CHAPTER 8

CONCLUSION AND SUGGESTIONS

Earth is four thousand six hundred million years old. For a long time all land was joined together in giant mass. Over millions of years it broke up in to smaller pieces they turned in to today’s continents\(^1\). Life began on earth about 3.5 billion years ago and first life appeared in the sea. It was born in a world that looked very different from today. The atmosphere was filled with poisonous gases. The sky was pink and the sea was rusty red and it is the oxygen that generated from the algae’s, converted the colours of sky and sea in to the blue\(^2\). Oceanic water is the complex solution of various salts, trace elements and gases. However in recent years variation can be caused in the composition of sea water by biological processes and to day particularly by the deposit of toxic substances. The approximate ration of in organic materials dissolved in sea water is 35 grams per kilogram of water. This represents a solution of 3.5%. The most important gases dissolved in the oceanic water include Oxygen and carbon dioxide. The Oxygen dissolved in the seas comes from the photosynthesis of marine bio diversity i.e. from phytoplankton.

Marine is huge, deep and contains more than 80% of the total life of the earth planet. The sea is continuous and interconnected. Temperature, salinity and depths are the chief barriers to the free movement of marine organisms. Therefore the density of the marine organisms is based on the temperature, salinity, and depth of the oceans. The sea circulates continually. This is the main reason for the differences in air temperature, between the poles and equator. Ocean basins are permanent features of the earth the

\(^1\) The continents are still moving by 4 centimeters each year. Millions of years in the future earth will took very different form.

\(^2\) See incredible earth fascinating facts about our planet earth by Anita Ganeri, John Malam, Clare Oliver, Adam Hibbert and Denny Robson. Paragon books ltd.
modern geological measurement indicates that ocean floor stretches in one place and contracts in another place and hence rises in one place and sinks in other place. Hence near coast construction can cause marine pollution. Besides marine plays vital role in the maintenance of both ecology and economy of the earth. Since world oceans are the prime sources of hydrological process, oceans acts as a great heat reservoir and serves as a filter to the earth planet. In addition oceans are the huge reservoir of living and non living resources; it is the sources of food, energy, medicine, medium of transportation and also useful for military and scientific purposes.

UNCLOS 1982 has provided most comprehensive definition for the marine pollution, i.e. is as follows “The introduction by man, directly or indirectly, of substances or energy in to the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities including fishing and other legitimate use of the sea, impairment of quality for uses of sea water and reduction of amenities. In this definition the drafters concentrated on the pollution that introduced by the man so it gives an impression that the pollution caused by the artificial legal persons are excluded from the coverage of definition. In other words the ships and vessels are considered as artificial legal persons, as per this definition vessels and other artificial structures are excluded from the coverage. Therefore the definition should be construed so as to include the artificial legal persons.

Marine Pollutants can be classified as Oxygen demanding pollutants, decease causing agents, plant nutrients, sediments, radioactive waste, synthetic organic compounds, oil etc. However various conventions have classified the marine pollution as
marine pollution due to the Land Based Solid Waste, Marine pollution Due to the vessel Based Solid waste and dumping of hazardous waste and other matter, Marine pollution due to the solid waste that generates from sea bed activities.

According to an estimation of Pan American Health Organization (PAHO) nearly 2% of the Urban Sewage is treated before its disposal and this portion probably less in rural communities these untreated sewage contains both solid and semi solid substances that ultimately reach the marine via various path ways. Further there are incidences that sewage sludge from the waste treatment plants and various other industries are directly dumped in to the oceans. Further the solid waste from un closed coastal land fills enters the marine sooner and solid waste from non coastal areas reaches the marine later via various path ways. The solid waste generation on land is huge and ranging from the half kg to one and half kg per person, per day, depending on the living style, percapita income, industrial growth and recycling modes of that particular country etc. Hence world community not only produces enormous amount of goods but also produces huge quantity of waste, hence waste is expected and inseparable part of development. For this reason in recent years world community is facing the problems relating to the effective disposal of land based solid waste, because in the present scenario world community has to balance between the proper utilization of land and effective disposal of waste as well as conservation of environment.

Further certain segment of the society opine that marine is the most suitable place for dumping of all planetary waste and it is also an economic form of waste management system in comparison with other form of waste management methods. The rational behind such presumption is that, ocean possess huge assimilative capacity, hence it can
assimilate any quantum of waste. But indeed, though ocean is big, and possess self purification capacity it can not assimilate huge quantum of waste with out adverse effects. For example Tsunami 2004 was one of such disasters which dumped huge quantum of waste to marine. After 2 years Oceanic Research Center has found the decreased oxygen in the Tsunami affected areas with some other evil effects. Two opposing school of thought have been emerged concerning the use of the oceans for waste disposal. One school urges that the ocean can be used for waste disposal. This school contended that the ocean has a virtually limitless assimilative capacity and therefore can accommodate enormous quantum of waste with out causing damage. Second school views that the ocean is our “last bastion of defense”, and therefore careful control of waste disposal is necessary. The second school gave prominence to the importance and need for protection and preservation of marine environment for the maintence of earth’s ecology and economy. Certain segments of society argue that dumping of solid waste is advantageous to the marine eco-system since it provides and acts as a home to the marine organisms and coral reef. But as per the report of Hellenic Marine Environment Protection Association (HELMEPA) solid waste from diverse sources proved as deadly to marine life as oil or other chemicals. The greatest threat comes from the plastic, which can float for years. Marine mammals can consume this plastic waste by mistake by presuming it as a food that can lead to starving to the death. The HELMEPA has forwarded a table which specifically mentioned the time taken for objects to dissolve at sea.
TIME TAKEN FOR OBJECTS TO DISSOLVE AT SEA

