

**Committee: Environmental Committee**

**Topic: The Question of the reduction of single use plastics**

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## **Summary**

Single use plastics are one of the most common forms of plastic used, ranging from cutlery to lip-gloss cases or plastic bottles. They contribute significantly to environmental pollution, resource depletion, and ecological disruption. It has been commonly known, since the 1960's, that plastic and synthetic materials have a negative impact on the environment. Now, it can be argued that plastics in the environment are starting to effect humans. Multiple studies have shown that microplastics have been found in not only processed foods, but also in crops; where nanoplastics have been found - "The problem is now so pervasive it can enter the very food we eat", researchers from the University of Plymouth say. This specific study, published in *Environmental Research*, used radishes to conduct their research, though the problem of nanoplastics is likely to be in more than one crop. The natural conclusion to come to from these findings is that we as humans are ingesting millions of nanoplastics, perhaps even daily, without realising.

Microplastics have been found in every part of the planet. Even the uninhabitable Antarctica has had microplastics found in sea ice, the guts of marine animals, and in the deepest of ocean trenches. Microplastics have also been found in drinking water. One study has estimated that there are around 24.4 trillion fragments of microplastics in the upper regions of the world's oceans alone. Plastic waste is said to be flowing into the world's oceans at a rate of around 10 million metric tons per year, and increasing at an alarming rate.

Many legislations, laws, and resolutions have been passed in an attempt to solve the issue of plastics, plastic pollution, and single use plastics, though results vary from being effective to hardly having any effect at all.

The UNEP has stated that we, as a collective, are already unable to cope with and properly manage the amount of plastic waste produced, and unless we rethink the way we manufacture,

use, and manage plastics, the issue will continue to grow. Without global intervention, global plastic waste could almost triple, reaching around 1.2 billion tonnes by 2060.

## Definition of Key Terms

### Thermoplastics

A reversible process of making plastics; they can be melted into a molten state, moulded into a new shape and then cooled to create a new product. Common thermoplastics include polyethylene (bottles & bags) and polyethylene terephthalate (PET—for beverage bottles)

### Thermosets

Thermosetting plastics with an irreversible process. Once moulded, they form a permanent structure that does not soften upon being heated. These can be found in larger products such as boats or aircrafts.

### Single-use Plastic

Plastic products, including food packaging, cutlery, and bags, designed for one-time use before being thrown away. These plastics often do much harm to the environment.

### Nanoplastics

Tiny fragments of plastic, less than one millionth of a metre big. These are small enough to move through biological barriers; unlike its larger counterpart, microplastics.

### Microplastics

Fragments of plastic, less than 5mm (0.2in) in length that occur in the environment due to plastic pollution. Can be found in cosmetics and synthetic clothing. They are large enough to be seen by the naked eye.

### Thermoforming

A manufacturing process that involves heating a plastic sheet until it becomes pliable, then shaping it over a mould and allowing it to cool to create a final product.

## Background Information

The COVID-19 pandemic resulted in massive increases in the use of plastics, and single-use plastics. Personal protective equipment (PPE), such as masks, gloves, gowns, and face shields, typically relies on plastic polymers, such as polypropylene, and exponentially increased plastic waste. Hospitals and medical facilities around the world ordered disposable plastics in large volumes, prioritizing infection control. The NHS, for example, received shipments of 50,000 bottles of hand sanitiser every week, creating even greater volumes of single-use plastic waste.

At the same time, lockdowns and restrictions led to an unprecedented increase in online deliveries and takeaway food services, both of which depend on disposable containers and packaging. While the circumstances warranted these changes for public health reasons, they have created an even more significant environmental challenge. The United Nations Environment Programme (UNEP) suggested that plastic waste had increased by nearly 30% in some areas during 2020–2021.

