Chapter-5

International Liability for Radioactive Pollution of the Oceans
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5.1. Introduction

Having looked into many aspects of radioactive waste disposal, for an international lawyer it is of primary importance to study the liability aspects of such a hazardous activity. Hence, in this Chapter, it would be our endeavour to address the issue of liability for dumping of radioactive wastes at sea. While it remains a complex and contentious issue, a preliminary remark can be made that it is also the least understood subject as it impinges on the sovereign right of every state to decide the use or misuse of nuclear energy.

The issue of liability can be studied under the following heads:

a. The need for a liability regime governing dumping of radioactive wastes;

b. 'Liability', as the central issue of a non-prohibited hazardous activity;

c. Work done by international organizations, especially the International Law Commission (ILC) in this field; and

d. The emergent principles under international law that attest the necessity/presence of a liability regime regulating dumping of radioactive waste at sea.

5.2. Need for a Liability Regime

As has been seen in earlier chapters, the pollution of the seas is a direct result of the sovereign right of States to use the ocean space to their own advantage and often (disadvantage) of
their people. As opposed to the freedom of the seas provided by the 1958 Geneva Conventions and UNCLOS 1982, by way of navigation, fishing, laying of submarine cables and over flight, pollution (read here as dumping) is in an impermissible use, which is not expressly sanctioned under international law.

Radioactive waste dumping one needs to bear in mind is a deliberate anthropocentric act, which is committed with full consciousness and a rational understanding vested in a prudent man. It is here that pollution of the seas has often been viewed as an attribute of a territorial sovereign.1 Such an attitude comes as a natural extension of the infamous Harmon doctrine that extended the rights of a sovereign State to arbitrary limits.2

A rights based approach presumes that even an ethical understanding of our marine environment has to be within the established human order and not those of lower animals i.e. an "animals or plants order" that do not have the freedom, even less a right of choice.

Opposed to this, a genuine respect-based understanding of our environment would tend to presume that a legal system should guarantee the natural order of things and would place the burden on the polluter to prove that his activities do not disturb or distort

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the existing environmental order. A completely new movement to guarantee the rights of lower animals based on environmental ethics has taken shape.3

Dumping of radioactive wastes has continued unabated from the early forties to the mid-eighties, when the Contracting Parties to the London Convention put in place a self-imposed moratorium, although many States have questioned the legal sanctity of such a moratorium.

The inter-temporal element4 involved in half a century of dumping, with half-life periods of more than 30,000 years, calls for adoption of a legal regime that provides liability or compensation for transboundary harm. Moreover, public knowledge of the hazards associated with effects of radioactive substances has strengthened to resolve at the national and international levels, towards complete elimination of dumping of radioactive wastes.

The Attorney General of New Zealand in the Nuclear Test Cases

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brought out this inter-temporal element beautifully, when he stated:

The plain answer is that an inter-temporal rule applies to fact as well to law. In the world of the 1950’s shoes shop in my country and many others had X-ray machines through which the customer could see the bones of his feet in the shoes he was trying on. In the world of the 1970’s we are appalled by, and forbid these unnecessary exposures to the damaging effects of radiation.\(^5\)

Indeed, then if radioactivity and its effects (natural and man-made) are viewed as a fact of life, which was tolerated for so many years, why it should not be condoned on the flimsy pretext that its not comprehensible to a common man or to the naked eye. Whereas, a rational analysis based on prudence would call for detailed research and understanding of its future effects on humankind as a whole and various other living species.

To draw an analogy: If a magistrate can reopen a case against a fugitive criminal committing a “war crime or grave offence”, ignoring the doctrine of laches and establishing the relevance and the supremacy of the law, why not bring to book or offer remedies for undertaking an ultra-hazardous activity such as radioactive contamination, whose effects are felt thousands of years, after dumping.

Scientific evidence with regard to the irreversible impact of environmental degradation has had a profound influence on the conceptual ingredients of responsibility and liability. A number of

important principles of international law have emerged that include among others the precautionary rule, polluter pays, inter-generational equity and sustainable development.

Others include the linkages between commonly shared resources and the relationship between the environment and the issue of human rights. A principle closely connected with the principle of inter-temporality, is that of inter-generational rights, rather inter-generational equity.

Principle 1 of the Stockholm Declaration echoed this belief wherein it stated, “States have a solemn responsibility to protect and improve the environment for present and future generations”. It was, however, the Brundtland Commission that coined the concept “sustainable development”, which called for development in such a way that you do not jeopardize the needs/right to development of future generations.

The concept of inter-generational equity remains a continuing theme in this study, as the effects of disposal of radioactive wastes stretch to many generations. It must be remembered at all times that nuclear/radioactive wastes are ultra-hazardous substances, which do not disintegrate at once, when dumped in the oceans. They have a life span or what is called a half-life period of thousands of years before mixing up with the

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natural seabed soil/subsoil and salts. For example, Uranium 239 has a half-life period of 24,000 years and the other isotope Uranium 240 has a half-life period of 6,750 years. Imagine the total sum amount calculated for all the radioactive substances dumped at sea for half a century and the ensuing degradation of the marine environment that must have occurred.

This calculation does not take into consideration the occasional nuclear accident and the natural occurring radioactivity. These mind-boggling statistics, forces one to think and ask why dabble with such abnormally hazardous substances when you cannot circumscribe the attendant risk. Surely then, the level of risk awareness, assessment and management for substances that linger on for millions of years should be of a very high order. One may also venture out to ask how high should this order be, bearing in mind the fact that the beneficiaries of nuclear energy do not bear the brunt of nuclear wastes, as the dump-sites are far from the nuclear power producing States.