<table>
<thead>
<tr>
<th>Material</th>
<th>Time Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper Bus Ticket</td>
<td>2-4 weeks</td>
</tr>
<tr>
<td>Cotton Cloth</td>
<td>1-5 months</td>
</tr>
<tr>
<td>Rope</td>
<td>3-14 months</td>
</tr>
<tr>
<td>Woolen Cloth</td>
<td>1 year</td>
</tr>
<tr>
<td>Painted Wood</td>
<td>13 years</td>
</tr>
<tr>
<td>Tin Card</td>
<td>100 years</td>
</tr>
<tr>
<td>Aluminum can</td>
<td>200-500 years</td>
</tr>
<tr>
<td>Plastic bottle</td>
<td>450 years</td>
</tr>
<tr>
<td>Glass piece</td>
<td>Infinity</td>
</tr>
</tbody>
</table>

On the examination of the above stated table one can presume the quantum of waste that has been placed in the ocean from many decades and via various path ways. The dissolved chemicals and other heavy metals enter the human body through the biological magnification and can cause sever health problems ranging from head ache to coma and finally death.

Ecology deals with that part of nature which is essential for the survival, existence and improvement of the human species as a whole. Air, Water, Land, Flora and fauna are the elements that constitute the life supporting system for the species. These are interconnected, inter related and interdependent. Therefore degradation of one of its elements may lead to degradation of the total ecology. The

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3 Error! Hyperlink reference not valid.
4 The term eco is derived from the Greek word oikos, which means “home” since logia means “study of” in Latin ecology is the study of how organisms interact with each other and with their physical environment.
best example is global warming results in the melting of polar region and ultimately results in to the raise in the sea level and there by caused marine pollution.

Rapid growth of industries, intervention of machineries for the exploration and exploitation of the living and non living marine resources, transportation, scientific and technological advancements, and coastal activities, have contributed significantly towards the pollution of the marine environment. World Health Organization was observed that over 70% of all human ailments are influenced by environmental deterioration. All kinds of discharges that arise on land due to the various anthropogenic activities, vessel based waste, waste from the sea bed activities ultimately reach the marine sooner or later. Infact the marine is huge and posses assimilative capacity but in some areas the waste generation is more then the assimilative capacity of the ocean, such as Baltic sea, Meditarean sea. However marine is a major component of the earth planet, hence not far from the truth that it can not assimilate any quantum of waste with out changes. Such small changes would lead to severe ecological imbalance. The warning sign of such changes are bad odor from the coast, depletion in the oxygen level, depletion in the living resources of marine, damage to human body through the biological magnification\(^5\), drastic reduction in the oxygen production etc.

Further, more then 60% of the total population habited in the world coast so waste generation is obviously high especially in these regions and improper solid waste management can directly leads to the marine pollution to an exorbitant level.

\(^5\) Improper solid waste management give rise to problems of health and sanitation and can cause approximately 22 types of diseases including Dysentery, cholera, plague, typhoid, infective hepatices etc.
In addition soil erosion, maritime accidents, floods, waste carried by rivers and by other pathways and rain falls are also contributing significantly to the marine pollution. Further the natural disasters like Tsunami, Sea rise, and existing as well as anticipated exploration and exploitation activities probably can cause damage to the marine environment even more than the assimilative capacity of the marine. The situation is more critical in the enclosed and semi enclosed seas such as Baltic region and Meditarean region. Further if once the marine is polluted it is not easy to clean up the marine as internal water, in addition such cleaning activities require high cost and advanced technology. Hence world community has to focus on the measures to prevent the marine pollution, through various strict, complete, effective set of regulations at various levels.

The law of the sea extends back to Roman times and perhaps earlier these laws were framed for the commercial and military concern and aimed to regulate the use and passage on maritime area. Until the second world war the environmental matters was not at all a concern for the ocean laws, because of lack of knowledge of marine ecology and also the pollution remained in small scale. At the beginning of the modern law of the seas, these laws were built upon a small number of basic principles like freedom of seas exclusive state sovereignty etc. Grotious argued that the peaceful navigation and fishing on the high seas was a basic right of all nations. According to Grotious “sea is common to all “because it is so limit less that one state can not rule over it, hence this region belongs to whole man kind. By the early 1800 this legal principle was universally accepted by the major powers. Grotious principle was straight forward and has granted traditional freedom of seas and has not imposed parallel responsibility of conservation of marine
resources. The existing literature reveals that prior to the UNCLOS 1982 marine pollution problems did not occupy a prominent position in the hierarchy of international environmental concern and were consequently given scant consideration. This is not to say that there is a paucity of legislations on marine pollution problems. However Grotious, sqarez, Vattel and wolf all made references of the terms like “defoulment”, “marine contamination” and other similar terms in their literature, that indicates that international law experts have recognized the grievances of marine pollution and related problems on the ecology of the earth.

