

Plastics as a Catalyst for Environmental Devastation and Climate Change: Unfolding the Impacts and Consequences through Plastic Poems

John Samuel H¹, Rathina Prabhu A²

¹Research Scholar, (Reg. no.: 21211274011012), Assistant Professor, Department of English, St. John's College, Palayamkottai, (Affiliated to Manonmaniam Sundaranar University, Abishekapatti), Tirunelveli, Tamil Nadu, India. johnliterarian1996@gmail.com

²Assistant Professor, Department of English, St. John's College, Palayamkottai, (Affiliated to Manonmaniam Sundaranar University, Abishekapatti), Tirunelveli, Tamil Nadu, India. holymarbles@gmail.com

Received: January 03, 2025

Accepted: January 17, 2025

Published Online: March 10, 2025

Abstract

Nowadays, plastics are inevitable, and their production is unstoppable as their need is increasing daily. People use plastic objects in various forms such as plastic bags, covers, and boxes, and get them voluntarily from the shops. Though plastics are convenient in many ways, they harm the environment and human lives, and cause climate change because of emitting greenhouse gases while littering and incinerating. Therefore, plastics pollute land, air and water. International and national environmental organisations have proposed many schemes and policies to avoid these kinds of environmental devastation. Nevertheless, people are not willing to practice the schemes and policies to safeguard nature. Therefore, this research article tries to answer the questions of how plastics are harmful to the environment and humans, how plastics cause global warming and other climate crises, why plastic management remains a failure, and how literary poems pay attention to depict the consequences of plastics. The research article's objective is to expose the consequences of excessive use of plastic items through literary poems.

Keywords: Plastics, Microplastics, Environment, Global warming, Climate change

Plastics and synthetic organic polymers are inevitable in the present world, as they have a large scale of production (Geyer et al). It seems there is no alternative to the plastics in packaging, as everything can be packed with plastics such as plastic bags, covers and so on. Indeed, plastics have revolutionized our lives since they were discovered in the 20th century, offering enormous environmental harm and several advantages (Alhazmi et al). However, the major problems of using plastics are that some plastics are long-lasting materials, and they take hundreds of years to

decompose. Plastics have extended breakdown durations and a tendency to collect in the environment because of their stability and strong durability (Gewert et al.). These characteristics of plastics cause many disruptions such as land pollution, sea pollution and air pollution in the environment. In implementing a plastic-free society, world governments, international environmental organizations, and educational institutions have been providing much awareness to the people. The governments of every country have been proposing adequate schemes and plans to reduce the use of plastic. Moreover, in eco-literature, many writers display the importance of the natural environment to human life and insist on the significance of a green environment. Nevertheless, people are not concerned about a healthy and green society, especially a plastic-free society. Additionally, literature, as an exploration of contemporary issues, expresses how plastics destroy the natural environment. Contemporary eco-writers directly write about the irreversible consequences of using plastics. Therefore, this research article tries to answer the questions of how plastics are harmful to the environment and humans, how plastics cause global warming and other climate crises, why plastic management remains a failure, and how literary poems pay attention to depict the consequences of plastics. Moreover, the research paper aims to explore how plastics degrade the ecosystem, explain how plastic pollution exists due to the excessive use of plastic bags, portray plastics as triggers of climate change in the environment such as global warming, and find out the reasons behind the ignorance of plastic management.

Plastic is a material that is harmful to all species of nature. As plastics pollute the sources of the earth, they lead every species of the earth towards dangerous circumstances. Generally, plastic pollution is caused by littering them everywhere. Tonnes of plastics are found dumped into oceans. Moreover, the plastics are consumed and not disposed of properly. Plastics are littered into waterways, and they eventually reach the ocean (Marta, Ocean Literacy Portal). As per reports, 8 million tonnes of plastic waste enter the ocean through various outlets such as streams, drains and rivers every day (Ritchie & Roser, Our World in Data; Surfers Against Sewage; Condor Ferries; RMclntyre). Moreover, littered plastics cause the deaths of entire sea life species. Additionally, the plastic materials react with the ocean water and create greenhouse gases such as carbon dioxide and carbon monoxide. Hence, plastic affects entire biodiversity.

For instance, The Hindu Bureau revealed how plastics pollute the Kerala coast. Research has found, “unsettling evidence of plastic dumps in the ocean beyond 40-metre depth off the Kerala coast that are posing a grave threat to marine life forms” (The Hindu Bureau). The documentation submitted by the researchers explains,

Marine creatures were seen struggling to free themselves from discarded fishing nets, while others were found ingesting plastic fragments, mistaking them for food. Plastic fishing nets, possibly discarded by fishers, were found on several deepwater reefs. These 'ghost nets' pose a grave problem as they trap creatures and remain a permanent threat to underwater life.

