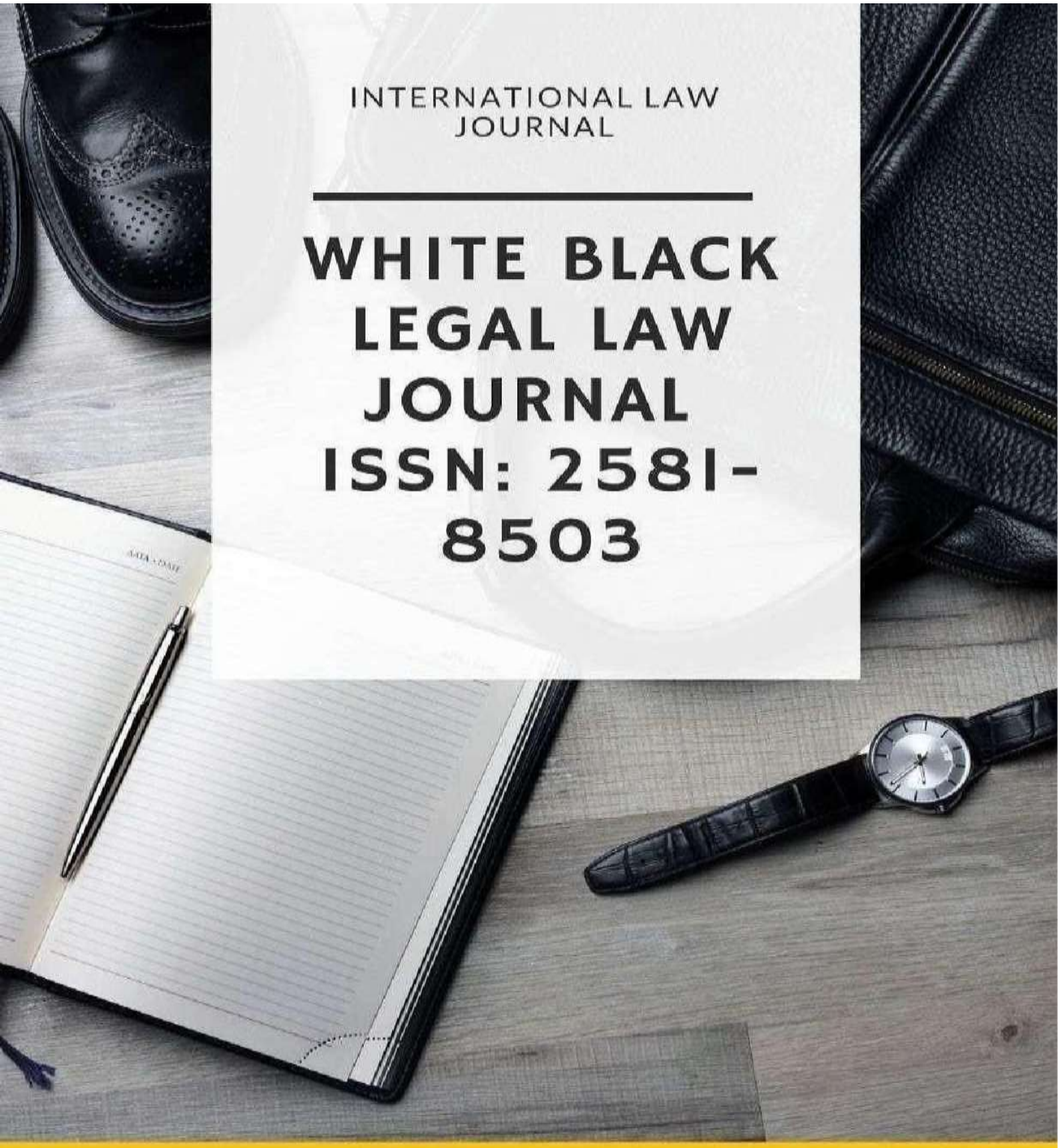

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NAVIGATING THE DEPTHS: ASSESSING THE IMPACT OF MARINE POLLUTION ON MARINE ECOSYSTEMS AND INTERNATIONAL LEGAL STRATEGIES FOR MITIGATION

