

LEGAL CHALLENGES IN ADDRESSING PLASTIC POLLUTION AND MARINE LITTER

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ABSTRACT

Plastic pollution and marine litter have emerged a criminal environmental challenges with far-reaching ecological, and public health impacts and it also affect the living organisms in the sea. Despite the existence of multiple international conventions, national legislations, and reginal framework, the legal response to this issues remains fragmented and often inadequate. Gaps in enforcement, jurisdiction conflicts over marine areas, lack of uniform definition of plastic waste, and the transboundary nature of the marine litter complicate effective regulations. Furthermore, balancing environmental protection with economic and trade considerations poses additional hurdles. This paper examines the legal challenges in addressing plastic pollution and marine litter, focusing on limitations in existing legal instruments, cooperative, and enforceable legal framework the harmonizes global, regional and national effects to combat the escalating crisis of plastic pollution in the marine environment.

Significant judicial interventions, most notably *Sathish v. Union of India* (Delhi High Court) this case involved pollution from industrial activities and led to the High Court directing authorities to initiate action against polluters, including criminal prosecution and demolition of illegal structures. The case law later transferred to the National Green Tribunal for further monitoring.

This paper examines the existing legal framework, case laws, and enforcement mechanism related to plastic pollution and marine litter, which focus on impact to the environment.

Introduction:

Plastic pollution and Marine litter have become one of the most pressing environment issues of the 21st century. The rapid growth growth in the plastic production, combined with inadequate waste management system, has resulted in large quantities of plastic waste entering the world's oceans. According to United Nations Environment Programme, millions tones of waste are discharged in the ocean which cause many problems like marine biodiversity, damages coastal ecosystem, and

affects the human health and economic activities like fishers and tourism. Marine litter includes many materials like plastic bags, fishing gear, microplastic that accumulate in ocean, beaches and seabeds.

Plastic is most common thing that is used by the human to travel to long distances and after years it becomes the most common thing which is cheap and easily available in the market. First it affect the land base then based on human comfort it has been travelled to sea base. The plastic pollute the land because it id

nonbiodegradable. As the plastic is nonbiodegradable people started throwing the plastic waste into the marine environment and that pollute the marine and living organism in the ocean gets affected.

From legal perspective addressing plastic pollution and marine litter presents significant challenges at both international and national levels. Although several international agreements attempts to regulate marine pollution, such as the United Nations Convention on the law of sea and the International Convention for the prevention of pollution from ships, these frameworks do not comprehensively address the full life cycle of plastics. Furthermore, issues such as weak enforcement mechanisms, jurisdictional limitations, and the transboundary nature of marine pollution make it difficult to effectively implement legal measures.

Therefore, this research examines the legal challenges in addressing plastic pollution and marine litter, focusing on the limitations of existing international and national

legal framework, enforcement difficulties, and the need for stronger regulatory mechanism to effectively protect marine environment.

Chapter 2: Concept and Sources of Plastic Pollution

Definition and types of Plastics:

Plastic is the light weight, durable, synthetic material made from organic polymers (often from oil and natural gas) that can be easily modified into different shapes while soft and the harder. The plastic is cheap and easy to carry to all the places.¹⁰⁵¹

Types of Plastics

There are various types of plastic available and they are,

1. **Thermoplastics:** This is a soft when it is heated and that can be

reshaped multiple times. Eg. Plastic bags, water bottles, food containers, etc.

2. **Thermosetting Plastics:** This is a hard when heated and cannot be reshaped. Eg. Electric switches, coatings, handles, etc.

3. **Biodegradable Plastics:** This type of plastic are easily break down naturally by microorganisms. eg. PLA (Polylactic acid).

4. **Engineering Plastics:** The plastic which has superior strength and durability. eg. textiles, eyewear, gears.

5. **Specialty Plastic:** The plastics used in advanced applications. Eg. Non stick cookware.

Sources of Marine litter:

There are two main sources, they are,

- Land- based source
- Sea- based source

Land- Based Source

Land- based source is waste from land are ends up in the ocean. Its can be travelled through wind are thrown by visitor in the beach area or through natural disaster like flood or rain water that mixed with the ocean water.

• **River Transport:** In this the river act as a transport which collect all the waste from cities and villages which is combined with ocean and pollute the ocean.

• **Stormwater Discharges & Sewers:** Storms wash litter and waste from street enters into drains and directly into the water ways.

• **Industries & Manufacturing Facilities:** As the factories and manufacturing industries are located near the river and the toxic substance from that are released in the rivers which connect to the ocean.

¹⁰⁵¹ Organic polymers are large molecules made up of carbobased units.

• **Coastal Tourism & Recreation:**

The visitors on beaches leaves plastics bags, food package, cigarette which directly enter the sea.

Sea-Based Source

Sea-based source in marine litter is done by human activities directly in the water, including fishing, shipping, aquaculture.

- **Fishing Industry (ALDFG):** This is known is ghost gear. The ocean get polluted due to the things used by the fisher man like nets, traps, abandoned.
- **Aquaculture:** It is the harvesting of aquatic organism in the water bodies. It includes plastic buoys, cages, pipes, mesh bags, and mooring ropes.
- **Vessel Damage/ wear and tear:** In this the thinks like paints, oil and other material that is leak from damaged ship cause marine litter.

Microplastics and their environmental impact:

Microplastic is the tiny particle which is less than 5mm in size. They came from two main sources, they are,

- **Primary microplastic:** This plastics are manufactured small in size.eg. industrial pellets.
- **Secondary microplastic:** This plastics formed when the large plastic things break down into small tiny pieces due to sunlight, heat.

Environmental impact:

Harm to marine litter

This cause harm to the living organism in the ocean & seas such as fish, turtles, seabirds and often mistake microplastic as food.

Entry into the food chain

It affect the food chain from large animals to human. This process is called Bioaccumulation.

Soil degradation

Microplastic affects the soil structure and reduce the quality which affect the ground water and growth of plants.

Air pollution and climate links

Due to burning of plastic cause air pollution as its contains harmful chemicals and that cause climate change.

Case Laws

Vellore citizens welfare forum v. Union of India

This case established that industries polluting the palar river must pay for environmental damages, under polluter pau principle and precautionary principle.¹⁰⁵²

Narmada Bachao Andolan v. Union of India

The supreme court dealt with the environment impact and displacement caused by the sardar sarovar dam on the Narmada river, focusing on balancing development with environment protection.¹⁰⁵³

Conclusion:

From this we can learn how plastic affect the environment and how it affect the marine litter and to the what extend it had been done. It cause varies health to both human being and the living organism in the water. It also affect the food chain. Due to this plastic not only marine also the land sources gets affected. So from this we came to know that the use of plastic should be reduced and using of biodecomposing this is must.

¹⁰⁵² Vellore Citizens Welfare Forum v. Union of India (1996)

¹⁰⁵³ Narmada Bachao Andolan v. Union of India (2000)