Use of Microplastics after Disposal: An Analytical Study

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Abstract

This paper is in support of the Special Issue on " Use of microplastics after disposal". Within our society, recycling is regarded as a crucial method by which we can aid in the preservation of our wildlife and safeguard the planet for the future of our children. Given this favorable image and significant public interest, it would be logical to assume that recycling initiatives are broadly supported and financed across the state of Michigan. Nevertheless, this is not the case. In our research, we intend to examine three major Michigan cities: Lansing, Detroit, and Ann Arbor. Each city possesses its own recycling background, and we are investigating the legislation and statistics related to the development, or lack thereof, of a recycling initiative in each city. We aspire to identify patterns that indicate why some cities have become more engaged in the recycling movement. We aim to ascertain what kinds of economic, social, and political circumstances are essential for a city to implement and financially support a comprehensive recycling program.

Through this research we aim to put light upon a) toxins via microplastics b) measures to reduce miscroplastic c) usage of microplastics after disposal d) legal aspect towards the topic.

The aforementioned studies contribute to the current understanding of sustainable access, usage, management and examples of how recycling & reuse of microplastics can contribute towards sustainability via innovative methods and ways.

Keywords - Microplastic, disposal, measures, usage, sustainability

Inroduction

Micro is a prefix term that means small dealing with extremely minute structures, quantities or units. And Plastic is a synthetic or semi-synthetic material made of polymers, which are large

molecules created by linking smaller molecules, called monomers, together. That means it is a material consisting of a wide range of synthetic or semi-synthetic organic compounds that are malleable and, therefore, can be molded into solid objects. So microplastics refer to the small pieces of plastic that are less than five millimeters in diameter which are extremely small pieces of plastic debris in the environment resulting from the disposal and breakdown of consumer products and industrial waste.

Microplastics, or MPs, are plastic particles that range from 5 millimeters (mm), approximately the size of a pencil eraser, to 1 nanometer (nm). In comparison, a human hair strand is about 80,000 nanometers wide. The term microplastics is utilized to distinguish them from larger, non-microscopic plastic waste. Two categories of microplastics are presently acknowledged. Microplastics are likely to break down into even smaller nanoplastics through chemical weathering processes, mechanical disintegration, and even through the digestive processes of animals. Nano plastics, or NPs, are a category of microplastics and they measure smaller than 1 μm (1 micrometer or 1000 nm). Nano plastics are not visible to the human eye.

Toxins Via Microplastics

Microplastic or MPs have the potential to release harmful chemicals that may lead to diseases in humans, other species, and the environment. MPs may accumulate within the food chain and contaminate drinking water. They can also attach to other contaminants, such as heavy metals and persistent organic pollutants. Key points regarding microplastic toxicity: Size is important: Smaller microplastics, such as nanoplastics, are regarded as especially troubling due to their capacity to easily infiltrate cell membranes and access deeper tissues within the body, Chemical makeup: The kind of plastic a microplastic is composed of, along with any incorporated chemicals such as additives or plasticizers, can greatly affect its toxicity, Routes of exposure: Humans may come into contact with microplastics through ingestion (through contaminated food and water) and inhalation (via air pollution), Microplastics can be present in drinking water, food, air, and plastic products.

Microplastics are tiny plastic fragments that originate from the degradation of larger plastic items. They pose a worldwide risk to human health and wildlife, microplastics enter the environment by degraded plastic waste: Microplastics infiltrate the environment due to the breakdown of plastic

