environmental investigation agency

Ocean

Connecting the Dots
Plastic pollution and the planetary emergency

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ABOUT EIA

We investigate and campaign against environmental crime and abuse.

Our undercover investigations expose transnational wildlife crime, with a focus on elephants and tigers, and forest crimes such as illegal logging and deforestation for cash crops like palm oil. We work to safeguard global marine ecosystems by addressing the threats posed by plastic pollution, bycatch and commercial exploitation of whales, dolphins and porpoises. Finally, we reduce the impact of climate change by campaigning to eliminate powerful refrigerant greenhouse gases, exposing related illicit trade and improving energy efficiency in the cooling sector.

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Above: Making the invisible visible, a child holds a gastropod sea snail filled with plastics. The accumulation and contamination of human food webs with plastic particles and their associated chemicals is unprecedented.

CONTENTS

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Introduction: Sounding the alarm

The toxic pollution resulting from rampant overproduction of virgin plastics and their lifecycles is irreversible, directly undermines our health, drives biodiversity loss, exacerbates climate change, and risks generating large-scale harmful environmental changes.[1]

With emissions into the oceans alone due to triple by 2040, in line with production,[2] it threatens human civilisation and the planet's basic ability to maintain a habitable environment.[3]

A recent United Nations Environment Programme (UNEP) synthesis report entitled: "Making Peace with Nature" identified three existential environmental threats - climate change, biodiversity loss and pollution - and discusses how they need to be addressed together to achieve sustainability.[4]

Two of these - biodiversity and climate change - have had dedicated multilateral environmental agreements (MEAs) for nearly 30 years[5] but, despite plastic pollution being one of the most prevalent and destructive environmental pollutants in existence, no such instrument for plastic yet exists.

In November 2021, the Conference of the Parties (CoP) to the UN Framework Convention on Climate Change (UNFCCC) met to decide the future global climate policy agenda. Despite the established connection between

plastic production and use, and related greenhouse gas (GHG) emissions, this discussion was notably absent and no mention of plastic was made in the final Glasgow Climate pact.[6]

In 2022, the Convention on Biological Diversity (CBD) CoP15 will convene to negotiate the future biodiversity agenda. Target 7 of the proposed post-2020 framework calls for the elimination of plastic waste discharges, although it is unclear how this will be achieved.[7]

Environmental crises do not exist in isolation - they are intricately interconnected and mutually reinforcing. The UN report substantiates this and urges member states to better align goals, targets, commitments and mechanisms under environmental agreements in order to be more effective. The report also showed through scientific assessment that human-induced environmental threats are sufficiently serious to represent a 'planetary emergency'.

This report sounds the alarm on pollution caused by plastic throughout its lifecycle by exposing how it drives pollution, biodiversity loss and climate change, compromises human health and poses a direct threat to planetary boundaries. Based on this, it provides recommendations on how to ensure multidimensional, long-term and collaborative policy that considers plastic pollution as a planetary boundary threat and takes into account its knock-on impacts on other environmental crises.

By initiating negotiations for a new plastics treaty at the UN Environment Assembly (UNEA) in February 2022, UN member states have a chance to fundamentally address a significant driver of climate change, biodiversity loss and pollution.

Above: The unaltered stomach contents of a dead albatross chick photographed on Midway Atoll National Wildlife Refuge in the Pacific in September 2009.

The planetary emergency

Our planet is a delicately balanced and self-regulating system which maintains environmental conditions capable of supporting life.

It is regulated through both living and non-living things that interact through different physical, chemical and biological processes. These processes, also known as 'Earth system processes', include things such as the cyclical movement of carbon, water and nutrients around the globe and are vital for maintaining a habitable environment on our planet.[8]

Earth system processes can be seen as the planet's 'life support', performing services such as creating oxygen, cleaning our air, filtering our water and regulating extreme weather. But the Earth system is dynamic and extremely complex - minute disturbances to one part of it can cause effects in others that are often unpredictable.

For example, rising temperature in the atmosphere can bring on a cascade of interconnected environmental responses, such as changes to rainfall and wind patterns, which in turn induce other responses. For the past 10,000 years, the Earth system has been relatively stable but, due to human activity, this period of stability is coming to an end.[9]

Climate change, biodiversity loss and pollution together represent a planetary emergency. This is in part because they have the capacity to disturb Earth system processes and thus represent an existential threat to the habitability of our planet. These crises are intricately linked, with shared causes and problem drivers.

