

A photograph of a beach heavily littered with plastic waste, including bottles, bags, and debris. In the foreground, a person in a black t-shirt and pink shorts is walking away from the camera, carrying a bucket. Other people are visible in the background, some standing and some walking. The ocean is visible in the distance under a cloudy sky.

PUTTING AN END TO PLASTIC POLLUTION:

WWF's CALL TO URGENTLY REGULATE
HIGH-RISK PLASTIC PRODUCTS

TOWARDS A TREATY TO END PLASTIC POLLUTION



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WWF'S CALL TO GOVERNMENTS

- Propose binding global measures to ban, reduce, safely circulate and manage specific high-risk plastics
- Prioritise plastics with high pollution risks, including product groups, applications, chemicals and polymers of concern
- Specify high-risk plastics suitable for immediate global bans and phase-outs, in particular the group of single-use, short-lived plastic products that can be eliminated without negative environmental and socioeconomic consequences, such as single-use cutlery, plates, cups, cotton bud sticks and cigarette filters
- Match strong binding measures with ambitious mechanisms to enable effective implementation, including technical and financial assistance, technology transfers and capacity strengthening; paying special attention to the needs of least developed countries and small island developing states;
- Mandate the preparation of the treaty's zero draft, that includes these specific proposals, in the intersessional period before INC-3.

FROM POLLUTION TO SOLUTION

Plastic is suffocating our rivers and oceans, killing species and contaminating our food, air and water.

And the problem is only getting worse. The mass of all plastics ever made is now twice the mass of all land and sea animals combined¹. It has leached into all of our Earth's environments and can now be found everywhere – from the heights of Mount Everest, to the depths of the Mariana Trench. If current trends continue, then by 2040, global plastic production will double and plastic leakage into the ocean will triple².

Plastic pollution is a global problem that requires a global solution. Plastic leaking into our environment in one location can end up hundreds or even thousands of kilometres away. Regulation and voluntary measures at a national level have proven ineffective in stopping plastic from polluting and poisoning our planet. This is why a unified global response is essential to ending the plastic crisis.

We now have an opportunity to turn the tide.

In March 2022, after years of campaigning, the UN Environment Assembly agreed to develop a global treaty to end plastic pollution. The task now is to agree what measures will actually be included in the treaty, with negotiators hoping to finalize the text of the treaty by the end of 2024. To put an end to the plastic crisis, the treaty must introduce comprehensive, binding rules across the plastic life cycle

to ban the most damaging plastics, reduce production and consumption, promote reuse and recycling, and properly manage plastic waste.

This new research presents a framework for how negotiators can address the most urgent plastic pollution challenges under the new global treaty. It breaks the plastic pollution problem down into broad product categories that are simpler to regulate at the global level, and uses a risk-based approach to determine their potential negative impact on the environment. The report also looks at options for how each category can be effectively dealt with under the treaty, through either banning, phasing out and improving circulation and management of high-risk plastic products. When assigning control measures to each product group, the research makes clear the need for compromises and trade offs when appropriate. Specifically, packaging which, while it poses a high-pollution risk, can and does serve a necessary function in reducing waste and meeting health and safety requirements.

As a priority, the treaty must include immediate global bans on the production and sale of the most harmful products. Many of these products we can easily do without, especially where non-plastic alternatives already exist. These include unnecessary single-use items like plastic cutlery, cigarette filters and microplastics added to cosmetic products.

Where immediate bans for harmful products are not feasible, the treaty must ensure they are completely phased out by no later than 2035. In some cases, non-plastic alternatives simply do not yet exist at scale. The 2035 deadline will allow governments and businesses the time to implement new measures, such as reuse models, to ease the transition. Key products to be phased out include single-use packaging, such as food retail packaging and takeaway containers.