Such a callous attitude forced the Pacific Island States to propagate the principle of NIMBY (Not In My Backyard), as none of


them received the benefits of nuclear energy, but were made to suffer enormous hardships as radioactive poisoning contaminated their seas, and seafood, latter being an essential part of their daily diet. Even as States continue to abuse their freedoms to use the seas\textsuperscript{11} (reports of the Russian Federation continuing clandestine dumping of wastes), it remains the responsibility of the nuclear States to stop this wanton destruction of the marine environment.

They have a two fold responsibility: One, to undo the historic wrongs of the past; and two, to abide by the 1983 moratorium adopted by the London Convention in good faith and halt dumping of all radioactive wastes, whether low or high level.

5.2.1. Evidence of Development of Liability Regimes Since 1972

While the London Convention has refused to actively consider the demands by donee States (radioactive waste receiving States) for putting in place a liability regime, it is our endeavour to evidence the need for a liability regime embedded as a central and integral part of the London Convention. This section attempts to trace such a need for such liability regimes in general and the London Convention, in particular.

There is ample evidence that the development of international environmental law, since Stockholm 1972, has shown

a definite shift from the victim of the harm to the source of the harm. Principle 22 of the Stockholm reiterated this, wherein:

States shall cooperate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by the activities within the jurisdiction or control of such States to areas beyond their jurisdiction.

Similarly, Article 235 of UN Convention on the Law of the Sea, (UNCLOS), 1982 provides a basis for liability and also a compensatory mechanism at the national and international levels. It reads:

1. States are responsible for the fulfilment of their obligations concerning the protection and preservation of the marine environment. They shall be liable in accordance with international law.

2. States shall ensure that recourse is available in accordance with their legal systems for prompt and adequate compensation or other relief in respect of damage caused by the pollution of the marine environment by natural or juridical persons under their jurisdiction.

3. With the objective of assuring prompt and adequate compensation in respect of all damage caused by pollution of the marine environment, States shall cooperate in the implementation of existing international law and further development of international law relating to responsibility and liability for the assessment of and compensation for the damage and the settlement of related disputes as well as, where appropriate, development of criteria and procedures for payment of adequate compensation, such as compulsory insurance or compensation funds.
It may also be noted that during the UN Convention on the Law of the Sea negotiations the drafters, deliberately left the section on liability very general and flexible. Article 235, as can be seen is an all pervading provision calling upon States to undo their wrongs by putting in place liability and compensatory mechanisms available under international law. Paragraph 1 speaks of liability in accordance with international law. The available liability mechanisms could include customary rules of reparation or rules of State responsibility or sectoral regimes adopted in the maritime, environmental or nuclear fields.

Likewise, Article 10 of the LDC (as amended by the 1996 Protocol), imposes an obligation upon Contracting Parties to develop procedures for the assessment of liability.

It may be recalled that Resolution LDC.21 (9) adopted by the Ninth Consultative Meeting of the Contracting Parties to the London Convention on 27 September 1985 had extended the moratorium in force on the dumping of low-level wastes at sea and had called upon the Contracting Parties to:

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13 LDC 11/6/1 and LDC 11/INF.18, July 1989, *Procedures for the Assessment of Liability concerning Damage to the Environment caused by Dumping at Sea* (Australia, Nauru and Spain were the lead states on liability).
To develop, as envisaged in Article X, procedures for the assessment of liability in accordance with the principles of international law regarding State responsibility for damage to the environment of other States or to any other area of the environment resulting from dumping.

Moreover, for this purpose, the Tenth Consultative Meeting established an Ad hoc Group of Legal Experts\textsuperscript{14} for studying the implications of the UNCLOS 1982 provisions on dumping and Article X of London Convention, which referred to the question of international responsibility and liability for marine environmental damage resulting from dumping. The Ad hoc Group of Legal Experts on Dumping considered a number of country papers submitted by States Parties. Important lead countries were Australia, Nauru and Spain.\textsuperscript{15} This Group studied the various regional and international organizations and their relevance to nuclear conventions.

5.2.2. Liability for Nuclear Pollution

It is against this backdrop, that an attempt is being made to study the international law of liability for transboundary radioactive pollution caused by dumping.\textsuperscript{16} The importance of this aspect cannot, but, be overemphasized because it forms the core of

\textsuperscript{14} LDC 10/15, 1988, on Procedures for the Assessment of Liability concerning Damage to the Environment caused by Dumping at Sea (Australia, Nauru and Spain were the lead states on liability).

\textsuperscript{15} See note 10, at p. 2 and 3.

the whole debate surrounding radioactive waste dumping in the oceans. Such a study would involve:

- Customary law judicial decisions on responsibility;
- Rules of State responsibility;
- Direct role of international liability;
- International liability and the work of the ILC as regards prevention of harm arising out of transboundary hazardous activities;
- Sectoral civil liability compensatory regimes; and
- Suggested alternatives for a comprehensive liability regime.

The duty to do no wrong, lest be held responsible or liable, is well established in English common law. As was observed, "all members of the civilized commonwealth are under general duty towards their neighbours to do them no hurt without lawful cause or excuse". The law of tortious liability to a large extent forbids the abuse of peaceful enjoyment of one's lawful rights.

Though it may sometimes seem incompatible, some of the global environmental problems have rudimentary precursors in the English doctrines of nuisance, trespass and negligence. The unlawful annoyance or disturbance of one's peaceful enjoyment of land or chattel caused by nuisance has direct forbearance to the Trail Smelter arbitration case, seen earlier.

