



## Plastics circularity: beyond the hype

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References to the “circular economy of plastics” and “plastics circularity” have multiplied around the plastic treaty negotiations. This brief considers the following questions:

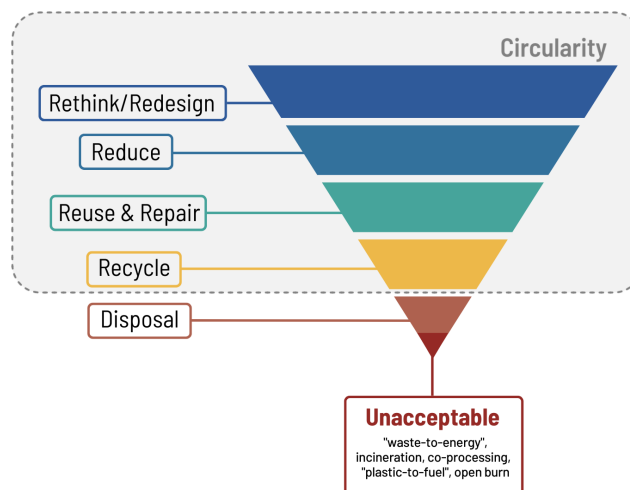
- What is circularity - is it the same as recycling?
- Is circularity always good for the environment?
- For whose profit and at whose expense is plastic waste traded for “global plastics circularity”?
- What are the challenges with plastic recycling, and what future does it have?
- What safeguards are needed for the rights of workers who collect and recycle plastic wastes?

### Circularity is reduction, repair, reuse and real recycling

We have long been cycling material resources in our economies through **repair, reuse** and **recycling**. These old practices were rebranded as “circular economy” by the [Ellen MacArthur Foundation and consulting firm McKinsey](#) a decade ago. Circularity and the circular economy exclude processes that destroy materials, such as burning plastic waste, from open burn to all forms of incineration, cement kiln co-incineration and plastic-to-fuel pyrolysis.

Many circular economy policies focus only on recycling, when **recycling is actually the least effective way to conserve materials and achieve circularity compared to reduction, reuse and repair**. This is because recycling has higher process emissions and lower material efficiency than reuse and repair, and of course, than reduction. Also, lack of chemicals transparency allows toxic recycling that creates recyclate that cannot be safely used - toxic recycling should not be considered as recycling and is not truly circular.

### WASTE HIERARCHY



## **Circularity only helps the environment if and when it displaces new production**

No material reprocessing is impact-free. The collection and recycling of plastics cause carbon, toxic and microplastic emissions, as well as energy, water, material and land use. Those pressures on the environment [can only be redeemed when recycling directly avoids primary \(new, “virgin”\) plastic material production](#) - and not when it feeds into a pattern of growing production of plastics. To date, **plastic recycling has not meaningfully displaced primary plastic production**. In fact, **the plastics industry is using recycling to greenwash exponential plastic production**.

As long as government subsidies make primary plastic plentiful and artificially cheap, as long as product material and design decisions make plastic recycling impossible or too expensive in practice, and as long as the safety of plastic recyclate is not guaranteed, plastic recycling will not displace primary production.

Recycling has long been the main metric used as a proxy for the circular economy - but this misses the mark, since recycling is the lowest form of circularity compared to reuse and repair. As leading industrial ecology expert [Roland Geyer advocates](#), **we must make annual primary production the main metric for the circular economy**.

**The best strategy to reduce overall primary material production is reduction, followed by reuse and repair**. Mere substitution of single-use fossil-based plastics to single-use bio-based plastics, or single-use products made from other materials will not close the circle. Design for circularity is design for reuse and repair, rather than design for recyclable single-use.

In addition, a genuine circular economy takes a comprehensive view to reduce overall primary material production, as well as leakage of materials through burning (e.g. plastic-to-fuel, incineration for energy recovery or in cement kilns) or emissions into the environment. **A genuine circular economy will steer away from materials that are challenging to safely reuse and recycle**.

Circularity is not intrinsically good for our planet nor something we should aspire to at any cost. Indeed, the circular economy paradigm only considers material use. It does not address energy use, water use, land use and the integrity of planetary boundaries, and as such, it cannot capture the lifecycle impacts of plastics. In contrast, [sufficiency](#) is “a set of policy measures and daily practices which avoid the demand for energy, materials, land, water, and other natural resources, while delivering wellbeing for all within planetary boundaries”. **Sufficiency is the overarching systemic principle that the plastics treaty must enshrine**.

## **Plastic recycling challenges and possible future**

**Recycling plastic waste delays its disposal, but does not reduce or prevent it**. Delaying the disposal of plastic waste still brings real benefits in the short term by lessening immediate harms associated with disposal, particularly toxic and carbon emissions from open burning or incineration.

However, those benefits do not automatically make plastic recycling truly circular. The loop of recycling is only “closed” when a product with recycled content can be recycled into the same kind of product once it becomes waste - in other words, when the recycled content can do several loops at the same level of value in the economy.

