 µm]** ≤ x ≤ 15 mm and length to diameter ratio of >3
- **‘particle’** is a minute piece of matter with defined physical boundaries; a defined physical boundary is an interface. Single molecules are not particles
- **‘particles containing solid polymer’** means either (i) particles of any composition with a continuous solid polymer surface coating of any thickness or (ii) particles of any composition with a solid polymer content of ≥ 1% w/w
- **‘solid’** means a substance or a mixture which does not meet the definitions of liquid or gas
- **‘polymer’** means as defined in Article 3(5) of REACH

Polymers excluded from this designation

- polymers that are the result of a polymerisation process that has taken place in nature, independently of the process through which they have been extracted, which are not chemically modified substances;
- polymers that are degradable as proved in accordance with Appendix 15 (rules on proving degradability);
- polymers that have a solubility greater than 2 g/L as proved in accordance with Appendix 16 (rules on proving solubility);
- polymers that do not contain carbon atoms in their chemical structure.

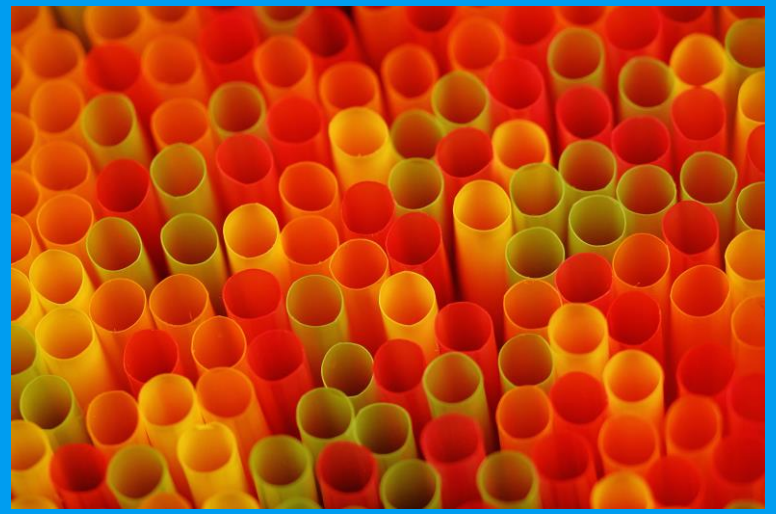
Not applicable when…

contained by technical means so that releases to the environment are prevented when used in accordance with the instructions for use during the intended end use

the physical properties of which are permanently modified during intended end use in such a way that the polymer no longer falls within the scope of the restriction

permanently incorporated into a solid matrix during intended end use

The restriction



Microplastics shall not be placed on the market as a substance on its own or in a mixture as a microplastic in a concentration equal to or greater than 0.01% w/w from entry into force.

1. **Restriction on the placing on the market** of microplastics on their own or in mixtures where their use will inevitably result in releases to the environment, irrespective of the conditions of use.

2. An '**instructions for use and disposal**' requirement to minimise releases to the environment for uses of microplastics where they are not inevitably released to the environment but where residual releases could occur if they are not used or disposed of appropriately.

3. A **reporting requirement** to monitor the effectiveness of the instructions for use and disposal requirement and improve the quality of information available to assess the risks from uses of microplastics in the future.

Timeline for implementation

25 September 2023
Adoption of restriction

17 October 2023
Entry into force
Ban on use in loose glitter and microbeads (abrasive, i.e. namely to exfoliate, polish or clean)

17 October 2027
Ban on use in rinse-off cosmetics

17 October 2028
Ban on use in detergents, waxes, polishes, air care products, agricultural / horticultural

17 October 2029
Ban on use in leave-on cosmetics, encapsulation of fragrances, medical devices, fertiliser

17 October 2031
PPP, seeds treated with PPP, biocides, granular fill for use on synthetic sports surfaces

17 October 2035
Lip products, nail products, make up
(labelling starts in 2031)

Derogations

- For use at industrial sites
- Medicinal products
- Veterinary medicinal products
- EU fertilising products
- **Food additives**
- In vitro diagnostic devices
- **Food**

Examples of labelling

Use type	Labelling obligation in the EU	Location of information
Industrial	• Contains microplastics > 0.01% and description of substance(s) (optional) • The synthetic polymer microparticles supplied is subject to conditions laid down by entry 78 of Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council • Microplastic (identify) content X% • Generic information on the identity of the polymers contained in the product • Must not be released to wastewater or environment. • Dispose to municipal waste OR Dispose of contents/container to municipal waste	• Label • Packaging • Packaging leaflet • SDS
Consumer and professional	• Must not be released to wastewater or environment • Dispose to municipal waste OR Dispose of contents/container to municipal waste • Refer to manufacturer/ supplier/… for information on disposal/recovery/ recycling (optional)	• Label • Packaging • Packaging leaflet

Examples of reporting

Importer and / or downstream user of products containing microplastics within the EU are considered to be suppliers and will also be expected to report key information to ECHA to allow the tracking of the quantities of microplastics released to the environment.

As part of the derogation for manufacturers and industrial downstream users of synthetic polymer microparticles the Company shall send to ECHA, by 31 May of each calendar year, starting from 2026:

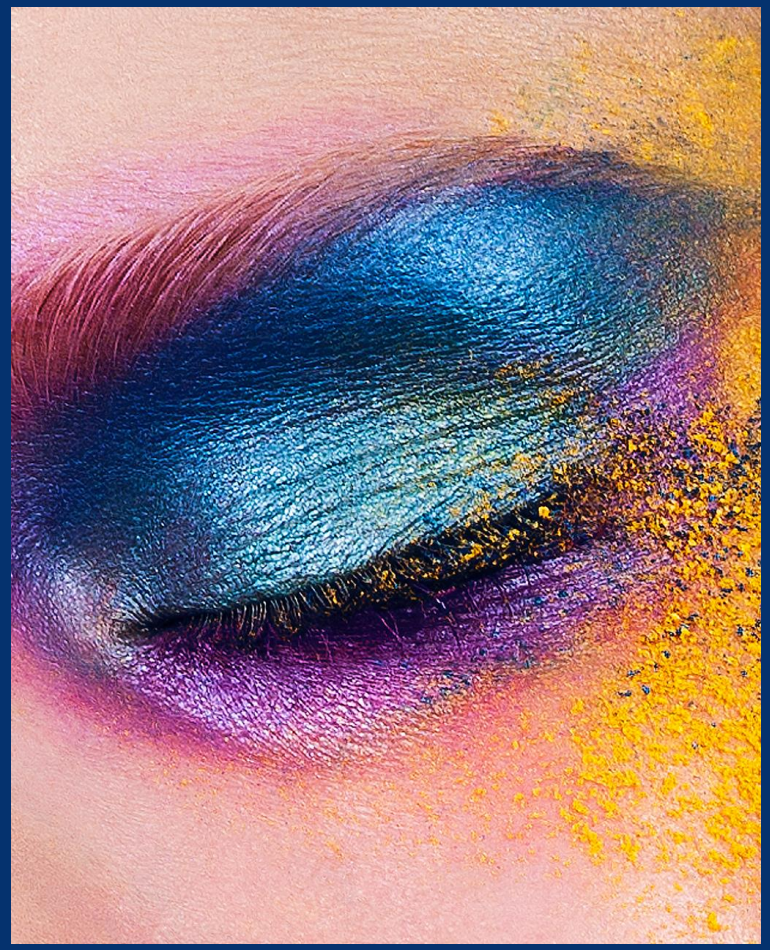
a description of the use(s) of synthetic polymer microparticles in the previous calendar year.

for each use of synthetic polymer microparticles, generic information on the identity of the polymer(s) used.

for each use of synthetic polymer microparticles, an estimate of the quantity of synthetic polymer microparticles released to the environment in the previous calendar year, which shall include also the quantity of synthetic polymer microparticles released to the environment during transportation.

for each use of synthetic polymer microparticles, a reference to the derogation laid down in the respective paragraphs.

UK REACH



Existing regulation:

January 2018: ban on the manufacture of cosmetic and personal care products containing microbeads

June 2018: ban on the sale of products containing microbeads

HSE published policy paper (15 February 2024):

- Rationale for prioritising substances in the UK REACH work programme: 2023 to 2024
- Five priorities including intentionally added microplastics

Defra:

- commissioned an evidence project to assess the scale of the risks
- identify the most effective measures to address them in the short to medium term
- identify wider evidence gaps that need to be addressed in the longer term

Actions for Industry

01 Find out whether any of your processes and/or products make or contain intentionally added microplastics

02 Does the microplastic in your business match the REACH definition of microplastic?

03 If the definition is met, do any exemptions apply (e.g. is it a naturally occurring polymer)?

04 If exemptions do not apply, is the restriction applicable? e.g. is it present at above the threshold as specified in the restriction?

05 Is your business subject to derogation? e.g. food, feed or food additive

06 Is your business ready to meet the labelling and reporting requirements?

Summary

01 Products containing microplastics are subject to derogations in the REACH restriction for intentionally added microplastics in REACH at concentrations >0.01% w/w

02 Phased implementation of the ban depending on use

03 Manufacturing of products containing microplastics may be derogated based on use

04 Derogations require labelling products so that appropriate ‘instructions for use and disposal’ are relayed to downstream users

05 Labelling must be in the form of a label, SDS, packaging or package leaflet for use at industrial sites

Summary

06 For products intended for consumers the information must be presented on the label, packaging leaflet or packaging

07 The importer, distributor, downstream user and / or supplier within the EU will be expected to provide a similar level of information in the instructions for use and disposal

08 Specific labelling requirements for all mixtures for industrial and consumer and professional use

09 Specific reporting requirements to ECHA as part of derogations

10 All labelling and reporting requirements are only applicable to products sold to companies or consumers within the EU

Thank you!

Questions?

Health Sciences Services

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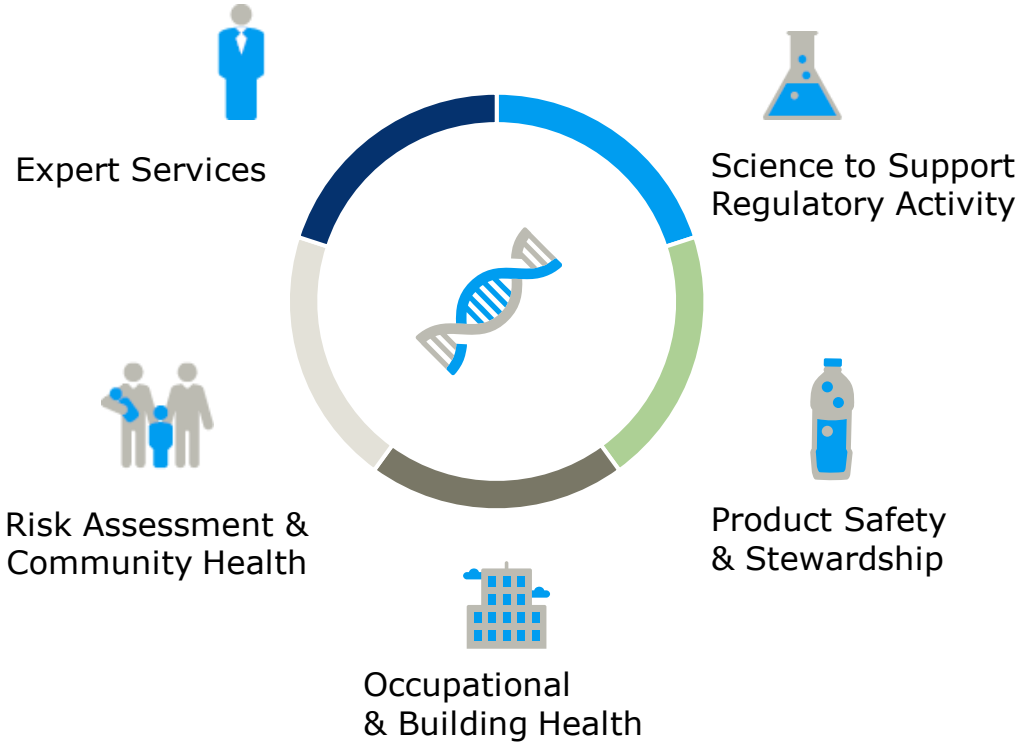

Our approach

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- Exposure assessment
- Industrial hygiene
- Engineering
- Economics

Global reach

With offices around the world and deep technical and regulatory expertise in many geographies, we can quickly scale support for complex projects with broad geographic footprints.

