Environmental (UNEP)

Addressing solutions to the excessive use of plastic

Background paper

Model United Nations, April 11th 2025

Forum :
United Nations Environment Programme (UNEP)

Topic :
Addressing solutions to the excessive use of plastic

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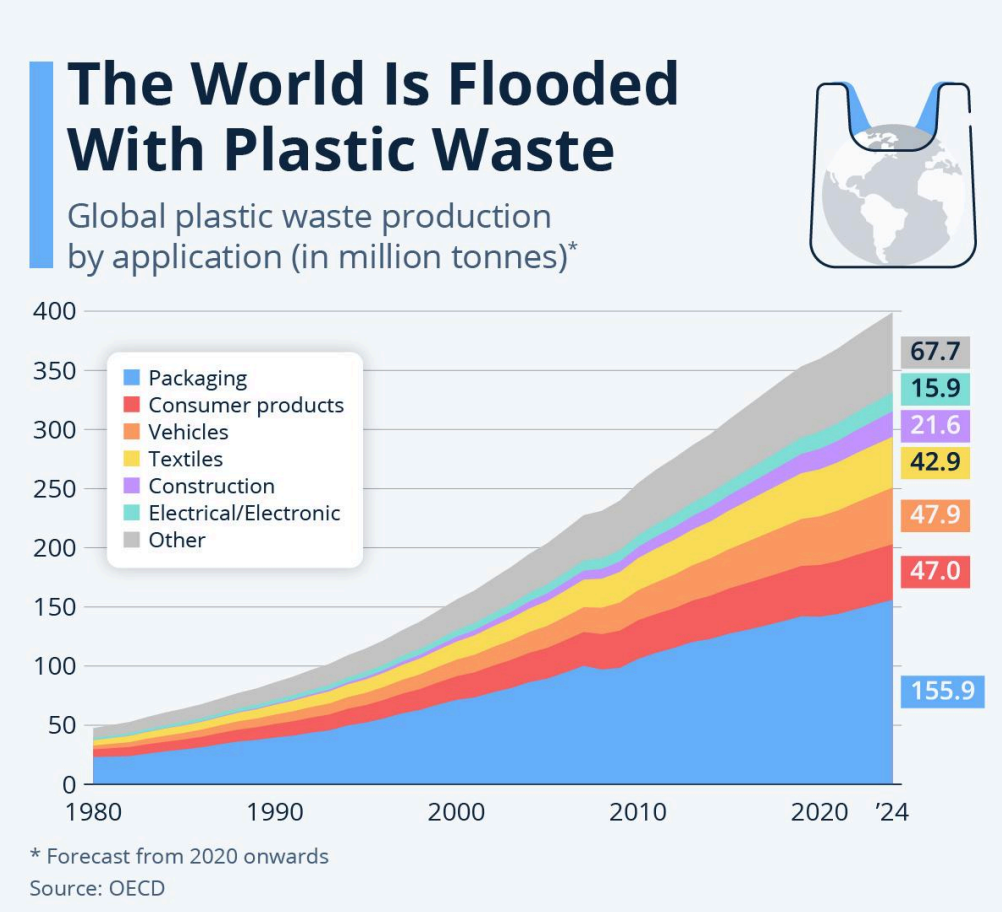
Introduction

Plastics are used in almost every segment of life – from everyday life to industrial applications. On a global level, plastics have displaced many traditional materials, such as wood, stone, metal and many others.



400M tons of plastic are wasted each year.

Over 99% of plastic is produced from oil and petroleum. Its extraction contributes to plastic pollution, which has become one of the most pressing global environmental issues, impacting ecosystems, wildlife, and human health. The widespread use of single-use plastics, such as bottles, bags, straws, and packaging, has led to massive amounts of plastic waste accumulating in landfills, oceans, and natural habitats. The persistence of plastic in the environment leads to harmful effects on wildlife that ingest or become entangled in plastic waste. Furthermore, microplastics are infiltrating food chains and drinking water, raising concerns about their long-term health impacts on humans.

Key terms

Plastic:

Plastic is a lightweight, durable, and moldable material, making it widely used in various industries, including packaging, construction, healthcare, and electronics. However, its non-biodegradable nature contributes to environmental pollution, making sustainable alternatives and recycling efforts crucial for reducing its impact.

