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CENTER for INTERNATIONAL ENVIRONMENTAL LAW

Beyond Recycling

Reckoning with Plastics in a Circular Economy

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As the world considers how to address the growing impacts of the triple planetary crises of pollution, climate change, and biodiversity loss, many discussions point toward a circular economy approach as a much-needed solutions pathway. The term circular economy is routinely used in conversations and policy discussions that center on re-envisioning the full system of plastics, and is increasingly becoming a popular topic in public discourse. However, there is ongoing confusion about the exact meaning of the term and its application in this context.

The original concept termed circular economy focused on two key pillars. First, the protection of natural capital (and thus the minimization of resource extraction). Second, the elimination of externalized costs[1] — i.e., 'externalities,' or harmful impacts from a material's production or use whose costs are paid by the public, rather than those responsible for (and profiting from) those risks or harms. Over time, however, the use of the term 'circular economy' has strayed quite far from these original pillars, seriously undermining the validity of the concept in national and global policy discussions.

The very nature of plastics and their related challenges appear incompatible with circularity. Plastics are almost universally made from non-renewable feedstocks of fossil fuels. All plastics, even those made from bio-based or recycled feedstocks, incorporate additives made of similarly non-renewable fossil feedstocks. Further, they all shed or deteriorate over time into micro- and nanoplastics (less than 5 millimeters and approximately 1 to 100 nanometers, respectively), leaching toxic chemicals into surrounding products and environments, and often absorbing other pollutants, which can then wreak havoc on human and animal health.[2] **Rather than adjusting the definition of circular economy to ensure that an overreliance on downstream waste management fits within its scope, it is necessary for decision makers to pay attention to the divergence between the concept of circularity and the very nature of plastics as a material — especially in single-use applications.**

When policymakers seek to incorporate the concept of circularity into policies and governance to address the plastics crisis, they should strive to use a shared definition of circular economy that prioritizes zero-waste approaches to circularity — meaning that everything produced or consumed is returned safely to nature or society.[3] Circularity, thus defined, is not a new concept, as Indigenous Peoples in many geographies have formed and thrived in beneficial circular systems for millennia. Policymakers must be sure not to equate 'circular economy' for plastics with mere recycling or downcycling. Instead, they must lean on the knowledge, practices, and innovations of Indigenous and traditional peoples, and the original twin pillars of a circular economy.

Any truly circular framework must incorporate the following key principles:

- **Toxics poison the circle.** Toxic additives and hazardous chemicals are used throughout feedstock extraction and plastics production, manufacture, use, and disposal, representing a major obstacle to any kind of 'circularity' for plastics.
- **Burning is not circular.** The 'circular' label is often misapplied to the burning and inadequate recycling of plastic waste, contrary to the principles of circularity.
- **Safe design can be circular.** Policies to advance a circular economy must focus first on non-toxic redesign for reuse, rather than normalizing the production of toxic materials and waste.
- **Upholding human rights is circular.** The implementation of circularity for all materials in the economy — especially plastics — must ensure that human rights are upheld for all people, with specific care for those made most vulnerable to harm.

When considering if and how the concept of circularity can apply to the current design, production, use, and elimination of plastics, it is important to stay grounded in the core principles of a circular economy. Policies or technical processes that require the continuation and expansion of plastics production cannot be labeled circular. For this reason, it is clear that in a circular economy, there is no place for the current production and use of plastics. **The critical question in policy decisions is not 'how can we build a circular economy for plastics?' but rather 'how can we redesign our economy to reduce the total volume of materials and products in it, and thus to be more circular?'**

In recent years, numerous competing interpretations of circular economy have been promoted by governments, the plastics industry, and others, some of which merely relabel waste management practices as 'circular.' Such formulations are a function of greenwashing meant to shield the plastics industry from justifiable accountability for the risk their chemical products pose to the environment and the future of our economy.

If policymakers seek to embed principles of circularity into global governance to end plastic pollution and the global plastics crisis, they must do so by returning to the initial intent of circularity and abandoning concepts often erroneously pushed as part of a circular economy.

To that end, we offer the following recommendations:

- Plastics manufacture and use should be capped by 2025, followed by a managed decline in the annual tonnage of plastics produced.
- Toxic chemicals should be targeted for elimination in the new global agreement on plastics. Efforts should be made to remove them from production and manufacturing processes and along the full life of the material, ensuring that any waste management initiatives do not recirculate or generate new toxic substances and greenhouse gases into the biosphere, thus aggravating the triple planetary crises.
- Toxic, climate-damaging practices for managing plastics waste — such as thermal processing technologies — must not be erroneously characterized as 'circular,' particularly with regard to approaches recommended or mandated by a new global plastics agreement.
- Policies to address the global plastics crisis should prioritize innovations that reduce resource extraction for the production and use of plastics, centering those innovations on just, culturally appropriate alternatives — particularly reuse, refill, repair, and the elimination of unnecessary plastics — before considering waste management options.
- To effectively end plastics pollution, efforts must be made to uphold the rights to information, public participation, access to an effective remedy, and a healthy environment throughout the full, global supply chain of plastics and plastics waste. Governments and the private sector must undertake urgent action to ensure that any communities suffering from the externalities of extraction of feedstocks for plastics, plastics production and manufacture, use, waste management, and disposal have access to adequate remedy and that those harms are stopped.

1. Sébastien Sauvé & Sophie Bernard, Environmental sciences, sustainable development and circular economy: Alternative concepts for trans-disciplinary research, 17 Environ. Dev. 48, see discussion on p. 53 (2016).
2. See discussion in: Mariann Lloyd-Smith & Joanna Immig, Ocean Pollutants Guide: Toxic Threats to Human Health and Marine Life, (2018), https://ipen.org/documents/ocean-pollutants-guide (last visited Sep 1, 2022).
3. Zero Waste Europe, Sustainable Finance for a Zero Waste Circular Economy, 7 (2020), https://zerowasteeurope.eu/wp-content/uploads/2020/11/zero_waste_europe_report_sustainable-finance-for-a-zero-waste-circular-economy_en.pdf (last visited Aug 31, 2022).