A holistic approach

To provide unique, holistic solutions, our experts work closely with colleagues across disciplines such as:

- Climate change
- Air quality
- Circular economy
- Waste reduction
- Sustainability

Ramboll Health Scientists UK and Europe

Health Scientists across ## offices

- Chemists
- Toxicologists
- Biologists
- Ecotoxicologists
- Regulatory Specialists

Covering

- Industrial Chemicals
  - UK, EU and K REACH
  - OR services
  - UK Legislation Divergence
- Biocides
- Consumer Products
- Pharma
- Food
  - Food Contact Materials
  - Food Ingredients
- Due Diligence
- Regulatory Affairs

Biodiversity & Ecosystems Services

Samantha Deacon

Global Lead on Biodiversity & Ecosystems, Ramboll

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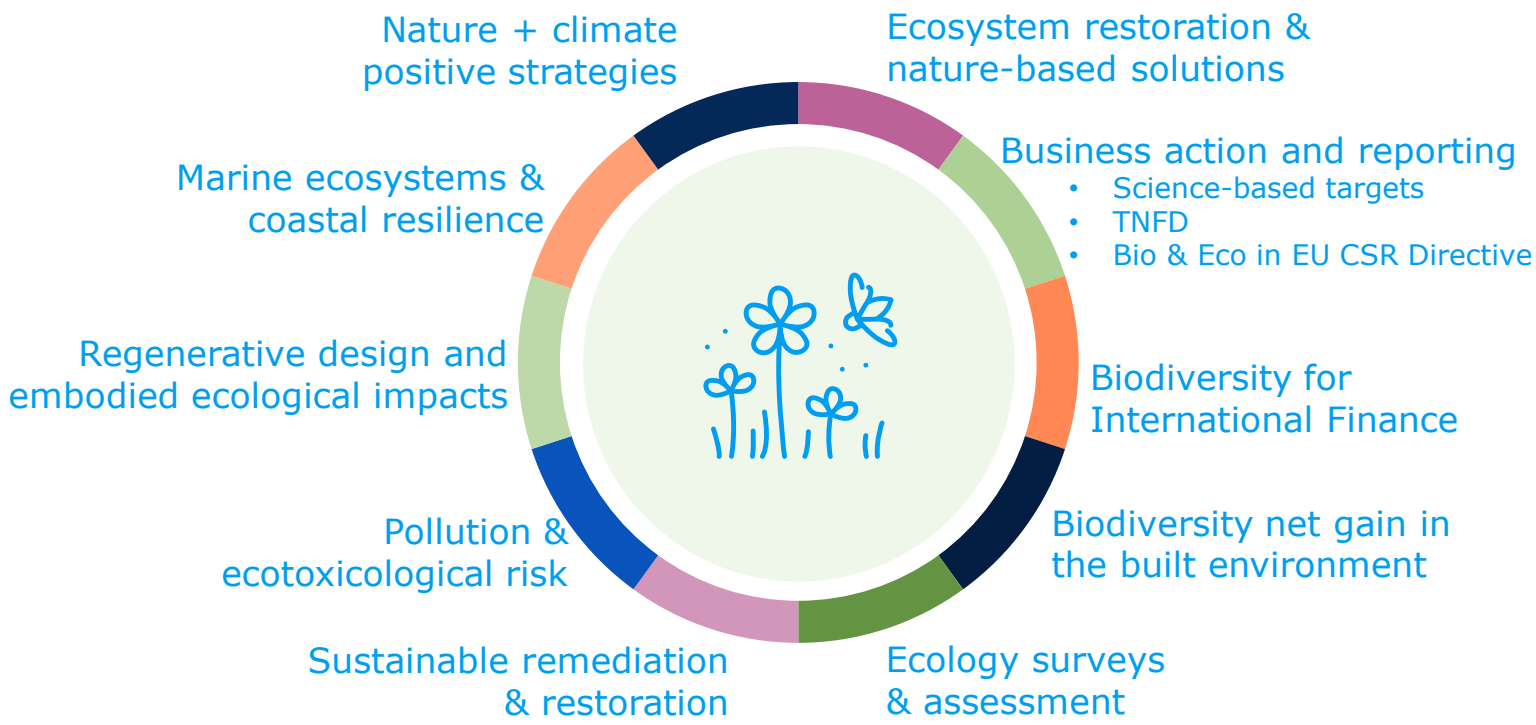
Biodiversity & Ecosystems Team

Ramboll Biodiversity & Ecosystems



Ramboll Biodiversity & Ecosystems: https://www.ramboll.com/en-gb/biodiversity-and-ecosystems

Ramboll Galago: https://www.ramboll.com/en-gb/galago

Our strategic ambition is to be a nature positive industry leader through understanding an organisation's impacts and dependencies on nature, set targets and deliver nature positive action

- More than 240 Biodiversity & Ecosystems consultants globally
- Working across multi-disciplinary teams and geographies
- Combined team of conservation biologists, ecologists, ecotoxicologists, marine biologists and environmental economists, including Certified Ecologists, training providers, and active collaborators

Environment Analyst Sustainability Consulting Nature Positive Award in June 2023

Ramboll collaborations

INFLUENCING POLICY

Ramboll is assisting with multiple projects to assess and advise on policy relating to the SDGs

BIODIVERSITY NET GAIN

At the forefront of biodiversity net gain delivery since 2016, including national training and guidance

Ramboll training programme roll out in 2023/4

BSI FOR NATURAL CAPITAL

Member of the BSI Assessing and Valuing Natural Capital committee since 2016, leading to ISO Guidelines

TASK FORCE MEMBERS

SBTN Corporate Engagement Program

TNFD Forum
TNFD Data Catalyst

EIC Natural Capital Task Force (now Nature & Biodiversity)

