



Feb 28, 2022

Scientists: US needs to support a strong global agreement to curb plastic pollution

Plastic pollution needs more than voluntary, optional or market-led solutions

On Monday, world leaders will gather at the [United Nations Environment Assembly](#) (UNEA) in Nairobi to negotiate a [global treaty to address plastic](#) pollution.

[Scientists](#) and at least 60 of the member states support a version of the treaty that could put caps on the world plastic production in addition to other policy interventions. A recent [survey also found that three-quarters of 20,513 people polled from 28 countries endorse a swift phase-out of single-use plastics](#).

The exponential rate at which global industries extract fossil fuels and produce new plastics and associated chemicals outstrips governments' ability to regulate their safety, manage waste, and mitigate harm to people and the environment.

[The total mass of plastics produced exceeds both the overall mass of all land and marine animals](#) and the [planetary boundary](#) for these novel substances, moving us out of a safe operating space for humanity.

Yet industry continues to [project growth, investing billions of dollars](#) in new infrastructure and opposing [national and now international efforts](#) to curb both plastic production and pollution.

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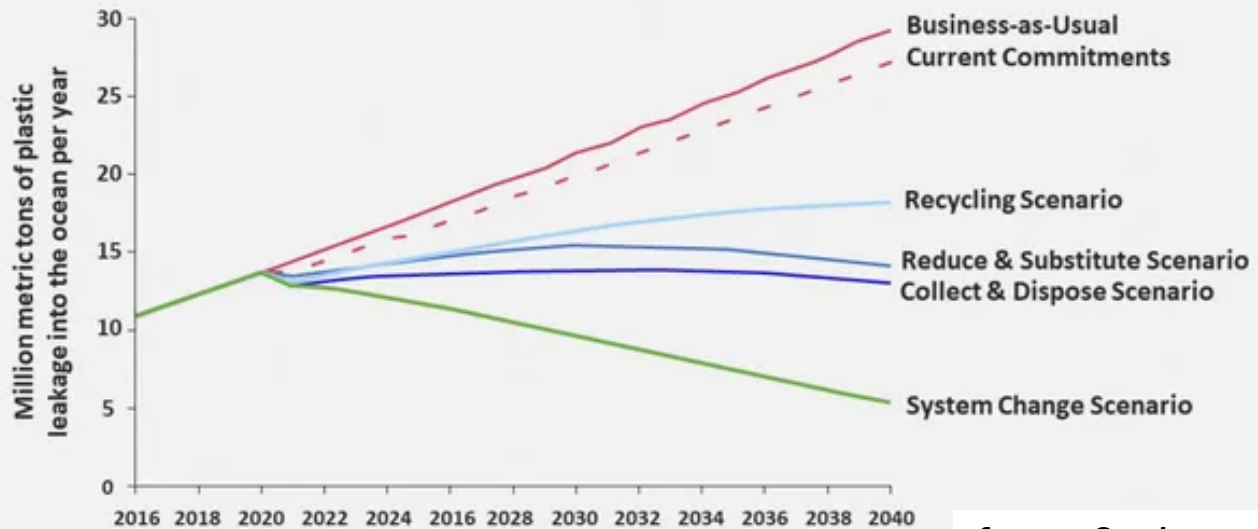
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Reducing plastic pollution

Land-based Plastic Leakage into the Ocean under Different Scenarios

The System Change Scenario/Strategy would achieve about an 80% reduction in annual plastic leakage into the ocean relative to Business-as-Usual, exceeding all other scenarios analysed.



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As reported by [Reuters](#), the American Chemistry Council (ACC), a powerful trade organization representing a consortium of plastics and petrochemical interests, is lobbying against production restrictions to be negotiated during the UNEA meetings, which run through March 2.

The ACC's strategy is to undermine proposed production limits on newly produced plastics by convincing politicians and regulators that plastics provide a net benefit to society and can be readily managed through long-failed downstream methods such as waste collection, recycling, and waste-to-energy conversion or yet [unproven chemical or so-called 'advanced recycling technologies'](#).