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ABSTRACT

With the increase in activities of humans and the advancement of technology, natural resources are at stake. Pollution is one major threat to these natural resources. A Nation can develop if it minimizes pollution and effectively disposes of waste. Industries and factories during the Industrial Revolution were located close to the banks of rivers and the waste generated was dumped into these rivers. Changing times have mandated these Industries to curb polluting rivers and these Industries have begun to dissipate the pollutants into the oceans, as ocean water is unfit for drinking and it doesn't exclusively belong to one particular Nation. According to estimates by OECD, 14 billion metric tonnes of waste are being dumped into the oceans annually. When nations experience Economic Growth and Economic Development, pollution and waste management pose a threat to the Marine Ecosystem. There are many sources of marine contamination, the predominant one is the excessive use of fertilizers by farmers in Developing Nations like India, Bangladesh, and Myanmar. The chemicals from these fertilizers run- off due to excess irrigation and ultimately lead to the formation of algae on the surface of oceans, which is toxic to aquatic life. Fishes get stuck in plastic bags, and eventually die. Nations have intrinsic policies to curb marine pollution. Now it is high time that Nations come together under one umbrella to mitigate marine pollution. Basal Convention has been formed to regulate the disposal of hazardous wastes. It is unclear whether existing studies have addressed the drawbacks of the Basel Convention. Through the research paper we will explore how International Law could be a guiding tool to ensure there is consensus among Nations to tackle the Global problem of Marine Pollution.

Keywords: Marine Pollution, aquatic life, micro plastics, Oil spills

I. INTRODUCTION

Marine Pollution happens when substances like wastes generated from the Agriculture, Industrial and Service sector get dumped into the oceans. These substances are non-biodegradable and hence release pollutants into the oceans. 85% of Marine waste is sourced from land-based activities. These pollutants hamper the life of living organisms in oceans. Pollution of air is also a significant component in Marine pollution as dust particles, Co2, and other carbons reach with water to form Sulphuric and Nitric acids which are dangerous to the atmosphere. In India, Agriculture is the main source of occupation, there is high demand for use of fertilisers and excessive use of fertilisers makes the soil alkaline and over irrigation lead to the excessive salts running off[1]. These salts get merged into rivers and then to the oceans at last.

II. LITERATURE REVIEW

The Ocean Service at National level states that the main origin of marine pollution includes land, constituting around eighty percent of the total pollution. Land pollution impacting the ocean includes two categories: nonpoint source pollution and point source pollution. Mobilik, J. M. & Hassan, R. (2015) talk about Nonpoint source pollution which arises when water runoff from land carries various pollutants into the ocean without a specific entry point. This runoff gathers oil residues from cars on roads, agricultural chemicals like fertilizers and pesticides, as well as discarded plastic bags and bottles from land areas. When these contaminants mix with sand particles and flow to the ocean, they contribute to marine pollution. Conversely, when pollution originates from a point and it has a source from industries or other sources of filthy water discharge their scrap directly into the ocean without adequate treatment. This scrap might reach the ocean through specific outlets like small streams or pipes.

These additives can seep into the water, accumulating in fatty tissues and disrupting both human and marine animal endocrine systems while weakening immune responses. In 1976, the global fishing industry discarded roughly 1,45,400 tons of plastic fishing equipment and 26,600 tons of synthetic packaging material into the ocean (Cawthorn, 1988; DOC, 1991). Horsman (1983) approximated that merchant vessels dispose of 6,39,450 plastic containers

[1] National Geographic, 'Marine Ecosystems' (NG.org, 22 October 2015), https://education.nationalgeographic.org/resource/marine-pollution/ accessed on 17 February 2024.

daily worldwide, establishing ships as significant contributors to plastic waste (Shaw, 1978; Shaw and Mapes, 1981). This emphasizes the critical need to address land-based pollution to protect the health of our oceans and all life dependent on them.

This review of Literature demonstrates that various writers have tried to explain the reasons of How Marine Pollution is caused and What are the potential impacts of Marine Pollution on Ecosystems. The Research Gap which is evident from the sources is that Scholars have ignored various Domestic Laws regulating Marine Pollution. Another research gap is How International Law can be used as a mechanism to end Marine Pollution and how International Laws be made binding on Nations and How international Institutions can be strengthened to make their policies binding on countries are discussed in this paper.

III. RESEARCH METHODOLOGY

This study has opted for Qualitative Research Methodology. Data was collected from Scholarly Articles, Law Journals, Newspapers, Books and Online sources. Analysis of content was employed to find the sequential order for logical inference.

IV. RESULTS AND DISCUSSION

4.1. Types of Marine Pollution:

Marine contamination alludes to the destructive presentation of substances or contaminants into the sea environment, causing antagonistic impacts on marine environments, human wellbeing, and financial exercises. There are a few fundamental sorts of marine contamination:

4.1.1 Oil Contamination: Oil contamination within the sea is basically caused by coincidental spills from sources such as oil tankers, seaward penetrating rigs, and transportation vessels. These spills discharge huge amounts of rough oil or refined petroleum items into marine situations.[2] The results of oil spills are destroying marine environments. Oil shapes smooth on the water's surface, coating marine living beings, seabirds, and shorelines. This coating avoids marine creatures from directing their body temperature and buoyancy, driving to suffocation, hypothermia, and decreased portability.

