

MilanMUN 2018

Environment committee

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THE QUESTION OF THE WASTE DISPOSAL OF PLASTICS

Since large-scale production of plastics began in the 1950s, over 8 billion tons of these produced as of 2018.¹ Roughly **320 million tons of plastics were produced in 2016** alone, representing an incredible increase from the 1.5 million in 1950² -- in fact, it is estimated **that by the year 2050, there will be more plastic by weight than fish in the oceans**³.

Despite these alarming facts, the question of how to properly dispose of them still remains. One of the main causes of this is that plastics, though to varying degrees, take an extremely long time to decompose. The average plastic water bottle “decomposes” after 450 years⁴, but only into microscopic toxic particles of bisphenol A (BPA) and PS oligomer⁵, which sea animals and humans inevitably end up ingesting. The plastic matter in landfills takes even longer to do so, as the decomposition process requires sunlight and plastic in landfills rarely would receive any if buried underground.

However, allowing the environment (especially the world’s oceans, where much of it accumulates) to become overrun with plastics would cause dire consequences. These effects have already been detected, but if the current trend continues, the disruption of the food chain, groundwater and land pollution, toxic effects to animals and humans, and air pollution caused by the improper disposal of plastics⁶ will only worsen. Hence, this is an issue of utmost importance for the

¹ *ScienceDaily*, ScienceDaily, www.sciencedaily.com/releases/2017/07/170719140939.htm.

² “Plastic Pollution - Facts and Figures • Surfers Against Sewage.” *Surfers Against Sewage*, www.sas.org.uk/our-work/plastic-pollution/plastic-pollution-facts-figures/.

³ Gosden, Emily. “More Plastic than Fish in the Oceans by 2050, Report Warns.” *The Telegraph*, Telegraph Media Group, 19 Jan. 2016. www.telegraph.co.uk/news/earth/environment/12108522/More-plastic-than-fish-in-the-oceans-by-2050-report-warns.html.

⁴ “How Long Does It Take a Plastic Bottle to Biodegrade?” *Postconsumers*, 26 Aug. 2017, www.postconsumers.com/2011/10/31/how-long-does-it-take-a-plastic-bottle-to-biodegrade/.

⁵ Harris, William. “How Long Does It Take for Plastics to Biodegrade?” *HowStuffWorks Science*, HowStuffWorks, 15 Dec. 2010. science.howstuffworks.com/science-vs-myth/everyday-myths/how-long-does-it-take-for-plastics-to-biodegrade.htm.