SOCIETY OF ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY

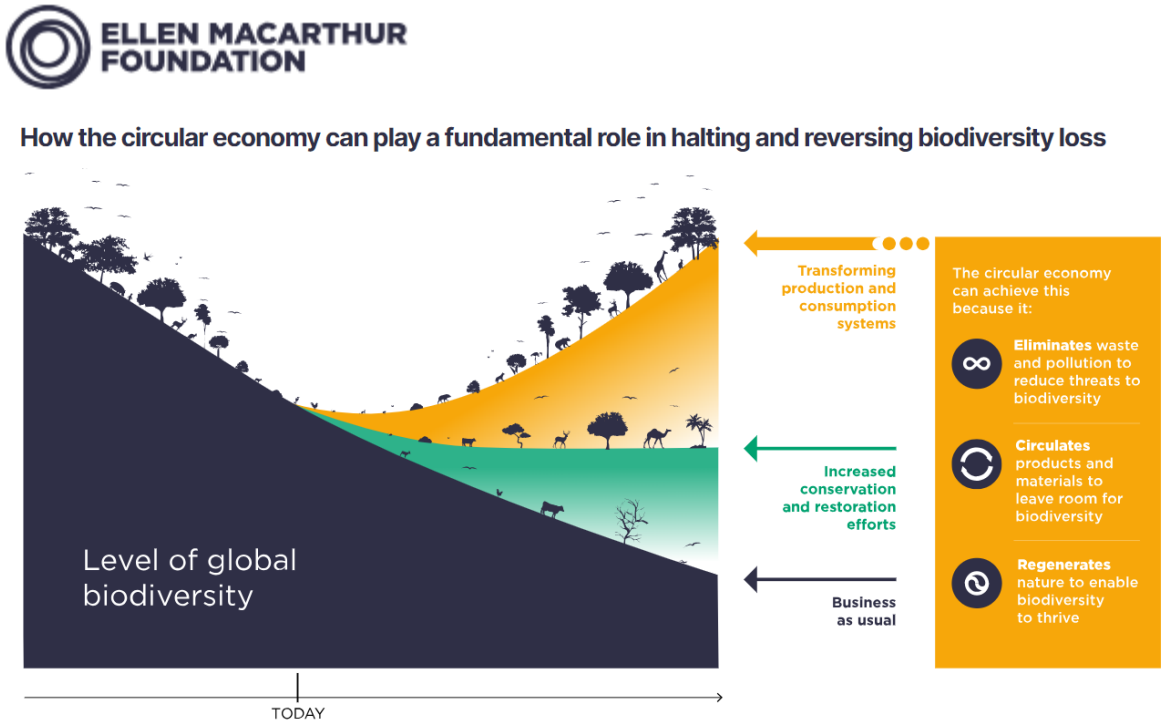
Global members and supporters, chairing special interest groups, conference sessions and authoring scientific papers

NATURE POSITIVE FORUM

Corporate members of the Nature Positive Forum committing to "halting and reversing biodiversity loss by 2030 from a 2020 baseline and to set the path for full recovery of nature by 2050"

Recent collaborations on forestry

Ramboll authored the SBT for Nature guidance on setting science-based targets within the FLAG sectors dealing with the complexities in calculating and addressing the GHG emissions and climate impacts



A Ramboll team of forestry and nature conservation experts, LCA and environmental economists are currently developing guidance on behalf of the Ellen MacArthur Foundation on regenerative forestry

Thought Leadership

New focus

Biodiversity Net Gain on all Ramboll landscape designs

- Ramboll's Henning Larsen landscape designers are committing to biodiversity net gain outcomes on all their designs
- Raising internal awareness and training
- Promotes regenerative and ecological systems thinking in design

Corporate Biodiversity

- Advising on corporate biodiversity through SBT for Nature; TNFD (voluntary) and EU CSR Directive (mandatory)
- Operations and supply chains

Data & AI-driven insights

Galago

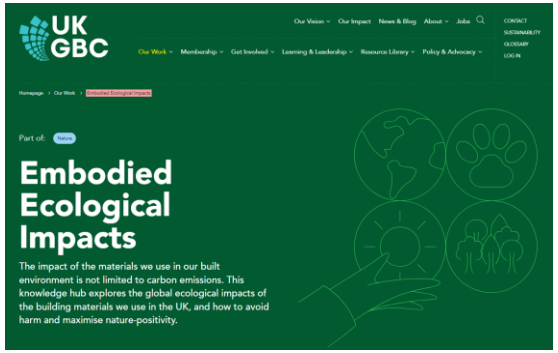
- Drones and satellite capture data efficiently to cover large areas, and manage multiple sites, remotely
- Deploy deep learning using AI and ML to characterise habitats, identify invasives, and markers of ecosystem health
- Build online dashboards that allow for enterprise-wide biodiversity management

https://www.ramboll.com/galago

Knowledge sharing & new geographies

Metrics and Tools

1. Translation of UK biodiversity metric to habitats in the Americas for use at new development sites
2. R&D funding for the development of an ecosystem services assessment tool
3. Task Force developing a Nature-Based Solutions Guide for sustainable remediation outcomes



Methodologies

Embodied Ecological Impacts

- Ramboll sponsored and contributed to UK Green Building Council Knowledge Hub
- EEI is resource extraction and production, manufacturing processes, transportation of raw materials, and disposal of unused materials in the construction industry
- **Supply chains**; impacts occur off site
- Built environment is the most resource-intense sector, with 50% of raw material extraction

https://ukgbc.org/our-work/topics/embodied-ecological-impacts/

3. Biodiversity for business

Regulatory framework

European Union Green Deal (2019)

Action plan on financing sustainable growth

Applying to financial operators and products	Applying to multinational and national companies, with extension to the value chain, amending NFRD	Establishing environmental sustainable economic activities	Proposal applying to corporate, which will interact with CSRD	Protect consumers and reduce unfair business practices	Sector specific sustainability legislation
SFDR (Sustainable Finance Disclosure Regulation – 2019)	**CSRD** (Corporate Sustainability Reporting Directive – 2022)	**EU Taxonomy** (Taxonomy Regulation - 2020)	**CSDD** (Corporate Sustainability Due Diligence Directive – expected 2024)	**'Green Claims' Directive** 2024	SUPD; Packaging, Batteries, Critical raw materials, Deforestation, etc.
RTS (Regulatory Technical Standards ESAs, 2022)	**ESRSs** (European Sustainability Reporting Standards EFRAG)	**Delegate acts** (Environmental and complementary delegated acts)			

- Ramboll can help identify the optimum strategy for compliance and value creation
- We can analyse risks and opportunities in the new sustainability legislation for each business and organisation
- We can develop roadmaps (readiness assessment, workshops, training, etc)
- We can develop action and management plans, science-based targets, disclosure and reporting
- We are a global multi-disciplinary consultancy who can take a holistic view and turn plans into action