Legal Regime of Marine Pollution is relatively a long standing concern. The initial efforts to regulate it were unsuccessful. In 1926 an international conference was convened by the United States, where convention was elaborated to limit the discharges of oil gas in to the sea but this treaty was not signed. Second draft was prepared under the auspices of the League of Nations in 1935 but was failed to gain the acceptance. In 1954 for the first time the international convention for the prevention of pollution of the sea by oil was adopted, but was devoted towards the oil pollution. In 1958 two United Nations Convention of law of the sea come in to force which contained the prohibition relating to pollution of the sea by oil, by Radio active waste and other waste that generates due to the exploration and exploitation of the sea bed and sub oil there of. Further the same convention has tendered the International co operation. Hence it was the first global treaty that addressed the oceanic disposal of solid waste. The Torrey canyon tanker accident occurred in 1967 gave rise to the general environmental awareness among the world community. As a result U.N General Assembly was adopted a resolution that obligates the international member state and organizations to promote
the adoption of effective international agreement for the prevention and control of marine pollution. Aftermath of Torrey canyon oil spill the global efforts were centered on finding a solution to the problem posed by the accidents that causing serious marine pollution. As a consequence IMO has drafted series of convention to combat the oil pollution. However in 1972 Stock Holm Declaration in its principle 6 provided that the discharges of harmful substances, heat or any other waste should not exceed the assimilative capacity of the oceans. Principle 7 specifically addressed the marine pollution. Further 86-94 recommendations of Stock Holm Action Plan addressed the marine pollution and stated that states have to take effective steps for the implementation of existing norms and to formulate further regulations at all levels to effectively prevent the further marine pollution. In addition Agenda 21 has addressed both the marine pollution and solid waste with greater particularity. Similarly UNCLOS 1982, MARPOL 73/78, are the most important conventions having wide ramification that address the marine pollution due to the solid waste from different sources.

However in regional level, as a response to the Torrey Canyon accident the eight European states parties were accepted the principle of cooperation to combat the marine pollution of the North Sea. Consequently in June 1969 the first regional convention was signed called Bonn Convention that was dedicated to the problem of oil-based marine pollution. UNEP regional seas program has produced nearly 8 regional conventions to address marine pollution-related problems. In addition OSLO convention 1972, London Dumping Convention 1974 has been replaced by the OSPAR Convention 1992, Basle Convention, and Bamako Convention etc are contributed significantly towards the protection of marine pollution at regional level.
Approximately there are 12 principles that governing the International environmental law. Some of these principles are well developed and others are still in infant stage, but all these principles have imposed a kind of positive obligation upon sovereign states towards the protection and preservation of the marine environment. The most important among these principles are precautionary action, Inter and Intra generational equity, good neighborliness, equitable utilization and apportionment, prior information, consultation, and early warning, conservation of common heritage of man kind, duty to cooperate in solving Transboundary environmental pollution problems, common but differenced obligations. In addition to these principles various conventions have introduced the Principles like adoption of Best Environmental Technology and Best Available Practice to combat the marine pollution. However these principles have significantly contributed to the development of legal regime of marine pollution in general and solid waste in particular. But the principle of Common but differenced obligation indirectly justifies the imposition of varied obligations that give rise to the non uniform laws and delayed compliance that contributes towards the week legal regime. But the same principle says about providing economic benefits to the nations to comply with the treaty obligations are praise worthy. Hence rather giving such excuses that are likely to shake the validity and effective ness of the convention; it is always good to encourage the state parties to comply with the strict regulations.

UNCLOS 1982 comprises 320 Articles and 9 annexes governing all aspects of ocean space from delimitation to environmental control, scientific research, economic and commercial activities, technology and the settlement of disputes, relating to ocean matters. Part XII of UNCLOS 1982 contains 45 Articles that deal with all most all kinds
of marine pollution. Among these Articles Article 207 is most controversial because of the following reason.

- Article 207 (1) of UNCLOS 1982 has stated that states shall adopt laws regulations to prevent, reduce and control pollution of the marine environment from land based sources including rivers estuaries, pipelines and out fall structures by taking in to account internationally agreed rules, standards and recommended practices and procedures. This article presupposes the existence of International standards for the governing the land based sources in general and solid waste in particular. But in fact the existing International organization i.e. IMO gave much importance to the oil pollution, safety of ship and vessel based pollution. Therefore the survey of literature revels that IMO has not issued any standards or frame work to confine the huge discretion conferred on the states to regulate the land based waste in general and solid waste in particular.

- Clause 4 of Article 207, states shall consider their own geographical, socio-economic conditions and their need for economic development, while formulating laws for the protection and preservation of marine environment. These terms indicates that the states are permitted to frame too soft norms and it apparent as a freedom to cause more marine pollution. Further if states have considered their socio economic conditions, while framing the rules and regulations than what is the status of the laws formulated by the least developed nations in comparison with the laws formulated by the least developed nations. Again this provision gives room for non uniform laws. Hence, discretion conferred with out stipulated standards, guidelines, and frame work give the
impression that such discretion is a kind of freedom to cause more marine pollution.

Further UNCLOS 1982 has introduced three way division of responsibility of the flag state to assure that vessels flying its flag always comply with the respective requirements of that state. The port state is allowed to initiate proceedings against violations on the high seas and against unworthy ships, and the coastal state in its own proceedings against violations in the territorial sea or in its exclusive economic zone. Such diversified jurisdictional rights of coastal, port, and flag state can give room for non uniformity of laws and conflict of interests. Further the UNCLOS 1982 has kept oil pollution in their mind while drafting the provisions that deals with the discharge of sewage and disposal of garbage. As the direct response to the global problem of oil pollution and other ship based pollution, international convention for the prevention of pollution from ships, has been negotiated in 1973, under the auspices of IMO. In 1978 a separate protocol has been negotiated said protocol and convention of 1973 should be read as a single document i.e. MARPOL 73/78. The prime objective of MARPOL is to create a variable and enforceable regime to prevent pollutants that are discharged from ships. From MARPOL consist of VI annexes. Annex III and VI deals with harmful substances carried in packaged forms by fright containers, portable tankers or road and rail tank wagons etc. the said annexes specifically addressed solid and semi solid harmful substances that are in packed form. Again annex V specifically deal with discharge of garbage, plastic, but this annex is optional. However on the perusal of MARPOL 73/78one can not deny the fact that even though MARPOL provided consistent and
detailed provisions regarding ship based marine pollution but has failed to cover the vessel based solid waste comprehensively.