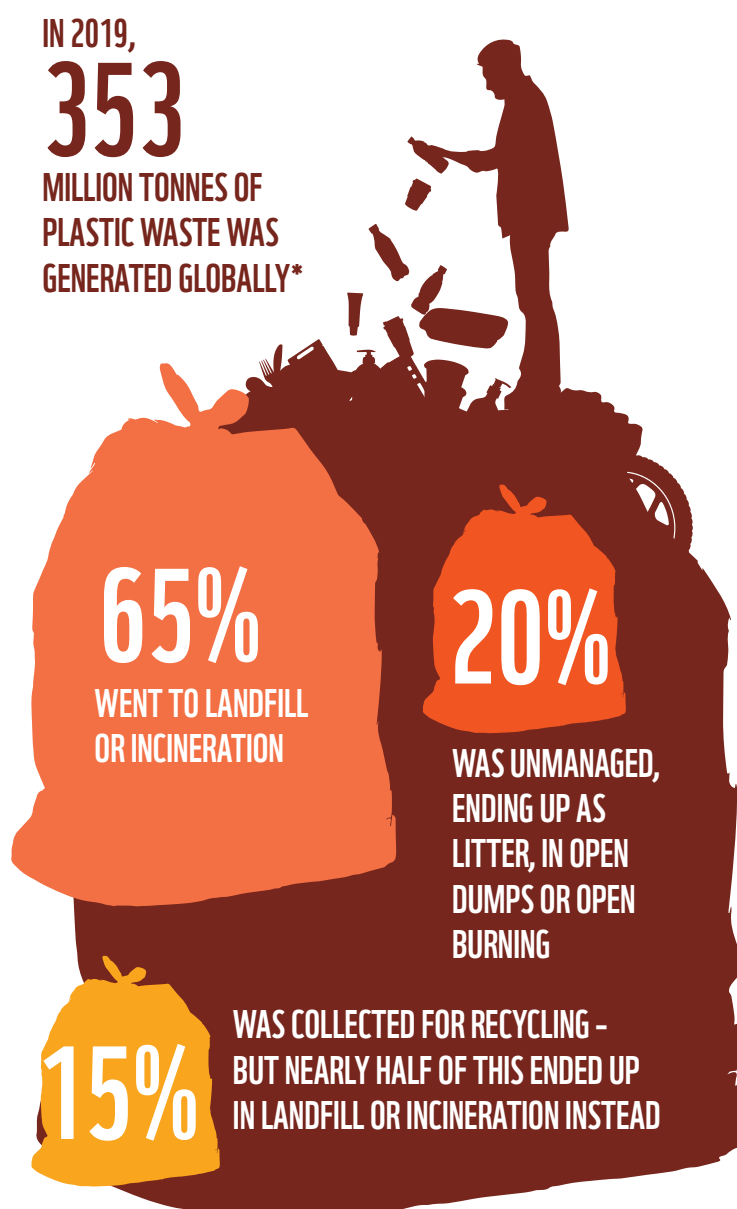
For high-risk products that can't realistically be eliminated, we recommend a range of control measures to prevent pollution, promote circularity, minimize waste and manage waste safely. These include a significant phase down of certain products by 2035 at the latest, harmonised global product standards and requirements, economic incentives, measures to improve waste collection and recycling, extended producer responsibility systems and deposit return schemes. Key products to be considered for these measures include pharmaceutical packaging, hygiene products containing plastic fibres, and sector-specific products like fishing gear.

The treaty provides a historic opportunity for governments to jointly regulate plastic products. In particular countries bearing the cost of pollution must be able to participate in regulation of upstream decisions on product design and as well as which products and materials should be allowed on the market. In order to ensure effective implementation in all countries, joint global rules should be closely linked to a robust implementation and financial support mechanism with control measures like extended

producer responsibility offering one possible funding source.

