



PRACTICAL WASTE MANAGEMENT SOLUTIONS

Developing countries are obligated to solve their waste management problems to comply with new global realities.

For decades, the USA, along with many other developed countries, has exported the majority of its waste to China. However, Beijing put a stop to this process in 2018, banning the import of 16 categories of solid waste. From 31 December 2019, this ban will be extended to include 16 more categories, including stainless steel and wood chips. In an official statement issued by the Chinese government, Beijing outlined its plans to stimulate waste collection in China itself and to put an end to the import of waste from abroad, which it considers to be a threat to the country's natural environment and to the health of its citizens. Sticking with its protectionist policies, at the beginning of 2020, China announced a new programme designed to tackle the production, sale and usage of single-use plastics. In accordance with this, ultra-thin plastic bags, as well as plastic cutlery, straws and courier packages will be banned in China until 2025.

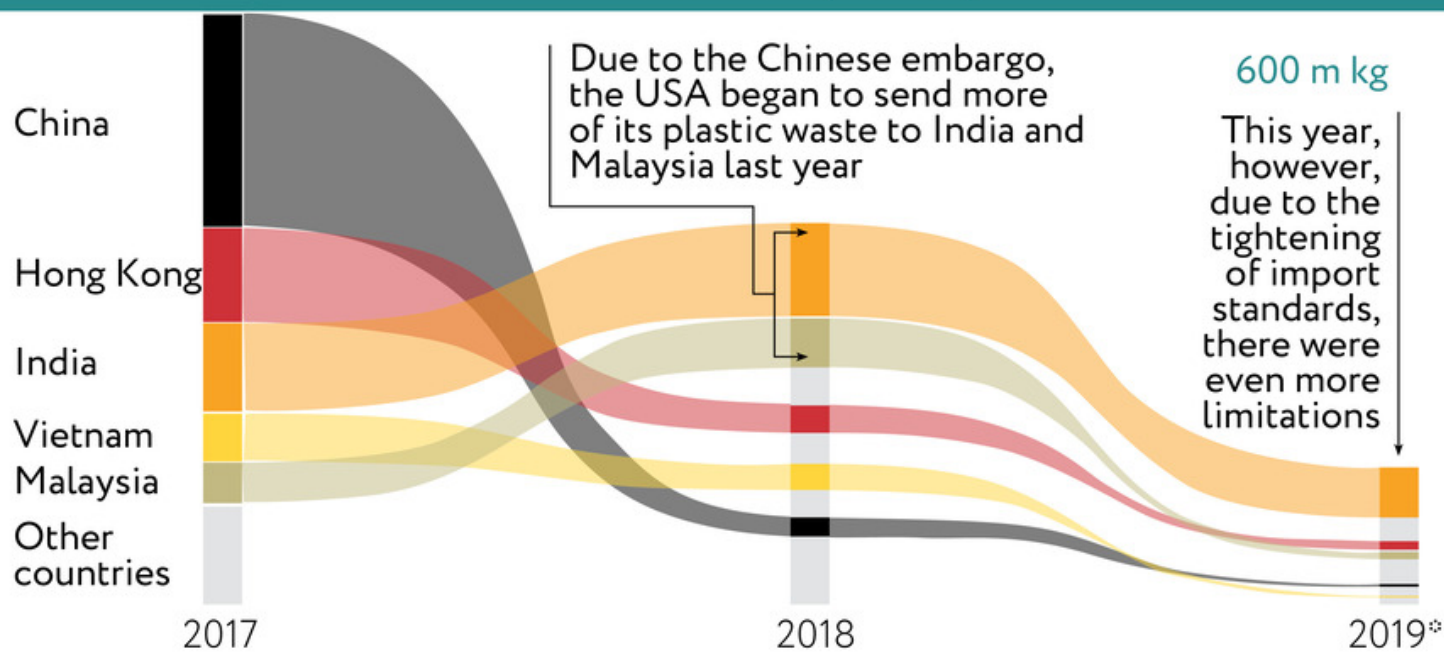
IN 2018, BEIJING RESTRICTED THE IMPORT OF 16 CATEGORIES OF SOLID WASTE AND FROM 31 DECEMBER 2019, THIS BAN WAS EXTENDED TO COVER 16 MORE CATEGORIES, INCLUDING STAINLESS STEEL AND WOOD CHIPS.

The volume of waste in China has dramatically increased, reaching an annual total of 200 mt, not to mention more than half (56%) of global waste, which is exported to China. There has been more than 7 mt of plastic waste alone coming to China every year. According to research conducted by the Science Advances journal, China has imported 45% of the world's plastic waste since 1992.

China had previously reused this waste to produce new goods, with Chinese freight carriers offering special discounts so that their ships didn't return from the USA and other countries empty. "It was a great relationship, where we bought their goods and sent them back the empty boxes." This former practice is described by Brent Bell, Vice President of Recycling at Waste Management, the largest waste management company in the U.S., during an interview with the Wall Street Journal.

According to the Institute for Industrial Waste Management, by October 2019, imports of plastic waste from the USA to China had decreased by 89% vs the beginning of 2017. Furthermore, waste paper imports had dropped by 96%. USA's total plastic waste exports for this period decreased by 64%, and waste paper exports by 42%.