Part XI of UNCLOS 1982 obligated the sea bed authority to take all necessary steps for the protection and preservation of marine environment. The council of the sea bed authority conferred with the power to disapprove the areas for exploitation by contractors or by the enterprises, in case where substantial evidence indicate the risk of serious harm to the marine environment. Again Article 208 has conferred more discretion to the coastal states as a result state can frame soft norms to govern the sea bed activities. Such negligence can be contributed to two reasons first, these artificial islands are one of the prime sources of revenue and secondly, in comparison with other types of marine pollution, pollution that caused due to the sea bed activities is less, that is to say 5% but in fact in future the data would not be the same. In other words, the offshore installations have brought both the best and worst results on the society as well as on environment. One side these installations have contributed enormously to the world economy, growth and for higher standard of living. On the other side it has left profound adverse impact on the global environment. Hence, there is an emergent need for the formulation of specific legislations at various levels, to combat the marine pollution due to the sea bed activities. In addition all regional conventions presupposed the existence of specific international standards. UNEP Regional Seas Program concentrated on the re-affirmation of existing provisions of UNCLOS-III instead of establishing more straight and effective regulations. Hence especially the legislations to regulate the marine pollution due to sea bed activities are too weak, to regulate the said area.
One should appreciate the commitment of Indian Government to abate the pollution through its various legislations, regulations, and Notification. But it is not enough for the government to notify laws that are to be complied with. Now the policy elements seek a shift form making laws, towards actual implementation. Hence a positive attitude from each and every bit of the society is essential, for the prevention of pollution. In addition, wide consultation should be held with those who will ultimately implement the policy.

The pollution particularly affects the poor, on the other side various developmental activities contribute significantly to the various kinds of pollution and scientific, technological advancement and developmental activities are also one of the main sources of pollution. Therefore the government needs to ensure that, its policies should be based on a set of principles that harmonize the economic development and environmental imperatives. In recent years, the rapid growth of the electronics and IT sectors in India has given rise to the issue of e-waste management, which is now becoming a major problem. This is elaborated by the liberalized import of huge amounts of IT related equipments to cater for the needs of the booming software export and knowledge processing and out sourcing business. The e-waste typically from hard ware comprises of aluminum, cadmium, mercury, brominates flame retardants, complex plastic blends and huge quantities of lead. Unfortunately in India there are no specific environmental laws and guidelines to regulate the e-waste. How ever several provisions from the existing laws are applicable to the e-waste. Basically e-wastes are solid waste with hazardous nature. Hence the Hazardous Waste Management Rules and Municipal Solid Waste Management and Handling Rules 2000 is applicable to the e-waste But now
it needs separate or special reference. In other words growing usage of electronic objects result in to the e-waste generation and hence existing legislations are not sufficient to govern the e-waste, hence the establishment of new and sophisticated laws are in urgent need.

Normally the right is attached with the responsibility and similarly in international environmental law the right to explore and exploit the natural resources itself includes the responsibility of protection and preservation of environment.

However the international responsibility of states is a subject which has tendered the attention of scholars from long back. Codification of effective regime has become unsuccessful because of peculiar difficulties in the subject and also because of divergent views and interests to this context. State Responsibility is a fundamental principle of international law, arising out of the nature of the international legal system and doctrine of state sovereignty and equality of states. It has been provided that when ever a state commits an internationally unlawful act against another state, the state which has committed such violation is under international responsibility. Obviously breach of an international obligation gives rise to a requirement for reparation. Always there is a difficulty with regard to the principles relating to procedural and other consequences flow from a breach of substantive rule of international law

The essential characteristics of state responsibility hinge upon certain basic factors. They are (a) the existence of an international legal obligation between two particular states. (b). the occurrence of an act or omission in violation of that obligation and which is imputable to the state responsibility. (c). that loss or damage has resulted from the unlawful act or omission. These requirements have been made clear in a number
of leading cases. In the *Spanish Zone of Morocco claims* Judge Huber, emphasized that ‘responsibility is the necessary corollary of a right. All rights of an international character involve international responsibility, and responsibility is in the form of duty to make reparation in case of breach of obligation in question⁶. Similarly, In the *Chorzow Factory case*⁷, the Permanent Court of International Justice said that; it is a principle of international law, and even a greater conception of law, that any breach of an engagement involves an obligation to make reparation in the Rainbow warrior Arbitration case between *France and New Zealand in 1990*. The arbitration followed the incident in 1985 in which French agents destroyed the vessel Rainbow warrior in harbor in New Zealand. The arbitration tribunal decided that the law relating to treaties was relevant but that, the legal consequences of a breach of a treaty, including the determination of the circumstances that may exclude wrongfulness (and render the breach only apparent) and the appropriate remedies for breach, are subjects that belong to the customary law of state responsibility.

It was noted that the international law did not distinguish between contractual and tortuous responsibility, so that any violation by a state of any obligation of whatever origin gives rise to state responsibility and consequently to the duty of reparation—and the distinction has been draw between international crimes and international delicts, with in the context of internationally wrongful acts. Article 19 of the ILC draft provides that all breaches of international obligations are internationally wrongful acts. But, an internationally wrongful act that results from the breach of an international obligation

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⁶ Supra note no 5.
⁷ See PCIJ series A, no.17, 1928, page no 29.see also Corfu channel case, ICJ Reports, pp4,23,16 ILR, p.155.
which is essential for the protection of the fundamental interests of the international community is recognized as a crime, by that community as a whole, hence constitute an international crime. All other internationally wrong full acts are international delicts Article 19 has provided some examples of situations that may leads to international crimes. These include aggression, the establishment or maintenance by force of colonial domination, slavery genocide, apartheid and massive pollution of the atmosphere or of the seas. Accordingly, massive pollution of the seas and world oceans are considered as international crime. Again whether the state is criminally responsible for such crime is highly controversial, because there are contradictory of statements regarding this concept. On one hand International documents considered pollution of the marine as a crime and on the other hand these conventions are not firm about the sanctions, since it is highly impossible to punish the state as a whole. So still there are divergent views regarding the issues of sanctions for the international crimes.