A good starting point: defining your ambition level

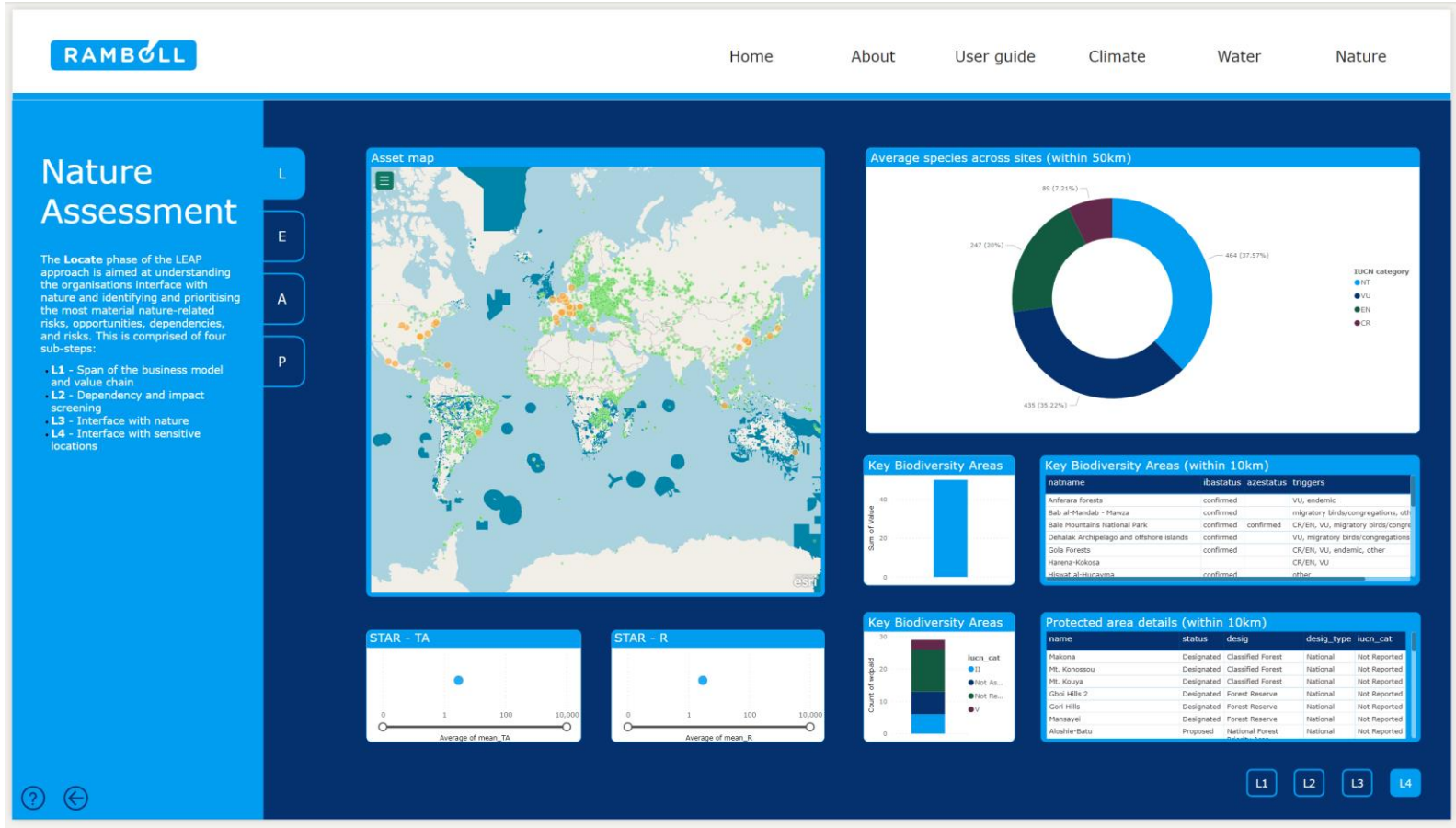
Starting	*Developing*	*Advancing*	*Leading*
The company **identifies nature-related issues** & presents **stand-alone actions** for nature.	The company **assesses its impacts & dependencies** & has set a **high-level ambition** or targets for nature.	The company **integrates nature into strategy**, sets **measurable commitments** for nature & implements **strategic actions** along priority parts of the **value chain**.	The company assesses **impacts & dependencies for all potentially relevant realms**, structuring **business models & value chains** in ways that address their impacts & dependencies & are commensurate with the achievement of global nature goals.

	Cross-cutting dimensions for strategy and actions on nature			
	Starting	**Developing**	**Advancing**	**Leading**
Scope	Site(s) and product(s) considered	Direct operations considered	Partial upstream and downstream considered	Both upstream and downstream considered
Range of nature issues addressed	One impact across one realm (freshwater, land, coastal, oceans) considered	Several impacts across one realm considered	Several impacts and dependencies across several realms considered	All material impacts and dependencies across all realms considered
Integration of nature, climate and equity agendas	Nature actions considered separately from climate and equity actions	Equity and climate considerations in some ad hoc nature actions	Partial integration of nature, climate and equity in relevant corporate strategies and action plans	Fully integrated strategy with demonstrated outcomes for nature, climate and equity
Mindset and purpose	Overall aim is pursuing efficiency gains to do less harm and achieve better value returns (risk mitigation)	Overall aim is sustaining the current status quo by doing no harm (net-zero)	Overall aim is pursuing an ideal that heals past harm (restorative)	Overall aim is building capacity for self-sustaining abundance of life (regenerative)

Source: Roadmaps to Nature Positive: Foundations for all businesses

Screening for biodiversity risks

- Ramboll has developed a biodiversity risk screening tool and dashboard that aligns with the TNFD LEAP approach
- Built upon open access databases and can combine with commercial information, such as IBAT data
- It is flexible and can be tailored to your business
- We welcome working with clients to develop dashboards for reporting and tracking progress against targets (monitoring data)
- The dashboard can also screen and present climate data and water data across company assets



