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Protection of Marine Resources in the Seabed: International Perspective

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ABSTRACT

Earth appears to be blue as seventy percent is covered by water which consist of living and non-living organisms, minerals, gases and metals especially found in the seabed. A major portion of the seabed is yet left unexplored. But whatever explored so far is posing existence issues due to the overexploitation and uncontrolled events happened in the seabed. This may be a nuclear testing, emplacement of weapons or deep-sea mining or even the scientific research. Due to the density variation and high vacuum level in the water it is often cumbersome to find what is happening even in the seabed under the territorial control of the nation. This paper discusses various concepts with respect to protection of marine environment and analyse the existing legislative framework at the international level to protect the marine resources in the seabed. The paper further gives thrust to the role of international institutional and judicial framework in enhancing protection of marine resources. The paper critically analyses how far the existing laws are capable of protecting marine environment at international level and put forth suggestions for better protection.

Keywords: *Marine Resources, Law of Sea, seabed, ecosystem.*

I. INTRODUCTION

The planet where we live make us live as there is presence of adequate amount of water, atmosphere with abundant of oxygen. The life of any organism in the earth is based on these two elements. The question as to presence of art or science behind the formation of organisms in the world is yet a mystery. The water in the earth is found as oceans, seas, lakes, estuaries, rivers etc. which has living and non-living organisms. Among this ocean is the vast waterbody and consists of living and non-living organisms of uncountable varieties, minerals, metals and gases of rare and valuable nature where some are explored by human being through the technology while a major portion is left unexplored due to many circumstances such as depth, density, lack of atmosphere, light and many other reasons. It can be noted that the use of sea was first done for fishing to meet the sustenance purposes. Due to absence of inventions and technology, the people lived in those times were disabled to explore or exploit the marine

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resources recklessly. Development of man has further led to use of sea for navigational purpose to explore other piece of lands. By the colonial era the ships and sisters were noted plenty in the sea and use of sea was also done for the First and the Second World war. But the thorough use of sea for war was traced in the second world war where the Indian Ocean was the main trade route by the nuclear power states i.e., China, United States, United Kingdom, Russia and France. Aftermath of this was sinking of ships and remains rusted in the seabed which has led to alteration of marine environment in the seabed. With the globalization, the use of sea for trade and commerce has increased and hence led to pollution from ships, or post disaster effects or sound or other disturbances due to deep-sea mining or scientific research. Even though it is reportedly appeared to be controlled scientific research at time the events lead to uncontrollable situation makes disastrous consequences in the seabed. With the advent of digitalization, the communication and connectivity intercontinentally are given paramount importance and hence optic fibre cables facilitating this service run through the seabed. In addition, there are several underwater military bases set up by the nuclear power states to make themselves prepared for war at any time. Even though it is said that the legislations at international level prohibits the emplacement of weapons and other such materials, this is not been addressed or eliminated as per the law requires. In addition, the nuclear power states such as the United States and Russia are continuously engaged in testing of nuclear weapons in the sea which also causes disturbance to the marine environment as a whole. In this overview, there is a need to understand the concepts involved in the subject matter in hand which will be helpful for better understanding and analysis.

II. CONCEPTS

The major concepts to be discussed herein includes marine environment, seabed, pollution and maritime zones. The need is to understand the idea and meaning of the term used in the topic to provide best analysis and outcome.

Firstly, seabed means sea floor or ocean bed.³ As per the U.S. Code, deep seabed consists of seabed and ocean floor in a depth of ten meters situated seaward of or outside the continental shelf of any nation or any area beyond the continental shelf where the territorial jurisdiction is recognized by the United States.⁴ The term seabed is not defined under the United Nations Convention on the Law of the Sea III which is recognized as the magna carta of legislative framework in dealing subjects regarding sea and its subsoil thereof. The concept of seabed gives

³ Merriam Webster, 'Seabed', <<https://www.merriam-webster.com/dictionary/seabed> > last accessed on 23 July 2022

⁴ Cornell Law, 'U.S. Code' <<https://www.law.cornell.edu/uscode/text/30/1403> > last accessed on 23 July 2022

the impression that it is the topmost surface beneath the sea and can be also regarded as seafloor or the ocean floor. This surface is also regarded as oceanic crust which is thinner than the continental crust which is between 20-40km thick.⁵ The topography continental shelf, continental slope, rise, margin and deep ocean floor.⁶ The seabed is always exposed to catastrophic events such as debris landslides, under current, land displacement, tsunamis etc. The gas present in the deep seabed is biogenic and the living organisms there are found not attractive. The mostly found polymetallic deposits in the seabed are ferro-manganese and massive sulphides.⁷ The sea floor also witnesses and expose to volcanic activities leading to discharge of gases and fluid of unique nature. The seabed is found to be complex with advancing maritime zones.