Sustainability:

Avoidance of the depletion of natural resources in order to maintain an ecological balance

Environmental:

Relating to the natural world and the impact of human activity on its condition

Petroleum:

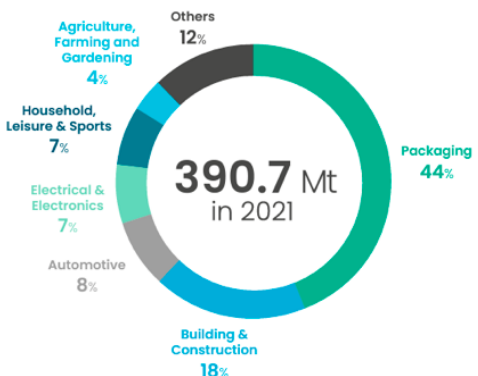
A liquid mixture of hydrocarbons which is present in suitable rock strata and can be çextracted and refined to produce fuels including petrol

General overview

Around the world, one million plastic bottles are purchased every minute, while up to five trillion plastic bags are used worldwide every year

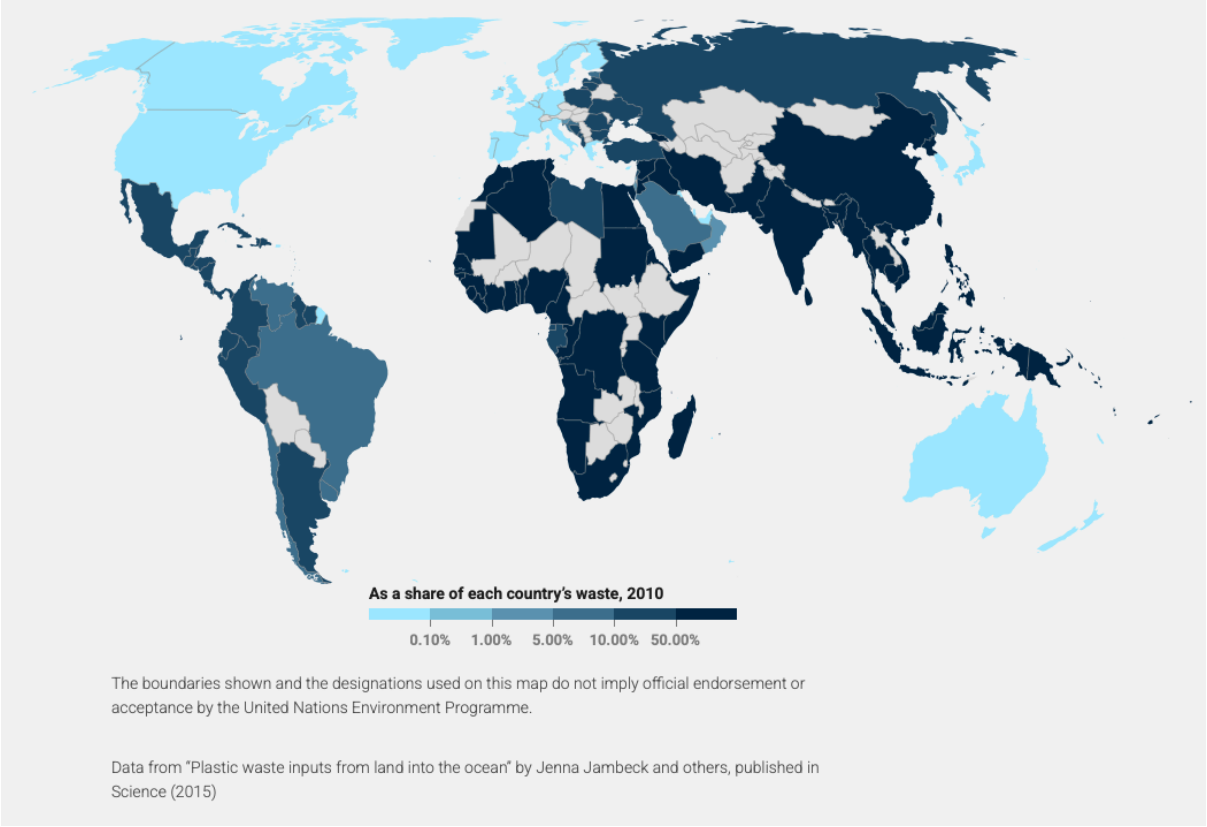
In total, half of all plastic produced is designed for single-use purposes – used just once and then thrown away.Plastics including microplastics are now ubiquitous in our natural environment. They are becoming part of the Earth's fossil record and a marker of the Anthropocene, our current geological era. They have even given their name to a new marine microbial habitat called the "plastisphere".