Similarly, negligence entails an act of commission/omission, which a prudent and rational man ought not to do. Principles of 'due diligence' and 'special care' are forerunners of the precautionary rule and present day procedural obligations of  

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notification, consultation, or prior informed consent. Likewise, the English maxim res ipsa loquitur or “the thing speaks for itself”, too finds place in the “deep pocket theory of compensation”\(^{19}\) or the reversal of burden of proof in instances where the polluter pay principle\(^{20}\) is applied. Most of the present day environmental problems, it would seem could accommodate one these principles and place the onus on the polluter to come clean.

The elementary aspects of absolute or strict liability, which we shall be looking into later, can also be said to derive their basis in the landmark judgment of House of Lords in Donoughue v. Stevenson\(^{21}\) where Lord Atkin had observed “the rule that you are to love your neighbour becomes in law, you must not injure your neighbour...” However, many leading commentators cautioned that tortious liability, although strict, should not be anyway interpreted to make the tort-feasor absolutely liable, bearing in mind the benefits to society of dangerous activities.\(^{22}\)

This duty of care and principle of good neighbourliness, as was seen in the foregoing chapter finds expression in a number of early disputes on river water sharing as well as maritime


\(^{21}\) A.C. 562 (1932) [H.L], at page 3.

delimitation. In another oft-repeated and equally famous judgment of *Rylands v. Fletcher*\(^{23}\) it was held:

A person who, for his own purpose, brings on land in his occupation, or collected or keeps there, any thing likely to be dangerous if it escapes he is *prima facie* answerable without proof of negligence for all direct damage to the property of the person of another which is consequence of escape.

This principle often referred to as the *Rylands v. Fletcher* rule is made applicable to the escape of harmful noxious fumes, water, gas and other hazardous/harm causing activities. The jurisprudence of the Supreme Court and High Courts of India and many other countries reflects the influence of this rule in a number of judicial decisions involving escape of hazardous and noxious substances.

Modern day application of the *Rylands v. Fletcher* rule has become extremely important bearing in the mind of numerous activities, which are inherently hazardous or abnormally dangerous, where the plaintiff because of his helplessness is left in a very vulnerable position.

Other reasons for the growth of principles of liability are the mechanization of human activities where scientific efforts and the entailing hostile dangers left the individual at the mercy of science with all its limitations. Bearing these aspects in mind at the international level, it would be important to look at the following aspects of liability.

5.3. Customary Law Proscriptions

Although it may come as a repetition, as this aspect has been dealt in earlier chapters, a cursory glance would help. A starting point for a liability regime would be the customary basis for prohibiting transboundary pollution.24 One of the earliest cases cited for prohibition of transboundary pollution is the Trail Smelter Arbitration.25

In this much cited case, the United States brought a case against Canada for damage to its property in the State of Washington cased by sulphuric and other noxious fumes, which drifted over the frontier from a Smelter in British Columbia, Canada. The Tribunal held that "under principles of international law":

No State has the right to use or permit to use of territory in such a manner has to cause injury by fumes in or to the territory of another of the properties or person therein, when the case is of serious consequence and the injury is established by clear and convincing evidence.

The principle of sic utere tuo ut alienam non laedas was applied in this case, which literally means one should use that belonging to

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oneself in manner which causes no damage to others. The writings of a number of publicists point that the Trail Smelter formulations have been accepted as reflective of customary international law through various doctrinal writings, jurisprudence and state practice.²⁶

The sic utero tuo principle also finds reflection in numerous international treaties, conventions and resolutions. The UN General Assembly resolution 1629 (XVI) 1961 recognized this principle when it declared:

The fundamental principles of international law imposes responsibility on all states concerning actions which might have harmful biological consequences for the existing and future generations of peoples of other states, by increasing the levels of radioactive fallout.²⁷

The maxim is also reflected in Principle 21 of the Stockholm Declaration, which provides “States have... the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of the other state or of areas beyond the limits of national jurisdiction.” Although the Stockholm Declaration, being only a declaration, is not binding, it reflects customary international law and its remit are incorporated in a number of international conventions and resolutions.


5.4. Principles of State Responsibility

As is well known, rules of state responsibility for a wrongful act flow when the act is: (a) attributable to a state under international law, that is the subjective element; and (b) amounts to a breach of an international obligation incumbent on that State i.e., the objective element. Moreover, when an activity of an organ or an agent of a State causes a wrongful act and an injury to another State, it is liable if damage has occurred.

Chapter I of the ILC's Articles on State responsibility dealing with general principles, in Article 1, provide that "Every internationally wrongful act of a State entails the international

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responsibility of that State." As opposed to this, Article 2 titled "Elements of an internationally wrongful act of a State" provides that:

There is an internationally wrongful act of a State when the conduct consisting of an action or omission:

(a) Is attributable to the State under international law; and  
(b) Constitutes a breach of an international obligation of that State.

Article 1, states the basic principle underlying the state responsibility as a whole, that a breach of international law by a State entails international responsibility. The Permanent Court of International Justice (PCIJ) in the *Phosphates in Morocco case* held that when "... a State commits an internationally wrongful act against another State, international responsibility is established immediately as between the two States."

Article 2, on the other hand identified two elements, which go to constitute an internationally wrongful act. One, the conduct in question is attributable to the State under international law; and two, for attaching responsibility to the act of that State, the conduct must constitute a breach of an international legal obligation in force for that State at that time. Likewise, the ICJ in the *Diplomatic and Consular Staff Case* pointed out that:

First, it must determine how far, legally, the acts in question may be regarded as immutable to the Iranian State. Secondly, it must consider their compatibility or

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incompatibility with the obligations of Iran under treaties in force or under any other rules of international law that may be applicable.

For the purpose of the present study, it is important to note that the obligation of Contracting Parties to the London Convention 1972 (as amended by the 1996 Protocol) in Article 4 provides that:

1.1 Contracting Parties shall prohibit the dumping of any wastes or other matter with the exception of those listed in Annex 1.