The plastics emergency

A pollutant is a harmful substance or waste product added to land, air or water that causes damage.[10] Plastic pollution is one of the most prevalent environmental pollutants and a significant driver of climate change and biodiversity loss.[11]

But it is not just the cigarette butts and drinks containers littering beaches, turtles suffocating on discarded plastic straws and whale stomachs full of plastic waste. While extremely concerning, these visible impacts are the tip of the iceberg. Plastic pollution has historically been conceptualised as 'litter', yet the reality is much more sinister.

The total estimated weight of all fish in the ocean is currently around 700 million tonnes.[12] By 2025, there will be an estimated 250 million tonnes of plastic in the oceans.[13] By 2040, it could be almost 700 million tonnes, and by 2050 the weight of plastic will likely far exceed the weight of all fish in every ocean on earth.[14] The quantities of plastic present in some ecosystems are so high that they rival the quantity of natural organic carbon to the extent that plastic has been considered as a geological marker.[15]

However, contrary to popular belief, most plastic pollution is completely invisible. The infamous Great Pacific Garbage Patch, a 1.6 million km2 mass of plastic waste in the north Pacific,[16] is not an 'island' as sometimes portrayed but a suspended confetti of plastic fragments. Around 92 per cent of all plastic at the ocean surface is microplastic (fragments less than 5mm in size) that have either broken down from larger debris or were intentionally created that way.[17] Our oceans truly are turning into a plastic soup. Up to 51 trillion plastic fragments exist in surface waters alone.[18] It is now globally pervasive - plastic is found in the deepest parts of the ocean,[19] on the highest mountain peaks,[20] in human organs[21] and on remote and uninhabited islands.[22] Some fragments are so microscopic (nano-plastics) that we are still developing the analytical techniques needed to even detect them.[23]

It is now well-recognised that rampant and unneccessary overuse of what were once valued commodities is responsible for the wave of toxic pollution that is driving biodiversity loss and climate change, as well as compromising human health. The plastics emergency is not just the visible pollution resulting from discarded plastic waste, it is the degradation of this pollution in the environment into micro and nano plastics, the release and accumulation of toxic chemicals in nature, its potential as a vector for disease and invasive species and its lifecycle greenhouse gas emissions.[24] Toxic pollution from plastic poses a threat at each stage of its lifecycle, from the point at which plastic becomes a material to the moment it is left to degrade in the environment.

Opposite page: Most plastic pollution and its impacts are completely invisible, and will continue to remain that way

Plastics are fossil fuels

Plastics are 80 per cent carbon and more than 99 per cent of plastics use crude oil, fossil gas or coal as a feedstock. Their creation also involves the burning of large quantities of fossil fuels to provide for the high energy demands of industrial processes.[25] In 2015, the total estimated lifecycle emissions from plastics were 1.78 billion tonnes of carbon dioxide equivalent ($GtCO_2e$). For context, if the whole plastics lifecycle were a country, it would be the fifth largest emitter of greenhouse gases in the world.[26] By 2050, the lifecycle emissions of plastic are predicted to be 6.5 $GtCO_2e$ per year, cumulatively taking up 15 per cent of the entire remaining carbon budget.[27] This will seriously jeopardise the Paris climate targets and the ability of the global community to keep global temperature rise below 1.5°C.

Extraction

To create plastics, fossil fuels must first be located and extracted. This is enormously destructive, both in terms of greenhouse gas emissions and biodiversity impacts. Emissions include methane leakage and flaring, from fuel and energy consumption in the process of drilling for oil or gas and land disturbance when forests and fields are cleared for well pads and pipelines.[28]

Extraction of oil, gas and coal impacts biodiversity indirectly via climate change, but also directly via contamination of air, soil, water and food sources, as well as habitat fragmentation and loss of prey.[29]

Oil and gas infrastructure consistently occurs at locations with high biodiversity.[30] For example, oil extraction blocks cover 68 per cent (68,196km^2) of the Ecuadorian Amazon and a third of its protected zones, overlapping with 19 distinct ecosystems and a multitude of biodiversity hotspots.[31]