Moreover, the problem of plastic pollution has even reached remote areas like uninhabited islands in the Pacific, where significant amounts of plastic debris are reported washing ashore. The extent of plastic pollution has escalated to such an extent that microplastics exist in the snow of the Arctic and nanoplastics exist in agricultural crops; we only are beginning to appreciate the potential biophysical and health implications. Recent developments have precipitated renewed calls for global collaboration, more stringent regulation, and transitions reads changing sustainable consumption and production patterns.

## Major Countries and Organisations Involved

### China

The world's biggest plastic producer and the second largest economy in the world left a glimmer of hope after the failed Global Plastics Treaty talks in Geneva. Where other superpower nations had “fallen short”, such as the US and Russia, China spoke in its closing speech, admitting the problem has to do with the entire life cycle of plastic, and thus raising hopes of a breakthrough in the next round of talks. It came as Beijing moved to fill a hole left by the United States of America's withdrawal from global engagement under President Trumps “America first” agenda.

## European Union

The largest collective of countries that has taken numerous steps to tackle the use of plastics in everyday life, the recycling of plastics, and the use of single-use plastics.

## REUSE Foundation

An organisation that advocates for circular economy models related to the reuse of packaging and containers as an alternative to single-use plastics. They work with local and national governments towards implementing reusable systems in both the retail and food service spaces. Their services and initiatives focus on supporting various infrastructure pieces related to reusable containers and the collaboration of private industry and local government.

## WWF

Through awareness efforts and partnerships with governments and companies, the WWF has been a leader in the fight to reduce plastic pollution worldwide. Their 'No Plastic In Nature' campaign aims to see all plastic pollution eliminated from the natural environment by 2030. The WWF is also working to support the development of a legally binding global plastics treaty through the UN system.

## Timeline of Events

Date	Description
1284	First recorded mention of natural plastics, with horn and tortoiseshell as the predominant early plastic.
1820s	Vulcanised rubber, Gutta Percha, Parkesine and Cellulose created
1890	Thermoforming is introduced, and used to make baby rattles from cellulose nitrate
1898	Beginning of mass production of rpm gramophone records made from shellac
1909	Casein plastics, derived from milk, are developed by Erinoid and used commercially

<b>1921</b>	Beginning of the rapid growth of phenolic mouldings, particularly in electrical insulation, with the addition of phenolic laminates in 1930
<b>1922</b>	Staudinger publishes his work that recognises that plastics are composed of long chain molecules – leading to a Nobel Prize in 1935
<b>1933</b>	Fawcett & Gibson at ICI discover polyethylene Crawford at ICI develops first commercial synthesis of poly(methyl methacrylate)
<b>1937</b>	Germany makes the first commercial production of polystyrene, created by IG Farben
<b>1940</b>	First production of PVC in the UK
<b>1945</b>	Production of LDPE, the Squeezy bottle by Monsanto, caused a rapid expansion of the industry, with containers produced to replace glass bottles for shampoos and liquid soaps
<b>1949</b>	High impact polystyrene introduced as a commercial plastic
<b>1958</b>	Lego patents its stud and block coupling system, and produces toys of cellulose acetate, later known as Acrylonitrile-butadiene-styrene-polymer
<b>1988</b>	Introduction of triangular recycling symbols relating to plastic
<b>2010+</b>	<b>Plastic Blood</b> developed by Sheffield University to mimic haemoglobin for use in trauma situations where blood is needed quickly

## Relevant UN Treaties and Events

### The UN Plastics Treaty

In March 2022, at the resumed fifth session of the UN Environment Assembly, a monumental resolution was adopted to develop a *legally binding instrument* on plastic pollution. **175** of the **193** member nations of the UN have signed this treaty, most notably the US, EU member states, China, India, and nearly all African, Asian, and Latin American nations. Despite this, oil and petrochemical producers (notably Saudi Arabia, the US, Russia, Iran, and some Gulf states) have opposed strict global limits on plastic production.

## The UNEP Plastics Initiative

The United Nations Environment Programme (UNEP) Plastics Initiative spearheads global action in reducing plastic pollution and fostering a circular economy. It assists all countries in developing national action plans, enhancing waste disposal measures, and enacting Extended Producer Responsibility (EPR) policies to ensure producers address the entire life cycle of their products.