1.2 The dumping of wastes or other matter listed in Annex shall require a permit. Contracting Parties shall adopt administrative or legislative measures to ensure that issuance of permits and permit conditions comply with provisions of Annex 2. Particular attention shall be paid to opportunities to avoid dumping in favour of environmentally preferable alternatives.

1.3 No provision of this Protocol shall be interpreted as preventing a Contracting Party from prohibiting, insofar as that Contracting Party is concerned, the dumping of wastes or other matter mentioned in Annex 1. That Contracting Party shall notify the Organization of such measures.

Article 4 therefore lays down parameters as to when State responsibility can entail. In other words, the London Convention provides that a Contracting Party can be said to have committed an internationally wrongful act when:

(a) Dumping is permitted by a Contracting Party in contravention of Article 1.1 i.e., dumped materials include those substances not provided for in Article 1.1.

(b) Annex I provides for the following matter to be dumped: dredged material; sewage sludge; fish waste, or material, or material resulting from industrial fish processing operations; vessels and
platforms or other man-made structures at sea; inert, inorganic geological material; inorganic material of natural origin; and bulky items primarily comprising iron, steel, concrete and similarly unharmful materials for which the concern is physical impact, and limited to those circumstances where such wastes are generated at locations, such as small islands with isolated communities, having no practicable access to disposal options other than dumping.

(c) An international obligation can also be violated if dumping of other matter listed in Annex 1, is permitted without a permit.

The 1996 Protocol to the London Dumping Convention has deleted the provision for dumping of low-level wastes that was provided earlier, under the Convention. Besides, by banning dumping of high-level wastes, the Protocol has adopted a precautionary approach to the issue of radioactive waste dumping. A testimony to this fact is paragraph 3 of Annex I, which provides that:

Notwithstanding the above, materials listed in paragraphs 1.1. to 1.7 containing the levels of radioactivity greater than *de minimis* (exempt) concentrations as defined by the IAEA and adopted by the Contracting Parties, shall not be considered eligible for dumping.

The Protocol has further strengthened the 1983 self-imposed moratorium on dumping of radioactive wastes. It is to the credit of Contracting Parties that they have agreed to legally abide by a non-binding, self-imposed moratorium. Moreover, as has been stated earlier the moratorium can be lifted provided a comprehensive liability regime and a scientific study are put in place. Towards this end, paragraph 3 of Annex I provides:
...Provided further that within 25 years of 20 February 1994, and at each 25 year interval thereafter, Contracting Parties shall complete a scientific study relating to all radioactive wastes and other radioactive matter, other than high level wastes or matter, taking into account such other factors as Contracting Parties consider appropriate and shall review the prohibition on dumping of such substances in accordance with the procedures set forth in Article 22.

It may be noted that Article 22 provides for the amendment of the Annexes of the Convention. Finally, it is seen that a Contracting Party is also responsible for the wrongful acts of a private party, if it failed to exercise due diligence in preventing such acts.

Rules of State responsibility would make the State absolutely responsible for the damage caused. For example, the Treaty on Principles Governing on the Activities of States in the Exploration and Use of Outer Space\textsuperscript{31}, 1967 provides for international responsibility of States Parties for "national activities and outer space... whether such activity are carried on by governmental agencies or by non-governmental entities". Likewise, the Space Liability Convention\textsuperscript{32} 1972 provides that State responsibility can also be invoked for acts committed by private individuals, entities, organs and under the control of the State. Thus, it can be seen a State is completely responsible for all the ultra-hazardous activities conducted on its territory, which causes transboundary harm.

\textsuperscript{31} \textit{International Legal Materials (ILM)}, vol. 6 (1967), p.386.
The London Dumping Convention 1972 also provides for a number of enforcement powers of Contracting Parties involving dumping. These consist of wide ranging measures, including fines and penalties for violation of the obligations. The listing system prohibits dumping of wastes listed under Annex I. Similarly, substances under Annex II can only be dumped provided a special permit is granted by the State, which allows dumping in its territory.

Moreover, there are other control mechanisms such as port state jurisdiction, wherein the port state has obligation to apply the Convention to vessels loading in its ports and to the matter to be dumped. Likewise, as per the UN Convention on the Law of the Sea, flag states are also obliged to apply the Convention to all vessels and aircraft registered in their territory.

Thus, any contravention from these enforcement measures by the Contracting Parties would also entail state responsibility. For example, issuance of dumping permits by the loading port state, as well as flag state where the vessel is registered entails duty of due diligence and a penalty for not abiding by rules of the Convention. Similar, provisions are found in the UN Convention on the Law of the Sea, as well as Chapter 17 of Agenda 21, which deals with ocean related activities.

From the above, it can be surmised that state responsibility shall entail breach of primary obligations, which a State is supposed to undertake vis-à-vis its relations with other states.
It is a credit to the patience and perseverance of the ILC, which has finally completed its work on this complex topic by adopting articles, (not ‘draft’ articles as they were called earlier) in the year 2001.\textsuperscript{33} Whether these articles come into force by the adoption of a Convention or not is immaterial, as many elements of the rules of state responsibility, especially those adopted in the first reading before 1975, are said to have achieved customary law status.

It is also seen that rules of State responsibility are to be found scattered in rules of customary law and general principles of law. This would mean that a State claiming its rights to have been violated would have to prove that the dumping State has breached an international obligation. Herein comes a Herculean difficulty. To state that responsibility/State liability has arisen the following will have to be proved:

(i) That international law places an obligation on States to prevent transboundary release/dumping of nuclear substances/pollution;

(ii) If such a fact were accepted, then it would be important to ascertain if:

(a) States are under an obligation to prevent transboundary release of radioactive substances causing significant harm;

(b) What is the threshold limit to decide that harm has occurred?