(The Hindu Bureau)

Every marine being suffers from the plastics littered by humans. Therefore, the government proposes many plans and policies to avoid those difficulties.

After implementing many policies to reduce the use of plastics, incineration as one of the policies is recommended to reuse the plastics in other forms. Nevertheless, incinerating the plastics causes air pollution. Generally, incineration is a process in which plastic wastes are heated to convert them into liquid or gases. Burned plastics in incineration are called fossil fuels. Moreover, during the incineration, toxic gases are emitted. For instance, every tonne of plastic waste produces three tonnes of carbon dioxide. A report says,

Along with greenhouse gases, incineration also generates toxic emissions that include dioxins, particulate matter carbon monoxide, nitrogen oxides and other acidic gasses (SO_x, HCl), metals (cadmium, lead, mercury, arsenic, and chromium), polychlorinated biphenyls (PCBs), and brominated polyaromatic hydrocarbons (PAHS). (Break Free From Plastic).

Furthermore, plastics are associated with chemicals, as plastics produce some chemical substances while existing on land and water. The chemical reaction of plastics with land, air and water brings much devastation to the species. As Verma explains,

"The impact of chemicals on humans and ecosystems is either due to their presence in plastic or plastic waste on transportation. Plastic is not inert but contains several chemicals with toxic potential and it also has the potential to transport contaminants. The threat posed by hazardous brominated compounds acts as carcinogens and mutagens requiring immediate attention."

(704).

Thus, not only littering the plastics but also burning the plastics harms nature. While burning the plastics, toxic substances are blended into the air leading to air pollution. Consequently, rich oxygen in the air will be reduced.

Plastic pollution is an anthropogenic pollution since plastic bags are very common products used by people. Every minute, almost a million plastic bags find their way into the trash. Plastic bags destroy 100,000 marine lives. Globally, up to a trillion plastic bags are used annually. If plastic bags are bound to end-to-end, the world will be covered 4,200 times. 10% of those plastic bags will find their way

into our waters. Over one-seventh of plastic bags are not recycled. Approximately, 327 billion bags that get up in the ocean are the fault of the United States. A plastic bag can survive anywhere from 20 to 1000 years before breaking, even though they are used for only 15 minutes on average (Condor Ferries). Because of the nature of being indecomposable, plastics create an unimaginable future full of ruining of species, and polluted land, water and air.

Royer and her team noted in their article that for the earth's climate and environment, "plastics are vulnerable to weathering and degradation processes, caused by environmental factors such as light, heat, moisture, chemical oxidation and biological activity that are responsible for physical and chemical changes in the structure of the polymer" (1). As Verma discusses "the ill effects of Climate Change have already begun to be felt. Toxic substances are released via burning from plastics, open combustion, incineration, posing a threat to the surrounding areas including vegetation and health of individuals" (706). Thus, plastics contribute to climate change. Moreover, people think that most plastics are recycled but "only 9 per cent is recycled globally and the rest is dumped in the natural environment" (Tsydenova & Patil). When plastics exist in the natural environment for a long time, they generate greenhouse gases that contribute to climate change. The heat during incineration increases the temperature of the environment.

People mostly have enough knowledge about plastics and their consequences. In educational institutions, students are given enough awareness about such things through environmental studies. Television and other social media also educate people regarding plastic and its consequences. The national government additionally brings many restrictions on using plastics. For example, the Tamil Nadu government exercised a plan under section 5 of the Environment Protection Act, 1986 that bans manufacture, store, supply, transport, sale or distribution of use and throwaway plastics, plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups and plastic tumblers, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness. After the government initiates the ban on plastics, people are given awareness through various Eco-club meetings, workshops, conferences and District Environmental Committee Meetings. Moreover, the TNPCB developed social media platforms like Twitter, LinkedIn, Pinterest, and YouTube to provide enough ban awareness. (TNPCB). Additionally, the TN government launched a scheme named 'Yellow Cloth Bags' to reduce the use of plastic bags (TNN).

However, human society has not exposed the anti-plastic determination. People are already sufficiently aware that using plastics will surely lead the world into hazardous circumstances. Nevertheless, they haven't stopped using them excessively. For instance, to display people's

irresponsibility in using plastics excessively, some places around Tirunelveli district in Tamil Nadu were visited to collect samples of littering plastics. In some urban areas, littered plastics and other garbage are regularly cleaned. However, rural areas in Tirunelveli districts are not concerned and rural people litter their plastics and other waste outside their villages and nearby waterbodies.