The convention on hazardous and noxious substances has forwarded specific rules to deal with the problems relating to the liability and compensation in case of damage caused due to the hazardous and noxious substances. It is based on two tire system established under the CLC and Fund Convention. First tier imposed a strict liability on the ship owner for the damages caused due to the HNS up to certain limit for which the ship owner has to take up the insurance coverage. The second tier provides supplementary compensation for claims which remained unpaid under the first tier this supplementary compensation has to pay by a scheme or by a fund and financed by a levy paid by the shipping owner who deal with the hazardous substances.
The convention has forwarded an ingenious collection system, where each state party has to appoint one or more issuing agents who have to collect the levy against the sale of dangerous and hazardous substances. The rational behind such assistance is, many times the ship owner may not be able to pay the amount of compensation as a reparation for the damages caused due to the carriage of HNS, hence this provision entail the ship owner to make good the loss with the help of fund created by the convention.

States that are parties to the convention have decided for not to apply the liability system of HNS to ships of 200 gross tonnage and bellow, which carry only the Hazardous Noxious Substances in packaged form and are engaged on voyages between ports in the same state or between two neighboring states which can further agree to apply similar conditions to ships operating between ports of two countries. In order to ensure that, ship owners engaged in the transportation of Hazardous Noxious Substances should be able to meet their liabilities. The convention has introduced the compulsory insurance system. In addition certificate of insurance must be carried on board with a copy of record of registration of ships.

UN Charter placed the states under a general obligation to cooperate and resolve disputes peacefully. Most International Environmental Treaties have provided for the array of formal dispute settlement mechanisms ranging from informal consultation to formal arbitrations. In practice the formal dispute settlement procedures are rarely used in most International Environmental Treaties. However, several factors account for the lack of reliance on formal dispute mechanisms. They are the rules of decision in treaties are not well developed, thus involving great uncertainty for any parties to take resort for specific dispute settlement proceedings. Further we can find only hand full of ICJ
decisions especially with regarding to the issues relating to International Environmental Law. Moreover, the jurisdiction or authority of the formal dispute resolution mechanisms may be inadequate to ensure an effective remedy. Formal dispute mechanisms are slow and costly proceeding. Dispute settlement procedures may simply be inappropriate for reaching effective and practical solutions to the technical and difficult issues frequently posed by environmental treaties. Hence the states prefer to avoid taking resort to the formal dispute settlement procedures and gave importance to the dispute avoidance mechanisms. This shift to avoiding or preventing disputes is particularly important in the environmental field because it focuses on avoiding or preventing environmental harm. Further the transaction cost of dispute avoidance is lower then those of subsequent dispute settlement. In addition till the completion of formal dispute settlement proceeding, said non compliance environmental issue may cause irreparable loss or damage to the environment. Thus dispute avoidance mechanisms are closely connected with one of the most recognized principle of International Environmental Law viz, precautionary measures. In other words preventing environmental harm is better than compensating the damage that caused to the marine environmental. However Exchange of information through specific periodic reporting systems, Prior notification to the states who are likely to be in the danger, Consultation, Prior Informed Consent, Transboundary environmental impact assessment are the well recognized dispute avoidance mechanisms and part of maintaining good nibourlyness.

The obligation of states and procedures for settlement of disputes in peaceful manner is well established in international environmental treaties and also inserted in article 33 of the UN Charter. Article 33 has framed the procedures for the formal dispute
settlement mechanisms that are available to states including negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements or other peaceful means of their own choice. These mechanisms and other closely related measures are common provisions of most international agreements, including those related to environment. However, in practice the environmental disputes have rarely settled, hence instead of detailed dispute settlement procedures, extensive prominence is given to the efficacy of dispute avoidance mechanisms.

Normally when a party violates any treaty obligation because of political preferences rather then incapacity, the other parties may turn to diplomatic and public pressure, withdrawal of membership benefits, trade measures, or other sanctions to enforce the treaty. The most common means of responding to non-compliance is through diplomatic pressure. A number of environmental treaties have explicitly provided for the use of trade measures as a sanction for non-compliance. Most environmental treaties with trade sanctions, also control the movement of environmentally harmful substances or limit trade, that it self environmentally harmful. Best examples are the Montreal Protocol, Basel Convention etc. However rather imposing sanctions on non-compliance, giving much importance to the positive aspects of improvement of compliance measures is praiseworthy. In reality the existing liability regime is not at all sufficient and is very general and vague. For instance, all most all the treaty contemplated a general commitments concerning co-operation among the state parties. The vagueness and the uncertainty of such commitments raise doubts as to their binding nature and on possibility of enforcing international responsibility for their breach.
Further the nature and degree of international responsibility is varying as per the individual treaties and even according to individual obligations lay down in each treaty. Naturally such kind of provisions gives room for confusions and there by tenders further interpretation. Hence, especially with regarding to marine pollution we need specific, detailed and more sophisticated rules on liability. It can be done by introducing additional protocols to the existing convention or through establishing new treaty regime. More attention should be given to combat the marine pollution that can cause due to all kinds of solid waste. Since the accumulation of solid waste can be controlled to its maximum extent, because it is in the hands of the state organs and depends on how effectively a state has implemented the integrated solid waste management at various level.

