



## **PANDEMIC, PLASTICS AND SUSTAINABLE DEVELOPMENT**

The COVID-19 pandemic has upended the global economy and disrupted the waste, plastic, and recycling industries.

Meanwhile, the likely decrease in plastic waste generation—due to the global decline in economic activity, reduced collection rates and halt in container redemption programs where inventory may not make it into the waste and recycling system until post-pandemic—has been significantly muted by the needs associated with the pandemic. As a result, more recyclables are being disposed of in the traditional waste processes- landfill and incineration. The behavior is additionally supported by precipitous drop in oil prices that makes manufacturing of the recyclable commodities cheaper. This challenges the goals of sustainability but also displays the deficiencies of short-term and product-based solutions to the plastics waste issue while stressing the need for a systems-level approach.

The global demand for certain uses of plastics has increased due to the coronavirus. The polymers polypropylene, used in lifesaving medical equipment such as N-95 masks and in takeout food packaging, polyethylene used in Tyvek protective suits, and PET in single-use plastic water bottles and medical face shields have all seen a rise in demand as the COVID-19 pandemic plays out. With restaurants shifting to take-out, consumers stockpiling groceries and bottled water, and the medical community rapidly turning over personal protective equipment (PPE), there has subsequently been an uptick in plastic waste, municipal solid waste from residences, and hazardous waste generated from healthcare facilities, including quarantine sites, that are infected with COVID-19. However, overall plastic waste generation has likely decreased.



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Due to the uncertainties around the risks associated with the transmission of COVID-19 to frontline solid waste workers and the survivability of the coronavirus on various surfaces, many municipalities, airlines, and other corporations have responded by shuttering their collection and recycling programs and taking protective measures on how solid waste is managed. At least 50 curbside recycling programs across the U.S. have been cut or suspended due to a combination of safety, processing, and/or end market issues while over half of the states with container redemption programs suspending enforcement. In an industry already overwhelmed with challenges, materials that would normally find its way to recyclers are being channeled directly as solid waste to landfills and incinerators out of an abundance of caution.

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## THE UNCERTAINTIES ASSOCIATED WITH THE COVID-19 PANDEMIC HAVE CAUSED SIGNIFICANT LIMITATIONS ON RECYCLING AND MUNICIPAL WASTE SERVICES IN THE U.S. AND BEYOND

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COVID-19 is classified as a Category B Infectious Substance according to international dangerous goods regulations and regulated as a hazardous material due to its capability of posing an unreasonable risk to health, safety, and property. This classification conveys strict requirements for coronavirus test samples and biohazardous COVID-19 waste generated from hospitals, healthcare facilities, and quarantine sites (personal protective equipment e.g. gloves, masks, gowns; sharps, glassware, or any materials that have come in contact with coronavirus) with stringent handling, collection, separation, packaging, storage, transportation, treatment and disposal specifications.

Regulated medical waste must be shipped by qualified haulers and the waste managed at permitted hazardous waste facilities. Although there is a growing market for recycling plastics, glass, metal, paper, and other materials generated within these operations, 85% of all medical waste is incinerated even though only 15% of it is considered biohazardous. In fact, 25% of healthcare waste generated from U.S. facilities are clean, noninfectious plastics, amounting to one million tons per year of potential opportunity for valuable polymers to reenter the supply chain. Because the novel coronavirus is a new strain that has not been previously identified in humans, the cascade of deficient standard operating procedures, insufficient resources, and employee training on how to handle, manage, and dispose of the virus, and the complexities around balancing patient safety, cost, and sustainability results in more materials being managed through traditional waste processes—incineration and landfill.



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The consequence of less overall recycling is that there are fewer recyclables in the supply chain to make products while also temporarily pausing sustainability, corporate social responsibility (CSR) and environmental, social, governance (ESG) goals. Because of the drop in oil prices that subsequently deplete the value of recycled commodities relative to new materials, and without government mandates that require minimum recycled content in products, producing virgin plastic in processes using oil as a feedstock is far cheaper. The pandemic, coupled with the oil price collapse and a global economic slowdown, challenges the world's stated desire for investments to keep pace with the UN Sustainable Development Goals (SDG) and the aspiration of a circular economy.

However, it has not reduced the need for investments in and awareness of novel and transformative approaches to advanced chemical recycling to manage the high volumes of mixed, low-quality plastic chemistries that our traditional mechanical systems are unable to process and the associated regulatory reform for it to take shape. It also has not diminished the necessity for improved waste management infrastructure, investments in transformational R&D of redesigned higher-quality polymers that are infinitely recyclable, and collaboration between industries, technology providers, and governments at all levels.



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An additional consequence of the pandemic has been the repeal of statewide, municipal, or corporate single-use plastic bans stimulated by the concerns for safety and cross-contamination of the virus, translating to a heightened demand for bottled water, PPE, plastic bags and packaging, hand sanitizer, and other disinfecting products. This may be an indication that society does not fully appreciate the critical benefits the plastic and chemical industries convey to everyday safety and conveniences. It additionally underscores the ignorance society has on the unintended consequences of bans implemented without systematic and strategic assessments of plastic waste and their potential replacements. Bans focus on product-based, short-term solutions, as opposed to employing a systems-level approach.

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## CRISIS CHALLENGES THE GOALS OF SUSTAINABILITY BUT ALSO DISPLAYS THE DEFICIENCIES OF SHORT-TERM AND PRODUCT-BASED SOLUTIONS TO THE PLASTICS WASTE ISSUE WHILE STRESSING THE NEED FOR A SYSTEMS-LEVEL APPROACH

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This is a shortsighted strategy for a society grappling with such an extensive and interconnected global waste problem. Furthermore, it emphasizes the value life cycle assessments have in helping us make informed, sustainable decisions regarding the full spectrum of environmental, social, and economic impacts associated with every stage of a product (plastic, bioplastic, metal, paper, etc.), service, or activity from cradle to grave, i.e., raw material extraction, materials processing, manufacture, distribution, use, transportation, and disposal. Conducting this assessment prioritizes resources and redirects investments, stimulates innovation in enterprises and value chain actors, and helps decision-makers and consumers take informed actions.

Understanding the benefits and costs across supply chains and evaluating a range of policy vehicles and barriers are essential in systems-level thinking. Sustainability can only be achieved by quantifying and prioritizing actions for the environmental, economic, and social good for the long run. COVID-19 and the resulting economic crisis has strained local and national waste operations while also dampening trade value of recyclables in ways that may aggravate the global plastic waste issue, destabilize CSR/ESG/SDG commitments, and deviate industry and governments from the global sustainability trajectory already charted. However, COVID-19 has not eliminated the need to propel the recycling industry to become more economical and sustainable. This pandemic has highlighted the value of plastics in many uses but has not altered the systemic vulnerabilities throughout the supply chain of plastics and their

potential replacements and will test how committed and connected industries, investors, and governments are to corporate sustainability strategies and priorities while ensuring CSR and ESG delivers true value.

*Source: Forbes* (<https://www.forbes.com/sites/thebakersinstitute/2020/04/14/pandemic-plastics-and-the-continuing-quest-for-sustainability/#7f8849dc77b4>)