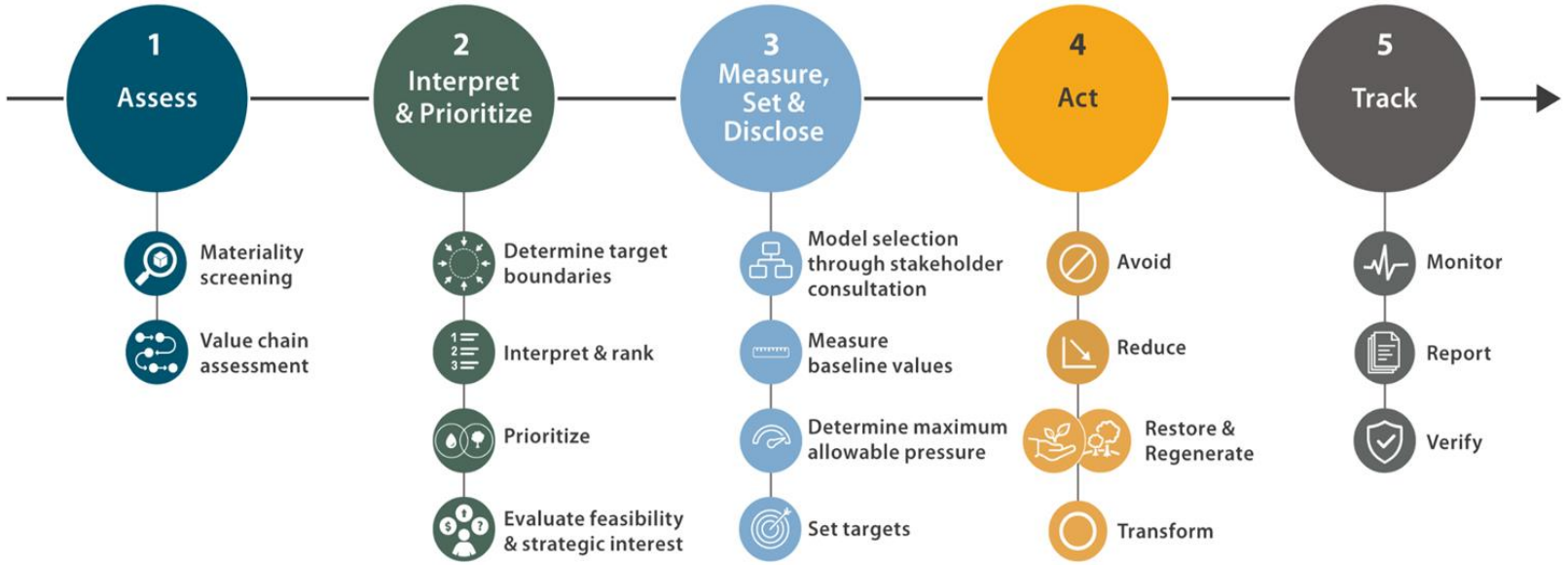
SBTN and the value chain

- According to the SBTN Guidance: "Companies should assume that **sourcing (extraction/ growing/ harvesting) is the highest impact activity** unless there is evidence to prove otherwise for a specific pressure category."

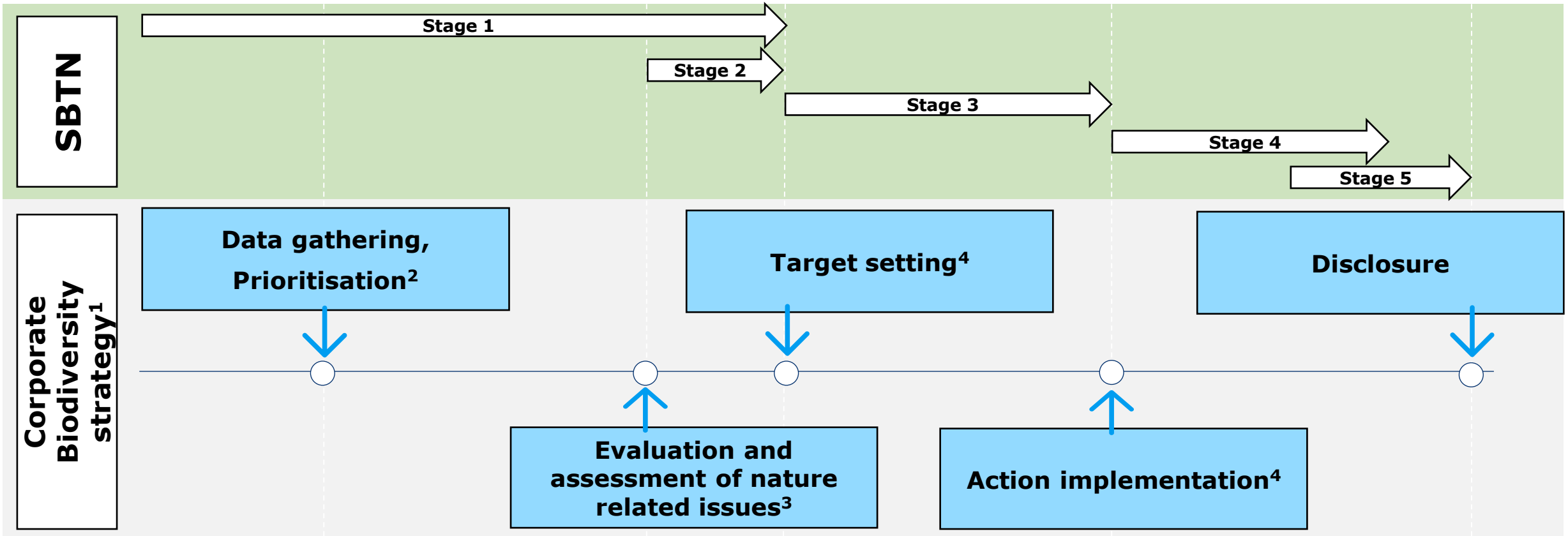
- **SBTN requires companies to assess and report on the impacts associated with their purchased goods and services**, and the activities involved in material or resource extraction, and manufacturing and processing of these purchases.

- When setting SBTN targets, **companies must include the broadest possible coverage of their corporate activities as they start the method**, with the expectation that this scope will narrow as companies get closer to applying target-setting methods and taking action to control their overall nature footprints.

- SBTN framework is **already available** to get started.