[2] Issac, 'Marine Pollution' (NGC Education, 22 February 2024) https://education.nationalgeographic.org/resource/marine-pollution/ accessed on 18 February 2024.

Cleanup endeavours for oil spills include different strategies, counting control booms, skimmers, dispersants, and shoreline cleanup. In any case, total recuperation of influenced biological systems can take a long time or indeed decades.

4.1.2 Plastic Contamination: Plastic contamination may be an inescapable issue in marine situations, stemming from the inappropriate transfer of plastic squander on arrival and at the ocean. Plastic things such as bottles, sacks, bundling materials, and microplastics enter the sea through waterways, wind, and coordinate dumping.

Marine creatures regularly botch plastic flotsam and jetsam for nourishment or get snared in bigger plastic things. Ingesting plastic can cause inner wounds, blockages within the stomach related framework, and starvation. Also, plastics can assimilate and concentrate harmful poisons from the surrounding seawater, posturing to encourage dangers to marine life.[3]

Microplastics, little plastic particles less than 5 millimetres in estimate, are of specific concern as they can be ingested by a wide run of marine life forms, counting tiny fish, angle, and channel feeders. Microplastics can collect in silt and coastal situations, affecting environments from the foot of the nourishment chain to pinnacle predators.

4.1.3 Chemical Contamination: Chemical contamination of the marine environment emerges from the release of different engineered chemicals, overwhelming metals, pesticides, fertilizers, and pharmaceuticals. These toxins enter the sea through mechanical effluents, rural runoff, and urban wastewater discharge.

Once within the aquatic environment, chemical toxins can endure for long periods, experiencing forms such as bioaccumulation and biomagnification. Bioaccumulation happens when poisons gather within the tissues of marine living beings over time. Biomagnification alludes to the expanding concentration of poisons at higher trophic levels of the nourishment chain.[4]

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[3] Jack, 'Plastic contributes more to pollution than other pollutants' (Pollution Solutions. Org 6 February 2024) https://www.pollutionsolutions-online.com/news/waste-management/21/breaking-news/what-are-the-different-ty pes-of-marine-pollution/54718 accessed on 18 February 2024.

[4] Zahra, 'Ten types of Pollution' (Marine Insight, 1 December 2022) https://www.marineinsight.com/environment/types-of-ocean-pollution/ accessed on 10 February 2024.

Chemical poisons can have poisonous impacts on marine living beings, influencing their development, generation, resistant work, and behaviour. Also, a few chemicals can disturb endocrine frameworks, driving to regenerative variations from the norm and formative clutters in marine life.

4.1.4 Supplement Contamination: Supplement contamination, moreover, known as eutrophication, happens when over the top sums of supplements, such as nitrogen and phosphorus, enter sea-going environments. Common sources of supplement contamination incorporate rural runoff, sewage release, and mechanical effluents.

In marine situations, supplement contamination can lead to the abundance of green growth, coming about in algal sprouts. These blossoms can have negative impacts on marine biological systems, counting the exhaustion of broken-down oxygen levels within the water column amid algal rot.

Hypoxic (moo oxygen) or anoxic (no oxygen) conditions can happen, driving to angle slaughters, environmental corruption, and the misfortune of biodiversity. Eutrophication can moreover disturb the adjustment of marine biological systems, favouring the development of certain algae species whereas adversely affecting others.

4.1.5 Marine Flotsam and jetsam: Marine flotsam and jetsam envelops a wide range of materials, counting plastics, metals, glass, rubber, and wood, that are despicably arranged of or misplaced at ocean. Marine flotsam and jetsam begin from both land-based sources (e.g., littering, and lacking squander administration) and ocean-based exercises (e.g., angling, shipping).

The amassing of marine flotsam and jetsam postures genuine dangers to marine life, environments, and biological systems. Creatures can get to be ensnared in flotsam and jetsam, driving to wounds, suffocation, and impeded portability. For example, marine warm-blooded animals, seabirds, ocean turtles, and angle can get to be caught in disposed of angling

equipment, such as nets and lines, coming about in wounds or passing.[5]

In expansion to trap, marine flotsam and jetsam can be ingested by marine living beings, causing inside wounds, stomach related blockages, and starvation. Plastic flotsam and jetsam, in specific, can be mixed up for prey by channel feeders and marine predators, driving to the bioaccumulation of plastic particles in their stomach related tracts.

4.2 Pathways of Marine Pollution:

Marine contamination can enter the sea through different pathways, counting:

4.2.1 Coordinate Release: Businesses frequently discharge untreated or insufficiently treated wastewater specifically into adjacent water bodies, counting waterways, estuaries, and coastal regions. This wastewater can contain a cocktail of poisons, counting overwhelming metals, chemicals, and supplements, which eventually discover their way into the sea.