A bold, ambitious and effective treaty will be one built on inclusivity and collaboration. Negotiators must apply a robust and democratic decision making procedure, with no single country given the ability to veto the progress of the global community. Policy-makers should conduct meaningful consultations throughout this negotiation period with a broad range of stakeholders, particularly the informal sector and communities that are impacted most by plastic pollution, to ensure the treaty is a product of global input and representation.

The plastic pollution treaty must be a significant turning point in human history. It's a lifeline that we must grab if we are to reverse the impacts of plastic pollution and help put our planet on a path to recovery.



THE PLASTIC PROBLEM

The world produces plastic on a colossal scale. Production has rocketed in the last two decades, with more plastic being produced between 2003 and 2016 than in the whole of the 20th century³.

Plastic is cheap and versatile, with countless uses across many industries. But almost half of all plastic is used to create short-lived or single-use products that have a lifespan of less than three years, most of which are consumed in high and upper-middle income countries. By 2015, 60% of all plastics ever produced had already reached their end of life and been discarded⁴. Globally, less than 10% of plastic products are recycled⁵.

Though their useful life may be short, plastic products can persist in the environment for decades or even centuries. Estimates vary widely, but it's thought that 86-150 million tonnes of plastic waste has accumulated in the ocean to date⁶. And the problem is only getting worse as more plastic flows into the sea each day: an estimated 11 million tonnes of plastic waste entered the ocean and other aquatic ecosystems in 2016⁷.

PLASTIC PRODUCT GROUPS

Not all plastics are created equal. Plastics vary hugely in their applications, their use life, the materials they are made from, the alternatives available, whether they can be reused or recycled, and the harm they cause if released into the environment.

This research breaks down the high-risk plastic products into four broad product categories – packaging, characteristic-specific products, sector-specific products and primary microplastics – according to the distinct aspects that increase their pollution risk. These are divided into subgroups based on their intended functions, characteristics and patterns of use. Systematically addressing the different types of high-risk plastic products in this way can be an effective approach to overcoming the complex problem of global plastic pollution.

Because of the wide global scope of the treaty, it makes sense to look at groups of products in this way, rather than attempting to legislate for every type of plastic item – which, as well as being incredibly complex, opens up potential loopholes. The treaty can then prescribe the most effective regulatory approaches and controls for each category.

It is important to note that this research focused on the most high-risk plastic products that the treaty must prioritise and urgently address. These products should be considered the



starting point for an effective and impactful treaty which must be strengthened over time to account for all plastic products, applications and materials.

PACKAGING

The packaging sector is responsible for the largest share of plastic production. It's estimated that between 31% and 44% of the 460 million tonnes of plastic produced globally in 2019 was used for packaging. Many plastic packaging products are used only once or for a short period of time before disposal, including lightweight carrier bags, drinks bottles and takeaway containers.

The analysis distinguishes between contact-sensitive packaging, where the type of packaging can affect the properties of the product inside (e.g. food, pharmaceutical products) and which is often subject to strict health and safety regulations, and non-contact-sensitive packaging (e.g. household goods, electronics). We divide the former category into five subcategories: single-use food and drink, multi-use food and drink, cosmetics and personal care, medical and pharmaceutical, and other contact-sensitive packaging.

CHARACTERISTIC-SPECIFIC PRODUCTS

Many of the plastic items found washed up on beaches or floating in the ocean are short-lived consumer products which are of little value or are designed to be disposable – like cotton-bud sticks, plastic cutlery, wet wipes and nappies. Almost all have a lifespan of less than three years, and are mostly consumed in high and upper-middle income countries. These are often discarded directly into the environment or flushed into wastewater systems. Many can't currently be recycled.



In the analysis, we divide these items into products containing non-woven plastic fibres (e.g. wipes, cigarette filters) and rigid or flexible plastics (e.g. cups, bags). In both categories, we distinguish between products that are necessary (like PPE and contact lenses) and those that aren't (like plastic tea bags and balloon sticks).