MOST POPULAR DESTINATIONS FOR RECYCLED POLYETHYLENE FROM USA (2017)



* from January to June 2019

Source: Institute of Scrap Recycling industries

ULTRA-THIN PLASTIC BAGS, AS WELL AS PLASTIC CUTLERY, STRAWS AND COURIER PACKAGES WILL BE BANNED IN CHINA UNTIL 2025.

Consequently, many countries started to send more waste to India, Indonesia and Malaysia. However, these countries quickly reacted and soon implemented their own restrictions. For example, in May, Malaysia began returning containers with plastic waste, if they were found to contain impurities.

These measures radically changed the global approach to waste management. Every country is attempting to solve the problems in their own way: some are investing in domestic recycling firms, others are scaling up alternative methods of disposal or promoting campaigns to educate people about the benefits of recycling.

Problems with recycling

The main problem troubling the American authorities is that, in many big cities, people aren't used to recycling their waste. Republic Services, one of America's largest waste collection companies, has stopped accepting unsorted waste at its Memphis facility. When you're in a buyer's market – and we are certainly in a buyer's market – you can demand higher quality," said Pete Keller, Head of Recycling at Republic Services.

However, not everyone was prepared to change their ways, including Memphis Airport, who simply chose to send their waste to landfill instead.

ACCORDING TO RESEARCH CONDUCTED BY THE SCIENCE ADVANCES JOURNAL, CHINA HAS IMPORTED 45% OF THE WORLD'S PLASTIC WASTE SINCE 1992.

Republic took several steps to improve the quality of waste that they receive. These included hiring new staff to sort the materials, as

Other American waste management companies have registered an interest in new technologies in order to increase the efficiency of the recycling process. However, as a result, the cost of these services is increasing. Finnish authorities now pay 92USD per collection of 1 tonne of waste, compared with 44USD before the implementation of the Chinese ban.



Republic Services, one of America's largest waste collection companies, has stopped accepting unsorted waste at its Memphis facility. Photo: republicservices.com.

FOLLOWING THE RESTRICTIONS, BY OCTOBER 2019, IMPORTS OF PLASTIC WASTE FROM THE USA TO CHINA HAD DECREASED BY 89% COMPARED TO THE BEGINNING OF 2017. FURTHERMORE, WASTE PAPER IMPORTS HAD DROPPED BY 96%.

Recycling support

Japan, the second largest exporter of plastic waste after the USA, has also chosen China as its main destination. However, since the introduction of the restrictions, it has begun to stockpile waste in the hope of finding a new market. As a result, Japan has accumulated 500 kt of plastic waste, stated Hiroaki Kaneko of the Ministry of the Environment.

Now, the country is trying to increase its recycling capabilities, allocating billions of yen in equipment subsidies for private companies.

Daiei Kankyo Holdings, a Kobe-based recycling company, has recently applied for government subsidies, which are expected to cover up to half of the expenses for recycling equipment installed in their new factory due to open in Osaka in 2020. The factory's plastic waste will be recycled into containers to transport food and other products. According to Kunihiro Idei, Manager of Daiei Kankyo's Business Strategy Division, the opening of the factory has been brought forward by a couple of years as a result of the Chinese embargo. Thanks to this facility, the company's current recycling capacity will double, reaching almost 30,000 ktpa.

Asei, a Japanese exporter of recycled plastics, has moved its production of plastic pallets from Shanghai to Japan, having built two new factories north-east of Tokyo.



Chinese customs officers check a truck carrying imported solid waste.

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It's easier to incinerate it

Great Britain, for its part, has decided to burn more of its waste. This method is more popular in Europe than in the USA, due to a lack of available landfill sites in the region. According to government data, the shares of England's incinerated and recycled waste are almost the same – around 42%. Last year, the amount of waste sent to be incinerated increased to 10.8 mt (compared to 10.2 mt for the preceding year), but the amount of waste sent for recycling decreased from 11.3 mt to 10.9 mt.

Bill Swan, Managing Director of Paper Round, the current waste contractor for London, told the Wall Street Journal “the China ban has highlighted that we can no longer export our problem”. The company organises breakfast seminars for office workers and provides people working in the buildings it services with educational information explaining which materials can, and cannot, be recycled.



Workers sorting materials for recycling at a waste collection and transfer station in Changsha, China.

BP, COCA-COLA, DANONE, UNILEVER AND OTHER COMPANIES ARE INVESTING TENS OF MILLIONS OF DOLLARS IN CHEMICAL PLASTIC RECYCLING TECHNOLOGIES.

Alternative methods

A technology dating back to the 1950s, chemical recycling is only now becoming popular and could be one solution to these problems, writes the Wall Street Journal.

Usually, plastic is crushed, washed and melted. However, one can only repeat the process a few times. With every round, the quality of the plastic worsens, so much so that it ends up in landfill anyway. On the other hand, chemical recycling can be repeated many times without affecting the quality of the plastic. Unfortunately, due to high costs and low demand, this was financially inviable.

Nowadays, companies such as BP, Coca-Cola, Danone and Unilever are all investing tens of millions of dollars in this technology. “We see chemical recycling as a game changer,” said BP’s CEO Bob Dudley, CEO. Next year, his company is planning to open a USD 25 m factory in the USA where this technology will be tested.

Moreover, the chemical method will allow for the recycling of types of plastic that cannot be dealt with by the current systems.