(c) Whether there exists an international standard or who is to set the international standard, as to when damage has occurred? What are the

\textsuperscript{33} See Crawford, n.29.
self-exculpatory provisions that can be claimed as exceptions?

(d) And lastly, does transboundary pollution entail payment of damages?

The answers to these questions are not easily found.

5.5. International Liability

Despite having rules on State responsibility in place and also grounds for claiming international responsibility, it is often seen that traditional rules of responsibility offer little help in restraining lawful activities that are inherently hazardous. Unable to withstand the rigors of state responsibility, and to be able to cope up with the nature and content of hazards involved, it is seen that most environmental treaties provide for their own liability regimes for the environmental harm.34

The London Convention very clearly brought out the fact that even though low-level dumping has been halted, all it requires is a

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two-third majority to restart dumping ignoring the self-imposed moratorium. Unlike accidental or incidental pollution of oil for which there is no *mens rea*, dumping by its very definition can be said to be a deliberate, intentional, polluting and ultra-hazardous act. While, in principle, no liability can be attributed for lawful acts it also cannot be denied that there exists an inherent danger of harm for radioactive dumping which has been categorized as an abnormally dangerous activity.35

Ultra-hazardous activities involve a potential risk for causing serious damage, despite having a low probability of occurring. In the words of C.W. Jenks:

> It does not imply that the activity is ultra-hazardous in the sense that there is a high degree of probability that hazard will materialize, but rather that the consequences in the exceptional and perhaps quite improbable event of the hazard materializing may be so far reaching that special rules are necessary if serious injuries and hardships are to be avoided.36

In this regard it may be useful to look into the work of the ILC which had occasion to deal with both, State responsibility and the subject of international liability. In fact, the differences in the understanding of the two topics, as well as the need to overcome the application of rigid standards posed by rules of responsibility, many States felt that "liability" should be separated from


“responsibility”. However, it should be admitted that this difference often is superficial because rules of responsibility subsume aspects of liability. Moreover, many of the compensatory rules of responsibility have achieved near customary status.

Be that as it may, the topic “International Liability for Injurious Consequences Arising out of Acts not prohibited under International Law” has been considered by the Commission by two Rapporteurs Professors Robert Quentin Baxter and Julio Barboza. The current Special Rapporteur for the topic Dr. Pemmaraju S. Rao has submitted three reports on Prevention on Transboundary Damage from Hazardous Activities; and two on the ongoing work on liability proper, which is considering “allocation of loss,” as a part of liability and compensation.

Therefore, for the purposes of the present study, it would be useful to study the ILC’s work on this topic, which has received scholarly attention too. Moreover, radioactive the topic is related

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37 Prof. Brownlie has consistently maintained that separating liability from rules of international responsibility is “fundamentally flawed” idea.


to the study too as ocean dumping of radioactive wastes is also a lawful and permitted hazardous activity having transboundary ramifications.

5.5.1. Prevention of Transboundary Harm from Hazardous Activities

Article 1 of the sub-topic "Prevention of Transboundary Harm from Hazardous Activities" applies to activities not prohibited by international law, which involve a risk of causing significant transboundary harm through their physical consequences. This Article is supplemented by Article 2, which provides the basis for situations in which the draft convention can be applied. Article 2 through its definitional clauses provides:

a. Risk of causing significant transboundary harm to mean risks that are in the form of a high

probability of causing transboundary harm and a low probability of causing disastrous harm;

b. _Harm_ is intended to mean harm caused to persons, property or the environment;

c. _Transboundary harm_ means harm caused in the territory of or in places under the jurisdiction or control of a State other than the State of origin, whether or not the States concerned share a common border.

In the light of this definitional scope, an attempt is being made to draw analogies/or comparable application of the damage caused by radioactive waste disposal. For the purpose of the present study, it is submitted that radioactive disposal completely fits the letter and scope of the hazardous activity envisaged under Articles 1 and 2 of the draft convention on prevention, for the following reasons:

(i) Radioactive waste dumping is a lawful activity not expressly prohibited under international law (although there is a global regime in place, sufficient leeway is provided for exculpatory clauses, wherein under emergencies low-level radioactive wastes can be dumped);

(ii) Radioactive waste dumping does involve significant transboundary harm, although it is debatable whether such harm is apparent to the naked eye by what is meant _a la Chernobyl_ "physical consequences";

(iii) Radioactive waste dumping for all practicable purposes does not involve a high probability of causing significant transboundary harm, but it does involve a low probability of causing disastrous transboundary harm. The reason for these are obvious as radioactive waste dumped in ocean does not affect either human persons or the environment immediately, but involves a long period gestation before reacting.

Moreover, as is evident radioactive wastes have half-life periods of thousands of years after which their dangerous
consequences become evident. This aspect very well fits in the
definition of the ILC’s work on prevention of “low probability of
causing disastrous transboundary harm.” One can always say that
unlike a Chernobyl type of accident towards which the work on
“prevention” appears to be heavily influenced, a periodic disposal of
radioactive waste may not appear to be of disastrous
consequences. Nonetheless, it cannot be denied that a continuous
dosage of low-level of radioactive substances in the long run is
bound to affect not only human beings, but also marine benthic
organisms which are essential cogs in the human food chain, on
which marine and in turn, human life is so closely dependent
upon; and lastly (iv) Articles 1 and 2 of the draft articles on
“prevention” also define transboundary harm in territorial context
by using terms such as “State of origin”, “State likely to be
effected”, and “States concern”, irrespective of the fact whether
these States have any common contiguous border. For the
purposes of our study, it can be is seen that radioactive waste
dumped in any one place does not stay within the territorial limits
of the State that has allowed the dumping to take place. By its very
nature ocean, currents and the salinity gradient would transpose
the dumped substance to a different place, engendering
transboundary harm.