Secondly, marine environment means the waters capable of navigation in the waters of the territory and land and resources in and under water which include fishery resources, seabed, subsoil and resources at the continental shelf and others having economic and scenic values.⁸ Marine environment includes fauna, flora, minerals, oil, gases and many other components that are yet to be discovered. According to National Geographic Society, the marine environment is the aquatic environment with higher level of dissolved salts found in or near ocean and consist of living and non-living organisms.

Thirdly, maritime zones are the zones narrated under the United Nations Convention on the Law of the Sea III i.e., the territorial waters, contiguous zone, exclusive economic zone, continental shelf and high seas. As per the UNCLOSIII the jurisdiction decreases with advancement of maritime zones. And High seas are regarded as the common heritage of mankind. The nature of marine resources also varies with the zones. It is further mandated by the same legislation that the maritime waters shall be used only for peaceful purpose and marine environment here shall be protected, conserved and preserved sustainably.

Lastly, marine pollution means pollution of marine environment. According to United Nations Group of Experts on Scientific Aspects of Marine Pollution, marine pollution an introduction made by man either direct or indirect resulting in the harm or damage to resources in the marine environment. Article 1(4) of the UNCLOS III defines pollution of marine environment as introduction of materials or elements directly or indirectly by man causing minor or substantial

⁵ Alvar Braathen and Herald Brekke; "Characterizing the Seabed: a Geoscience Perspective" Catharine Banet (ed) "The Law of the Seabed Access, Uses and Protection of Seabed Resources" Brill Nijhoff, 2020

⁶ *ibid*

⁷ See R. Sharma (ed.), *Deep-Sea Mining. Resources Potential, Technical and Environmental Considerations*, (Springer International Publishing, 2017).

⁸ Uslegal, 'Marine Environment' <<https://definitions.uslegal.com/m/marine-environment/>> accessed on 23 July 2022

harm to the marine environment, or change the quality of the sea water or its compositions etc. Article 1(4) of the 1996 Protocol to London Convention on Dumping defines pollution as the human activity that directly or indirectly result in the hindrance in smooth living of marine species and also causing of damage of marine environment. The elements or factors leading to marine pollution can be failed scientific research, land-based pollution, militarization and emplacement of weapons in the seabed, noise pollution in the sea, waves and vibration used for communication and monitoring purpose, over mining, accidents at the sea, war, natural disasters etc.

From the conceptual analysis of important terms, it can be understood that there are complexities involved in regulating seabed with the advancement of maritime zones. Let us now analyse the historical perspectives with respect to marine resources in the seabed and its protection.

III. HISTORICAL APPROACH

The relation between man and the sea dates back to time immemorial and the trace of navigation through sea to carry out trade has been traced since 3000BC when India and Babylon have conducted continuous transport of commodities through ships and vessels.⁹ During 1500 B.C., mass migration of people were conducted through sea. Apart from this, the Rhodian law during that period extensively talked about the principles of trade through sea and emphasized on freedom of sea. With the beginning of colonial era i.e., since 1400 A.D. it is found that the colonial power states such as Dutch, Portuguese, Britain and other such states have rigorously utilized to discover new territories to convert them to colonies.

Thereafter the concept of *Mare Liberum* came into picture. The outbreak of the First world war was on 1914 where the belief of “command on the sea will decide the victory in the battlefield”.¹⁰ Aftermath of the World war was many U-boats sank and cruises set on fire at the sight and many died and sank in water turning the blue oceanic water red.