This grouping also includes longer-lived plastic products. Some of these – like furniture and durable toys – are less likely to end up polluting the environment. But other products, such as car tyres and synthetic textiles, contribute significantly to pollution during their lifetimes because they release plastic microfibres.

SECTOR-SPECIFIC PRODUCTS

This grouping includes plastics used in specific sectors, since these can have a significant influence on plastic pollution. The analysis highlights two environmentally sensitive sectors, where plastic products are used or disposed of in and around natural ecosystems: fishing and aquaculture, and agriculture. In the case of fishing, lost or discarded nets, traps and other fishing equipment (known as 'ghost gear') can prove especially deadly to aquatic wildlife. In agriculture, plastics such as films can come into direct contact with the land and microplastic particles can leach into soils and waterways. Plastics used in other sectors, such as electronics and the automotive industry, are not considered an immediate priority from an environmental perspective.

PRIMARY MICROPLASTICS

Microplastics – tiny plastic particles up to 5mm in size – and nanoplastics - microscopic plastic particles measuring up to 0.0001mm - are the least visible but most insidious

form of plastic pollution. They are easily ingested and tend to bioaccumulate in the food chain, with various negative impacts on wildlife health. While much microplastic pollution comes from other products breaking down (secondary microplastics), microplastics are also manufactured as products in their own right – we refer to this category as primary microplastics. These include microbeads in personal care products such as toothpastes, skin care and scrubs; antifouling coatings on ship hulls; and microplastics used in industrial applications such as printer inks, spray paints and injection mouldings. This category also includes the pellets, flakes and powders produced to manufacture other types of plastic.

CONTROL MEASURES

To help focus negotiations, the report divided the subgroups in two classes, based on how feasible it is to eliminate the product groups, both technically (are there viable alternative materials or processes?) and from a socioeconomic point of view (would changes be affordable and socially acceptable?). We also explored possible unintended environmental, health and societal impacts of eliminating or replacing a type of plastic.

Class I: Plastics that can be eliminated and reduced without significant negative consequences

The treaty should immediately ban the production, sale or use of these products. Where that is not immediately feasible, the treaty should introduce:

- Measures to phase out products by no later than 2035
- Taxes and other economic instruments to drive reductions in demand
- Product standards to reduce or eliminate plastic use.

Class II: Plastics that can't easily be eliminated

In these cases, the treaty should focus on standards and targets to prevent pollution risk and ensure safe circulation and management. Control measures should include:

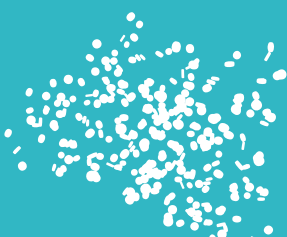
- Targets, standards and minimum requirements on collection, reuse, recycling, disposal and recycled content
- Taxes and other economic instruments to incentivize safer circulation and management
- Extended producer responsibility systems
- Deposit return systems.

BAN

For the most damaging products that we can easily do without, the treaty should introduce immediate bans. Some countries have already banned certain plastic products, but we need all nations to act together in ending the plastic crisis. Global rules will create a level playing field, promote

Class I product groups and corresponding control measures

CLASS I PRODUCT GROUP	BANS*	PHASED REDUCTION (PHASE-OUTS & PHASE-DOWNS)	PRODUCT STANDARDS	ECONOMIC INSTRUMENTS	
1a. Packaging: contact sensitive - single-use food and beverage (necessary/other**)		☒	☒	☒	
1c. Packaging: contact sensitive – cosmetics and personal care (necessary/other**)		☒	☒	☒	
1f. Packaging: non-contact sensitive		☒	☒	☒	
2b. Characteristics-specific plastic products: single-use short lived – fibres/non-woven – other (non-necessary)	☒		☒		
2c. Characteristics-specific plastic products: other single-use short-lived items – necessary		☒	☒	☒	
2d. Characteristics-specific plastic products: other single-use short-lived items – other (non-necessary)	☒	☒	☒	☒	
2e. Characteristics-specific plastic products: longer life – cause significant secondary microplastic release		☒	☒	☒	
4a. Primary microplastics – in application or intentionally added microplastics	☒	☒	☒	☒	