For coastal communities dependent on angling and tourism, the results of coordinate release can be desperate. Sullied waters hurt angle stocks, driving to financial misfortunes for anglers and fish businesses. Besides, contaminated shorelines repulse sightseers, influencing nearby businesses and vocations.[6]

4.2.2 Inadvertent Spills: Inadvertent spills, such as oil spills from tanker mishaps or seaward boring occurrences, have annihilating impacts on marine environments. Oil slicks coat marine life, shorelines, and living spaces, choking, and harming creatures and disturbing sensitive coastal biological systems.

Communities subordinate on coastal assets endure serious financial and social impacts from oil spills. Anglers lose their jobs as angling grounds ended up sullied, whereas coastal inhabitants confront wellbeing dangers from presentation to harmful chemicals and exhaust.

4.2.3 Climatic Statement: Toxins from mechanical outflows, vehicle deplete, and agrarian exercises can be carried by wind and precipitation and kept into the sea. These poisons

[5] Holland, 'What is Marine Pollution?' (Ocean Protect.org, 4 December 2019) https://www.oceanprotect.org/resources/issue-briefs/marine-pollution/ accessed on 11 February 2024.

[6] Sourcing Journal, 'Marine Pollution' (libguides.org, 29 August 2023) https://libguides.cccneb.edu/oceanpollution accessed on 17 February 2024.

incorporate overwhelming metals, nitrogen compounds, and microplastics, among others. Coastal communities and environments are specifically influenced by air statements. Airborne toxins contribute to coastal murkiness, diminish discuss quality, and sully water sources, affecting human wellbeing and worsening respiratory conditions.

4.2.4 Land-Based Runoff: Water and snowmelt wash toxins from urban zones, rural areas, and mechanical locales into streams and streams, in the long run coming to the sea. These toxins incorporate fertilizers, pesticides, sewage, and silt.

Coastal communities confront various challenges due to land-based runoff. Over the top supplements from rural runoff fuel destructive algal blooms, driving to angle murders, shoreline closures, and disturbances to tourism and entertainment. Dregs runoff covers coral reefs and seagrass beds, diminishing biodiversity and coastal versatility.[7]

4.2.5 Shipping and Sea Exercises: Shipping exercises, counting cargo transport, counterweight water release, and vessel upkeep, present poisons into marine situations. These toxins incorporate oil, chemicals, invasive species, and plastic flotsam and jetsam.

Coastal communities bear the brunt of shipping-related contamination. Oil spills and perilous fabric spills from vessels sully coastal waters, affecting fisheries, aquaculture, and coastal tourism.

4.2.6 Plastic Squander: Plastic squander from land-based sources, such as littering and disgraceful squander administration, as well as ocean-based exercises like angling and shipping, contribute to marine contamination. Plastics debase gradually and continue within the environment, breaking down into littler particles known as microplastics.

4.3 Evolution of Marine Pollution:

The advancement of marine contamination reflects humanity's expanding industrialization, populace development, and dependence on marine assets. Here's a brief diagram of its movement:

4.3.1 Early Human Settlements: In old times, human exercises along coastlines and conduits

[7] Dan & Hanna, 'Marine Pollution' (Science Direct, 22 April 2013) https://www.sciencedirect.com/topics/earth-and-planetary-sciences/marine-pollution accessed on 20 February 2024.

had localized impacts on marine situations. Early civilizations locked in in angling, chasing, and gathering along coastlines, which seem to lead to overexploitation of marine assets in certain regions. Squander transfer hones, such as dumping natural squander and sewage straightforwardly into streams and coastal waters, presented poisons and pathogens into marine biological systems.[8] Whereas the scale of contamination was generally little compared to cutting edge times, it still had discernible impacts on nearby marine territories and water quality.

4.3.2 Mechanical Transformation (18th to 19th Century): The Mechanical Transformation brought around noteworthy changes in human social orders, with the mass generation of products, quick urbanization, and far reaching utilization of coal and afterward petroleum as vitality sources. Mechanical exercises such as mining, fabricating, and chemical generation created expansive volumes of squander, counting poisonous chemicals, overwhelming metals, and mechanical effluents. Numerous businesses released untreated or negligibly treated wastewater specifically into waterways and coastal regions, driving to broad defilement of marine situations. Urbanization moreover contributed to marine contamination through lacking sanitation frameworks, driving sewage release into water bodies.