Near-future oil and gas exploitation in West Asia and Asia Pacific is likely to occur in more species-rich locations, which is a cause for concern given that the Asia Pacific region contains some of the highest levels of biodiversity globally.[32]

Refinement and production

Approximately 61 per cent of plastic lifecycle emissions are at the production stage.[33] It requires several phases of refinement and industrial processing of oil, gas or coal, all of which have a high greenhouse gas footprint. Petrochemicals, the precursor to plastics, accounted for 12 per cent of oil demand alone in 2018.[34] This share is expected to grow to more than a third in 2030 and nearly

50 per cent by 2050,[35] driven largely by an anticipated doubling of plastic production by 2040.[36]

In total, plastic production releases about 1.89 tonnes CO_2e per tonne of virgin (new) plastic produced.[37] In 2015, plastic production alone accounted for more than a billion tonnes of emissions.

Just 20 polymer producers account for more than half of all single-use plastic waste generated globally - and the top 100 account for 90 per cent. Meanwhile, the consumer goods companies responsible for using the most single-use plastics are those most often implicated in pollution incidents.[38]

End-of-life

About 12 per cent of all plastic waste ever created has been incinerated, with serious environmental consequences. In some countries, such as Japan, it is the primary waste management technique (64.6 per cent of its plastic waste is incinerated, compared to 12 per cent as the world average).[39] For each tonne of plastic packaging waste incinerated, 2.9 tonnes of CO_2 are released into the atmosphere.[40] Incineration also creates and liberates new toxic chemicals into the food chain. For example, burning Poly-Vinyl Chloride (PVC) forms chemicals called dioxins. These dioxins are regarded as the most toxic substances on the planet, having serious health effects (e.g., compromising immunity and reproductive systems, causing cancers and impaired cognitive functions) in extremely low doses.[41]

Only nine per cent of plastic waste has been recycled, with an estimated 79 per cent of all plastic waste ever created being either in the open environment or in landfill. These plastics are leaking methane, a powerful climate pollutant, directly into the atmosphere.[42]

Fragile, biodiverse and important ecosystems which play a role in regulating climate and mitigating its impacts are most at risk.[43] For example, coral reefs have been deemed 85 per cent more likely to develop disease in the presence of plastic.[44] These are some of the most biodiverse ecosystems on Earth, critical in mitigating future climate-related extreme weather events[45] and providing food and resources for at least 500 million people.[46]

Above: Virgin plastic production and consumption have reached unsustainable levels, fed by the oil and gas industry investing heavily in petrochemical production (at facilities such as the one pictured here) to hedge against the possibility that a serious climate change response will reduce demand for their products.

Plastics pollute physically

Unlike many environmental pollutants which are liquid or gas, plastic is solid, which means it pollutes in two ways:

- chemically, when added chemicals (e.g. additives) escape plastics and interact with bodies and ecosystems;[47]
- physically, when pieces of plastics, the polymers themselves, interact with bodies and ecosystems.

Physical harm is caused by ingestion of and entanglement in plastic waste, which are the most obvious and well-documented impacts on wildlife and biodiversity. To our knowledge, at least 914 species are directly impacted by either ingestion or entanglement - 701 through ingestion and 354 through entanglement. This includes all marine turtle species, nearly half of all surveyed seabird and marine mammal species as well as 69 freshwater birds and 49 land birds from 53 families.[48] Furthermore, in the case of terrestrial mammals, dromedary camels in the United Arab Emirates have an estimated one per cent mortality rate attributable to plastic pollution[49] and an estimated 25 per cent of polar bears have eaten plastic.[50]

Lost and discarded fishing gear is responsible for 83 per cent of entanglement cases, and the impact on fish stocks and revenue is monumental. For example, about 12 million blue crabs are lost per season in Louisiana.[51] In the EU, it has been estimated that about 15 per cent of all fish caught are lost to this type of 'ghost' fishing, whereby nets continue to catch fish long after they are lost or abandoned.[52] Commercially valuable fish stocks are also ingesting microplastics; in a 2021 study, 85.4 per cent of commercial fish across 29 species had ingested microplastics.[53]

These effects do not just result in the death of individuals but can cause 'sub-lethal' impacts that have influence at population or ecosystem scales.[54] Entanglements, for example, impair the ability to hunt, forage and evade predators, while ingestion of plastic blocks gastrointestinal tracts, causing malnutrition and internal damage,[55] all of which will mean they are likely to reproduce less.