RATIONALE	EXAMPLE PRODUCTS IN GROUP	
Large volumes and high propensity for leakage. Global bans assessed as low feasibility or socioeconomically acceptable across product groups, reduction at product/application level suitable and phase-out/phase-down recommended. Standards to further strengthen reduction.	Beverage bottles, takeaway containers, crisp packets, sachets and pouches, nets and wraps for fruit and vegetables, very lightweight plastic carrier bags used as primary packaging for loose food items¹¹, EPS fish boxes	
Large volumes and high propensity for leakage. Global bans assessed as low feasibility. Reduction at product/application level assessed as suitable.	Toothpaste tubes, perfume spray bottles, shampoo and soap bottles, pots and tubs of creams, lotions and scrubs, beauty products like lipstick and mascara tubes	
Large volumes and high propensity for leakage. Bans assessed to be less socioeconomically acceptable.	Packaging for products not listed above – household goods, stationery, electronics, plastic carrier bags, etc., including secondary or shipping/ transport packaging where relevant	
Waste management and recycling lacking, leakage common. Alternatives widely available. Bans supported by standards.	Wet wipes, cigarette butts, disposable vacuum filters or plastic tea bags	
Alternatives currently lacking. Reductions desirable and phase-outs/downs feasible. Economic instruments to incentivize behaviour change, standards to enforce it.	Contact lenses, bin bags, plastic PPE	
Waste management/recycling lacking, leakage common. Use of plastics in items non-essential. Alternatives widely available. Bans supported by economic instruments due to widespread nature of use.	Balloons, plastic cutlery/ plates/ cups, ear bud sticks, disposable e-cigarettes, etc.	
Bans assessed as less feasible or socioeconomically acceptable. Standards to reduce volume and leakage through design. Targets to support effectiveness. Economic instruments to encourage consumer behaviour change.	Tyres, synthetic textiles, paint	
Alternatives available with associated economic cost of R&D and consumer satisfaction. Bans appropriate.	Microbeads in personal care products such as toothpastes, skin care and scrubs, antifouling application on ship hulls, microplastics used in industrial applications such as printer inks, paints, spray paints, injection mouldings and abrasives, microplastic coatings surrounding fertiliser granules	

Class II product groups and corresponding control measures

CLASS II PRODUCT GROUP	TARGETS	ECONOMIC INSTRUMENTS	CIRCULARITY STANDARDS / MINIMUM REQUIREMENTS					
			REUSE	RECYCLING	RECYCLED CONTENT	COLLECTION	DISPOSAL	
1a. Packaging: contact sensitive – single-use food and beverage (necessary/other)	✓	✓	✓	✓	✓	✓	✓	
1c. Packaging: contact sensitive – cosmetics and personal care (necessary/other)	✓	✓	✓	✓	✓	✓	✓	
1d. Packaging: contact sensitive – pharmaceutical	✓	✓	✓	✓	✓	✓	✓	
1e. Packaging: contact sensitive – other	✓	✓	✓	✓	✓	✓	✓	
1f. Packaging: non contact sensitive	✓	✓	✓	✓	✓	✓	✓	
2a. Characteristics- specific plastic products: single- use short lived – fibres/non-woven - necessary	Possible	Possible	✓	✓		✓	✓	
2c. Characteristics- specific plastic products: single-use short lived – other non-packaging – necessary			✓	✓		✓	✓	
2e. Characteristics- specific plastic products: longer- life items of concern – causing significant secondary microplastic release						✓	✓	
3a. Sector-specific plastic products: marine, aquatic and terrestrial – marine/ aquatic	✓	Possible	Possible	✓	Possible	✓	✓	
3b. Sector-specific plastic products: marine, aquatic and terrestrial – terrestrial	✓	Possible	Possible	✓	Possible	✓	✓	
4b. Primary microplastics: pre- production		Possible				✓	✓	