waste, Surface run-off: Microplastics enter freshwater habitats through surface run-off, Wastewater: Microplastics make their way into freshwater environments via wastewater effluent, Atmospheric deposition: Microplastics are released into the air and can be transported into homes and other structures, They can also be found in textiles, carpeting, personal care products, and cigarette filters, Degraded plastic: Bigger fragments of plastic disintegrate into microplastics, Textiles: Man-made fibers release microplastics during washing, Personal care products: Certain cleansers and toothpastes contain added microbeads, Vehicle tires: Tires deteriorate and emit microplastics, City dust: Microplastics originate from synthetic grass, paint used on buildings, and industrial sanding materials. Microplastics can enter the human body through eating, breathing, and contact with the skin. Microplastics are present in the environment, which includes air, soil, and water. They can be found in food, potable water, and plastic items, Exposure routes Ingestion: Microplastics can be consumed via food or drinking water, Inhalation: Microplastics can be breathed in through the nose or mouth. They may be airborne in urban areas and within households, Skin contact: Microplastics can infiltrate the skin via pores. They can also come into contact with the skin from fibers shed by clothing. Microplastics have harmful Health effects like Gastrointestinal issues: Microplastics may lead to gastrointestinal disturbances, Respiratory issues: Microplastics can lead to respiratory problems, including harm to the upper airways and lungs., Cardiovascular issues: Microplastics may result in cardiovascular problems, Skin irritation: Microplastics can lead to skin irritation and allergic responses, Immune response: Microplastics may provoke an immune reaction, Local particle toxicity: Microplastics may cause local particle toxicity, Toxic effects on organs: Microplastics can create harmful effects on various organs and systems. Factors that affect exposure are Size; the size of the microplastic can influence how it is eliminated from the body, Metabolism; A person's metabolism can determine how microplastics enter the body, Susceptibility; An individual’s susceptibility can influence how microplastics enter the body, Lung anatomy; A person's lung structure can affect how microplastics enter the body.

Thus knowing the harms and disadvantages of the usage of microplastics we can understand how dangerous it actually is so it’s important to find solution to not only lessen it’s usage but also to eradicate it from the roots itself. Understanding the dangers of microplastics is essential as they can greatly affect the environment and human health by infiltrating the food chain, possibly leading to harmful consequences such as reduced reproduction, compromised immune systems, and

alterations in animal behavior, all while building up in the ecosystem due to their minuscule size and enduring characteristics; thus, awareness of their threats is critical for tackling pollution and alleviating potential health hazards.

Measures to Reduce Usage of Micro Plastic

a) As Microplastics are released when plastic is heated, so avoid microwaving food in plastic, washing plastic in the dishwasher, and using plastic cooking utensils. Exposure to elevated temperatures can lead to the breakdown and fragmentation of plastics, possibly tainting food with micro-and nanoplastics. The contamination could begin when the raw materials are kept in plastic-based packaging at high temperatures, such as during the reheating of food in microwaves.

b)Filtering the tap water that means to use a water filter with a filteration medium that's smaller than 2.5 microns to remove microplastics from drinking water. The smaller the filter's micron rating, the more effective it will be at removing microplastic. Types of water filters that can remove microplastics f i) Reverse osmosis (RO): Uses high pressure to force water through a semipermeable membrane with very small pores. RO systems can remove microplastics as small as 0.001 microns, ii) Carbon block filters: Can filter contaminants as small as 0.5 microns, iii) Ultrafiltration: Can reject particles larger than 0.01 microns, iv) Nanofiltration: Can reject particles larger than 0.001 microns, v) Microfiltration: Can reject particles larger than 1 micron, vii) Boiling water: Boiling water can also remove microplastics. When water is boiled, it forms calcium carbonate, which can trap plastic particles.

c) Following the 3 R's that is reuse reduce and recycle.

When addressing microplastics, the "3 R's" - Reduce, Reuse, and Recycle - refer to decreasing the production of plastic waste from the outset, discovering methods to utilize plastic products for extended durations before disposing of them, and effectively recycling plastic items to prevent them from decomposing into microplastics that may infiltrate the environment; fundamentally, it implies proactively curbing the quantity of plastic that could potentially transform into microplastic pollution. Implementation by Reduce: Select items with reduced plastic packaging: Choose bulk goods, reusable containers, and products with minimal plastic coverings.Eliminate single-use plastics: Utilize reusable water bottles, shopping bags, straws, and utensils instead of throwaway plastic alternatives.

