**New Report Shows How Regenerative Material Solutions Can Help End Plastic Pollution**

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Plastic Pollution Coalition (PPC) today released a special report that aims to help educate and guide people toward using nontoxic substitutes for plastic that safeguard ecosystems and human health throughout their entire life cycle, from feedstock to end of life. It explores biobased and regenerative materials; discusses a holistic framework for material evaluation; showcases a few of the most promising biobased feedstocks for global scalability; and calls for a level playing field for regenerative material markets to compete with petroleum-based synthetics.

The report, "**MATERIAL SHIFT: A Primer on Regenerative Alternatives to Plastic**," highlights four categories of regenerative materials that are promising replacements for conventional fossil fuel–based plastics: **agricultural residues and byproducts, hemp and other bast fibers, mycelium, and seaweed**. It concludes with a link to a landing page of innovators using these biomass feedstocks to create and scale next-generation materials to replace plastic.

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MATERIAL SHIFT outlines how the effectiveness of these plastic substitutes depends on a variety of factors, some of which are frequently overlooked in Life Cycle Analyses (LCAs), such as feedstock sourcing and comprehensive end-of-life scenarios. The report emphasizes "regeneration," or the concept of systems capable of sustaining themselves while enhancing the health of their surrounding environments, as a key principle of a circular economy and a critical tool to curbing global plastic pollution.

The report highlights regenerative materials that help transition away from the current linear, "take–make–waste" economy toward a more circular system—one that extends the useful life of the products people use.

**Key takeaways:**

- As single-use plastic packaging is responsible for roughly 40% of global plastic pollution, and 99% of single-use plastic packaging is made from fossil fuels, the demand for biobased packaging products is increasing rapidly to not only mitigate pollution, but to reduce global dependence on gas and oil.

- In the transition away from single-use plastic packaging, non-toxic reuse and refill systems must serve as the foundation; however, in applications where such systems are not possible, regenerative materials could fill the need.

- True regenerative materials must be biobased, sustainably sourced, and fully biodegradable in natural environments (including home compost and marine conditions) to ensure a net positive impact on ecosystems.

- It is critical to assess materials from a holistic, systems view that considers human and ecological health throughout the full life cycle and ensures transparency, ethical production, and the safe return of materials to natural cycles.

- Every material has pros and cons; developed incorrectly, some could yield unintended health, environmental, and social impacts, yet be marketed as "sustainable" simply because they are derived from nature.

- Systemic economic and political factors keep petroleum-based plastics artificially “cheap” and abundant. Leveling the playing field is essential for regenerative materials to compete at scale and help end global plastic pollution.

“All synthetic materials (plastic from fossil fuels) become pollution, even if they are recovered and recycled. Where durable materials for reuse are not possible, biobased materials are a vital tool in our collective effort to reduce our reliance on plastic and mitigate further harm to human health and our environment. Nature-based solutions exist today, and are already replacing plastic in a wide range of applications, despite lopsided rules that externalize the cost of plastic onto society—making it artificially ‘cheap.’ This report brings these considerations into view and uses a holistic material evaluation framework to rethink how we design materials from the start.” — Aidan Maguire, Business Partnerships Manager, Plastic Pollution Coalition

“Regenerative materials support the needed transition from our current wasteful and toxic fossil fuel and plastics-based society to the nontoxic plastic-free future centered around refill and reuse. As this new report shows, it is crucial to consider the full life cycle and range of impacts of the materials and products used, from raw material production through manufacturing, use, and disposal.” — Dianna Cohen, Co-Founder and Chief Visioning Officer, Plastic Pollution Coalition

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