MICROPLASTIC CONTROLS	STANDARDS TO REDUCE HARM IN ENVIRONMENT	EPR	DRS	RATIONALE	EXAMPLE PRODUCTS IN GROUP
✓	Possible	✓	✓	All identified measures can be applicable to single-use food and beverage packaging. They are all relevant to this group and have been used successfully for products in this category.	Beverage bottles, takeaway containers, crisp packets, sachets and pouches, nets and wraps for fruit and vegetables, very lightweight plastic carrier bags used as primary packaging for loose food items, EPS fish boxes
✓		✓	Possible	Almost all the identified measures can be applicable to these groups of packaging. These product groups are less likely to enter the environment than single-use food and beverage packaging.	Toothpaste tubes, perfume spray bottles, shampoo and soap bottles, pots and tubs of creams, lotions and scrubs, beauty products like lipstick and mascara tubes
✓		✓	Possible		Medication bottles, blister packs for pills, protective casings and inserts for medical devices, IV bags, test tubes
✓		✓	Possible		Packaging for animal feed, veterinary devices, children's toys, hazardous products
✓		✓	Possible		Packaging for products not listed above – household goods, stationery, electronics, plastic carrier bags, etc., including secondary or shipping/transport packaging where relevant
Possible	Possible	Possible		Some items may be suitable for measures indicated, though approaches such as DRS are less tested for products within this category. Economic instruments risk incentivizing illegal disposal behaviours.	Some absorbent hygiene products (AHPs) such as nappies, sanitary pads, incontinence pads or tampons, PPE, or filters in engineering systems
	Possible			Not all measures will apply to this category and economic instruments may be redundant. Measures like EPR and DRS are not well tested.	Contact lenses, bin bags, plastic PPE
✓		✓		Products in this group are not suitable and well-tested for DRS measures. High-risk stage is the use stage of the life cycle.	Tyres, synthetic textiles, paint
Possible	Possible	✓	✓	Products suitable for collection and recycling targets, but not possible for all. DRS would be relevant for return of potentially lost fishing gear and/or terrestrial plastic applications.	Nets, lines, pots and trawls, plastic mesh, PVC piping, fishing aggregated devices (FADs) ¹²
Possible	Possible	✓	✓		Mulch film, plastic silage wrap, greenhouse tunnels. ¹³
✓				Standards for management of pre-production pellets in existence throughout the supply chain in some countries. Easily incorporated into health and safety requirements in production.	Plastic resin pellets, flakes or powders

innovation and facilitate trade. Plastic production – which depends on fossil fuels – will be reduced, while at the same time, already overwhelmed waste management systems will have less plastic waste to deal with. And we'll see an immediate drop in some of the most common forms of plastic which end up in our environments. The research proposes immediate bans for:

- Unnecessary plastic fibres – in products like wet wipes cigarette filters, tea bags
- Unnecessary single-use items – like plastic cutlery, plates and cups, ear bud sticks, disposable e-cigarettes
- Intentionally added microplastics – including microbeads in toothpastes and skin care products, antifouling applications on ship hulls, microplastics in industrial applications.

Plastic cutlery: Often thrown away as litter and almost never recycled, plastic cutlery can easily be replaced by reusable and more environmentally friendly alternatives. The EU, UK and Taiwan, among others, have already announced bans. The global plastic pollution treaty must put an end to these pointless items for good.

Cosmetic microbeads : Already, our ocean contains more than a trillion microplastic particles – 500 times more than there are stars in our galaxy⁸. There's no need to keep adding plastic microbeads to skincare products and other cosmetics. Many countries are already introducing restrictions, making a complete global ban a realistic proposition.