Due to their small size, microplastics are taken up by animals and plants at the bottom of the food chain. This includes the oceanic plankton responsible for sequestering carbon and producing most of the world's oxygen, whose exposure to microplastics could reduce photosynthesis and growth, have toxic impacts that affect their development and reproduction and thereby affect ocean carbon stock and the cycling of carbon.[56]

While questions remain regarding the potential of microplastics to bioaccumulate and transfer through the food chain,[57] it has been clearly demonstrated in laboratory settings[58] and is likely the case in nature.[59] The best available evidence shows that plastic pollution is affecting the structure and function of ecosystems themselves.[60]


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Plastics pollute chemically

Far from being one substance, plastics are chemical cocktails composed of small chemical building blocks (monomers) that have been joined together to create polymers. Various chemicals (additives) are added to change the polymer's thermal, aesthetic or electrical characteristics or assist in processing. Despite causing significant harm at end-of-life, plastic polymers themselves are not toxic, but the additives often are.

Toxic chemicals

In the public domain, there are substantial information gaps on substance properties and use patterns. A lack of reporting obligations mean companies can, in most instances, use whichever substances they choose, in whatever quantities, without informing the consumer or regulatory authorities. Until recently, the sheer breadth of such chemicals in use was an industry

secret. But we now know that over 10,000 chemicals are found in plastic, almost a quarter (24 per cent) of which are substances of concern, and 39 per cent of which are lacking data. In the environment, plastic also attracts toxic chemicals present in the water from other industrial pollution at concentrations up to 1 million times higher than the ambient environment.[62]

These chemicals are loosely bound to the plastic polymer itself and can easily escape, entering our bodies through contaminated food, water or air, causing inflammation and disrupting bodily processes.[63] In laboratory settings, these chemicals are associated with infertility, recurrent miscarriages, feminisation of male foetuses, early-onset puberty, early-onset menopause, obesity, diabetes, reduced brain development, cancer and neurological disorders such as reduced brain development in children, in very low concentrations.[64] Almost every single human and animal body ever tested contains these chemicals in varying concentrations.[65] There are potentially thousands of industrial chemicals in someone's body at any given time, all interacting in unpredictable ways.[66]

The unregulated use of these chemicals in plastic products contaminates the mechanical recycling stream (as they cannot be feasibly removed) and undermines the safety of the circular economy.

The overriding evidence also suggests that these chemicals are connected to the recent sharp increase of non-communicable diseases in humans.[67] This is recognised by calls for plastic waste to be classified as hazardous[68] and in a consensus statement published by 33 scientists in 2020 which urged policymakers to reduce exposure to harmful chemicals present in food packaging.[69]

Above: Contrary to popular belief, plastic pollution is not just a marine crisis. About 80 per cent of all pollution comes from the land and impacts all environments on Earth. For example, more than 12.5 million tonnes of plastic are used in the agricultural sector alone, the vast majority being either burnt or buried on land.

The plastisphere

Sometimes called the 'plastisphere', bacteria, viruses and other life colonise the surface of plastic waste, creating distinct communities and population structures.[70] At least 387 different groups of animals, plants and micro-organisms live on the surface of floating plastic waste.[71]

Vector for disease

A variety of human and animal pathogens (diseases) form part of these surface-dwelling communities, so there is high potential for plastics to act as vectors for disease.[72] Laboratory experiments have documented the transfer of bacteria Escherichia coli (E. coli) from the surface of microplastic to the gut of the Northern Star Coral.[73] The bacteria Vibrio splendidus is commonly found on plastic waste and causes a deadly disease in oysters, clams and mussels that results in huge economic losses. These animals ingest Vibrio bacteria-riddled microplastics as they filter seawater in search for food.[74]