From the above definitional analysis, it is clear that
radioactive dumping in the oceans is an activity lawful in nature,
but needs to be regulated by means of “prevention and the
entailing liability" for the harm caused. In this respect, the draft articles on prevention provide a framework to undertake preventive/precautionary measures towards abatement of radioactive pollution.

Besides, the draft articles also provide for a list of procedural obligations, which include duty of prevention, cooperation, implementation, prior authorization, environmental impact assessment, notification and information, consultation, sharing of information with public, principle of non-discrimination and emergency preparedness. These obligations, it may be added, are not entirely new but have been reflected in a number of international and regional conventions regulating the environment. It is also important to note that the work on prevention, is but, a first part of the larger study on international liability for activities not prohibited under international law.

The second part of the study on “Allocation of Loss’ undertaken by the ILC, provides detailed rules for protecting the innocent victim of transboundary harm.41 The Working Group established by the Commission in 2004 session has proposed a preliminary set of eight draft articles on the topic and they have been referred to the drafting Committee.

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The drafting Committee under the chairmanship of Mr. Rodriguez-Cedeno adopted on first reading the preamble and a complete set of draft principles Principle 1 (Scope of Application), Principle 2 (Use of Terms), Principle 3 (Objective), Principle 4 (Prompt and Adequate Compensation), Principle 5 (Response Measures), Principle 6 (International and domestic remedies), Principle 7 (Development of specific international regimes) and Principle 8 (Implementation).

5.5.1.1. Debate in the Commission on the Topic

During the most recent debate on the topic in the Commission, several delegations have welcomed the first report of the Special Rapporteur and endorsed the broad policy findings of the Rapporteur that the victim of transboundary harm should not be left to bear the loss on his own. There was near unanimity that the “operator must be made primarily liable”, for all acts causing transboundary harm, as he is in the best position to control and abate the harm caused by hazardous activities. Such reasoning it was felt was in line with the polluter pays principle, as he was the main beneficiary and should therefore undertake redressal of the harm caused.

However, views were also expressed that the words “allocation of loss” appeared misleading, as it was important to understand the allocation of duty to compensate the loss suffered and deviated from the principle of ‘polluter pays’. Further, the
mandate of the Commission is to address the issues of liability and not loss allocation per se.

As was stated earlier, it was felt unnecessary to have a general liability regime, as most regimes were sectoral/regional in nature. Bearing in mind the mandate of the Commission, views were also expressed by many that the model for allocation of loss should be general and residual in character and should provide sufficient flexibility to develop national or regional schemes of liability to address particular needs of States, as well as of victims of harm.

It was also felt that the scope of the topic should be the same as that of the draft articles on ‘Prevention of Transboundary Harm from Hazardous Activities’ and the threshold for triggering liability for ‘allocation of loss’ should be the same, as that of ‘prevention’. Views were also expressed that any future regime on liability should guarantee to the maximum extent possible, compensation for harm caused to individuals and the environment. Some argued that the scope of “harm”, should not only be limited to persons and property, but should also include ‘damage to the environment’, per se. While some expressed regret that the scope excluded “global commons”, from the scope of the topic, others were of the view that “harm to global commons”, should be considered as a separate topic in the future.42

On the issue of State liability, it was felt that a State failing to exercise due diligence obligations, was held responsible under rules of State responsibility or customary law. But where operators undertook activities, it was felt to be unreasonable to hold a State liable for a hazardous activity in the control of an operator. State liability was viewed by many as an exception and provided for only in two conventions, on space and Antarctica, as was seen earlier.

Many in the Commission however, had different views and they felt that strict liability of the operator should be linked with residual compensation regime involving the State. When the operator was declared insolvent, or unable to cover fully the loss, or limited by insurance obligations, the State could be liable for providing residual/supplementary funding. Opposing such a view were States who felt that State liability should be a last resort. Besides, many a times States authorizing hazardous activities did not have the means to pay compensation resulting from residual liability and liability of a State should be restricted to preventive measures and establishing funds for the allocation of the loss, rather than assuming the liability itself.

There were special concerns expressed with regard to, "harm to the environment" and the classification of harm should include "damage to persons, property and to the environment within the jurisdiction or areas under the control of the State". It was felt that in certain situations restoration of the environment was not
possible and quantification was very difficult. As opposed to such a view, some states were of the view that issues relating to the environment per se should not be left out and be considered at a later stage.

It was also recognized that States may be unable to prohibit or avoid engaging in hazardous or significant risk-bearing activities because of the needs of social and economic development. It may happen that despite the best efforts of the State, damage may occur and in such situations innocent victims who have no part in the operation of the activity or otherwise, should not be made to bear the loss, as far as possible. In any scheme of allocation of loss, the operator should be made primarily liable. The operator should be equipped with the necessary insurance cover, contingency plans, emergency preparedness and mechanisms of notification and safety measures.

With regard to the definition of "damage", eligible for compensation would include damage to persons, property, including elements of State patrimony and natural heritage, as well as damage to the environment or natural resources within the jurisdiction or areas under the control of a State. Further harm to the 'global commons” was not considered owing to the lack of clarity on the definitional aspects, problems in establishing causal connections, standing to sue, quantification of damage and the required liability regime.
While it may be stated that it is to the credit of the drafters that this work seeks to prevent, reduce and control polluting activities on the basis of due diligence obligations, for the purposes of the study at hand, due diligence often allows the robber to go scot free as the theft cannot be noticed easily.