4.3.3 20th Century: The 20th century saw a continuation and heightened of mechanical contamination, with expanded generation and utilization of engineered chemicals, plastics, and pesticides. Major natural catastrophes, such as the Exxon Valdez oil spill in 1989 and the dumping of radioactive squander at ocean, highlighted the annihilating impacts of marine contamination on environments and human wellbeing. Developing mindfulness of natural issues driven to the foundation of controls and worldwide assertions pointed at controlling marine contamination, such as the Clean Water Act within the US and the MARPOL Tradition.

4.3.4 Events after World War II: This time has seen quick financial development, innovative progressions, and expanded worldwide exchange, driving to more prominent weights on marine situations. Plastic generation surged amid this period, driven by its flexibility, reasonableness, and comfort. Be that as it may, the broad utilizes an inappropriate transfer of

[8] National Geographic, 'Impacts of Marine Pollution' (NGC.com 20 August 2019) https://www.nationalgeographic.com/environment/article/critical-issues-marine-pollution#:~:text=Before%2019 72%2C%20humans%20around%20the,purposely%20thrown%20into%20the%20ocean accessed on 21 February 2024.

plastics brought about in raising plastic contamination in marine biological systems. Chemical poisons from mechanical exercises, rural runoff, and urban zones advance debased water quality and postured dangers to marine life and human wellbeing.

4.3.5 Cutting edge Challenges (21st Century): Within the 21st century, marine contamination has risen as a worldwide emergency with multifaceted challenges. Plastic contamination, in specific, has ended up an inescapable issue, with plastic flotsam and jetsam collecting in seas around the world. Climate change compounds the impacts of marine contamination, with rising temperatures, sea fermentation, and extraordinary climate occasions postulating extra dangers to marine biological systems.[9]

Endeavours to address marine contamination within the 21st century require imaginative arrangements, universal collaboration, and comprehensive approaches that address the root causes of contamination whereas advancing feasible utilization of marine assets.

Understanding the verifiable evolution of marine contamination gives profitable bits of knowledge into the complex intuitive relationship between human exercises and natural corruption, highlighting the significance of proactive measures to ensure and reestablish marine biological systems.

Marine contamination stands as an imposing risk to the wellbeing and essentialness of our seas, showing multifaceted challenges that amplify past biological domains to envelop human wellbeing, financial solidness, and social value. In this exposition, we dig into the perplexing web of results created by marine contamination, shedding light on its differing impacts and underscoring the pressing need for concerted activity. Marine environments, abounding with life and unpredictably interconnected, endure significant disturbances within the wake of contamination. From oil spills choking marine life to plastics snaring seabirds and chemical contaminants harming marine living beings, the toll on biodiversity and environment wellbeing is disturbing.[10] Environments like coral reefs and mangroves, basic for endless marine species and coastal protection, drop casualty to pollution-induced corruption, jeopardizing the

[9] Jane Marsh, 'The History of Ocean Pollution', (Environment.co, 22 June 2020) https://environment.co/history-of-ocean-pollution/ accessed on 22 February 2024.
[10] Elizabeth, 'Health of Marine Organisms', (ncbi.com, 15 July 2020) https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7819572/ accessed on 20 February 2024.

versatility of whole biological systems. Past environmental domains, marine contamination takes a toll on human wellbeing and well-being. Sullied fish, polluted by toxins such as overwhelming metals and harmful algal toxins, poses genuine wellbeing dangers to customers, extending from neurological impedances to gastrointestinal illnesses. Recreational exercises in contaminated waters uncover people to pathogens and poisons, undermining delight and imperilling open wellbeing.

The toll on coastal communities is unmistakable, as employment subordinate to fishing and tourism endure within the confines of contaminated waters and corrupted marine environments. Financially, marine contamination incurs significant misfortunes on businesses dependent on solid marine biological systems. Fisheries and aquaculture operations flounder as angle stocks decay and fish quality reduces due to defilement. Coastal tourism, a column of numerous economies, wanes in the wake of oil spills and shoreline closures, driving to income misfortunes and unemployment. The financial repercussions swell through communities, worsening imbalances, and social incongruities. Besides, the misfortune of environment administrations given by marine situations underscores the gravity of the contamination emergency. Coastal assurance, climate control, and carbon sequestration, crucial administrations rendered by solid marine biological systems, waver as contamination takes its toll.[11] Marine contamination rises above topographical boundaries, influencing communities around the world and compounding social injustices. Helpless populaces, counting coastal communities, Innate people groups, and creating countries, bear the brunt of pollution-related impacts, confronting unbalanced wellbeing dangers, financial misfortunes, and social imbalances. The journey for social and natural equity requests even-handed get to assets, comprehensive decision-making forms, and recognition of conventional information and rights.[12]

4.4 International Law as mechanism to end Marine Pollution:

There is no exact treaty or Convention which deals with Marine pollution in a holistic way. There are Conventions and Programs which deal with the issue in a sophisticated manner.