The International Maritime Organization is the sole International organization working for the safety of ships and conservation of the marine environment. At the outset IMO gave much importance to the oil pollution and vessel based pollution and ignored all other sources of marine pollution that can be evidenced by the series of IMO conventions. Again drafting of IMO conventions are time consuming and too lengthy process. It means even though measures are developed at the IMO through deliberations, conferences and so on, to gain effect it needs minimum acceptance, hence there is a doubt regarding the future existence of the IMO. For this reason there should be a sort of compulsion, either in the form of pressure or in the in the form of encouragements to accept the international environmental treaty obligations and such pressures should not consider as a violation of the sovereign right of a state. Again the state should presume them self under solemn responsibility to accept the environmental treaty obligations.
However, as a matter of fact the very existence of the IMO is dependent on the degree of responsibility of the developed nations. In other words, soon after completion of the negotiation process of an agreement the developed nations must give serious consideration towards ratifying the instrument, if they do this, I think world community might hope for the conservation of the marine environment through the IMO. The developed states should give shoulder to the responsibility of ratification. Again the developing countries should bare the same kind of responsibility by recognizing that there is only one environment on earth planet, we all have to live in it and have to protect it for our next generation. Many times developed countries took the defense of lack of resources or lack of technology to go about implementing the international environmental instruments and it is the responsibility of the developed countries that should consider such problems to find a balanced approach.

Secondly, the UNEP has been recognized for its work done for the protection and preservation of the marine environment, but it is also not far from the loopholes. Sir Geoffrey palmer argues that although UNEPs accomplishments have been significant it is incapable of adequately addressing global environmental concerns. Again he pointed out that many of environmental problems were widely recognized but the logical interference from the facts seems politically unpalatable, the only way to cure the problem is to create the proper international environmental agency with in the UN system and also recognized that such reconstruction should be rigorous.

Further there is no machinery to evaluate the gaps that may be found in the international frame work of agreements or to develop means of assessing priorities among competing claims for attention. Nor there is any way to ensure that international
environmental issues are effectively co-coordinated and integrated at the global level. Literally hundreds of international institutions have laid some claim to a role in environmental protection, but not particularly regarding the marine pollution due to solid waste. Again the existing organizations are insufficient and not able to meet the marine environmental problems since these organizations have been handicapped with the budgetary problems, limited power and limited support. Hence no organization has the authority or political strength to work as a central clearing house or co-coordinator to curb the marine pollution in general and marine pollution due to solid waste in particular.

The survey of literature indicates that present conventions are not strong enough and effective to regulate the global problem like marine pollution as a whole and solid waste in particular. Again the existing international conventions and international machineries give much importance to the oil pollution and only few provisions have been addressed the marine pollution due to the solid waste. Besides the existing conventions have been conferred huge discretion to the state parties with out any stipulated standards, which ultimately results in to the establishment of ununified laws. Regional conventions have forwarded comprehensive regulations but with the limited application. In addition these regional conventions have presupposed the existence of the international standards which is vague and these regional seas conventions have just reaffirmed the existing provisions of UNCLOS 1982. Above and beyond the acceptance of treaty obligation rooted on the traditional concept of state sovereignty that causing abstraction to the implementation of treaty provisions. Hence the state parties should be very keen towards the survival of the earth planet. It can be achieved only
through the international co operation, value towards the concept of single globe which is our home. Again the world populations have to presume the protection and preservation of the marine environment as a solemn responsibility irrespective of nationality.

Stock Holm declaration has demonstrated that world has one environment so protection and preservation of world environment is the solemn responsibility of the world generation. However in the present scenario the protection and preservation of marine biodiversity is not only an ethical responsibility but it is inevitable for the survival of the species on the earth.

**SUGGESTIONS**

1. Article 207 of UNCLOS 1982 has conferred wide discretion to the state parties to formulate their own environmental legislations based on their socio economic conditions without stipulated standards, guidelines. UNCLOS 1982 is the only global convention that has addressed the marine pollution due to the land based waste in general and land based solid waste in particular. The article 207 is too vague because, *firstly, the discretion should be regulated through stipulated guidelines, standards, and frame work*. But in fact there is no any such fixed standards in the UNCLOS 1982. As per the UNCLOS 1982, state parties have to establish their own environmental legislations *based on their socio-economic conditions*. *Can we consider this provision as a frame work, stipulated standards?* If we considered it as a standard or frame work to construct the environmental legislation of a state
then there will be lots of difference between the laws of developed, developing and under developed nations. Again what will be the status of regulations established by the developing and under developed country in contrast with the developed countries? Can we compare the rules of developed country with the developing or under developed country, ultimately result in to the ununified environmental legislations which are not at all sufficient to regulate the global environmental problem like marine pollution due to the solid waste. Further these kinds of ununified laws are always problematical and give rise to new problems. Again, always states have to struggle to balance between the optimum utilization land, effective disposal of waste, and strict implementation of environmental policies, hence the states will prefer to frame soft laws by abusing the discretionary power conferred by the UNCLOS 1982. Hence the huge discretion conferred by the UNCLOS 1982 appears as a freedom to cause more pollution, rather to control.