5.6. Civil Liability Compensatory Regimes

Under international law, state responsibility is based on the principle on fault/culpa. However, failure to perform an international obligation does not necessarily imply negligence or intent. Despite the growth of tortious law under English law of torts, international law in the area of torts has not developed.

Recent state practice provides evidence of growth of a strict civil liability placed upon the operator for activities that are inherently hazardous and cause transboundary harm.\(^\text{44}\) Two exceptions in the form of state liability are seen. One, the Convention on Liability for Damage Caused by Objects Launched into Outer Space, 1972\(^\text{45}\) as well as the Outer Space Treaty 1969\(^\text{46}\) and the Antarctica Treaty on Mineral Resources\(^\text{47}\) that point towards the growth of an absolute/no-fault regime, even in the

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\(^{44}\) See Gehring T. and C. Jachtenfuchs, n.33.


\(^{46}\) *UNTS*, vol. 610 (1963), p.205.

absence of due diligence obligations of a state for ultra hazardous activities.

In the field of oil pollution from ships, there is a fault based regime created by the Convention on Civil Liability for Oil Pollution Damage 1969,48 as well as the International Convention creating an Oil Pollution Fund, 1971.49 These conventions provide for strict liability with certain exculpatory exceptions in instances of *force majeure and vis major.*50

The rationale for development of an ultra hazardous treaty regime is that the injured party should not be made to bear the burden of proof, but the defendant who has undertaken the hazardous activity must prove that the activity is not dangerous or harmful to the human person, i.e. life and property. There is ample evidence to show that such liability regimes have evolved in the field of nuclear energy, but are largely sectoral in nature51 and they are called as civil liability regimes for transboundary nuclear

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damage. However, it must be remembered that States are extremely wary of international conventions having liability clauses.

The civil liability regimes for transboundary nuclear damage are generally governed by rules of private international law, as well as two international conventions. The first one being the Paris Convention on Third Party Liability in the Field of Nuclear Energy (Paris Convention) amended by the 1963 Brussels Supplementary Convention and the 1963 Convention on Civil Liability for Nuclear Damage (Vienna Convention).

The Paris Convention seeks to harmonize national legislation with regard to third party liability and insurance against atomic risks and establishes a regime for liability for compensation in the


event of “nuclear incidents.” It makes the operator liable for personal injury or damage to property because of nuclear incident. However, it needs to be noted that the terms ‘damage’ and ‘loss’, are not defined in the Convention.

A ten year limitation period is provided for bringing claims for compensation under the Convention. The maximum liability limit fixed for the operator for every nuclear incident is placed at 15 million European Monetary Agreement units of account approximately (US$15 million). Besides, the Convention also provides that the operator should have very sound insurance cover to safeguard against any financial risks.

The Brussels Convention, which supplemented the Paris Convention, has increased the total available compensation to 120 million units of account. However, in the event that the damage exceeds the amount, compensation will have to be paid jointly by the Parties to the State concerned, as well as the operator.

In 1982 a number of protocols were adopted to the Paris and the Brussels Conventions, changing the unit of compensation to special drawing rights (SDR) of IMF. The amount of compensation was increased to 175 million SDRs and 300 million SDRs for the Paris and Brussels Conventions, respectively.

As opposed to the Paris and Brussels Conventions, which largely regulate countries of the European Community region, the

Vienna Convention was negotiated under the auspices of the International Atomic Energy Agency (IAEA). The scope of this Convention is much larger than the Paris and Brussels Conventions. The Convention makes the operator of nuclear installation liable for "nuclear damage", upon proof that such damage was caused by a nuclear incident in the installation or, with certain limitations, in the course of carriage to or from the installation. Here too, the terms 'damage' and 'loss' have not been defined. The liability for the operator is 'absolute", unlike the Paris and Brussels Conventions, that provide for certain exculpatory defences and exceptions to liability.\(^57\)

The period of limitation for bringing in claim or action in the courts of Contracting State is ten years. The compensation provided under the Vienna Convention is to be decided by the Installation State, but it shall not in any event be less than US$5 million for any 'one nuclear incident'. The Convention has an optional protocol that establishes dispute settlement mechanisms. In 1988, the IAEA has also adopted a Supplementary Compensation Convention, which can act as a buffer to pay compensation to "nuclear pollution", victims who fail to get the same under the Brussels or the Vienna regimes.\(^58\)

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Further, in order to strengthen between the two regimes, a Joint Protocol was signed in 1988 under the auspices of the OECD and the IAEA. This Protocol was necessitated because existing civil liability regimes "do not cover all liability issues for damage" and also because of the Chernobyl disaster.\(^5^9\)

The Joint Protocol takes into account the need for strengthening insurance cover under the liability conventions, for serious transboundary environmental threats posed by nuclear plants.\(^6^0\) Besides the economic loss suffered, the Protocol makes provisions for "costs of measures of reinstatement of significantly impaired environment and loss of income due to such impairment".\(^6^1\) Moreover, most of the players involved—States, operators, international organizations are all aware of the technological hazards involved and necessary precautions by way of insurance and other funding mechanisms are in place.

The civil liability regimes largely regulate accidents occurring in a nuclear installation and the 'nuclear damage', which is undefined, relates to human person and property only. The Paris


\(^{61}\) See generally Lee and Radetszki, n.55.
and Brussels Conventions have not taken the damage/harm to the ‘environment’ at large into consideration. The effort by the Vienna Convention of 1963 and the Joint Protocol to expand the scope of “nuclear damage”, by including harm to the environment per se is a welcome move.