[11] Marta, 'Ocean Plastic Pollution' (Ocean literacy, 9 May 2022) https://oceanliteracy.unesco.org/plastic-pollution-ocean/ accessed on 20 February 2024.
[12] Jyothi Verma, 'Sources of Marine Pollution' (Research gate, 29 November 2020) https://www.researchgate.net/publication/345674343_MARINE_POLLUTION_SOURCES_EFFECT_AND_MANAGEMENT accessed on 19 February 2024.

Some conventions address a source of Marine pollution and give guidelines to minimise that particular source of Marine Pollution. Some Treaties are non- binding in nature, i.e., countries are not mandated to follow the rules laid by those treaties. Norwegian Centre for Law of Sea and Honolulu Strategy are binding instruments of Marine Pollution. They monitor various sources of Marine Pollution from plastics, chemicals, fertilizers etc are dealt with. Ships litter plastic wastes during their voyages and to regulate it, MARPOL and The London Convention regulate dumping for plastics in oceans. These conventions provide guidelines to minimise Marine Pollution, but these guidelines are non- binding in nature and non- obligatory for countries.[13]

This is a necessity for countries to formulate National level frameworks in accordance with the guidelines of International Conventions to minimise the risks associated with Marine Pollution. United Nations Conventions on Law of Sea in its framework has included a principle which restricts land-based pollutants entering the seas and oceans, and it left it to the discretion of states to formulate separate Laws in their respective Legislations. The London Convention regulated the dumping of wastes by Ships into the oceans but no other water bodies like rivers and lakes. Agenda- 21 which restricts land-based pollutants from entering marine bodies also has limited scope as they do not have binding rules on countries. In general, the rules and regulations governing Marine Pollution are scattered across various International Conventions, Treaties, Non- Governmental bodies which are non- binding and act as mere guidelines for countries.

Currently, the UN Convention on Law of Sea has more than 155 countries as members and it is one of the top binding treaties of countries. The convention has defined Marine Pollution by adding a term plastic as source of Marine Pollution. Cooperation among nations is like teamwork on a global scale. It means countries that are part of the Convention should work closely with each other and international groups when making rules or plans that follow UNCLOS. This teamwork isn't just about thinking worldwide but also considering the unique needs of regions. The UNCLOS breaks down where pollution comes from. It's like sorting it into different buckets: stuff from land, activities on the seabed, things happening in certain ocean zones, dumping, ships, and even pollution from the air. And it doesn't stop there – the

[13] United Nations, 'Peace, Dignity and Equality' (UN.org, 17 May 2013) https://www.un.org/en/global-issues accessed on 17 February 2024.

Convention sets out ways for countries to deal with each type of pollution.

There are even special courts just for dealing with ocean disputes. These options give everyone a fair shot at resolving issues and working together to protect our oceans.[14]

4.5 Legal Obstacles and Dilemmas associated with Marine Contamination:

The Report on Global Environment on the Law, released by the United Nations Environment Program, straightforwardly asserts incomplete enforcement of protection of Environment regulations and rules poses a significant challenge to ongoing environmental deterioration. Despite existing global regulations aiming to prevent and manage marine plastic pollution, they haven't been consistently enforced due to varying standards and inadequate disciplinary measures. For instance, UNCLOS requires member states to enact domestic laws targeting six sources of ocean litter of plastics, while the Convention of London urges parties to take feasible measures to curb plastic waste dumping in marine environments.

Moreover, there's a discrepancy in acknowledging plastic emissions among nations. Developed countries often blame developing ones for uncontrolled oceanic plastic waste discharge, while developing nations argue that early-stage plastic waste disposal by developed countries has contributed to the problem.[15] This blame game has somewhat impeded the implementation progress.

Additionally, the existing international legal framework lacks robust disciplinary mechanisms. MARPOL, for instance, leaves it to member states to establish disciplinary measures in their national legislation, but these measures often fall short in deterring offenders. For instance, while the United States has aligned its domestic laws with MARPOL, they have limitations, particularly in their application to certain types of vessels and situations.

UNCLOS broadly outlines measures to address marine plastic pollution but lacks specificity on the required laws and regulations by individual countries and how their effectiveness should

[14] Franklin, 'Origins of Oceans' (News. France, 19 October 2019) https://news.cnrs.fr accessed on 15 February 2024.
[15] Preethi, 'GAP Journals' (GAP Interdisciplinary, 16 March 2017) https://www.gapinterdisciplinarities.org accessed on 15 February 2024.

be evaluated. This ambiguity makes it challenging to give accurate reference on combating ocean plastic litter contamination, thereby undermining the convention's normative influence. The absence of a binding treaty to address marine contamination in the South China Sea weakens the lawful foundation for mutual understanding in tackling marine plastic waste pollution, resulting in unsatisfactory outcomes. Current initiatives such as declarations and action plans lack the legal authority to effectively enforce cooperation among countries surrounding the South China Sea. While there are operational guidelines outlined in the present plan of action for managing ocean plastic contamination in the vicinity, it's merely a small step forward and falls short of creating a robust framework to address the root causes of the issue. To make a substantial impact regionally, countries would want to significantly lessen their ocean plastic squander.