Thereafter the outbreak of second world war made Indian Ocean an important maritime trade route by most of the European Countries. During the war many warships sank in the Indian Ocean, Atlantic Ocean and Pacific Ocean and sedimented to the seabed which rusted and polluted the marine environment. Also, there were warships set in fire leading to pollution of

⁹ R.P Anand, ‘Origin and Development of the Law of the Sea’, Martinus Nijhoff Publishers, 1933, page 4

¹⁰ Ellen Castelow, ‘World War One at Sea’, (Historic U.K, 03 April 2017) <<https://www.historic-uk.com/HistoryUK/HistoryofBritain/World-War-One-At-Sea/#:~:text=The%20war%20at%20sea%20was,and%20a%20rare%20British%20defeat.>> accessed on 23 July 2022

marine environment.

The talk about conservation and protection of marine resources comes when the pollution comes into picture. In this regard the categories of pollution are divided into two- land based pollution and seabed pollution. According to human activity, marine pollution can be divided into disposal of domestic sewage, industrial and agricultural waste, ship-based pollutants, radioactive waste from nuclear test and military uses in oceans.¹¹ These led to oil pollution in seawater and protection and conservation of marine environment came into picture. The efforts for protection of marine environment right from the beginning can be done by analysis of international legal framework on protection and conservation of marine environment.

IV. INTERNATIONAL LEGAL FRAMEWORK

The efforts to conserve, preserve and protect environment commenced right from 1950s. The first and foremost initiative to address different maritime zones by adoption of three conventions namely, The Convention on the Territorial Sea and Contiguous Zone, the Convention on High Seas and the Convention on Fishing and Conservation of the Living Resources of the High Seas together known as the United Nations Conference of Law of the Sea held at Geneva in 1958. It aims to prohibits sea pollution by oil and radioactive wastes. The Second United Nations Convention on the Law of the Sea was held in Geneva which was identified to be not fruitful. Thereafter a codified law to regulate sea i.e., United Nations Convention on Law of the Sea 1982 where 160 nations participated and Convention came into force on 16th November 1994. Article 56 of the UNCLOS III specifically states that the states shall exercise jurisdiction to conserve, preserve and protect the marine environment in the Exclusive Economic Zone. Article 123 (b) calls for cooperation of states sharing the maritime borders and semi enclosed areas in preservation and protection of the marine environment. Further Article 145 deals with protection of marine environment wherein it empowers authorities to craft rules and regulations to reduce, prevent and control pollution from oil, disposal of wastage, drilling, maintenance of installations in the seabed etc. Part XII of the Convention exclusively deals with the protection and preservation of the marine environment. The states are given sovereign rights to exploit marine environment in par with the environment policies and protection measures.¹² The states shall further make consistent monitoring and evaluation of risk and pollution of marine environment with respect to exploitation for the purpose of scientific research or installations or fisheries etc.¹³ Article 194 deals with taking of appropriate measures by states to prevent

¹¹ E.P. Andreyev, *"The International Law of the Sea"*, Progress Publishers Moscow, 1988, p. 179.

¹² Article 193

¹³ Article 204

pollution and protect marine environment. The law permits to exercise national jurisdiction in case of pollution from seabed activities such as scientific research, installations, structures etc. Considering the reckless dumping of weapon and nuclear waste into sea in post second world war, art.210 has been introduced to reduce and control pollution by dumping. In order to avoid pollution from the ship, seaworthiness of the ship is mandatory to sail. This aspect is covered under art. 219. Even though plenty provisions are present, there is no amicable provision imposing liability or which court has jurisdiction to take up the cases against the responsible states.

The Antarctica Treaty 1959 aims to protect the marine environment of Antarctica from scientific research, military uses, nuclear testing and such other activities which do not come within the purview of peaceful purposes. Article I of treaty mandates that Antarctica shall be used for peaceful purposes only and the area is prohibited from carrying out any sort of establishment of military bases or testing of nuclear weapons or emplacing weapons in the Antarctica seabed or premises. Article II caters for freedom to conduct controlled scientific research but it shall not pose threat to the Antarctica environment. Article V imposes complete prohibition to nuclear activity in Antarctica and disposal of radioactive nuclear waste there. There is no provision narrating the liability of the wrong doer or the responsible states and also any sort of compensation is mentioned under this legislation. Note that there is no such treaty to protect the Arctic area and this area presently caters for newly formed navigable waters.¹⁴ There is reckless use of the area by many states is identified in past two decades.