REDUCE AND PHASE OUT

Where an immediate ban isn't feasible, the treaty should ensure harmful products are significantly reduced in quantity and phased out entirely where possible. Some items can and should be phased out sooner than others, by 2035 at the latest, helping relieve strain on waste management systems. Clear targets and standards will drive innovation and clear the way for new consumption models and non-plastic alternatives which can be reused and recycled. Those that cannot be phased out completely must be reduced to a minimum. The treaty should reduce and phase out:

- Single-use food and drinks packaging, especially where they cannot be shown to be necessary
- General plastic packaging items where they cannot be shown to be necessary
- Necessary single-use plastic items, like PPE, as non-plastic or reusable alternatives become available
- Longer-life items that release significant levels of microplastics – specifically tyres and textiles.

Single-use general packaging: These items, which include plastic carrier bags and shipping packaging, are often found in the environment and have a tendency to break down into smaller pieces (becoming "secondary microplastics"). Due to society's dependence on these types of items, non-plastic alternatives are likely to arise. Therefore, measures need to be taken to make sure alternatives are easily reusable

or recyclable so that one pollutant isn't being replaced with another.

Single-use food packaging: From crisp packets to takeaway containers, disposable plastic food packaging accounts for an estimated 9% of ocean plastic. It is important to note that it may not be feasible to completely phase out all food packaging due to their important function in reducing waste and meeting health and safety requirements. It's therefore important that a move away from plastic packaging doesn't lead to increased food waste and other unintended consequences.

REDESIGN, CIRCULATE AND MANAGE

For products that can't realistically be banned or phased out, the treaty should specify mandatory measures to prevent them from ending up in the environment and to minimize waste. These include targets, standards and incentives to ensure products can be easily reused or recycled, along with measures to encourage circularity, improve waste management systems and mitigate the harm that occurs if plastic does end up in the environment. The treaty should also mandate or set standards for deposit return schemes and extended producer responsibility systems (where producers bear the cost of dealing with the plastics they put on the market). These controls should cover the following priority types of plastics, along with any items in the previous categories that can't be eliminated entirely:

- Cosmetics packaging
- Pharmaceutical packaging
- Necessary contact-sensitive packaging
- Necessary single-use items made from plastic fibres – like hygiene products
- Plastic products in environmentally sensitive sectors, like fishing and agriculture
- Primary microplastics used in plastic production.

Fishing gear: Fishing waste makes up around 10% of all marine litter – 5.7% of all fishing nets, 8.6% of traps and pots, and 29% of all fishing lines are lost around the world each year⁹. This ghost gear is the most deadly form of plastic pollution, entrapping and ensnaring seabirds, turtles, marine mammals and fish. But a global treaty must solve this global problem by ensuring nets are continuously reused and are safely managed and recycled at end of life.

Drinks bottles: Plastic bottles make up around 12% of all the plastic found in our oceans. A staggering 583 billion plastic bottles were produced worldwide in 2021 – 100 billion more than just five years earlier¹⁰. While 99% of plastic is currently made from fossil fuels, this sharp rise in production has also meant a significant rise in oil extraction. Despite bottle recycling systems being in place in many places around the world, many countries are still struggling to cope with the sheer quantity of plastic bottles being produced and sold.

A CHANCE FOR CHANGE

The global plastic pollution treaty is a chance to reset our relationship with the planet. It's an opportunity to eradicate the products that inflict the most harm on the people, wildlife and habitats we care so much about. But it can go further than that: it's a powerful tool to move us away from the single-use mindset that is fuelling the dual nature and climate crises, and set us on the path to a sustainable future.

Governments have an opportunity to raise ambition and make their mark on history, starting with the next meeting of the intergovernmental negotiation committee in Paris at the end of May 2023. The product controls outlined here should be an essential part of the new treaty, while the identification and prioritization of product groups explained in the study provides useful input to treaty annexes detailing these measures.

