

# Impacts of Chinese Plastic Ban on Global Recycling

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## Chinese Plastic Ban

Global plastic trade began in the 1990s and from 1993 to 2016, the import and export of plastic waste grew by 723 percent and 817 percent, respectively (Kumamaru & Takeuchi, 2021). Plastic waste flows from high-income to low-income countries (Wen et al., 2021). China served as the number one destination for plastic recyclables (Ren et al., 2021).

In July of 2017, the Chinese government issued a new regulation that prohibited the import of foreign waste that went into effect on January 1, 2018 (Wang et al., 2019). China implemented the ban to reduce environmental damage and increase domestic recycling in the country (Kumamaru & Takeuchi, 2021). The ban threw the global plastic trade into turmoil (Wang et al., 2020). Developed nations struggled to find ways to dispose of the millions of tons of plastic that could no longer be shipped to China (Shi et al., 2021).

In response, cities like Seattle and San Francisco banned the use of certain plastic products and Europe has begun to make plastic packaging recyclable (Wang et al., 2020).

## Introduction

This poster presentation aims to discuss the history of plastics, its rise in popularity, the 2017 ban of imported plastic waste in China, and what has been done in its wake.

## Background

The rise of plastic production triggered a rise in plastic waste. In 1950, 2 million tons of plastic was produced and rose to 381 million tons in 2015 (Kurtela & Antolović, 2019). Single use plastics, like cutlery, straws, and bottles, contribute to fifty percent of the plastic waste created (Kurtela & Antolović, 2019).

People have recycled and reused materials for centuries (Palliser, 2011). In more recent years, recycling efforts rose in response to increasing energy prices (Miller, 2006). Plastics are difficult to recycle. The recycling process requires melting down plastics. This process changes the chemical properties of the plastics, making it more difficult to reuse the materials (Miller, 2006).

## Methods

A literature search using the discovery tool on Kent State at Stark's library webpage and Google Scholar was conducted. Plastics, recycling, waste, and Chinese ban were used to sort the information. A comparative analysis was conducted to gain a better understanding of plastic waste and the mitigation strategies being used in the wake of China's 2017 ban on imported plastic waste.

The map shows the sources of plastic imports and the amount each country imports (Brooks et al., 2018).

## Analysis

A circular economy is an economic system that aims to create less waste while continuing to use resources (Qu et al., 2019). A circular economy emerged for waste because of it is much easier for more developed countries to ship their waste away for recycling because separating recyclable materials is labor intensive and labor is cheaper in less developed countries (Qu et al., 2019). The Chinese ban disrupted the existing global supply chain, leaving countries with waste and nowhere for it to go (Qu et al., 2019). Had the ban been introduced more gradually, it would have given export countries more time to adjust to the new waste stream (Qu et al., 2019). This would allow for export countries to improve their domestic recycling capabilities or find new countries to export their waste (Qu et al., 2019).

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