The International Convention for the Prevention of Pollution of Sea by Oil 1954 resulted from the oil pollution issues pertaining to regular ship board operations. The term oil is defined under Article 1(1) where it includes fuel oil, crude oil, lubricating oil and anything of oily nature. Article IV deals with applicability of the Convention where exception is given under Article IV which gives green signal for oil spillage in case of saving life at sea, safety of the ship or to prevent damage of the ship. Penalty for wrongdoer is provided under Article VI which will be according to the territorial laws of the state so affected. The inefficiency of the Convention was identified in 1970 after Great Barrier Reef Incident where an oil tanker of flag of Liberia with crude oil struck an uncharted rock in Torres Strait leading to significant spill. Amendments were made thereafter to implement the provisions of the convention without hurdles.

The Nuclear Test Ban Treaty or Treaty Banning Nuclear Weapons Tests in the Atmosphere, in

¹⁴ Henry Feron, “A New Ocean: The Legal Challenges of Arctic Thaw” *Ecology Law Quarterly*, 2018 Vol 45 No. 1, p.83.

Outer Space and underwater 1963 came after the increasing concerns with regard to the presence of radioactive particles in the atmosphere and at sea due to the increased nuclear weapon test by the nuclear power states across the world. This was in array with pre cold war. It permits underground testing of nuclear weapons with no inspection or control. Being the Nuclear Power States, United States and China has not yet ratified the Treaty. Also, there is no mechanism to cater for compensation or impose liability under this Convention.

The Treaty on Prohibition of the Emplacement of Nuclear-Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof also known as the Seabed Treaty 1971 aimed to prevent the nuclear race in the seabed and ocean floor and giving paramount importance to marine environment and elements there. This treaty does not contain any provision as to jurisdiction or liability; at the same time, it caters for withdrawal from the treaty by giving notice to the member states. The action of United States in 2020 in this regard ipso facto shows that the treaty is toothless.

The Non-Proliferation Treaty 1971 was enacted considering the danger involved in nuclear war to the whole mankind.¹⁵ The treaty divides the states into two categories i.e., nuclear power states and non-nuclear power states. Article II and III prohibits transfer, transit, manufacture etc. of the nuclear weapons or weapons of mass destruction or to receive from other states. It allows use and test for peaceful purposes.¹⁶ It imposes the same restriction to nuclear power states i.e., Russia, China, France, United States, United Kingdom and Russia. It does not talk about jurisdiction, liability or compensation by the responsible states in tis regard. Like the Seabed Arms Control Treaty, it caters opportunity to withdraw from the treaty by giving notice to the member states.

The Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 aims to protect marine environment from damage arising from dumping of hazardous wastes and other matters posing threat to the marine ecosystem. Article III defines dumping as deliberate disposal of waste or hazardous material at sea from vessels, aircrafts or from man made structures; but does not include those derived from normal operations at sea or disposal which is not contrary to the Convention. Annexure I of the Convention gives the prohibited materials for disposal and Annexure II deals with those which has to be disposed with prior permission. Article X mandates the member states to develop the procedure to settle disputes and assessment of liability which is not yet been made to practice by many of the member states.

¹⁵ United Nations, 'Treaty on the Non-Proliferation of Nuclear Weapons'
<<https://www.un.org/disarmament/wmd/nuclear/npt/text/>> last accessed on 23 July 2022

¹⁶ Article IV

Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency 1986 aims to ensure high level safety in nuclear activities, cater for mutual assistance and international co-operation for safe and damage free development of nuclear activities. Article 2 caters for assistance through International Atomic Energy Agency to minimize consequence to life, property and environment. It also mandates the captain of the vessel to give notice of such accident to all territories so as to take immediate measures to prevent or reduce the impact of pollution caused by such emergency. The cost incurred by the Assisting Party shall be reimbursed as per art. 7 of this Convention. Article 10 caters for compensation to the affected state. Even though the convention aims to reduce and prevent marine pollution during the outbreak of nuclear emergency in many cases it was found that the environment is greatly vitiated through the activity. Also, there can be no action in cases where the emergency happens in the high seas.