Inclusive and meaningful consultations with a broad range of stakeholders will be essential to a just transition. In particular, where the informal sector, and informal waste workers, play a key role in the collection, sorting and recycling of plastics, governments should prioritize inclusive and in-depth engagement with them when establishing new, robust and equitable standards.

Product controls must also be complemented by controls on polymers, chemicals and additives. Other important features of the treaty that will strengthen international and global action include harmonized systems for reporting, monitoring and verification, trade requirements, capacity building and awareness raising, recognizing the wide variation in infrastructure and resources between different countries. Crucially, the treaty must also plan and secure finance, particularly for developing countries, for new processes that will help create a circular and fairer economy.

Humans created this problem, but we have the knowledge and the means to fix it. The global plastic pollution treaty is our one chance to do that.



About the research

WWF commissioned sustainability consultants Eunomia to identify the types of plastic products that pose the greatest pollution risk, and how best to control them. To support the negotiation process, Eunomia produced two reports.

The first report, *Breaking Down High-Risk Plastic Products*, assesses groups of plastic products according to their properties, uses, how they end up in the environment and the harm they cause when they do. These product groups are then divided into two classes – those that can feasibly be significantly reduced or eliminated entirely in the short term (Class I) and those that need control measures to promote circularity, and responsible management and disposal (Class II).

The second report, *Regulating High-Risk Plastic Products*, examines specific control measures to reduce and eliminate the production, consumption and trade of Class I plastics, and to safely manage and circulate Class II plastics.

To view these reports, visit panda.org/plasticstreaty

ENDNOTES

- * OECD (2022), *Global Plastics Outlook: Economic Drivers, Environmental Impacts and Policy Options*, OECD Publishing, Paris, <https://doi.org/10.1787/de747aef-en>
- 1 Elhacham, E., Ben-Uri, L., Grozovski, J. et al. Global human-made mass exceeds all living biomass. *Nature* 588, 442–444 (2020). <https://doi.org/10.1038/s41586-020-3010-5>
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- 3 WWF (2022). *Impacts of plastic pollution in the oceans on marine species, biodiversity and ecosystems*. https://wwfint.awsassets.panda.org/downloads/wwf_impacts_of_plastic_pollution_on_biodiversity.pdf
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- 6 WWF (2022). *Impacts of plastic pollution in the oceans on marine species, biodiversity and ecosystems*. https://wwfint.awsassets.panda.org/downloads/wwf_impacts_of_plastic_pollution_on_biodiversity.pdf
- 7 The Pew Charitable Trusts (2020). *Breaking the Plastic Wave: A Comprehensive Assessment of Pathways Towards Stopping Ocean Plastic Pollution*, p55–61. https://www.pewtrusts.org/-/media/assets/2020/07/breakingthe-plasticwave_report.pdf
- 8 Surfrider Foundation Europe (2020). <https://surfrider.eu/en/learn/news/500-times-more-microplastics-in-our-ocean-than-stars-in-our-galaxy-1211110203692.html>
- 9 WWF (2020), *Stop Ghost Gear: The most deadly form of marine plastic debris*, p 10–11. https://wwfint.awsassets.panda.org/downloads/wwfintl_ghost_gear_report_1.pdf
- 10 Earth Day (2022). *Fact Sheet: How much disposable plastic we use*. <https://www.earthday.org/fact-sheet-how-much-disposable-plastic-we-use/>
- 11 It is important to note, however, that very lightweight plastic carrier bags are used in some cases as packaging for non-food items.
- 12 Other plastic products used in the fishing industry (floats, product storage) are not such a direct focus, though initiatives to tackle plastics in the sector may also address these where appropriate.
- 13 Other plastic products used in agriculture such as containers, storage tanks etc. are not such a direct focus as they are of less immediate concern to the risks focused on by this report.

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OUR MISSION IS TO CONSERVE NATURE AND REDUCE THE MOST PRESSING THREATS TO THE DIVERSITY OF LIFE ON EARTH



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