Most surrounding countries focus currently on efficiently managing solid waste grouping and assessment to curb ocean plastic contamination. But, enhancing management of waste framework needs substantial funding, posing an obstacle for under- developed nations. Therefore, there's a pressing need for cooperation in the South China Sea region, facilitated by a legally binding framework convention on marine plastic pollution.

Regional cooperation holds more promise than global or bilateral efforts. While global cooperation involves more participants, their willingness and capacity to combat marine plastic pollution vary greatly, making unified action difficult to achieve. On the other hand, bilateral cooperation, while more focused, is not applied to the transboundary nature of marine plastic contamination. Regional cooperation aligns better with common interests and allows for tailored solutions considering regional factors and the specific needs of countries involved.

4.6 Laws regulating Ocean and Marine Pollution in India:

Unfortunately, Indian policy in this regard remains underdeveloped, lacking initiatives to manage waste disposal into marine environments and lacking engagement from both public and private sectors and academia.

Complicating matters is the fragmented nature of India's ocean governance framework, involving various ministries and departments without sufficient coordination. Despite efforts to promote the "Blue Economy," which encompasses various maritime sectors, marine debris

receives inadequate attention compared to other economic priorities. While there were discussions about establishing a National Marine Litter Policy, details about its progress are scarce. Furthermore, India's environmental policy often suffers from disjointed stakeholder involvement, hindering the development of effective solutions.

To truly address marine pollution, we need a comprehensive approach that integrates technology, finance, policy, regulation, and economic incentives. It's imperative that India prioritizes this issue on both political and social agendas, moving beyond mere declarations of intent to implementing practical, sustainable solutions that safeguard our oceans for future generations. The Ministry of Environment, Forest, and Climate Change issues notifications.

4.7 Case Laws concerning Marine Pollution:

4.7.1 Mendaing v Ramu Nico Management (2011)[16]: The people suing believe they have a stake in traditional areas, which includes sea areas damaged by minerals like nickel-based factories built by the respondent. They started legal action seeking a permanent ban on the main defendant from using a deep-sea waste system. Their reasons included claiming the main defendant was causing problems under three laws: (a) the common law idea of nuisance, (b) breaking the Environment Act 2000, and (c) breaching a part of the Constitution. The defendants argued that (a) the common law claim wasn't valid because of the Environment Act, (b) there was no breach of the Environment Act because of past approvals and new permits, and (c) the constitutional claim wasn't valid because the Constitution says certain principles can't be brought to court. They also said the people suing didn't have the right to complain because some weren't real landowners. They argued against granting a ban because it would harm them and others who depend on the mine.

The Court decided that the Environment Act doesn't stop common law actions for nuisance. They also said there's a high chance that the deep-sea waste system will cause serious environmental harm, beyond what's predicted and allowed by permits. The defendants couldn't use the defence of having permission from the law. The plaintiffs proved their claims of private and public nuisance and showed the waste system goes against a part of the Constitution. Each plaintiff showed they're from coastal areas and care about the waste system's effects. So, they all had the right to sue.

[16] [2011] PGNC 95

4.7.2 Mangouras v. Spain (2010)[17]: Along the Spanish coast, a ship carrying oil accidentally spilled 75,000 tons of fuel into Ocean. It was in the Atlantic Ocean. The captain of the ship was faced with offences in Spain and was required to pay a bail of 3,000,500 €. He remained in detention for 84 days until temporary bail was settled. Plaintiff pleaded that the amount of bail was unfairly high and didn't consider economic circumstances, which violated Articles 3, 5 of European Convention of Human Rights.

However, the court disagreed and ruled Article 5 wasn't violated. They recognized the importance of considering "new realities," such as the increasing global concern about environmental crimes, when ruling out decisions in the requirements of Article 3 and 5. The court justified that decision by highlighting the severe concerns impacting the oil spill, stating that the seriousness of the offenses and the significant losses attributed to the defendant were valid factors for considering the bail amount.