The United Nations Convention on Biological Diversity 1992 aims to sustainable use of resources including marine resources, its equitable sharing and access through technology or any suitable method and to prevent over exploitation.¹⁷ Article 3 of the Convention deals with principle of jurisdictional scope where it is narrated that the states have sovereign right to exploit their own resources as per their environment policies in such a way that their activities do not curb the jurisdiction and interest of the other states. The convention calls for international cooperation of states in protecting the biological components and diversity¹⁸ and municipal level achievement can be done through awareness programmes to the population.¹⁹ Article 14 provides provision for compensation and mandates impact assessment so as to minimize to ensure zero damage on environment.

Convention on Cybercrime 2001 recognizes certain acts as crimes in the cyber space. It includes cyber terrorism, hacking, impersonation, etc. which may access the installations or submarines or military bases set up in the seabed or the ocean floor and causes attack or accident leading to the marine environment damage. The convention identifies illegal access as a crime and mandates the member states to criminalize at the territory level and make necessary norm to regulate the same.²⁰ Article 6 deals with misuse of devices which includes the devices working with artificial intelligence too. There is no provision for compensation given in this Convention.

The Responsibility of States for Internationally Wrongful Acts 2001 makes the state committing

¹⁷ Article 1

¹⁸ Article 5

¹⁹ Article 13

²⁰ Article 2

wrongful act as responsible state at international parlance.²¹ Article 2 deals with the elements of internationally wrongful acts i.e., act or omission attributable to state under international law and there must be a breach of international obligation of the state. The states are entitled to take exception in case of self-defence, distress, necessity, compliance of peremptory norm, force majeure or consent of the affected state is involved. Article 34, 35 and 36 caters for remedies in the form of reparation, restitution and monetary compensation. It is mandated that the remedies shall always be in satisfiable form.

Draft Articles on Transboundary Harm of Hazardous Activities 2001 is adopted by International Law Commission in 53rd Session held in 2001 which is applicable to activities which are not prohibited by international law which involve risk of causing significant transboundary harm through their physical consequences. Article 2(c) defines transboundary harm as harm caused in the territory or an area under the territorial jurisdiction of other state sharing a common border. The convention recognizes degree of risk and opportunity to prevent harm, importance of activity and advantages, economic viability and such other matters as equitable for balance of the interest.

Apart from the international instruments, there are regional legal framework to protect marine environment. African Charter on Maritime Security and Safety and Development in Africa also known as the Lome Charter prohibits deep sea fishing activities and concerns about protection of marine resources.²² Article 3 of the Charter deals with objectives out of which one of the objectives is to protect marine environment. The flag state and the port state shall have responsibility to take jurisdiction for any activity curbing the protection of the marine environment. European Union has adopted two major instruments to deal with marine environment i.e., Recommendation on Integrated Coastal Zone Management 2002 and Marine Strategy Framework Directive 2008. The former deals with protection of coastal environment and immediate seabed and the later provides for establishing protected areas, identification of marine regions and sub-regions and mandates for regional cooperation. It has now come to the active knowledge that there are amicable laws to protect marine environment including the seabed. Availability of law will not suffice the objectives and aims of the legislations. There is a need to check the availability of the executing authority of such legislations.

²¹ Article 1

²² African Union, 'African Charter on Maritime Security, Safety and Development' (African Union, 15 October 2016) <https://au.int/sites/default/files/treaties/37286-treaty-african_charter_on_maritime_security.pdf > accessed on 23rd July 2022

V. INTERNATIONAL INSTITUTIONAL FRAMEWORK

The institution which takes care the entire maritime subjects is International Maritime Organization whereas the authority that exclusively deals with the seabed is International Seabed Authority established under the United Nations Convention on the Law of the Sea 1982.

In the mid-nineteenth century there were amicable number of treaties entered by nations to ensure and mitigate safety issues at sea and actions taken were found to be ineffective. Several nations across the world demanded for a permanent body at international level to ensure maritime safety. In this regard International Maritime Organization Convention was enacted in 1958. Article 1(a) narrates objectives which includes adoption of highest standards to prevent, reduce and control marine pollution and to enhance, protect, conserve and preserve the marine environment. IMO played a significant role in enforcing the international laws with respect to oil pollution in Torrey Canyon disaster of 1967 leading to spillage of 1,20,000 tonnes of oil. Till date IMO is playing active role in mitigating maritime issues at the sea.