d) Promoting, supporting, and utilizing organic materials in food, fabrics, substances for both edible and non-edible products, cosmetics, skin care, etc. It is an effective strategy to deter the use of microplastics. Employing organic materials in food, fabrics, and various products is a notably effective means to diminish microplastic contamination, as it removes the necessity for synthetic plastic components that serve as a major source of microplastic pollution when they decompose or release fibers into the environment. It's advantageous as Naturally biodegradable: The majority of organic materials, such as plant-based fibers or cellulose, decompose naturally over time, thereby reducing the discharge of microplastics into the environment. Decreased dependence on plastic packaging: By incorporating organic materials in food packaging, the requirement for plastic containers that may leach microplastics into food is diminished. Sustainable sourcing: Organic materials frequently originate from renewable sources, advocating for a more sustainable production approach

e) Opt for plastic-free that refers to leading a plastic-free life is the best way to avoid microplastic pollution to spread, increase or take upto a dangerous level so as to harm us in different ways. Choosing a lifestyle without plastic is the most efficient approach to halt microplastic pollution from escalating to dangerous levels, as it effectively decreases the volume of plastic that enters the environment and can subsequently break down into microplastics, thereby reducing the risk of harm to both human health and ecosystems. Impact on health: Research indicates possible adverse health effects from exposure to microplastics, including inflammation, disruption of the endocrine system, and potential respiratory problems. Key points to consider when aiming for a plastic-free lifestyle: Single-use plastics: Steer clear of items such as plastic bags, straws, water bottles, and disposable utensils. Reusable alternatives: Choose to use reusable shopping bags, water bottles, coffee cups, and containers. Packaging choices: Opt for products that come with minimal plastic packaging or consider bulk purchasing. Clothing and cosmetics: Look for clothing and personal care items that are free from microplastics.

f) To support healthy bodily functions and helps detoxify microplastics, you can: Hydrate well, Eat plenty of fibrous foods, Avoid processed foods, and Consider taking liposomal glutathione. Staying hydrated, consuming fiber-rich foods, steering clear of processed foods, and taking liposomal glutathione can aid in healthy bodily functions and microplastic detoxification. Fiber-rich foods: Increase your intake of fruits and vegetables, Munch on nuts and dried fruits as snacks,

Transition from white rice to brown rice, Switch from white bread to whole-grain bread, Opt for whole-wheat pasta rather than regular pasta, Avoid processed foods Replace highly processed foods with whole foods, Keep nutritious snacks available, Use healthier components, and Consider meal prepping in advance. Liposomal glutathione: Take liposomal glutathione when your stomach is empty consume 250-500 mg daily pair it with other antioxidants such as Vitamin C.

Usage of Microplastic after Disposal

a) Recycling: Microplastics can be recycled to make lithium-ion battery electrodes.

Microplastics can be repurposed to manufacture lithium-ion battery electrodes. This presents a sustainable and eco-friendly approach to utilizing microplastics and generating useful materials. It is operated via Electrocoagulation: Microplastics are extracted from water through an electrocoagulation technique that utilizes iron metal, Magnetic separation: The extracted microplastics are subsequently isolated using magnets, Heat treatment: The isolated microplastics undergo heat treatment to produce nanoparticles suitable for battery anodes

b) Catalytic conversion: Microplastics can be converted into valuable products and harmless materials through catalytic methods like photocatalysis, advanced oxidation, and biotechnology. Catalytic conversion methods such as photocatalysis, advanced oxidation processes (AOPs), and biotechnology possess considerable promise for transforming microplastics into useful products or non-toxic materials, providing a hopeful strategy to address microplastic pollution by decomposing the plastic polymers into smaller, less damaging elements or even using them as raw material for new substances. Potential advantages of catalytic conversion are environmental sustainability: By decomposing microplastics into non-toxic elements, these techniques can aid in minimizing the ecological consequences of plastic pollution, Resource recovery: Depending on the method employed, the degradation products might be further employed to generate valuable substances or fuels, encouraging a circular economy model, Mild reaction conditions: In comparison to other plastic recycling techniques like pyrolysis, catalytic conversion may frequently operate under gentler conditions, potentially lowering energy use.