Through coordinated global campaigns, including "Clean Seas", UNEP have been able to engage with over 60 countries to take commitments to reduce plastic waste and preserve marine ecosystems. The UNEP also provides technical support for such initiatives and generates pivotal reports, such as "Single-Use Plastics: A Roadmap for Sustainability" which provide up-to-date evidence and rationale for sustainable policy adoption by governments.

The UNEP functions as a consortium among member states, UN bodies, NGOs, and private sectors; collaborative factors that can ensure global cooperation on issues of recycling innovations or sustainably designing products. The UNEP also provides support for UN negotiations seeking a legally binding UN Global Plastics Treaty that manages the pollution issues across the entire plastic value chain.

Ultimately, the UNEP Plastics Initiative is the mainstay for global action against plastic pollution and is working to ensure a sustainable world by fundamentally transforming how plastics are produced, consumed, and managed.

## European Commission

The EU has attempted to tackle the most found 10 single-use plastic items on Europe's beaches and promote alternatives. Alongside fishing gear, these 10 single-use plastics equate to 70% of all marine litter in the EU. Through the EU's Directive on single-use plastics, where sustainable alternatives are easily available and affordable, single-use plastic products cannot be placed on the market. This measure aims to reduce plastic pollution, encourage the development of sustainable alternatives, and protect marine ecosystems across Europe.

## The use of cardboard in packaging and utensils

In recent years, packaging and utensils that are made of cardboard and paper have become a more sustainable alternative to single-use plastics. Cardboard as a choice is biodegradable, recyclable, and made from renewable resources, and has become the preferred choice for

consumers and businesses that care about the environment. Many food and beverage companies have incorporated the shift to paper straws, cardboard takeaway boxes, and compostable cutlery in their efforts to decrease dependence on plastics.

While cardboard is a more sustainable option, there are still some challenges to ensuring that it will remain structurally sound and remain resistant to moisture without the use of plastic coatings. Some coatings or laminations could reduce the ability to recycle the cardboard and diminish its environmental benefits. Innovative coatings created from plants, and water-resistant coatings are being developed as solutions to these issues to make cardboard increasingly viable.

Governments and corporations are incentivizing this transition within eco-labelling schemes, packaging taxes, and providing incentives for alternatives to single-use plastics in order to reduce our planet's dependency on them, which is a positive step forward.

## **Possible Solutions**

### **Introduction of new regulations**

Many countries have little-to-no legislation regarding single-use plastics, creating problems around enforcement. The fact the issue is so prevalent shows that new regulations are needed worldwide which build upon principles established in agreements such as the Paris Agreement to a wider scale and for all the UN to follow and agree on.

### **Creation of incentives**

Businesses will need some form of regulation to push them to abide by regulations. While this could be through the creation of negative incentives, such as increased business rates or fines, it could also be through providing tax breaks and financial backing for companies being innovators in the field. Furthermore, incentives could be used to back new technology to be implemented in companies and subsidies could be provided to innovative countries.

### **Role of UN organisations**

The UN has many organisations which could play a role in reducing single-use plastic waste. The United Nations Environmental Programme (UNEP) is the main organisation that comes to mind when dealing with reducing plastic waste due to its mandate to improve the environment.

However, other organisations such as the United Nation Development Programme (UNDP) which is responsible for development in nations could ensure that the foundations of countries are built upon clean energy and sustainable roots.

### **Cleaning up existing single-use plastics**

There are lots of single-use plastics already in the ocean. Every year, over 400 million tonnes of plastic are produced globally — about half of that is designed to be used just once. From that amount around 22% of all plastic waste has been mismanaged, which includes being open dumped, burned in open pits, or leaked into nature. This is millions of tonnes of plastic lying in the ocean or in nature causing damage, so the resolution should address the reversal of those affects.

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