Fig. 1: Photographs depict how plastics are littered near waterbodies in Tirunelveli

As shown in Fig. 1, when plastics are littered near and into water sources, it affects the water resources and brings various health issues to species. For instance, plastics and microplastics give microalgae a surface to grow on and adhere to after they get into the water, which makes the algae heavier and causes them to descend to the bottom. Consequently, bottom-feeding organisms may mistake the algae-covered microplastics for food. Therefore, plastic can get into the food chain, build up in bigger fish, and possibly have a negative impact on human health.



Fig. 2: Photographs show how plastics are littered outside the villages in Tirunelveli

As shown in Fig. 2, plastics are intentionally dumped outside living areas. In urban areas, littered plastics are collected and dumped in garbage depots. Unlike urban areas, as rural areas do not have any specific facilities for the disposition of plastics, rural people dump plastics and other wastes outside their villages and hardly clean them. Consequently, the littered plastics harm the land and the environment. Hence, though the government propounds anti-plastic movements, the implementations only occur around urban areas.

This expounds on Anthropocene, an ideology through which humans claim themselves as an important species in the world, therefore, consuming and reshaping the world, as they need. Moreover, anthropocentrism “has an assumption that only human beings and their interests are ethically considerable” (Humaida, 2). Therefore, people use plastic items without conserving the biodiversity and ecosystem of the biosphere. These anthropocentric behaviours of humans have been explicated through literary works. Especially, Eco-literature depicts how nature is spoiled by anthropocentrism.

As literature is a mirror of life and society, it depicts every issue of society. In that way, literature illustrates the environmental issues as well. Green studies, ecological studies, ecocriticism, and eco-centrism are concepts to understand ecological concerns through literature. Through these concepts, literature brings out the environmental issues explicitly. There are many literary works in the forms of poems, novels, and drama to illustrate environmental degradation. Some novels express the importance of nature and natural calamities as well. For instance, the novel *Nectar in a Sieve* by Kamala Markandaya explains both natural disasters and the destruction of nature by human activities. The novel explains how urbanization ruins farming land and how natural destruction destroys human lives. Amitav Gosh’s *The Hungry Tide* talks about another terrific face of nature. These are brief examples of how nature is abandoned by human activities and how nature destroys human lives.

Nowadays, as environmental or climate issues are inevitable to be discussed, literary works deal with those issues and their consequences. Deforestation, urbanization and industrialization are the major causes of environmental degradation. Plastics majorly contribute to pollution and climate change including global warming, sea level rising and the death of species. As discussed before, plastics bring tremendous undesirable changes to the human body and the world’s ecosystem. Therefore, some literary writers have written their works on plastics. Some poems explain how plastics are degrading our life and earth. The poem by Mick Talbot expresses directly that plastics are the bane of lives on earth. He writes;

Plastics, yes, a bane on all life
A bane, on, bane on, bane on life!
All our pollution causing strife!
All our world, in peril. (Talbot)

Through the lines, the poet strongly believes that plastic pollution causes many dangers all around the world. Furthermore, he questions humanity why humans are using plastics even though it leads to the annihilation of nature, unpredictable weather and seasons, and spoils all the sources. In the poem, he questions;

Plastics, yes, a bane on all life,
Why do we still use it? (Talbot)

As the poet believes, indeed, plastics cause dangerous alterations in nature and its sources. For instance, plastics take a minimum of 20 years to be deployed, meanwhile, they become toxic substances to nature and react with natural substances delivering greenhouse gases and destroying the fertility of soil. Moreover, it blends with air after becoming microplastics.

Another poem titled "Plastic Poem" by Steve Andrews explains the consequences of using plastics. Steve begins his poem with how plastics are used in various forms;

Plastic packaging and plastic rings
Plastic bags for more plastic things,
Plastic bottles for the water you drink (Andrews)

After pointing out in what ways plastics are used, he directly declares, "Plastic causes death so stop and think". Then, he reveals the consequences of using and throwing the plastics;

Millions of sea birds and turtles painfully die,
After eating plastic that floats on by,
Plastic thrown away and out of reach,
Ends up as plastic sand on a plastic beach,
Plastic sold for consumer cash
Fills our oceans with plastic trash. (Andrews)

Through the lines, Steve explains that every species on the earth dies due to throwing plastics away. Moreover, the phrase "plastic sand on a plastic beach" reveals the future world with full of plastics and microplastics. When plastics turn into microplastics they spread everywhere easily and become one of the parts of natural resources including water and sand.