c) Biofiltration: A biofilter can remove microplastics from secondary water treatment plant effluents thus segregated removed and used further. A biofilter can efficiently eliminate microplastics from effluents of secondary wastewater treatment plants, enabling the captured

microplastics to be separated and possibly utilized for additional applications, although complete extraction is not assured and the procedure may necessitate further optimization depending on the dimensions and classification of microplastics present. Biofilters employ a medium of filter material (such as sand or granular activated carbon) populated by microorganisms that attach to the surface and create a biofilm. When wastewater passes through the filter, these microorganisms can capture and potentially decompose microplastics through both physical trapping and biological mechanisms.

d) Microorganisms: Microorganisms can decompose microplastics into biomass, methane, carbon dioxide, water, and other inorganic compounds which can be converted in organic material. Being a precise statement, it is accurate that specific microorganisms possess the capability to decompose microplastics into simpler substances like biomass, methane, carbon dioxide, water, and other inorganic materials, which can subsequently be used by various organisms in the ecosystem, effectively transforming the plastic waste into organic matter through a process known as biodegradation.

e) Fungal degradation: Fungi can use plastics as a source of nutrients thus serving as food for microorganism. Fungi can decompose plastics by utilizing them as a nutrient source. This mechanism is referred to as fungal degradation. Fungi develop on the exterior of plastic then it produce enzymes that decompose the plastic into smaller pieces.The fungi subsequently take in these pieces and mineralize them. Fungal degradation of plastic has the potential to aid in alleviating plastic waste and pollution.

f) Bacterial degradation: Bacteria can break down microplastics into environmentally friendly monomers which is the best use of microplastics after disposal. Based on existing studies, the optimal application of microplastics after disposal is to employ bacteria to decompose them into eco-friendly monomers, essentially "recycling" the plastic by enabling bacteria to break it down into smaller, harmless components that can be further processed or naturally reintegrated into the ecosystem; this method is viewed as a promising approach for addressing microplastic pollution.

g) Hybrid silica gels: Harmless hybrid silica gels can be added to polluted water to form clumps with microplastics and micropollutants. These clumps can be recycled and used as building materials or insulation these toxins when differed can be put up in concentrated form which can

replace and act as alternative of concrete tiles and building material. Hybrid silica gels are utilized to eliminate microplastics from water through a technique known as agglomeration fixation. This technique entails introducing the gels into polluted water, mixing, and subsequently skimming the agglomerates containing microplastics that rise to the surface. Wasser 3. 0: A firm that employs hybrid silica gels to eliminate microplastics from water.

h) Pyrolysis, A pyrolysis process can convert plastic waste into a mixture of char and tarry products. The heat energy from this process can be recovered.

Pyrolysis is a method in which plastic waste is subjected to high temperatures without the presence of oxygen, causing the plastic polymers to decompose into smaller molecules, producing a combination of solid "char" and a liquid "tarry" product, with the capacity to reclaim heat energy generated during the procedure; fundamentally transforming plastic waste into useful fuel sources.

i) Chemical coagulants, like iron and aluminum salts, can trap microplastics and other pollutants.Chemical coagulants such as iron and aluminum salts can successfully capture microplastics and other contaminants in water by neutralizing their surface charge, which leads to their aggregation and settling as flocs, making removal easier through filtration or sedimentation processes. Mechanism: Upon being introduced to water, these metal salts emit positively charged ions that attract and adhere to negatively charged microplastics and other pollutants, which destabilizes them and allows for their aggregation.

j) Agglomeration fixatiion is the process uses no filters to remove microplastics from water. It clumps the microplastics together on the surface of the water, where they can be skimmed off. "Agglomeration fixation" denotes a technique for eliminating microplastics from water without the use of filters, involving the addition of specific chemicals that induce tiny plastic particles to aggregate into larger clusters that rise to the surface and can be easily skimmed off, essentially "fixing" the microplastics together into bigger agglomerates.

k) Nanomaterials, graphene, and membranes: Microplastics can be used to produce these materials. Microplastics can serve as a source material for the production of nanomaterials, such as graphene and membranes, because their size and composition can be altered to create structures with desirable attributes for various uses; essentially "upcycling" discarded plastic into valuable materials.