Invasive species

Invasive (non-native) species are among the most important threats to biodiversity. Floating debris, including plastic pollution, is now considered to play an important role in spreading these species.[75] For example, more than 80 per cent of invasive species in the Mediterranean may have arrived on floating plastic waste.[76] This is particularly problematic for remote islands which naturally have higher levels of endemic species that are more at risk from invasive species transported in this way.[77]

Antibiotic resistance

There is strong evidence that the micro-communities living on plastics are responsible for helping to spread antibiotic resistant genes globally.[78] As the community of microorganisms living on the surface of plastic waste (the plastisphere) is so diverse, with many hundreds of different species, there are higher rates of what is called 'horizontal gene transfer' (HGT). Bacteria, for example, can trade slices of genetic code between one another horizontally - i.e. between one another directly. HGT is a key process by which antibiotic-resistant genes, a long-recognised threat by the World Health Organization, come into being.[79]

Most plastics never biodegrade

Plastic never truly biodegrades, but simply breaks up into smaller and smaller pieces. These tiny fragments are called micro (1 µm-5 mm) and nano (<1 µm) plastics. As this happens, their impacts become more subtle, their size range overlaps with the preferred particle size eaten by animals at the base of the food web[80] and their small size means they are more likely to leak into the natural environment and transport toxic chemicals.

Microplastics have accumulated in oceans and sediments worldwide in recent years, with concentrations of up to 100,000 particles/ metre^3.[81] Many animals and plants readily ingest them, leading to uptake and transfer within the food chain of the plastics themselves and any chemicals they contain. Many of these species are important to fisheries or perform vital ecosystem functions.[82]

Microplastics can alter the functioning of important habitats,[83] impact hatching, growth rates and food consumption of multiple different animals[84] and cause mass death in coral species (which create vital and important habitat for other animals) at low concentrations.[85]

Microplastic-contaminated prey poses a threat to some whales due to the overlap between their feeding areas and areas of high microplastic density.[86] In other marine species, while many uncertainties remain, studies also show that ingestion can lead to inflammation, cellular tissue damage and altered molecular pathways.[87] Moreover, microplastic toxicity generally increases with decreasing particle size.[88] Nano-plastic, for example, can cross over cellular membranes into the brain,[89] where it can cause behavioural and neurological problems.[90]

Below: Plastic pollution provides a toxic floating habitat for myriad marine species, including this juvenile sergeant fish. Plastics are now recognised as a key driver for spreading invasive species globally, itself a key driver of biodiversity loss.

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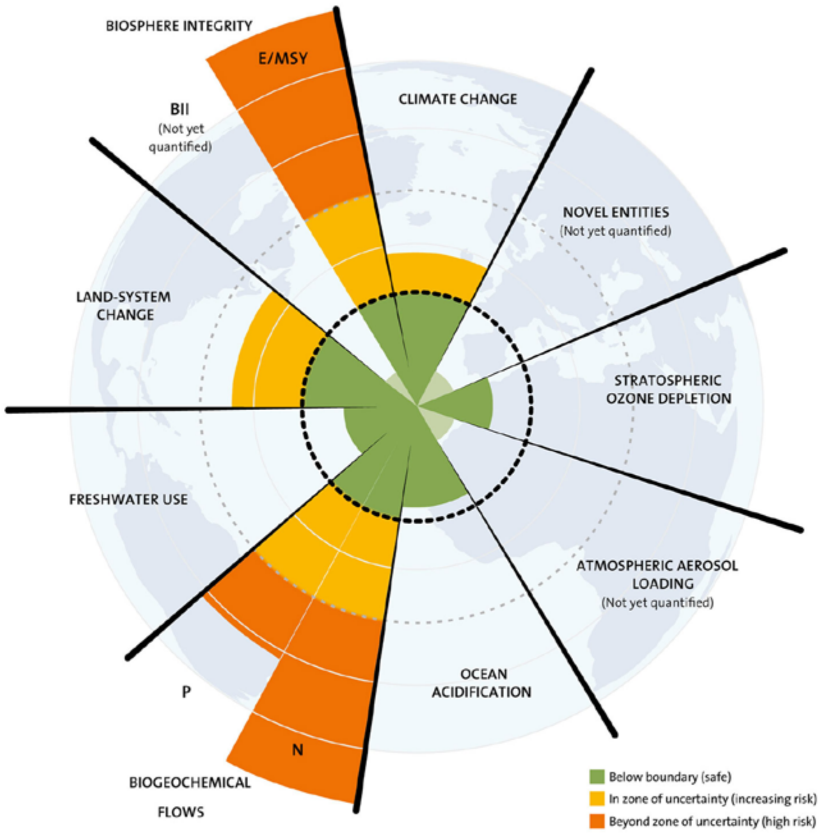