Therefore there should not be any discretion which lack the predetermined standards, guidelines, and at least a frame work and these standards should be stipulated by the single international organization, and should based on the scientific research. Again there should be provision for the change of such standards as per the need or at least once in every two years.
2. One of the reasons for the increased marine pollution due to land based solid waste is improper management and implementation of land based environmental legislations. Since the marine is the ultimate sink for planetary waste and each and every bit of waste reach the marine sooner or later. **Hence the states have to frame too strict regulations without any exceptions especially with regarding to the land based solid waste and have to conduct and encourage research activities to find out the most advanced, eco friendly and economic form of solid waste management methods.** The rational behind such suggestion is, presently more then 70% of the total marine pollutants are contributing by the land based sources, and more then 80% of the solid waste generate on the land due to the anthropogenic activities. **Note worthy point is that there are many alternative solid waste management methods which can treat the solid waste effectively and also can produce energy, manure, and even raw materials.** There are certain sources which contribute significantly to the marine pollution and not possible to control such pollutants since, they also contribute significantly to the world economy; best example is sea bed exploration of natural resources. So the world community has to reserve the self purification capacity of the ocean to assimilate those waste that are inevitable and non avoidable. But the land based solid waste can be effectively regulated if the states formulated the stringent norms and effectively implement those norms.

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3. Further, world community should take steps to stop the solid waste at the source itself.

4. The protection and preservation of marine environment needs international co-operation, and there should be an effective machinery to facilitate such cooperation and also to follow-up the gaps.

5. Creating public awareness about the marine ecology and its limitations is of crucial importance. Because the each and every species on the earth contributes towards the marine pollution. Hence the effective control of the solid waste generation is largely depending on each and every bit of the society.

6. Again conservation of marine bio diversity contributes significantly to ensure the increased assimilative capacity of the oceans and generation of oxygen. Hence the conservation of marine biodiversity should be attained with the effective regulations at the various levels.

7. Indian laws for the protection and preservation of marine bio diversity is too week. Hence there is an urgent need for an effective legislation that can comprehensively cover the problems relating to the conservation of marine bio diversity.
8. The term dumping should be defined so as to cover waste even the waste from normal operation of the vessels, ships, offshore installations and other man made structures at sea.

9. Separate convention called International Convention on the Protection and Preservation of Marine Environment should be drafted. Because there is an urgent need to separate the environmental matters from the law of the sea.

10. Liability regime should be strengthened so as to effectively deal with liability and compensation related problems of all sources of marine pollution. At present the liability regime has concentrated much on the oil pollution related problems.

11. Indian laws relating to the conservation of marine environment is too pathetic and hence immediate attention should be given to frame effective laws to tackle the pollution at sea. Further rigorous steps should be taken to implement the existing legislations relating to the land based solid waste.

12. There is an urgent need for the establishment of an International Organization that can effectively deal with the marine environmental related problems.

The carcass of the organization should be as follows.
THE UNITED NATIONS ORGANISATION ON MARINE ENVIRONMENT

The salient features of the UNOME should be as follows

1. The said organisation should be conferred with the status of UN specialized agency.

2. The members of the UNO should ipso facto members of the UN organisation on marine environment.

3. The existing Regional organizations should work under the guidelines of the UNOME viz UNEP,

4. Marine should be divided as different regions as regional seas in order to cover the whole marine

5. Each region should contain one regional committee, one marine laboratory.

6. This regional committee should be conferred with the power to establish any number of subcommittees in the coastal zones, in order to facilitate the effective functions of the organisation

7. The organisation should be based on the self finance system and resource should be accumulated through the High Seas Committee.

8. High seas committee should be engaged in exploration activities on global common and common heritage of man kind, i.e. High Seas and sea bed. The explored resources should be distributed among the nations on equal bases for reasonable cost. If any country not required the resources as per the allotted quota then such country can convert it in to the monetary benefits as fixed by the assembly. There should not be any room for over accumulation of money in the
High Seas Committee hence the collected amount should be spend to compensate the damage caused to the environment as a whole. In addition the remaining amount should be spent on research and developmental activities that are helpful for the protection and preservation of environment of the earth planet.

9. The above said rule for exploration and exploitation activities should not applicable to the waters where the state can exercise its jurisdiction.

10. To avoid over exploitation of the marine resources, there should be a provision to review the quantity of exploration of sea bed resources every year. Stipulation of such quantity should be based on the scientific data.

11. There should not be domination by any nations hence every state should have equal right in all respect i.e. equal voting rights, equal share in the quota of resources. Effective steps should be taken to avoid the concentration of powers.

12. Each nation should have two representatives; any decisions should base on the majority of voting.

13. The said organisation should be based on the concept of earth planet is our home and protection and preservation of our home is the solemn responsibility of all human beings.

14. The developed states should share their concern towards the protection and preservation of the marine environment together with developing and least developed states.

15. The organisation should respect the basic human rights, and rights of the states.

16. Organization should have the enforcing authority
17. The organization should be give much attention towards the concept that “it is not a organization having political will rather it is a non profit organisation and should work for the protection and preservation of the environment”.

18. The carcass of the organization is as follows.

I. ASSEMBLY

It should be the prime organ of the UNOME, having decision making powers, composed with the 2 higher officials and necessary staffs. These members should be experts and selected on the bases of their qualification, experience, knowledge in the field of environment and their contribution to the world environment. The appointment should be for the period of 3 years, and can be re selected. The prime function of the assembly is to protect the marine environment from all kinds of pollutants.
1. **MEMBERSHIP:** All members of UNOME are ipso facto members to the UN Organization on marine environment. Assembly should be composed with the 2 representatives from each state. One Chairman, One vice chair men, panel of members.

2. **QUALIFICATION:** The assembly should be composed with the experts in the particular field. They should posses the authoritative knowledge and special skill in the field of marine science.