Relevant Case Laws

There are several legal cases involving microplastics, including lawsuits against companies and cases that have led to regulations.

Tamil Nadu And Puducherry Paper Cup vs. The State Of Tamil Nadu

In 2023, the Madras High Court upheld a ban on single-use plastics in Tamil Nadu. The ban was challenged by manufacturers of paper cups and non-woven plastic bags.

Legal Challenge: The Tamil Nadu and Puducherry Paper Cup Manufacturers

Association contested this G. O. , claiming that:

Lack of Sufficient Consultation:

They argued that the prohibition was enforced without adequate consultation with stakeholders, including producers.

2. Disproportionate Effects:

The ban negatively impacted their businesses, resulting in financial losses and possible job losses.

3. Alternative Approaches: They suggested that rather than implementing an outright ban, the government could have explored alternative options such as enhanced waste management and recycling programs.

Implications: This ruling emphasizes the judiciary's function in reconciling environmental

protection with economic considerations. While it advocates for strict measures against

environmentally harmful products, it also acknowledges the necessity for regulatory bodies

to take into account the latest changes and regulations before implementing bans.

The case showcases the ongoing difficulties in developing policies that

effectively tackle environmental issues without unfairly impacting industry stakeholders.

Almitra H. Patel & Ors. vs. Union of India & Ors.

In 1999, the Supreme Court mandated that all states and union territories implement the Plastic Waste Management Rules

Key Issues Raised: 1. Ineffective Waste Collection and Disposal: The petitioners noted that waste that was not collected frequently remained to decay in public areas, leading to unsanitary circumstances and environmental deterioration. 2. Absence of Source Segregation: They highlighted the lack of organized segregation of waste into biodegradable and non-biodegradable types at the source, hindering recycling and disposal initiatives. 3. Insufficient Infrastructure: The petition emphasized the deficiency of appropriate infrastructure and facilities for the processing and disposal of waste, resulting in the rise of unregulated dumping grounds. 4. Failure to Implement Existing Laws: The petitioners criticized the municipal authorities for their inability to properly enforce the current waste management laws. Supreme Court's Intervention: Acknowledging the severity of the matter, the Supreme Court of India took proactive steps to tackle the issues presented:

• Formation of a Committee: The Court set up a committee made up of specialists in urban planning, environmental management, and related disciplines to evaluate the status of solid waste management in Class I cities (cities with a population over 100,000).

• Committee's Assignment: The committee was charged with reviewing the current waste management practices, pinpointing shortcomings, and suggesting comprehensive strategies for enhancement. Outcome: The Supreme Court, after examining the committee's findings and suggestions, directed municipal authorities across India to adopt the proposed measures. The Court highlighted the necessity for prompt action to reduce the environmental and health risks caused by inadequate waste management. Significance:

This case emphasized the vital necessity of efficient solid waste management in:

1. Urban settings and showcased the judiciary's rolein upholding environmental laws.
2. It also illuminated the obligations of municipal bodies to sustain public health and environmental standards.

Earth Island Institute vs. Crystal Geyser Water Co., et al.

This lawsuit was filed against companies like Coca-Cola, Crystal Geyser Water, Clorox, and Colgate-Palmolive. The lawsuit alleged that these companies violated consumer protection laws by producing and using plastic products that contaminate the environment.