International Seabed Authority is an autonomous international organization established under UNCLOS III and 1994 Agreement relating to implementation of the UNCLOS; came into existence on 16th November 1994 and became completely operational by 1996. It exclusively deals with activities related to deep seabed.²³ The main organs are Assembly consisting of 167 member states along with European Union with power to establish general policies and approve recommendation by the council; Council consists of five groups i.e., consumers, investors, exporters, Developing states and special interest and equitable geographic representation; Legal and Technical Commission, Economic Planning Commission, Enterprise and Secretariat. It plays remarkable role in ensuring deep sea mining, underwater scientific researches etc.

Apart from institutional framework, the actual role of the legislation comes when interpretation takes place to settle or deliver justice to the affected party. The international judicial system has already dealt several cases with regard to protection of marine environment in the seabed and hence there is a need to check how the judicial system interpret the discussed laws on marine environment protection.

(A) Role of International Judicial System

The main bodies constituting judicial system in case of marine environment protection is the International Court of Justice established under the UN Charter, the International Tribunal of Law of the Sea established under the United Nations Convention on the Law of the Sea 1982

²³ International Seabed Authority, 'About ISA (ISA, 2022) <<https://www.isa.org.jm/about-isa>> accessed on 23rd July 2022

and Arbitrational authorities. In order to impose liability for marine environment protection, the foremost requirement is the possibility of exercise of jurisdiction discussed in the S. S. Lotus case²⁴ where the Permanent Court of International Justice observed that “the first and foremost restriction imposed by international law upon a state is that-failing the existence of a permissive rule to contrary- it may not exercise its power in any form in the territory of another state. In this sense, jurisdiction is certainly territorial; it cannot be exercised by a state outside its territory except by virtue of permissive rule derived from international custom or from a convention”.

In South China Sea Arbitration²⁵ interpret the term military activities in the seabed and ruled that such activities represent territorial centred conflict with territorial military i.e., Philippines against of other state i.e., China stand in opposition to the other. In the Corfu Channel case²⁶, principle of the Rio de Janeiro declaration which narrates activities conducted by the states in their territorial control should not create any distress to environ of the other state. Further in Costa Rica v. Nicargua²⁷, it was affirmed that requirement of EIA is required to minimize the impact on environment due to human activities. In Chorzow Factory case²⁸ ruled that principles of state responsibilities and repairing damage and recent proposals to carve the right to clean and lifeful environment.

There are two main doctrines on compensation i.e. the Hull Doctrine and the Calvo Doctrine. The Hull doctrine came into existence through the letter written by Cordel Hull, Secretary of the United States to the Mexican Government upon the expropriation done by Mexican Government to the lands owned by the United States citizens, wherein it is claimed that compensation shall be prompt, adequate and effective. In this letter, the word ‘prompt’ means owner herein shall be compensation in no lapse of time; ‘Adequate’ means fair valuation of compensation by considering several factors and the term ‘effective’ stood for realizable form of compensation. Hull doctrine has paved way to just and fair compensation. This doctrine has further affirmed in the Chorzow Factory case²⁹ and the Norwegian Shipowner’s Claim case³⁰ as just compensation standard and fair compensation standard respectively. Other than the Hull Doctrine, Calvo Doctrine plays an eminent role in case of compensation. Upon rejection of Hull Doctrine my many states, Calvo Doctrine was introduced by Carlos Calvo i.e. states shall not be forced to pay prompt, effective and adequate compensation. By this, it means that immaterial

²⁴ France v Turkey (1927) PCIJ Series A, No 10

²⁵ Philippines v. China (2016) PCA ICGJ 495

²⁶ UK v Albania (1949) ICJ Rep. 4

²⁷ Costa Rica v. Nicaragua (2018) ICJ GL No.150

²⁸ Chorzow Factory Case (1927) PCIJ Series A, No.8/9

²⁹ Chorzow, Germany v. Poland (1927) PCIJ 247

³⁰ Norwegian Shipowner’s Claims, Norway v. United States (1922) PCA ICGJ 393

of the outcome, foreign investors may not be treated better than the citizens in the expropriating state.³¹ The Calvo Doctrine has more application in investment contracts.