The industry's strategy moves against science-backed efforts to curb plastic pollution, including the recent [NASEM](#) report, requested by Congress, and the proposed [Break Free From Plastic Pollution Act](#), which aim to address plastic's impacts on [climate](#), [environment](#) and [health](#). As such, their efforts comport with the well-documented disinformation tactics deployed previously to undermine science-based environmental governance.

Plastic pollution is a multifaceted problem requiring curtailment of both production and use, as [proposed by Rwanda and Peru](#). Furthermore, the [Rwanda/Peru resolution recognizes the transboundary nature of plastic pollution](#) and the need to address it at its root. By contrast, the Japan resolution narrowly focuses on marine plastics, which, while important, is but one

facet of the complex problems plastics pose.

Plastics' harms

The proliferation of plastic debris is indeed problematic. It collects along the coastlines, clogs sewers, and causes destructive flooding in cities with insufficient waste management like [Mumbai](#) and [Nairobi](#). Waterways stagnant with plastic and sewage are a [breeding ground for](#) disease vectors that spread [cholera](#) and malaria.

Plastic waste also has [negative repercussions on livelihoods](#). In [Rwanda](#), [Ethiopia](#), [Mauritania](#), [Senegal](#), [Mali](#), and [Niger](#), plastic ingestion by livestock has led to cattle death, impoverishing subsistence communities. In Ghana, where fishing supports most coastal-dwellers, water-borne [plastic pollution threatens both jobs and food security](#).

The volume of plastic debris also perpetuates existing social disparities. The export of plastic and waste from high-GDP countries in Europe and North America into the African and Asian nations [since 1990 has led to massive accumulation](#) and widespread impacts. This '[waste colonialism](#)' unfairly exploits environments and people in these regions.

The [promise](#) of value generation through local recycling [proved farcical](#) due to the insufficient infrastructure and markets for recycled products. New plastics are cheaper than products made from recovered resin. Citizens in African nations [have pushed back](#) on the Global North's extractive agenda, resulting in [bans and restrictions on certain plastics](#). Re-introducing plastic under the guise of 'improving people's lives' would undermine their political will, environment, health, and economies.

Plastics cause harm throughout their entire lifecycle, [shedding microplastic particles](#) into our food, water, air, and soil, releasing [greenhouse](#) and [toxic gases during production, landfill, and incineration](#). [Toxic additives](#) leach from everyday plastic products such as foodware, textiles, and [car tires](#).

Evidence for human exposure to chemicals from plastic and microplastic particles has grown exponentially in recent years. [Microplastics have even been detected in human placenta](#). Continuous exposure to plastic [chemicals](#) disrupts development, growth, metabolism, and reproduction for organisms and humans alike.

Factory emissions diminish air and water quality, [violating](#) the health and human rights of the predominantly [low-income communities and communities of color](#) who live along the fenceline. And without reduction mandates, plastics' CO2 emissions will amount to 6.5

gigatons by 2050 [eating 10–13% of the remaining CO2 budget](#), [accelerating global](#) heating. While the Rwanda/Peru resolution reaffirms the importance of addressing plastics toxic and climate implications, [such provisions were specifically erased](#) in the Japan resolution.



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UN plastics treaty



Scientific evidence highlights the need for unanimous political support for an ambitious global treaty regulating plastics during their entire lifecycle to account for their impacts to climate, humans, and ecosystems. Such a treaty will need to include caps on production of new plastic to prevent further irreversible global damage.

The Rwanda/Peru resolution includes language to address plastics' impacts from extraction of raw materials to production and end-of-life. It goes beyond dealing with plastic as a waste problem and considers systemic solutions to reduce, replace, reuse, and recycle plastic effectively.

Voluntary, optional or market-led solutions will not suffice to solve this [complex, global problem](#). To truly address the impacts of plastics on the environment, society and health, in line with the [UN Sustainable Development Goals](#) and call for nations to protect clean and healthy environments as a human right, the resolutions must be binding.

Voluntary, optional or market-led solutions will not solve these [wicked](#) problems. There is no time for lengthy negotiations aimed at delaying and diluting urgently needed action.

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The authors thank five expert colleagues for their help in the preparation of this OP-ed:

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Banner photo of plastic garbage next to the sea by [Antoine Giret/Unsplash](#)

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