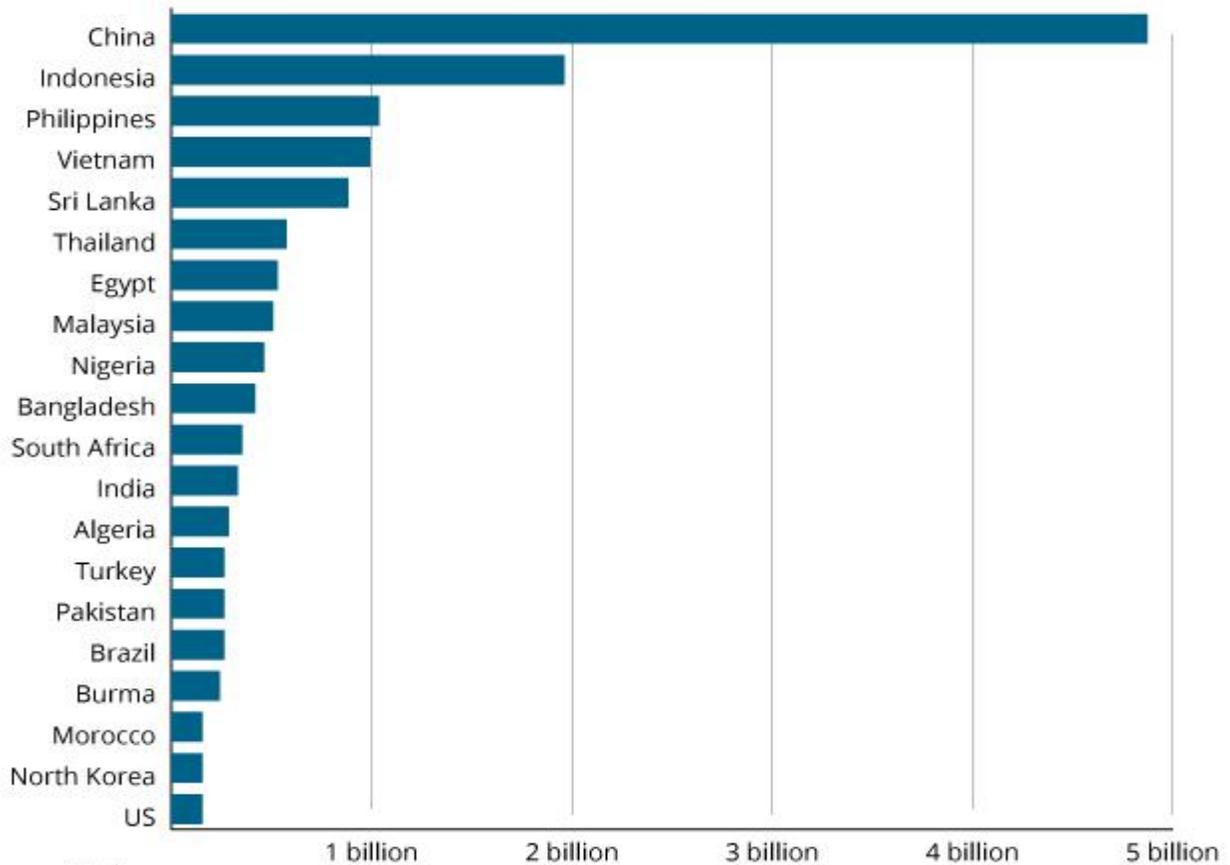
⁶ “Causes, Effects and Solutions of Plastic Pollution.” *Conserve Energy Future*, 24 Dec. 2016, www.conserve-energy-future.com/causes-effects-solutions-of-plastic-pollution.php.

United Nations Environmental Council and all the nations represented therein to tackle.

Countries

Worst Plastic Offenders

Plastic debris contributed to ocean in 2010, pounds*



*Median

Source: Jambeck et al, Science, 2015

 CLIMATE DESK

Figure 1: Plastic pollution contributed to oceans by country. 2010.

Coastal countries, especially those in Southeast Asia, are to blame for the majority of the infestation of plastic. The People's Republic of **China**, the Republic of **Indonesia**, the Republic of **the Philippines**, the Kingdom of **Thailand**, and the

Socialist Republic of **Vietnam are accountable for 60% of all plastic waste** in the world's oceans.⁷

European Union:

1. Identified action on plastics as a priority in the 2015 Circular Economy Plan
2. European Strategy for Plastics in a Circular Economy (adopted Jan. 16th, 2018) will reform “the way plastics are designed, used, produced and recycled”, and will contribute toward reaching the Sustainable Development Goals⁸.



Figure 2: The EU's goals in the European Strategy for Plastics.

http://ec.europa.eu/environment/circular-economy/index_en.htm

[http://europa.eu/rapid/press-release MEMO-18-6_en.htm](http://europa.eu/rapid/press-release_MEMO-18-6_en.htm)

⁷ “These 5 Countries Account for 60% of Plastic Pollution in Oceans.” *EcoWatch*, 2 Aug. 2017, www.ecowatch.com/these-5-countries-account-for-60-of-plastic-pollution-in-oceans-1882107531.html.

⁸ “European Strategy for Plastics.” *Plastic Waste - Environment - European Commission*, ec.europa.eu/environment/waste/plastic_waste.htm.