Further, it is opined by several authors that the said compensation standard is first stated in the United Nations General Assembly Resolution No. 1803 on Permanent Sovereignty on Natural Resources dated 14th December 1962 wherein it is stated that, the permanent sovereignty right of peoples and the states with regard to natural wealth and resources shall be exercised in the national development interest and the welfare of the people of the concerned state.³² Declaration on the Establishment of a New Economic Order³³ and Charter of Economic Rights and Duties of the States³⁴ are such other documents of the United Nations that has relied on appropriate compensation. In the latter document, article 2 (2) (c) narrates that ‘appropriate compensation’ shall be paid by the state by taking account of concerned laws and regulations and circumstances that it finds important.³⁵ Apart from these legislations, there is a need to check whether the laws subject in hand provides for provisions relating to compensation. That is whether any compensation provision is available in case of weapons in the seabed and consequences thereof. For the same, there is a need to analyse the provisions pertaining to arms control and non-proliferation and also under laws regulating on subject upon which it has affects.

International Monetary Fund’s description of financial situation of Venezuela after the imposing USD 8.7 Billion in the celebrated case of Conocco Phillips Petrozuata BV and Ors v. Venezuela³⁶; to show the Tribunal’s failure to consider the present condition of the state in violation. International law right from the beginning revolves around the full reparation of damage which is ipso facto evident from the decision of Permanent Court of International Justice in Factory at Chorzow case (Germany v. Poland³⁷), wherein it was held that the damage caused due to violation by one state shall be healed through full reparation in such a way to retrieve the status quo. Similarly, the European Court of Human Rights awarded compensation of EUR 1.86 billion in a case where there was violation of human rights against Russia.³⁸

There is a need to look the compensation aspect in environment harm in the international sphere

³¹Indirect Expropriation in International Law (Sebastian Lopez, 2015)

³² Resolution Adopted on the Reports of the Second Committee; also available at (https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/1803%28XVII%29 > last accessed on 23 July 2022

³³ A/RES/3201 (S-VI)

³⁴ *ibid*

³⁵ Article 2(2)(c) in A/RES/3281 (XXIX)

³⁶ Conocco Phillips Petrozuata BV & Ors v. Venezuela ICSID Case No. ARB/07/30, Award, 8 March 2019 at 1109

³⁷ *Supra* n2

³⁸ *Neftyanaya Kompaniya Yukos v. Russia*, Judgement on 15 December 2014

through the lens of decisions in *Costa Rica v. Nicaragua*³⁹ and *Burlington Resources Inc. v. Republic of Ecuador*⁴⁰ by the International Court of Justice (ICJ) and International Center for Settlement of Investment Disputes (ICSID) in 2018 and 2017 respectively. In *Costa Rica* case, the factual matrix is based on the international violation of sovereignty rights of Costa Rica by Nicaragua through gouging three channels for founding military presence of Nicaragua and caused environmental damage. In *Burlington Resources* case, foreign investors have violated the domestic environmental law and the case revolves around international investment.

The role of judiciary in preserving marine environment, its reparation, restitution and compensation is enormous; but at the same time, it can be found that the courts have failed to extend its power to best delivery of justice in case of marine environment damage by over inclination to victim leading to unsatisfactory remedies throughout. Also, the compulsion of courts in limiting exercising jurisdiction of states territorially is leading to further chaos as the responsible states are given chance to evade from its international obligations. As of now, this research paper has made extensive discussion on international legal, institutional and judicial framework of marine environment protection with regard to seabed and hence there is a need to check the effectiveness of legislative, executive and judicial system at the international level with regard to protection of marine environment in the seabed.

(B) Analysis of Effectiveness of the Systems

With regard to the protection of marine environment in the seabed, there are bundle of laws to regulate, authorities to implement and judiciary to interpret the legislation at international level, still the subject is facing numerous problems to ensure healthy marine environment. The undermentioned are the shortcoming incurred by the existing laws which are narrated briefly.