4.7.3 M. Nizamudeen vs. M/s. Chemplast Sanmar Limited and Ors (2010)[18]: In India, the Environment Ministry gave the green light to Chemplast's project to produce Poly-Vinyl Chloride (PVC) and setting up a Marine Terminal Facility (MTF) near shoreline to handle Vinyl Chloride Monomer (VCM) shipments from containers to plant via below ground pipelines. The clearance is granted under the Coastal Regulation Zone Notification, 1991. Permission was obtained from the High-level Engineer, PWD, to lay pipelines 3.50 meters below the riverbed for transporting seawater and raw materials. Initially, the permission was granted, but it was later revoked within a month due to concerns about potential pollution and health hazards from VCM.

The Madras High Court overturned the revocation of permission by the Executive Engineer. Following this, an appellant filed a PIL before the Madras HC, to seek to annul permission granted by the Engineer and to stop Chemplast to lay pipelines to move VCM raw materials to the manufacturing area. Court has cancelled the petition.

One of primary issues addressed by the Supreme Court was whether the area where the

[17] No. 12050/04
[18] 2010 (4) SCC 240

pipelines passed under the Uppanar river fell within CRZ III. If so, environmental clearance would be necessary. The Court also examined whether para 2 sub- clause (ii) of the 1991 Notification restricted the movement of VCM, a harmful substance, beyond the port area to the PVC plant via pipelines. The Court concluded that the permission granted to Chemplast by the Ministry of Environment Forests and Climate Change was in accordance with paragraph 3 (2) (ii) of the Notification issued in 1991. Therefore, there wasn't any illegality with permission given by the Executive Engineer. The Court determined that the river Uppanar and its settlements at the location where Chemplast's pipelines were out of CRZ III as per the 1996 Plan for demarcation and classification of CRZ areas in Chennai. Hence, no environmental clearance was required for these pipelines. The appeals were dismissed.

4.7.4 People of Weloy ex rel. Pong v. M/V CEC (2007)[19]: The respondent ship ran and on the reef, prompting the complainant to appoint three heads to lead the class action. They mentioned 6 causes of action: maritime negligence, infliction of emotional distress, unseaworthiness of the vessel, trespass, nuisance (both public and private), and punitive damages. The plaintiffs consisted of two classes: all residents of the affected community and those who owned natural resources through tradition. They filed a motion for Class Certification.

In this case, only the class of plaintiffs with traditional resource rights was deemed eligible for certification because they were the only ones represented by a named plaintiff from that class. The court concluded that there was adequate commonality among this class, with shared liability questions outweighing individual ones. Emotional distress claims were excluded from certification because the complaint did not allege that the entire class suffered a collective physical injury.

V. CONCLUSION

The problem of marine pollution has its origins deeply embedded in human industrial civilization. Scientific research indicates that the oceans act as the primary repository for pollution stemming from human activities and industrial processes. As time passes, various types of pollution originating from land-based sources inevitably make their way into the oceans. Since the inception of the United Nations, considerable attention and concern have

[19] 15 FSM Intrm. 151

been focused on the oceans. Disputes over governmental jurisdiction frequently centre around oceanic rights and interests, with marine pollution emerging as a prominent issue for coastal states, leading to ongoing debates.

The ratification of the United Nations Convention on the Law of the Sea (UNCLOS) in 1983 represented a significant milestone in international law concerning the safeguarding of the planet's vast bodies of water. This convention not only delineated legal entitlements and concerns related to the oceans but also imposed responsibilities on nations regarding their actions in international waters. UNCLOS heralded a new era of legal oversight for the inclusive regulation of marine pollution globally, acting as a foundational framework for fostering international collaboration among countries with coastal regions.

In accordance with the principles of regional governance, coastal states across different regions have implemented various mechanisms to collaborate on managing marine pollution. These mechanisms encompass regional treaties, including both bilateral and multilateral agreements, as well as informal action plans guided by soft law. Such frameworks offer a foundation for addressing marine pollution within defined geographical areas, encouraging cooperation on maritime rights and interests, and experimenting with viable institutional structures for regionally managing marine pollution.

REFERENCES

- Oil Sea Harvester (OSH) project. 2006. Newsletter Issue. 7. http://www.osh-project.org.
- Zengel S. A., 2003. Environmental effects of in situ burning of oil spills in inland and upland habitats. Spill Science & Technology Bulletin. 8(4). 373–377.
- Portes V. L. O., Vargas H. 2004. Oil spills debris clean up by thermal desorption. Journal of Hazardous Materials. 110(1–3). 161–171.
- Lancelot C. 2007. Validation of the 3D biogeochemical model MIRO & CO with field nutrient and phytoplankton data and MERIS-derived surface chlorophyll a images. Journal of Marine Systems. 64(1–4). 66–88.
- Noro A. 2006. Different modelling tools of aquatic ecosystems: A proposal for a unified approach. Ecological Informatics. 1(4). 407–421.