Even PET bottle recycling, the poster child of plastic recycling, does not close the loop: PET bottles that are collected and separated for recycling are mostly recycled either into polyester fiber (with greater microplastic shedding potential) or PET thermoform packaging (trays, clamshells or blister packs). Neither

polyester fiber nor PET thermoforms are recycled in any meaningful way. In addition, even in PET recycling processes, a significant amount of PET material is lost and primary plastics are added in. As of 2020, [only 10% of plastics ever produced](#) had been recycled. **True closed-loop plastic recycling is still largely a fiction.**

Furthermore, recycling adds a layer of uncertainty to the presence of toxic chemicals in plastics, and their implications for human health. [Over 13,000 chemicals](#) are associated with plastics, as constituents, as well as additives or potential contaminants from production processes - and most have not been tested for safety, while chemicals transparency is lacking. Recycling increases the potential for mixing and dissemination of chemicals in plastics. This makes it **hard to find applications for recycled plastic that are both safe and high enough in volume to meaningfully displace primary production**, hence the debate around recycled content requirements in food-contact materials. Without chemicals transparency, safe circularity is impossible.

The truth is, plastic recycling comes at a cost - and the sustainable future of recycling may lie not in the mass-scale recycling of single-use plastics, but instead in the **targeted high-quality recycling of essential plastics**, for instance durable essential plastics in electric vehicles, renewable energy infrastructure and other areas of the climate transition.

## **Waste colonialism in the name of global plastics circularity**

Plastic waste is often exported from Global North countries under the guise of recycling and in the name of the **“global plastics circular economy”** or **“global plastics circularity”**. These concepts have also been invoked to oppose limits on plastic waste trade under the Basel Convention.

Who does the “global plastics circular economy” really serve - and at whose expense does it operate? There is [ample documentation](#) of plastic waste exports ending up dumped or burnt. Recent evidence shows that even when they end up in recycling facilities, plastic waste shipments can harm importing countries.

The adoption of California’s plastic recycled content targets in 2022 sparked US recycling industry actors to open a new [PET clamshell recycling facility](#) across the border in Mexicali, Mexico, to recycle US plastic waste. Mexican groups decried the resulting toxic pollution and [pressure on scarce water resources](#) for a facility that will play no role in alleviating Mexico’s domestic plastic waste challenges. The transfer of US plastic waste is facilitated by Mexico’s [abuse of provisions under Article 11 of the Basel Convention](#) to illegally derogate from plastic waste trade controls.

[A 2021 study](#) also showed how Malaysia has been processing EU plastic waste at the expense of their ability to sort and recycle its domestic plastic waste, deepening environmental injustice across colonial faultlines. Similarly, the influx of plastic waste from abroad has depressed recycling markets for locally-generated plastic waste, leading to economic losses for waste pickers and lower collection rates.

The future global plastics treaty must support, and not undermine, the Basel Convention and emphasize the **principle of national self-sufficiency, where every country should seek to manage waste within its borders, and not use exports as a way to externalize costs and harm.**

## Worker rights and just transition

The global plastics treaty must secure the **rights of both formal and informal workers** who work with plastic waste. Informal waste pickers and workers in cooperative settings in particular have made and continue to make a colossal **contribution to waste collection and sorting**, handling about [60% of all plastic waste that is collected and recycled globally](#) and reducing plastic pollution. These workers also have endured historical socio-economic marginalization and consistent exposure to toxics in plastic wastes and fumes from open-burning at dumpsites. The global plastics treaty must acknowledge their historical contribution, protect workers' right to occupational safety during waste-management operations and their right to a just transition in the event of loss of livelihood resulting from new global regulations.

The following **occupational health issues** must be addressed, especially in facilities where thermal treatment, extrusion and grinding take place: exposures to microplastics, heavy metals, volatile organic chemicals and dioxins, heat stress and accidents. Workers' access to healthcare and other social benefits must be guaranteed regardless of labor or migration status. Adherence to international standards on child labour must be ensured.

**Adequate compensation** for the waste collection and sorting services provided by informal waste workers is a pressing need. **Just transition** for informal waste workers should involve access to capital, infrastructure and training to support entrepreneurship or employment further up the waste hierarchy with higher income and fewer occupational health burdens, and be supported by appropriate legislation. The transition must ensure full integration into the systems that will replace or complement plastic recycling, including **repair, refill and reuse systems**, including for high-value durable goods. Additional options for alternative economic activities include organics management and the operation, maintenance and repair of sustainable infrastructure.

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GAIA is a global network of grassroots groups and national and regional alliances representing more than 1000 organizations from 92 countries. We envision a just, zero waste world built on respect for ecological limits and community rights, where people are free from the burden of toxic pollution, and resources are sustainably conserved, not burned or dumped. We work to catalyze a global shift towards environmental justice by strengthening grassroots social movements that advance solutions to waste and pollution.