Biodiversity Strategy timeline

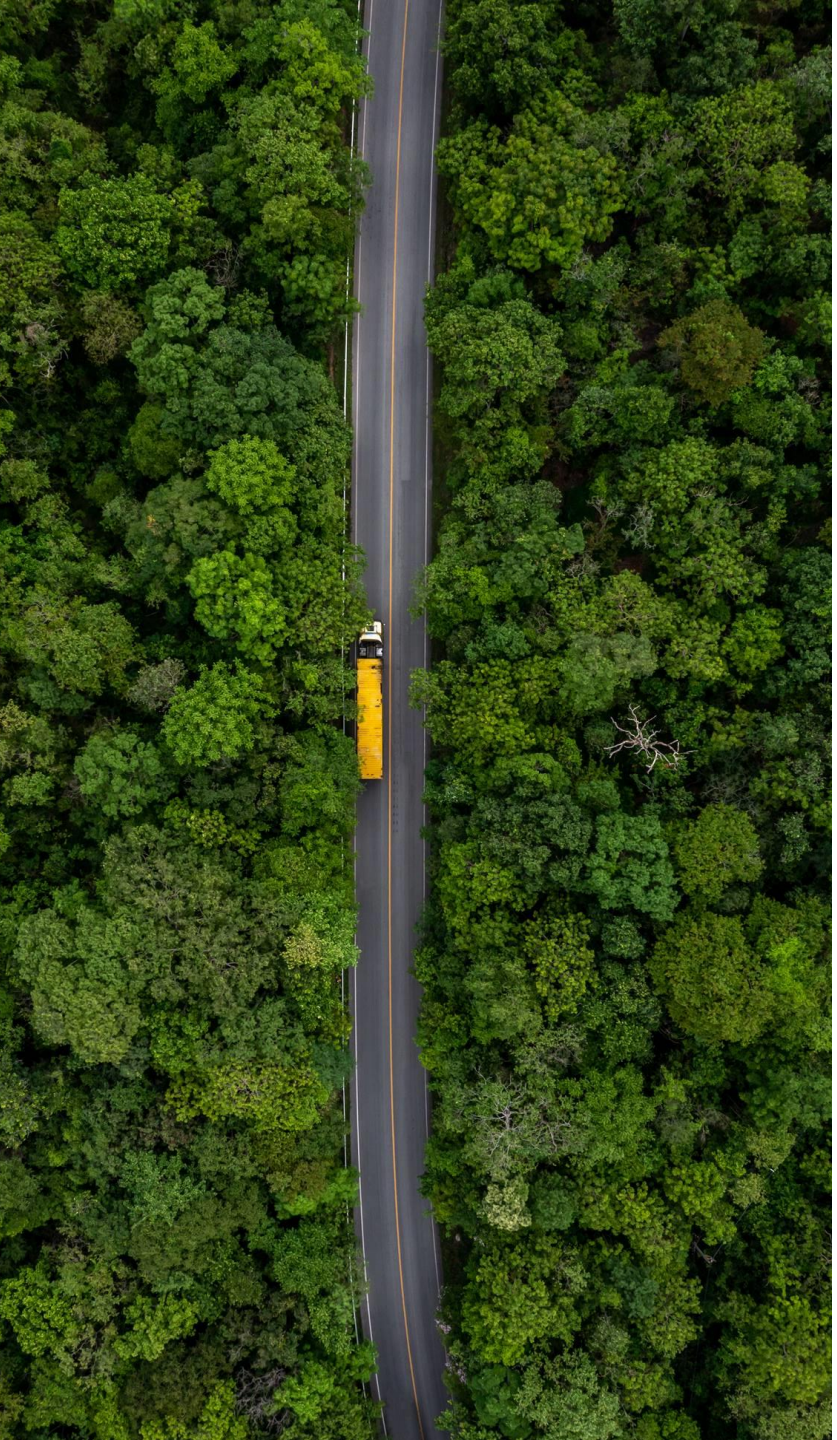


1. See example projects in this slide deck: Roadmap to a Corporate Biodiversity Strategy, Biodiversity roadmap

2. This can be done at **screening level** in order to prioritize parts of the operation to carry through to the next stages. See example projects in this slide deck: Roadmap to a Corporate Biodiversity Strategy, Biodiversity Strategy and Materiality Workshops

3. This assessment can be undertaken via **pilots** for a segment of the business before expanding the scope. See example projects in this slide deck: Biodiversity impact assessment in the supply chain

4. See example projects in this slide deck: Setting nature targets and enhancements



Value chain actions

Examples relating to deforestation

- Target: Reduce by x% the activities causing deforestation/conversion of land in the supply chain by 2030

- The actions can be set on a stepwise approach and may include:
  - Increase transparency in the supply chain
  - Improve traceability of raw materials
  - Source responsibly and explore switching to sustainably sourced bio-based or recyclable materials
  - Monitor sustainable sourcing practices and raw material certification
  - Referential sourcing (e.g. using sustainably certified inputs)
  - Engage with suppliers to raise awareness
  - Develop sustainable procurement policies with suppliers
  - Look to become leaders in the sector by exploring the use of alternative materials to reduce corporate carbon and nature footprints

4. Selected case studies

Confidential client in the pharmaceutical sector, 2023:Roadmap to a Corporate Biodiversity Strategy