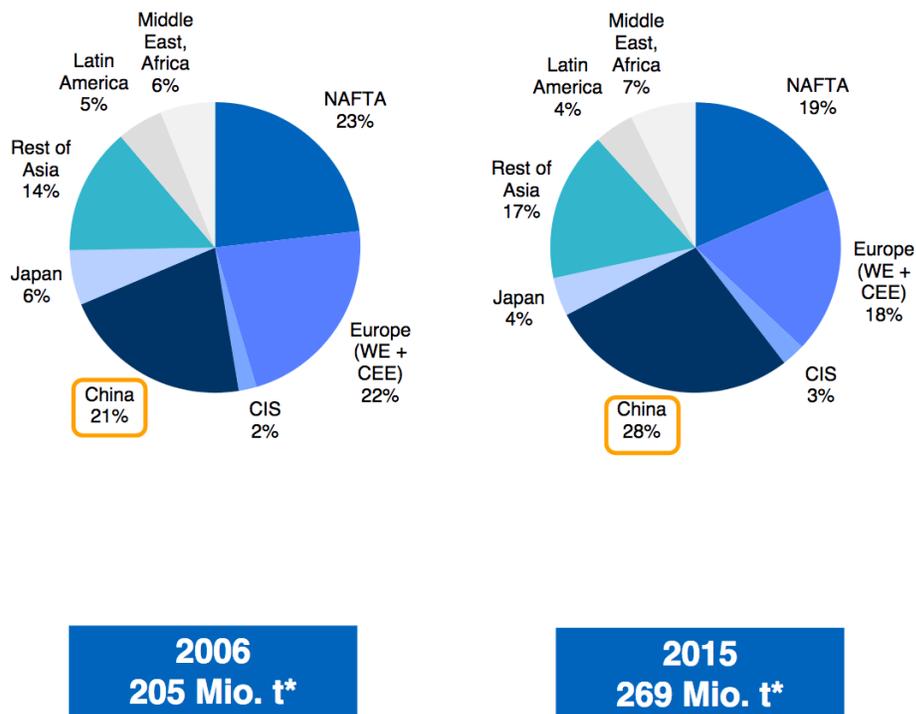


Figure 2: Plastic Production by Country and Region 2006-2015. "World Plastics Production 1950 – 2015." PlasticsEurope. URL: <https://committee.iso.org/files/live/sites/tc61/files/The%20Plastic%20Industry%20Berlin%20Aug%202016%20-%20Copy.pdf>.

Organizations

"SURFRIDER FOUNDATION"

WHAT: A grassroots non-profit organization working to protect and preserve the world's oceans by focusing on water quality, coastal ecosystems, beach access, beach and surf spot preservation.

WHERE: Mainly [North America](#), as well as parts of South America, Europe and Japan.

HOW: Through a [powerful activist network](#), people can connect and participate in [coastal conservation efforts](#). The Surfrider Foundation has a strong [social media](#) presence to engage activists and encourage them to take part in activities such as beach cleanups or to sign digital petitions.

OCEANA

WHAT: The largest international ocean conservation organization that works to protect and restore the world's oceans through targeted policy campaigns.

WHERE: Based in Washington D.C with offices throughout the world.

HOW: Oceana works to protect sea life affected by industrial fishing by using

targeted policy campaigns focused on science combined with media, law and public pressure. The clearly defined campaigns, in such fields as responsible fishing and preventing ocean pollution, are designed to produce identifiable policy changes within a 3–5 year timeframe.

5 GYRES

WHAT: A non-profit organization dedicated to understanding plastic marine pollution that works towards oceans free of plastic.

WHERE: All over the world.

HOW: Through exploration, scientific research, education, and action the 5 Gyres Institute engages communities in systemic change and encourages corporate partners, policymakers, and the general public to reduce plastic pollution.”⁹

A listing and description of additional organizations dedicated to curbing the effects of plastic pollution can be found here:

<http://www.oneworldocean.com/pages/partners-working-together>.

Past Resolutions and Treaties

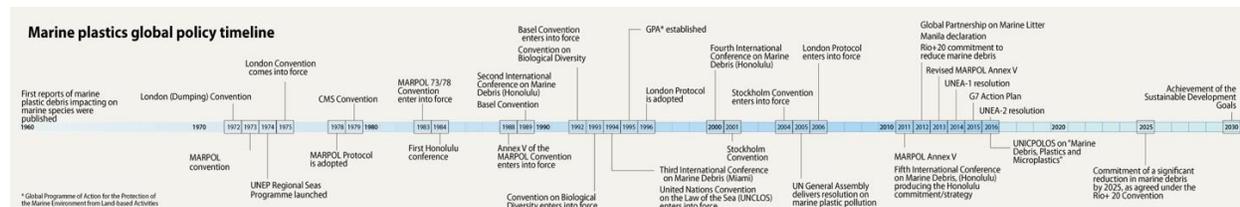


Figure 4: timeline of global and international policy on plastic pollution in the oceans. Source: <https://www.grida.no/resources/6916>.