For instance, microplastics have been found even in human blood. Damian Carrington, an environmental editor writes in his report on March 2022 that "Microplastic pollution has been detected in human blood for the first time, with scientists finding the tiny particles in almost 80% of the people tested" (Carrington). According to the report, the research team found that microplastics travel around the world and are consumed by people through food, water and breathing. Moreover, babies swallow millions of microplastics while they are being fed in plastic bottles. Thus, microplastics enter the human

body through “mouths, noses and other body cavities with connections to the outside world” (American Chemical Society)

Gulrukh Tausif’s poem “Menace of Plastic Bags” explains how plastic bags are a threat to the species on the earth. He expresses;

Plastic bags, plastic bags, they are everywhere,
We throw them, burn them and pollute the air
From rivers and oceans, they come ashore
They kill aquatic life and yet we ask for more! (Tausif)

Through the above lines, Tausif states that plastics are found everywhere. As it is thrown and burned, they pollute air and water bodies and kill lives in them. Then Tausif says that though plastics will create many dangerous atmospheres, humans want to use them continuously. Indeed, ecological deaths are caused by using plastics in various forms. Moreover, people mostly use plastic bags to carry things including food, groceries and others. Wherever people go shopping, they buy plastic bags voluntarily and throw them away after using them. Thus, littered plastic bags stay longer in the land and water, and become microplastics and toxic substances while reacting with natural sources such as heat, water, air and so on.

People have enough knowledge of how plastics are vulnerable to biodiversity and how to keep a plastic-free society. Indeed, despite the government bringing schemes to reduce plastics and plastic waste management, people fail to preserve the natural environment. Thus, the behaviour of using plastics excessively explains the anthropocentric state of humans that breaks down such environmental justice among people. The reason behind the ignorance about plastic management is the lack of thoughts of ecological realism, which opposes anthropocentrism and gives more importance to nature. According to Toni Ruushka, “In ecological realism, nature is not reduced to a resource, but sustainable life on Earth is rather based on eco-centric being, values, activities and practices.” Furthermore, he explains shortly that,

“Ecological realism could be considered as a framework for sustainable organization of human activities, i.e., a rough sketch to inform how humans should ideally act as particles of the greater whole, disregarding how we consider the nature of human beings and their behaviour. According to ecological realism, humans are not superior to the rest of nature but are a species among others”. (Ruuska et al.)

As ecological realism makes humans realise that they are not the only prominent creatures of the biosphere, people will start to consider the natural environment.

Another reason behind the lack of plastic management is the economic status of the people. Practically, as things in plastics are easily affordable, people want to use plastics alone. Moreover, being eco-friendly is expensive in the world. Therefore, bringing a plastic-free society into existence is very costly. However, as plastics spread around the world including the human body, people should consider plastic management. Eventually, people need more awareness about the consequences of plastics and microplastics. Therefore, the government and educational institutions should maintain and stimulate ecological realism and eco-centric thoughts among the people. Eventually, when alternatives to plastics are affordable or easily accessible, there will be a possibility of a plastic-free society.

References

- Alhazmi, Hatem, et al. "Plastic Waste Management: A Review of Existing Life Cycle Assessment Studies." *Sustainability*, vol. 13, no. 10, Multidisciplinary Digital Publishing Institute, May 2021, p. 5340. <https://doi.org/10.3390/su13105340>.
- American Chemical Society. "Microplastics Found in Human Heart Tissues, Both Before and After Surgical Procedures - American Chemical Society." *American Chemical Society*, www.acs.org/pressroom/presspacs/2023/august/microplastics-found-in-human-heart-tissues-before-and-after-surgical-procedures.html. Accessed 30 Sept. 2023.
- Andrews, Steve. "Plastic Poem is About Plastic Pollution." *Letter Pile*, 30 Apr. 2022, letterpile.com/poetry/Plastic-Poem.
- Break Free From Plastic. "What Is Incineration? | Plastic Solutions Review." *Plastic Solutions Review*, Aug. 2022, plasticsolutionsreview.com/incineration.
- Carrington, Damian. "Microplastics Found in Human Blood for First Time." *The Guardian*, 25 Mar. 2022, www.theguardian.com/environment/2022/mar/24/microplastics-found-in-human-blood-for-first-time.
- Condor Ferries. "Plastic in the Ocean: Statistics 2023." *Condor Ferries*, www.condorferries.co.uk/plastic-in-the-ocean-statistics. Accessed 6 June 2023.
- Gewert, Berit, et al. "Pathways for Degradation of Plastic Polymers Floating in the Marine Environment." *Environmental Science: Processes & Impacts*, vol. 17, no. 9, Royal Society of Chemistry, Jan. 2015, pp. 1513–21. <https://doi.org/10.1039/c5em00207a>.