Challenge

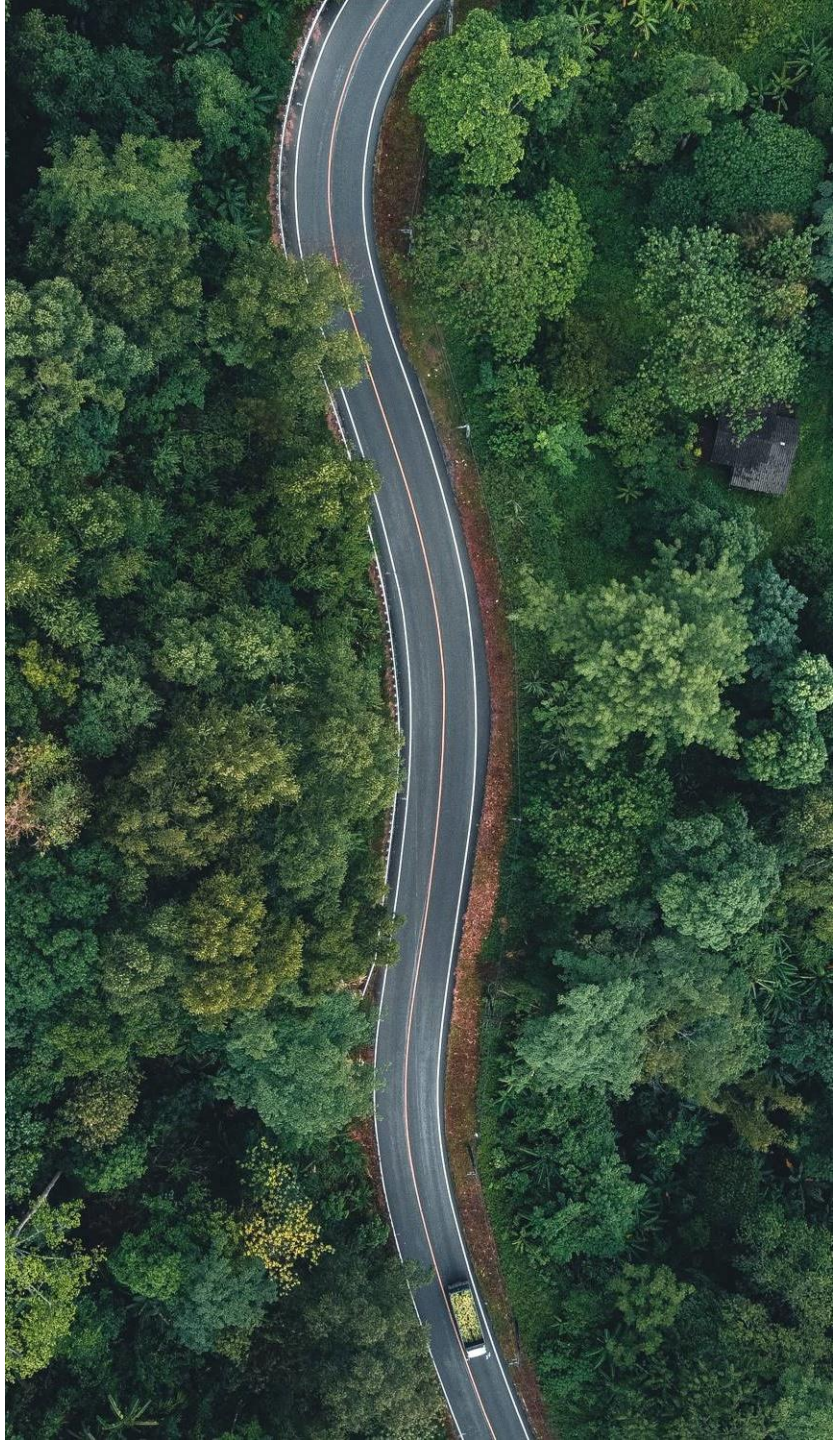
Understanding the concept of biodiversity and its interdependence to companies and society requires considering the issue from a range of perspectives. A comprehensive corporate strategy for biodiversity must include topics such as risks and dependencies, regulatory requirements, reporting and much more. As this is a new and constantly changing field, it is necessary to use up-to-date and innovative solutions.

What we did

This project aims to help the client to understand and strategically address biodiversity issues. It involves a multi-stage process, aligning with international guidelines and sustainability goals. The key tasks include reviewing regulations, assessing risks, developing reporting templates, and creating a biodiversity strategy roadmap. The primary deliverable is a roadmap that defines the corporates vision for biodiversity, identifies key areas of biodiversity near its sites, and outlines next steps for assessing materiality, setting performance indicators, and taking action to protect and enhance biodiversity.

Effect

The client is a large pharmaceutical manufacturer with more than 40 sites worldwide. Our work helps the client to understand its risks for and dependencies on biodiversity and to prioritise actions where they are most effective. This is beneficial for nature, but also for the client as biodiversity is one of the emerging regulatory topics. The roadmap to a corporate biodiversity strategy outlines the most important next steps and prepares the client for upcoming new frameworks like the Corporate Sustainability Reporting Directive (CSRD).



Setting nature targets and nature enhancements at sites for global pharmaceutical client (2021-ongoing)

Challenge

Pharmaceutical sector has a high dependence on nature and therefore high nature-related impacts. Company is uniquely positioned to drive impact with thousands of supplier relationships. Investors will be looking for a detailed level of transparency on science-based targets for nature.

What we did

As the client's biodiversity delivery partner, Ramboll have surveyed and quantified biodiversity baselines on 48 global sites across 16 countries, providing biodiversity uplift recommendations to achieve 20% biodiversity uplift per site by 2030. Hosted 20 in-country workshops to develop Concept Biodiversity Design Plans based on uplift options, with a further 9 sites to be completed in 2024.

Supported the implementation of biodiversity uplift projects via landscape designs at the three largest R&D facilities. Developed a Design Guide to support biodiversity-centered improvements via landscape designs.

Effect

Voluntary participant in the pilot of science-based targets for nature. Committed to achieving 20% uplift in biodiversity at all owned sites by 2030. Set a target that 100% of agricultural, forestry and marine-derived materials will be sustainably-sourced and deforestation-free by 2030.

Biodiversity vision, goals and roadmap (Chemical Industry Federation of Finland, FIBS)

Challenge

- To identify the essential aspects and defined vision and objectives for biodiversity.

What we did

- A roadmap was being drawn up and the necessary measures and timetables will be defined for the Chemical Industry Federation to achieve its goals.
- The roadmap was planned so that it is linked to the partner's existing carbon neutrality work.

Effect

- Opportunity to increase client understanding of the impacts on biodiversity and to start their own impact assessment work.
- The scope and multidimensionality of the whole have materialised.
- The information has been collected from companies using various methods (e.g. questionnaires, virtual and physical workshops) and is used to define the vision, goals and roadmap.

Biodiversity and Carbon Storage Strategy (Scottish Enterprise)

Challenge

- To assist SE in defining a viable decarbonisation roadmap by considering how their IPP could be utilised and enhanced for biodiversity and carbon storage to align with their overarching decarbonisation ambitions.

What we did

- Ramboll conducted a review of 41 sites within SE's IPP to identify those sites which hold existing high biodiversity and carbon storage value, and those sites which offer the greatest potential.
- During the first phase of the project, Ramboll undertook baseline assessments of biodiversity using the Natural England Biodiversity Metric v3.0, and of carbon storage using the Environmental Benefits from Nature (EBN) Tool across all sites.
- The second phase prioritisation and opportunity mapping exercises to highlight 10 sites with significant opportunities for biodiversity and/or carbon storage enhancement, to quantify potential gains through enhancement and to make recommendations for realising these.

Effect

- The data and results were integrated into a bespoke and interactive online GIS dashboard for use by the client to visualise the habitat types on each site and their corresponding biodiversity and carbon storage value.