Moving from a Linear to a Circular Economy

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The problems associated with materials production and disposal—including plastics—are both broad and deep. The absence of coherent signals to govern responsible production and disposal results in everyday products being made from virgin materials rather than recycled content. The extensive public recognition of plastic waste leakage over the past few years is a clear example of how our broken waste management system allows waste to leak into nature at an alarming rate. Underserved communities primarily witness the impacts of production plants, landfills, and incinerators, and all consumers face inequitable access to a confusing recycling system.

It is our mission to transition to a circular economy, where our packaging and waste leaves no impact on our planet, where materials are recycled and reused to their fullest potential, where resources are responsibly managed, and negative impacts are actively avoided.

The statistics are alarming. Mass production of plastics began just six decades ago. Since the early 1950s, 8.3 billion metric tons of plastic materials have been generated, and a piece of plastic discarded in 1950 likely still exists today.[1] Global plastic production is expected to more than triple by 2050, accounting for a full 20 percent of all oil consumption.[2] The expanded production would account for a projected 56 gigatons of greenhouse gas emissions or approximately 10-13 percent of the entire carbon budget.[3] Today, only 9 percent of plastic is recycled in the US and 70% of plastic ends up in a landfill.[4] In 2016 alone, over 11 million metric tons of plastic waste entered the oceans.[5]

Key to reversing course will be a Federal framework to reduce unnecessary and problematic materials with accompanying mechanisms for private and public investment and accountability in recycling systems. It is time to transition to a circular economy that reduces the production of new materials by making better use of existing ones. The Administration, Congress, industry, and the public must come together to address the major contribution that virgin plastic production is having on our overall carbon footprint and the disproportionate impacts that plastic production, disposal, and leakage is having on frontline communities, both at home and abroad. This includes ensuring equitable consumer access to a user-friendly recycling system.

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[1] https://advances.sciencemag.org/content/3/7/e1700782.full
[2] http://www3.weforum.org/docs/WEF_The_New_Plastics_Economy.pdf
[3] https://www.ciel.org/wp-content/uploads/2019/05/Plastic-and-Climate-FINAL-2019.pdf
[4] https://www.epa.gov/sites/production/files/2021-01/documents/2018_ff_fact_sheet_dec_2020_fnl_508.pdf
[5] https://www.pewtrusts.org/-/media/assets/2020/07/breakingtheplasticwave_summary.pdf

Below, we have provided a **5-Point Roadmap to Materials Circularity** that, taken together, will help keep material value in the system and support establishment of a green, durable, equitable economy. These steps seek to address shortcomings related to the production, use, and disposal of plastics and other materials.

1. **Corporate and Government Accountability -** *Nationwide targets for reduction, recyclability, recovery, and recycled content need to guide a Federal Extended Producer Responsibility System. These targets must allow for flexibility in implementation at state and municipal levels and innovation in product design.*

   A transition to a circular economy will require investment and innovation in all parts of the materials lifecycle: from the point of creation to the use and disposal by a consumer; from the reclamation of the material to its ultimate reuse and recycling fate. Our existing waste management models cannot be changed by governments alone, but governments must provide the basic rules of the road. An approach known as Extended Producer Responsibility (EPR) has the potential to match government-level ambition and oversight with industry-level investment and accountability while ensuring consumer accessibility and waste reduction. EPR is a system where producers pay a fee based on how much material they are contributing to the system. The fees are then invested in infrastructure or management practices that are needed to divert materials from landfills or nature to recycling streams that instead converts waste into new products. Federal-level EPR needs to specify time-bound targets for waste reduction, product recyclability, recovery, and use of recycled content, as well as a scheme for eco-modulation where producers of hard-to-recycle materials either pay for the necessary innovations to recycle their products or transition to less complex materials.

2. **Materials Re-Evaluation -** *Unnecessary and problematic materials have no place in the movement toward a circular economy.*

   To minimize production and disposal impacts we must evaluate what materials and packaging are unnecessary and what sustainable replacements are possible. Federal legislation should specify single-use items that can be phased out, with a lens to ensure that necessary replacements are sustainable and that the needs of disabled populations are addressed. Materials-phase outs are not an outright solution to our materials production and waste management crisis; we must reduce the occurrence of system-disrupting materials and focus on achieving circularity.

3. **Addressing Financial Incentives and Designing for Circularity –** *Market signals should support a transition to a circular economy – one that is green, durable, and equitable – and innovations should support recyclability and consumer access.*

   Our current linear economy is predicated on the false assumption that virgin materials, especially virgin plastic, are cheaper than alternatives with smaller footprints. This is the

result of decades of subsidized investment in oil and gas and the failure to fully account for the artificial costs of virgin materials production, use, and disposal through landfilling or incineration. Accounting for the cost of disposal does not currently incorporate the external costs associated with the damage caused by materials leakage or the contamination of local environments. Our reliance on single-use plastics and tolerance of plastic waste is having serious negative impacts on the climate with even larger social and economic impacts. To achieve a circular economy, we need to implement new market levers to incentivize the use of recycled or reusable content, potentially including national tipping fees, investment tax credits for advancements in recycling or reuse, and public-private matching grants. Materials must be designed with circularity in mind and consumers must have consistent ease of access to an efficient recycling system.

4. **Environmental Justice –** *All communities deserve clean air, water, and soil.*

   Plastic production plants create harmful impacts on the environment and the communities that surround them. Federal legislation should specify standards to govern review and approval of production plant permits, with an emphasis on avoiding and minimizing direct, indirect, and cumulative environmental and public health impacts. Multiple, accessible opportunities for public input in all decision-making are crucial to ensuring community safety and equity. Additionally, plastic production facilities should be prohibited from emitting pellets or materials from their facilities under an extension of the Federal Water Pollution Control Act. Overall, active consideration of foreseeable impacts on local communities and environments must become standard practice for permitting agencies--from siting proposals to operational decisions--and ample opportunities for public input and appropriate consideration of that input must become the norm.

5. **International Leadership -** *US leadership is needed to ensure a global response to the global threat of plastic pollution.*

   While waste management is local, the impact of pollution is not. We need a comprehensive, binding global framework to address virgin production and prevent plastic leakage into the environment. The US should join the other 187 parties to the Basel Convention by passing implementing legislation to prevent waste from being mismanaged across global trade. Additionally, the US should encourage productive dialogue to reach a globally binding agreement on plastic pollution that can be implemented at the national level. Taken together, these actions will better enable a global response to a global problem. Finally, international action must include addressing not only production and mismanaged waste, but the growing scourge of lost and abandoned fishing gear that continues to jeopardize marine ecosystems and fisheries sustainability.