Firstly, the Seabed Arms Control Treaty and the Non-Proliferation Treaty fails to implement strictly. This is evident from the establishment of military bases in the seabed by the United States, Russia and China. With regard to optical fibre cables used for inter-continental communication and connectivity purpose, is majorly owned by China and is doing maintenance of the same in the seabed causes noise and disturbance in the area leading to fluctuation of ecological balance there.

Secondly, the judicial system and the law mandates states to limit jurisdiction with advancement of maritime zones. In the beginning, the paper talks about the geological difference between the earth's crust and the seabed and seabed starts from the Exclusive Economic Zone where states

³⁹ *Costa Rica v. Nicaragua* (2018) ICJ GL No.150

⁴⁰ *Burlington Resources Inc. v. Republic of Ecuador* (2017) ICSID Case No. ARB/08/05

are given power only to exploit marine resource and if shared by other states, co-operation is mandated. Due to diminishing jurisdictional power, in many cases affected states could not even reach in the vicinity of remedy and justice in the name of “lack of jurisdiction”.

Thirdly, with respect to pollution, it is not necessary that damage to marine resources in the seabed occur where the pollution has occurred. That is if spillage is happened in Arabian Sea its effects can be in the seabed of Indian Ocean. Therefore, there is a confusion that still exists with respect to jurisdiction of states in this regard.

Fourthly, the courts are more inclined towards victim state and not consider the financial situation of the responsible state make it unsatisfactory to the victim state which is almost equivalent to denial of justice.

Fifthly, the Nuclear Test Ban Treaty is found ineffective as nuclear power states are still engaged in manufacturing and testing of nuclear weapons in the sea. The example is Russia’s testing of Tsunami bomb.⁴¹

Lastly, the continuous presence of unmanned or autonomous vehicle or submarine in the seabed with artificial intelligence would probe the marine environment at seabed to threat as communication signals would disturb the marine environment.

VI. SUGGESTIONS

In the light of discussion and analysis of the marine environment protection laws, role of the judiciary and authorities, following suggestion is put forth to ensure sustainable use of marine environment at the seabed.

Firstly, there shall be strict framework of jurisdiction in all the legislation covering every aspect of happening a crime or wrongful act leading to breach of protection, conservation and preservation of marine environment.

Secondly, proper liability provisions shall be inserted in legislation to make states deterred and understand their scope and magnitude of liability for commission or omission of acts leading to damage of marine environment in the seabed.

Thirdly, there shall be a sharp and strict law that regulates the activities of nuclear power nations and developed nation to curtail their waiving and evasion from several activities leading to marine environment damage in the seabed.

⁴¹Garvitas, ‘Russias Tsunami Bomb designed to hit the ocean floor’ (Wionews, 8 April 2021) <<https://www.wionews.com/world/russias-tsunami-bomb-nuclear-missile-designed-to-hit-the-ocean-floor-376170>> accessed on 23 July 2022

Fourthly, there shall be a committee that keenly observe the efficiency of laws regulating the seabed and make amendment and implement the same in fast-track process to keep the marine environment free from damage.

And fifthly, there shall be strict implementation and interpretation of laws that prohibit and punish the responsible state in establishing underwater military bases and lead to environment damage there.

VII. CONCLUSION

States are chasing and put themselves in race since a millennium leading to blind race without considering the future generation. Even though several legislations that cater in this behalf, often found ineffective due to the power play done by the developed states. Same situation is happening with respect to seabed and marine environment there. Initially sea was used only for the purpose of navigation and fishing and then as trade routes for first and the second world war leading to sinking of ships and oil tankers paving way to extreme pollution. By the advent of the cold war the states were confidently establishing military bases at the seabed and submarine patrolling leading to disturbances in the marine ecosystem there. Even though nuclear test, emplacement and manufacturing of nuclear weapons are reportedly nil, in actual scene it is happening full-fledged and for the same, the seabed is being used. Wrong doers or the responsible states are escaping from the chain of law made with thorns due to large loophole present there. Only thing left is the international cooperation among states to cater for better environment in the seabed and take adequate measures against the wrongdoer by throwing light to the concerned authorities having jurisdiction.