Today, we produce about 400 million tonnes of plastic waste every year.



Since the 1970s, the rate of plastic production has grown faster than that of any other material. If historic growth trends continue, global production of primary plastic is forecasted to reach 1,100 million tonnes by 2050. Approximately 36% of all plastics produced are used in packaging, including single-use plastic products for food and beverage containers, approximately 85% of which end up in landfills or as unregulated waste. The COVID-19 pandemic has only exacerbated this problem, as the use of disposable masks, gloves and other personal protective equipment (PPE) is skyrocketing. 73% of beach litter is plastic. Plastic is virtually non-biodegradable. Its lifespan is estimated at over 400 years. As it weighs next to nothing, it is easily dispersed, increasing environmental pollution. Most plastic items never fully disappear; they just break down into smaller and smaller pieces. Those microplastics can enter the human body through inhalation and absorption and accumulate in organs. In countries with poor solid waste management systems, plastic waste — especially single-use plastic bags — can be found clogging sewers and providing breeding grounds for mosquitoes and pests, and as a result, increasing the transmission of vector-borne diseases such as malaria.

Plastic waste inputs from land into the ocean:



The facts:

- 10 million tons of plastic are dumped in our ocean annually
- 50% of all plastic produced is for single-use purposes , use for just minutes and then thrown away
- less than 9% of all plastic gets recycled
- 100% of mussels tested have contained microplastics
- 1 million marine animals are killed by plastic pollution every year
- human eat over 40 pounds in their lifetime

Petroleum extraction, refining, and usage have significant environmental impacts.One of the most visible effects is pollution, especially in water and soil. Oil spills from tankers and drilling sites contaminate oceans and rivers, harming marine life and making water unsafe for human use. Land pollution is also a major issue, as leaks from pipelines and storage facilities damage soil, making it unfit for farming and affecting local communities. In areas where petroleum extraction takes place, entire ecosystems are often disrupted, leading to deforestation and loss of wildlife habitats. The process of drilling and refining petroleum can destroy natural landscapes and force animals to migrate, sometimes leading to their decline or extinction.

Human health is another major concern. People living near oil refineries and drilling sites are exposed to toxic chemicals that can cause serious illnesses. Long-term exposure has been linked to respiratory problems, skin conditions, and even cancer. In some cases, local communities suffer from contaminated drinking water due to petroleum leaks. The social impact of petroleum extraction is also significant. Many indigenous communities and rural populations have been displaced from their lands to make way for oil drilling operations. This often leads to loss of livelihoods, cultural disruption, and conflicts over land ownership.

The facts:

Respiratory and pulmonary disorders 74.5% of cases, with ENT disorders 31.0%, cough 48.8%, chest pain 37.9%, dyspnea 9.5% and a few cases of hemoptysis; Other studies have shown that even ingestion of petroleum leads to pneumopathy.

Major parties involved

- *United Nations Environment Program (UNEP) :* The UN and the member states are working hand in hand in order to find global solutions, notably through the Global Plastic Treaty which is currently debated by 175 countries.
- *Asian countries* represent over 55% of the global production of plastic, *China* being the biggest producer with 33% of the yearly plastic production.
- *The USA* waste the most plastic among every other country with over 32M metric tons of plastic wasted per year.
- *The Organization of the Petroleum Exporting Countries (OPEC)* which includes countries such as Algeria, Saudi Arabia, and EAU

Potential solutions:

- Biodegradable Materials
- Reusable Products
- Edible Packaging
- Improved Recycling Infrastructure better waste collection, sorting, and processing
- Upcycling and Reusing recycling plastic into new products like clothing, furniture
- Corporate Responsibility encouraging companies to adopt sustainable practices
- Plastic Alternatives Research developing biodegradable or plant-based plastics
- Waste-to-Energy Technologies converting plastic waste into usable energy
- Corporate Plastic Reduction Pledges setting goals for zero plastic waste
- Collaboration Across Industries working together for system-wide solutions
- International Treaties and Agreements
- Ocean Cleanup Projects

Sources :

- Statista
- Greenmatch
- UE enviromental programme
- Aquablu
- plasticoceans
- betterfuturefactory
- iopscience
- unep