Source: Lewandowsky et al (2018)

Plastic pollution: A planetary boundary threat

As well as contributing to biodiversity loss, driving climate change and compromising human health, plastic pollution also poses a direct threat to the very limits of what our planet can manage. One way to conceptualise this is through the planetary boundaries' framework.

In 2009, some of the world's leading environmental scientists described nine vital Earth system boundaries which, if crossed, would increase the risk of generating large-scale abrupt or irreversible environmental changes.[91] It is based on the premise that there is a safe operating space in which humanity can live and for which continued impacts could erode the resilience of the Earth system.[92] Climate change and 'biosphere integrity' (biodiversity loss) were identified as two of these boundaries, and plastic pollution is now emerging as the next planetary boundary threat.

For something to be formally recognised as a new planetary boundary threat, three criteria must be fulfilled.[93] Firstly, it must be 'poorly reversible', which means it is practically impossible to undo. Secondly, the effects must only be detectable when the problem it at planetary scale. And, thirdly, there must be a disruptive effect on Earth system processes.[94] Plastic pollution is practically irreversible and globally ubiquitous, and thus meets two of the three conditions to be classed as a planetary boundary. The final criteria - having a disruptive effect on vital Earth system processes is much harder to demonstrate because of the incredibly complex nature of plastic pollution.[95] However, there is now ample evidence that this disruption is either already occurring or is likely to occur soon without immediate and global intervention.

While difficult to define, there are two ways in which plastic pollution can threaten planetary boundaries: *(i)* the accumulation of (micro)plastics within certain damaging thresholds, and *(ii)* the accumulation of toxic plastic chemicals.[96] We may already be living through a period of 'toxicity debt', whereby large amounts of toxic plastic in the environment slowly degrade over many years, leading to a 'peak' of toxic compound and microplastic release with devastating consequences.[97]

As well as indirectly driving humanity closer to the planetary boundaries for climate change and biodiversity loss, it is clear that the rapid accumulation of plastic - not just in the ocean, but in all environments - poses a direct threat to planetary boundaries. If a disruptive effect to the Earth system is not already happening, then it soon will without decisive action.

Above: The nine planetary boundaries. In 2015, the planetary boundary for chemical pollution was changed to 'introduction of novel entities' including in it the pollution caused by plastics. At least four of the boundaries are already crossed: climate change, loss of biosphere integrity (biodiversity loss), land-system change and altered biogeochemical cycles (phosphorus and nitrogen). *Source: Lewandowski et al. (2018)*

Three crises, three conferences

All environmental crises which have international problem drivers, transboundary impacts and a deteriorating environmental trend have some sort of global legal framework.[98]

In the case of climate change, the United Nations Framework Convention on Climate Change (UNFCCC) is the treaty with jurisdiction. In the case of biodiversity loss, it is the Convention on Biological Diversity (CBD). Yet in the case of plastic pollution, despite the overwhelming evidence of irreversible harm, no such agreement exists.

There is growing international recognition of the interlinkages between the threats to climate, biodiversity, humanity and the indigenous peoples and fence line communities for whom pollution, biodiversity loss and the climate emergency are not abstract political concepts but realities threatening livelihoods, food security and health.

For example, the UN Human Rights Council recently recognised the right to a healthy environment and appointed a new Special Rapporteur on Human Rights and Climate Change.[99] This follows the creation of a Special Rapporteur on the promotion and protection of human rights in the context of toxic substances whose report in 2021 found that "a global instrument addressing all stages of the plastics cycle with a human rights-based approach is sorely lacking".[100]

These appointments and declarations serve to emphasise that no environmental issues occur in isolation and environmental protection is intrinsically connected to human existence. What is more, they provide scope for creating mechanisms for accountability and access to remedy for those communities bearing the brunt of environmental destruction.