- Geyer, Roland, et al. "Production, Use, and Fate of All Plastics Ever Made." *Science Advances*, vol. 3, no. 7, American Association for the Advancement of Science, July 2017, <https://doi.org/10.1126/sciadv.1700782>.
- Ghosh, Amitav. *The Hungry Tide*. Harpercollins Publishers, 2017.
- Humaida, N. "The Importance of Ecocentrism to the Level of Environmental Awareness for Sustainable Natural Resources." *IOP Conference Series: Earth and Environmental Science*, vol. 399, no. 1, 2020, p. 012131., <https://doi.org/10.1088/1755-1315/399/1/012131>.
- Markanandaya, Kamala. *Nectar in a Sieve*. J. Day Co., 1955.
- Marta. Fava. "Ocean Plastic Pollution an Overview: Data and Statistics." *Ocean Literacy Portal*, June 2022, oceanliteracy.unesco.org/plastic-pollution-ocean.
- Ritchie, Hannah, and Max Roser. "Plastic Pollution." *Our World in Data*, 1 Sept. 2018, ourworldindata.org/plastic-pollution.
- RMcIntyre. "How Does Plastic End up in the Ocean?" *WWF*, 17 Apr. 2018, www.wwf.org.uk/updates/how-does-plastic-end-ocean#:~:text=Litter%20dropped%20on%20the%20street,plastic%20surge%20in%20our%20seas.
- Royer, Sarah-Jeanne, et al. "Production of Methane and Ethylene from Plastic in the Environment." *PLOS ONE*, vol. 13, no. 8, Public Library of Science, Aug. 2018, p. e0200574. <https://doi.org/10.1371/journal.pone.0200574>.
- Ruuska, Toni, et al. "Domination, Power, Supremacy: Confronting Anthropolitics With Ecological Realism." *Sustainability*, vol. 12, no. 7, Multidisciplinary Digital Publishing Institute, Mar. 2020, p. 2617. <https://doi.org/10.3390/su12072617>.
- Surfers Against Sewage. "Plastic Pollution: Facts and Figures." *Surfers Against Sewage*, www.sas.org.uk/plastic-pollution/plastic-pollution-facts-figures. Accessed 6 July 2023.
- Talbot, Mick. "Plastic Pollution - a Rhyming Wave Poem." *PoetrySoup.com*, www.poetrysoup.com/poem/plastic_pollution_-_a_rhyming_wave_poem_1034611#:~:text=Plastics%2C%20yes%2C%20a%20bane%20on,o ur%20denials%2C%20will%20it%20kill%3F. Accessed 30 Sept. 2023.
- Tausif, Gulrukh. "Menace of Plastic Bags." *Poem Hunter*, www.poemhunter.com/poem/menace-of-plastic-bags. Accessed 30 Sept. 2023.

The Hindu Bureau. "Study Finds Disturbing Evidence of Marine Plastic Pollution off Kerala Coast." *The Hindu*, 7 June 2023, www.thehindu.com/news/national/kerala/study-finds-disturbing-evidence-of-marine-plastic-pollution-off-kerala-coast/article66941751.ece.

TNN. "Tamil Nadu CM MK Stalin to Launch 'Meendum Manjappai' Campaign Today." *The Times of India*, 23 Dec. 2021, timesofindia.indiatimes.com/city/chennai/cm-to-launch-meendum-manjappai-campaign-today/articleshow/88442169.cms.

TNPCB. "Success Stories: Ban on Use and Throwing Plastic in the State of Tamilnadu to Make 'Plastic Pollution Free Tamilnadu.'" *Tamil Nadu Pollution Control Board*, tnpcb.gov.in/pdf_2019/successstoriesplasticfreetn7619.pdf. Accessed 30 Sept. 2023.

Tsydenova, Nina, and Pawan Patil. "6 Reasons to Blame Plastic Pollution for Climate Change." *World Bank Blogs*, 29 Sept. 2023, blogs.worldbank.org/endpovertyinsouthasia/6-reasons-blame-plastic-pollution-climate-change.

Verma, Rinku, et al. "Toxic Pollutants from Plastic Waste- a Review." *Procedia Environmental Sciences*, vol. 35, Elsevier BV, Jan. 2016, pp. 701–08. <https://doi.org/10.1016/j.proenv.2016.07.069>.