December 4–6th, 2018: over 200 countries sign (**non-binding**) ‘zero tolerance’ draft resolution on marine litter and microplastics in Nairobi UN conference.¹⁰

⁹ “5 Incredible Organizations That Are Making the World’s Oceans Cleaner.” *Goodnet*, 8 June 2014, www.goodnet.org/articles/5-incredible-organizations-that-are-making-worlds-oceans-cleaner.

¹⁰ Harrabin, Roger. “‘Zero Tolerance’ Plan Eyed for Plastic Pollution.” *BBC News*, BBC, 1 Dec. 2017, www.bbc.com/news/science-environment-42190678.

Possible Solutions

A 2015 report by the McKinsey Center for Business and the Environment outlined the five best strategies that:

“Based on this analysis, several levers are most effective:

- **Closing leakage points within the collection system** by optimizing transport systems to eliminate illegal dumping, and closing or improving dump sites located near waterways.

- **Increasing waste-collection rates by expanding collection service**, as plastic waste is more than twice as likely to leak into the ocean if it remains uncollected. Stopping the growth in absolute metric tons of leaked plastic would require that the weighted average collection rate in the five focus countries be doubled, from roughly 40 percent to nearly 80 percent.

- **Using a variety of waste-to-fuel** (e.g., gasification) **or waste-to-energy** (e.g., incineration with energy recovery) **technologies** to treat waste in areas with high waste density. The choice of waste treatment should, of course, align with local priorities, local regulations, and electricity tariffs. (Using these technologies does not preclude a portion of high-residual-value plastics being recovered by the informal sector for recycling.) Pyrolysis also is an option in the medium term; if the cost structure for this technology improves by 25 to 35 percent over the next five years, it could become even more widely used as a substitute treatment option.

- **Manually sorting high-value plastic waste and converting much of the remainder to refuse-derived fuel (RDF).**

This lever, which is specific to areas with low waste density, entails extracting for recycling the 20 percent of plastic waste that has high residual value and converting a substantial portion of the remaining 80 percent to refuse-derived fuel for use in the cement industry. This RDF could replace 3 percent of total coal consumption.”¹¹

¹¹ Stemming the Tide: Land-Based Strategies for a Plastic -Free Ocean.” *McKinsey Center for Business and Environment*, 2015.

Bibliography & Further Reading

¹ *ScienceDaily*, ScienceDaily, www.sciencedaily.com/releases/2017/07/170719140939.htm.

¹ “Plastic Pollution - Facts and Figures • Surfers Against Sewage.” *Surfers Against Sewage*, www.sas.org.uk/our-work/plastic-pollution/plastic-pollution-facts-figures/.

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¹ Harris, William. “How Long Does It Take for Plastics to Biodegrade?” *HowStuffWorks Science*, HowStuffWorks, 15 Dec. 2010, science.howstuffworks.com/science-vs-myth/everyday-myths/how-long-does-it-take-for-plastics-to-biodegrade.htm.

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¹ “European Strategy for Plastics.” *Plastic Waste - Environment - European Commission*, ec.europa.eu/environment/waste/plastic_waste.htm.

¹ “5 Incredible Organizations That Are Making the World's Oceans Cleaner.” *Goodnet*, 8 June 2014, www.goodnet.org/articles/5-incredible-organizations-that-are-making-worlds-oceans-cleaner.

¹ Harrabin, Roger. “'Zero Tolerance' Plan Eyed for Plastic Pollution.” *BBC News*, BBC, 1 Dec. 2017, www.bbc.com/news/science-environment-42190678.

¹ *Stemming the Tide: Land-Based Strategies for a Plastic -Free Ocean.* *McKinsey Center for Business and Environment*, 2015.