Conclusions

Environmental crises typically compete for public and policy attention, with each crisis having its own band of proponents who insist their crisis is the one most in need of awareness, interest and financial support.[101] The reality, however, could not be further from the truth - environmental crises such as biodiversity loss, climate change and pollution do not exist in isolation; the root causes are, in fact, the same - the overconsumption of finite resources.[102]

Our knowledge of plastic pollution has come a long way since the first incidents were reported in the 1970s. Initially seen as a 'litter' issue, it is now unequivocal that plastic pollution is one of the most urgent and devastating environmental and human health threats in need of urgent global action.

Plastic pollution drives biodiversity loss and climate change at each stage of its lifecycle, as well as undermining human health and directly undermining the integrity and habitability of our planet. Plastic causes catastrophic and irreversible pollution through unsustainable production and consumption patterns.

Calls for a legally binding treaty on plastics have now reached fever pitch. Since the inaugural United Nations Environment Assembly (UNEA) in 2014 there have been four successive resolutions on the topic of plastic pollution.[103] UNEA-3 saw the initiation of the Ad Hoc Open-Ended Expert Group on Marine Litter and Microplastics (AHEG) (2018-20) to explore policy response options at the global level.[104] After the conclusion of the expert group's mandate, member states organised a Ministerial Conference on Marine Litter and Plastic Pollution, an output of which was a Ministerial Statement calling for a new global agreement, now signed by 71 countries.[105] In total, based on the entirety of ministerial statements, country-and regional-level declarations and communiques, it is estimated that more than 100 countries have expressed support for treaty negotiations to begin.

For this to happen, however, a resolution must be passed at UNEA-5.2. Securing the right mandate is absolutely critical to the efficacy of any future plastics treaty. An open, ambitious mandate seeking to address plastic pollution in all environments, promoting a full lifecycle approach with interventions envisioned on production (upstream), product design (midstream) and waste management (downstream) is essential. A fast and ambitious negotiation - meaning one to be concluded by UNEA 6 - is necessary to meet the urgency of the crisis at hand.

At UNEA 5.2 and beyond, decision-makers must do what the evidence demands by thinking holistically - away from a reductionist 'litter' focus and towards lifecycle impacts in all environments, toxicity, planetary boundaries and models of production and consumption to ensure its ability to address all associated risks.

Recommendations

The Environmental Investigation Agency makes the following recommendations to UN member states:

- **Prioritise policies that address multiple threats acting at different timescales.**
  Long-term, collaborative and integrated global environmental policy on plastic pollution requires accounting for and mitigating against its impacts on climate change, biodiversity loss and human health, as well as addressing the threat to planetary boundaries. This includes measures to urgently eliminate the discharge of plastics into the environment, phase plastic production down to sustainable levels in alignment with Sustainable Development Goal (SDG) 12 and promote the upscaling of reuse, refill and traditional packaging systems tailored to national contexts.

- **Peru and Rwanda Resolution at UNEA-5.2.**
  We call on UNEA member states to support the convening of an intergovernmental negotiating committee (INC) to develop a new global plastics treaty at UNEA-5.2 in February/March 2022, one with a mandate to design a legally binding instrument which addresses the full lifecycle of plastic, beginning with production when plastic comes into existence as a material, as proposed in the draft resolution co-authored by Peru and Rwanda.

- **Nationally Determined Contributions (NDCs).**
  We call on Parties to work toward reducing the climate impact from extraction, processing, cracking and polymerisation via targeted measures in their NDCs under the Paris Climate Agreement to reduce methane and other greenhouse gas emissions from those activities, in tandem with the rapid phase-out of fossil fuels in the energy sector.

- **Strengthen Target 7 of the CBD's post-2020 Global Biodiversity Framework.**
  We urge member states to ensure that the proposed target to eliminate plastic waste discharges by 2030 is upheld and harmonised with the objectives of a new global plastics treaty, with ambitious actions and implementation genuinely capable of securing zero discharges. Furthermore, the new framework should strive to learn from the failed Aichi Targets (2010-20) by ensuring that global targets are adopted by member states as minimum national targets to ensure they are strong enough to be effective.[106]


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