The case Earth Island Institute v. Crystal Geyser Water Company et al. concerns the environmental organization Earth Island Institute (EII) filing a lawsuit against multiple leading consumer goods companies, including Crystal Geyser Water Company, The Coca-Cola Company, PepsiCo, Inc. , Nestle USA, Inc. , Mars, Incorporated, Danone North America, Mondelez International, Inc. , Colgate-Palmolive Company, The Procter and Gamble Company, and The Clorox Company. The lawsuit was commenced on February 26, 2020, in the San Mateo County Superior Court, California. Allegations: EII asserted that these companies were accountable for considerable plastic pollution along California's coasts and waterways. The organization contended that the defendants' products contributed to environmental harm, negatively impacting ecosystems and public health. The lawsuit aimed for both compensatory and equitable relief for the damages allegedly caused by the defendants' actions. Legal Proceedings: Following the initial filing, the defendants transferred the case to the United States District Court for the Northern District of California. Subsequently, EII filed a motion to return the case back to the state court. On February 23, 2021, Judge Haywood S. Gilliam, Jr. approved EII's motion to remand, sending the case back to the San Mateo County Superior Court. Current Status: As of the most recent available information, the case remains active in the San Mateo County Superior Court. The proceedings continue, with both parties involved in legal discussions regarding the alleged environmental effects and corporate responsibilities related to plastic pollution. For further detailed information and updates on the case, you may refer to the official court records or legal databases.

#India has numerous laws, rules and regulations established to decrease plastic waste, including the Plastic Waste Management Amendment Rules, 2021 and the Extended Producer Responsibility (EPR) rules. These regulations are designed to lessen the environmental effects of plastic goods and promote the utilization of recycled materials.

Plastic Waste Management Amendment Rules, 2021

Under the Ministry of Environment, Forest and Climate Change

Government notifies the Plastic Waste Management Amendment Rules, 2021, prohibiting identified single use plastic items by 2022, banned specific single-use plastic items by 2022. In accordance with the urgent appeal made by Prime Minister Shri Narendra Modi to eliminate single-use plastic by 2022, considering the negative effects of discarded plastic on both land and water ecosystems, the Ministry of Environment, Forest and Climate Change, Government of India, has issued the Plastic Waste Management Amendment Rules, 2021, which bans specified single-use plastic items that possess low utility and high potential for littering by 2022. The plastic packaging waste, which does not fall under the ban on specified single-use plastic items, will be collected and managed in an ecologically responsible manner through the Extended Producer Responsibility of the Producer, importer, and Brand owner (PIBO), as outlined in the Plastic Waste Management Rules, 2016. To ensure efficient implementation of the Extended Producer Responsibility, the Guidelines for Extended Producer Responsibility that are being introduced have been authorized legally through the Plastic Waste Management Amendment Rules, 2021. The waste management infrastructure in the States/UTs is being enhanced through the Swachh Bharat Mission.

Raised the thickness requirement for plastic carry bags.

Every producer, importer, or brand owner of plastic carry bags and multilayered packaging in India will be required to include all of its details, such as thickness and manufacturer name, in a barcode or quick response code printed on the packaging starting from July 1.
The new regulations in this regard, issued by the environment ministry this week, will assist in ensuring strict oversight of the prohibited carry bags that are less than 120 microns in thickness under the apex Plastic Waste Management Rules, 2016.

The apex regulations establish the legal framework for environmentally sound plastic waste management across the nation.
The ministry had, in 2021, announced the revised rules, banning the usage of specified single-use plastic items, which have minimal utility and high potential for littering, effective from July 1, 2022. The revised rules also banned the production, import, storage, distribution, sale, and use of plastic carry bags that are less than 120 microns in thickness starting from December 31, 2022.

Extended Producer Responsibility (EPR) rules

Under the Ministry of Environment, Forest and Climate Change it is identified single-use plastic products, characterized by low utility and a high potential for littering, have already been outlawed as of 1st July 2022, through the Plastic Waste Management Amendment Rules, 2021, announced on 12th August 2021, nationwide. The announcement additionally forbids the manufacture, import, storage, distribution, sale, and utilization of plastic carry bags that are less than seventy-five microns thick, effective from 30th September 2021, and those thinner than one hundred and twenty microns, effective from 31st December 2022. Regular enforcement actions have been initiated to uphold the prohibition on identified single-use plastic products and on plastic carry bags under one hundred twenty microns in thickness. Measures have been taken against violations, which consist of the confiscation of prohibited single-use plastic products and the imposition of penalties. Obligate manufacturers to take accountability for their products' environmental consequences throughout their life span. Require that manufacturers adopt sustainable design practice.