3. **POWERS:**
   1. Decision Making
   2. Law Making
   3. To establish necessary subsidiary organs
   4. To act suo moto when there is an apprehension of threat to the marine environment from any sources of pollution
   5. To conduct surveillance in order to avoid the marine pollution
   6. To take all necessary actions which are necessary for the protection and preservation of the marine environment

4. **SUBSIDIARY ORGANS OF THE ASSEMBLY:** Assembly should be conferred with the powers to establish any number of subsidiary organs that are necessary for the protection and preservation of marine environment. They are as follows
   a. Scientific Committee
   b. Legal Committee
   c. General committee
A. SCIENTIFIC COMMITTEE: The rational behind the establishment of the scientific committee is to conduct most advanced research which is necessary for the conservation of marine ecology. This committee should be filled with the experts, especially skilled persons. Again the member states have to encourage and contribute the experts to the scientific committee. Further the states should take voluntary steps to transfer the technology which is necessary for the protection and preservation of the marine environment but for a reasonable consideration.

Powers and functions of scientific committee

1. To conduct most advanced research that is necessary for the conservation of marine ecology from all kind of waste

2. To encourage research activities

3. To conduct Environmental Impact Assessment before any project that may leads to the marine pollution.

4. To collect samples frequently to determine the BOD and PH value of the marine water frequently at least for every 6months.

5. Provide such data to the legal Committee which are necessary to frame regulations to prepare draft conventions

6. Co-ordinate with the legal committee in all maters where the legal committee need advise, support from the scientific committee

7. To establish branches in all coastal states where it has to take all necessary steps for the conservation of the marine environment of that particular region, and has to forward report to the scientific committee.
8. To establish any number of branches for the effective conservation of whole 71% of earth surface.

9. Take all necessary steps for the protection and preservation of the marine environment.

10. Encourage research activities etc, to assess the allowable catch of the fishing resources, allowable exploration of the marine resources, to restore the assimilative capacity of the oceans.

B. LEGAL COMMITTEE

Legal committee should be assigned with the specific function to elaborate draft conventions which should applicable to all member states of the organization. The legal committee should specifically address each type of marine pollution comprehensively with greater particularity. Further it has to give importance to the negotiation and deliberations before concluding the draft convention. The legal committee should ensure the quick, effective, comprehensive process to give effect to any convention for the conservation of the marine environment.

POWERS AND FUNCTIONS OF THE LEGAL COMMITTEE

1. To draft comprehensive International norms, rules, regulations, frame work, standards etc, as per the need achieve the sole purpose of the organisation.

2. Amend existing conventions and take all steps to ensure the effective implementation of the primordial norms.

3. Conduct legal research to facilitate the most to trace out the effective set of regulations and to find out the loopholes in the existing systems.
4. Encourage legal research
5. Conduct deliberations, negotiations with state entities, non state entities.
6. Review the existing legislations and to conduct follow up actions
7. To take all measures to ensure the effective set of regulation to govern all kind of marine pollution

C. GENERAL COMMITTEE
This committee should facilitate for the smooth functioning of the organisation. It means it should act as supporting organ for the organisation

POWERS AND FUNCTIONS OF THE GENERAL COMMITTEE
1. public awareness, with this end the committee has to conduct world wide programs
2. Conducting seminars, conferences, meetings etc.
3. Special attention towards the areas having grave threat of pollution
4. Call regular report from the regional committees and forward it to the assembly
5. To do all functions as imposed by the other organs of the organisation.

II. SECRETARIAT
It should perform all budgetary functions of the organisation including the following
1. Make arrangements for needed budget
2. Collect accounts from the Committee on the High Seas
3. Grant budget to all other organs of the organisation
4. Submit accounts to the assembly
5. and all other functions of financial nature

III. COMMITTEE ON THE HIGH SEAS

This committee is assigned with the function to secure the finance to the organisation. It should engage in the activities of exploration and exploitation of the seabed area and conservation of this area. The explored resources should be distributed among the nations on equal bases for reasonable cost. If any country not required the resources as per the allotted quota then such country can convert it in to the monetary benefits as fixed by the assembly. There should not be any room for over accumulation of money in the High Seas Committee hence the collected amount should be send to the secretariat and spend to compensate the damage caused to the environment as a whole. In addition the remaining amount should be spent on research and developmental actives that are helpful for the protection and preservation of environment of the earth planet.

IV. ENFORCING AUTHORITY

It should perform the functions relating to the enforcement of treaty provisions and to compel to comply with the treaty obligations.

THE POWERS AND FUNCTIONS OF THE ENFORCEING AUTHORITY

1. Implementation and enforcement of treaty provisions
2. It should be the policing authority
3. Power to impose the strict obligation on states in consultation with assembly in case of non compliance by the states to the treaty provisions
V. WORLD MARINE COURT

It should deal only with the marine environmental and related matters. It should be composed with the 5 bench; decision should be based on the majority vote of these judges. Decision should be made with in the short span i.e. maximum time limitation is 5-8 months from the date of institution of the suit. Decision of the court is final and binding on the states the aggrieved state may have resort to the ICJ. Further the decision should be made with the help of scientific and other committees.

ADVANTAGES OF THE UNITED NATIONS ORGANISATION ON THE MARIEN ENVIRONMENT

1. **Sole Machinery** the deal with the marine environmental related matters
2. **It avoids the overlapping** application of marine environmental agreements
3. Governed by the **single and effective machinery** that can enforce the treaty obligations on the states.
4. **Need not struggle for the finance because it is based on the self finance system** so need not depend on the developed nations, since the UNEP is suffering from the lack of finance
5. **Equal distribution** of the resources available at the sea bed area
6. **States can gain benefits** through less and proper utilization of the marine resources that indirectly encourages the conservation of marine resources.
7. **No need to struggle to obtain the consent** of the states to the International environmental treaties.
8. The treaties are based on the **scientific, accurate and resent data** that has been forwarded by the laboratory of the **UNOME**