Plastic Waste Management (Amendment) Rules, 2024

These Regulations modify the Plastic Waste Management Rules, 2016

(principal Regulations). Section 3 of the

principal Regulations undergoes changes by replacing the definitions for terms such as Biodegradable plastics, Importer, manufacturer, and producer. The definition of seller is introduced. Rule 4 is revised, which prohibits manufacturers from selling plastic used as raw material to a producer or seller not registered under the principal Regulations. Additionally, sub-rule (3A) is added to Rule 4, mandating manufacturers of products made from compostable plastics or biodegradable plastics to report the quantity of such products entering the market and the pre-consumer waste generated to the Central Pollution Control Board. Rule 6 is revised by adding sub-rules (5) and (6) regarding the evaluation of plastic waste by local authorities and the annual reporting to the State Pollution Control Board or Pollution Control Committee. Rule 7A is incorporated into the principal Regulations, establishing the duty of Panchayat at the District level concerning plastic waste. Rules 9, 10, 11, 13, and 17 are modified. Furthermore, Schedule II of the principal Regulations is amended, along with certain forms attached to it.

#The United Nations (UN) has adopted a resolution to create an international treaty to address plastic pollution. The treaty is expected to be legally binding and address the entire life cycle of plastic.

Resolution

In March 2022, the UN Environment Assembly (UNEA) adopted resolution 5/14.

The resolution called for the creation of an Intergovernmental Negotiating Committee (INC) to develop the treaty.

The resolution aims to address plastic pollution globally, including in the ocean.

Intergovernmental Negotiating Committee (INC)

The INC is made up of delegates from UN member states, as well as observers from civil society, the private sector, and scientific communities.

The INC has held several sessions to develop the treaty, including:

INC-1: November 28–December 2, 2022 in Punta del Este, Uruguay

INC-2: May 29–June 2, 2023 in Paris, France

INC-3: November 13–19, 2023 in Nairobi, Kenya

INC-4: April 23–29, 2024 in Ottawa, Canada

INC-5: November 25–December 1, 2024 in Busan, Republic of Korea

Goals

The treaty is intended to be legally binding and address the entire life cycle of plastic.

The treaty is intended to be implemented as soon as possible, with a goal of implementation by 2025.

In 2022, 175 nations gathered at the United Nations Environment Assembly to solve the global crisis of plastic pollution. There, the nations agreed to draft a legally binding treaty that would

identify actions to reduce the production of plastics, particularly its most toxic forms, by the end of 2024.

We don't yet know what the final U.N. plastics treaty will contain—or how the United States, one of the world's biggest contributors to plastic waste, will engage—but we do know that this is an opportunity to block the endless stream of unnecessary single-use plastics into our markets, prevent microplastics from entering our water and food supplies, reduce environmental destruction, and cut greenhouse gas emissions (all popular ideas).

Conclusion

"The disposal of microplastics poses a significant threat to the environment, human health, and the planet as a whole. After disposal, microplastics often end up in oceans, waterways, air ,soil, and in general the overall environment, where they can take hundreds of years to decompose. The use of microplastics in various products, such as cosmetics, cleaning agents, utensils, tools, kits, edible products, application based products , clothing etc has led to a staggering amount of microplastic pollution.

After disposal, microplastics can

- Contaminate the food chain through ingestion by small marine life

- Enter the human food supply, potentially causing physical harm and chemical contamination

- Harm aquatic life and ecosystems, disrupting the delicate balance of nature

- Contribute to the formation of massive garbage patches in oceans

- Impact human health through the consumption of contaminated water and foo

To mitigate these issues, it is essential to adopt sustainable practices, such as:

- Reducing microplastic use in products

- Increasing recycling and proper disposal methods

- Developing biodegradable alternatives

- Implementing policies and regulations to limit microplastic pollution

- Promoting education and awareness about the dangers of microplastic pollution

By taking action to minimize the use and disposal of microplastics, we can significantly reduce their harmful impact on the environment and human health.

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