5.7. Drawbacks of Rules of Customary Law, State Responsibility, Emergent International Liability Regime and Civil Liability Regimes

From a perusal of the rules of customary law, it is evident that illustrations pointing towards transfrontier/transboundary pollution are rare. The Trail Smelter\textsuperscript{62} Arbitration award, which is often cited as the precursor of all transboundary harm, was largely a bilateral problem between Canada and United States. The jurisprudence of the ICJ on the subject of transboundary harm that evolved through the Corfu Channel Case,\textsuperscript{63} the Nuclear Test Cases\textsuperscript{64} and the arbitral awards of Lake Lannoux\textsuperscript{65} and Rainbow Warrior\textsuperscript{66} point towards a lack of coherence and incompleteness of customary law on transboundary pollution. Moreover, it is seen that there is no general international treaty governing state liability for environmental damage in general, and for transboundary radioactive pollution caused by dumping, in a particular.

Furthermore, it is also a matter of proof whether such customary rule of international law proscribing transboundary

\textsuperscript{63} UK v. Albania, \textit{ICJ Reports}, (1949).
pollution does really exist. As was held by the ICJ in the *Asylum* Case:67

A Party which relies on custom... must prove that such a custom is established in such a manner that it has become binding on the other party... that the rule invoked... is in accordance with a constant and uniform usage practiced by the States in question.

Towards this end, it may be added that except for a few cases, there is no evolved state practice on the question of state liability. Before the Chernobyl incident, the Trail *Smelter* Arbitration, the *Shimoda Trial* involving Japanese fishermen, the *Corfu Channel* and *Nuclear Test* Cases (all cases dealt elsewhere in the study) serve as pointers of existing State practice in the field. It was also noticed that in the absence of an international treaty, States are hesitant to bring claims for compensation, as was the case in the Chernobyl incident.68

Despite the fact that a number of neighbouring States of the erstwhile Soviet Union had regional laws prohibiting transboundary air pollution few of them were ready to bring claims for damages against Soviet Union. The limited success in bringing claims for compensation is largely due to lack of established rules

67  *ICJ* Reports (1950), p.266.

on international liability and also the need for proving test of fault, based on evidence.

Problems of bringing a claim under international law are no different from domestic law. In fact, it is seen that remedies under international law, especially for proving "environmental nuclear damage", can be an extremely difficult and a challenging task.

For incurring liability, two sets of action would be required. One, bringing a legal claim; and two, proof of evidence that environmental damage has occurred.

A legal claim will require: a cause of action; an identifiable damage/legal injury; imputability to an identifiable defendant; an actionable claim in terms of relief and; the relief sought by way of restitution/reparation/ other forms of satisfaction.

Added to these, would also be the problem of evidence gathering that could among others, involve: identifying- the cause of action and the defendant; proof that the State/defendant had obligations under international law; proof that such obligations have been violated and; also the proof that good faith obligations have been violated. Such obligations could include-due diligence, preventive action and environment impact assessment, notification and consultation, monitoring the impact of the impugned action, rescue and remedial measures etc.

In the light of the above requirements, it is known that environmental damage caused by radioactive dumping is largely to the areas beyond national jurisdiction. This would include high
seas, deep seabed and oceans as a whole, as ocean currents can transfer these wastes to different areas from where they were dumped. Many regard the "ocean spaces, atmosphere, and outer space as "global commons" areas, which cannot be appropriated but be held in trust for "mankind" or "humankind".69

In such a situation, a claim for damage to the "global commons"70 may involve: proof that the cause of action arose long ago, but the claimant realized it only now; the nature of the damage became apparent after a long gestation, which would involve intertemporal elements of international law; whether with the passage of time, issues relating to evidence for claiming compensation or remoteness of damage, can be relevant. Would the concept of damages based on the *Chorzow Factory Indemnity Case (Merits)*71 rule readily apply?

5.7.1. Requirements of a Legal Claim

To bring a cause of action for radioactive/environmental damage it is important to establish a causal link between the activities that had caused damage and the ensuing environmental harm. Many a times, this is not possible or extremely difficult, because the origin of the pollutant cannot be established. You may not be able to impute such a cause to any one identifiable

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69 See generally Arsanjani and Reisman n. 45.
71 *PCIJ*, Series A, No. 17 (1928), at p. 29.
defendant because some of the heaviest dumping (from Europe to USA) of radioactive wastes took place in the fifties and sixties period.

Another issue that needs to be considered is that the radioactive substance along with the polluter should be identified in legal or juridical terms. This again as stated many times before can be very difficult task as oceans are recipient of all sources of marine pollution. Such sources could include point and non-point (diffused) sources. By point source, it can be established that the pollutant substance is largely of one single category and from the facts and circumstantial evidence, it can be guessed as to where the pollutant activity originated. For example, in the Mox Plant\textsuperscript{72} and the Dounreay pollution incidents, where Ireland claimed that its territorial waters were being polluted by radioactive substances, clear linkages could be established with the nuclear industry of Great Britain. Both the nuclear power plants situated close to the coast were using long pipes and underground tunnels to dump nuclear waste from land to the sea, which was also violative of UK's obligations under the London Convention.

As regards, diffused sources this may not be possible. It includes various pollutants coming from land-based sources such as pesticides, chemicals, insecticides, and industrial effluents, pollutants that are carried by national rivers and emptied into the seas. Such a problem is very evident in the Mediterranean region

where the sea was host to a number of diffused pollutants, especially industrial effluents dumped by the industrialized countries.

For being able to claim damage caused by radioactive pollution, there must be a threshold limit of radioactivity beyond which damage is caused. The IAEA is the competent body to set up international standards of dosage limits, based upon the recommendations of the International Commission on Radiological Protection (ICRP) and the World Health Organization (WHO), which provide guidelines on the level of radiations and health effects on human beings.

Such radiation dosage beyond which there is no harm to the human body. Now we may question – how low can low possibly be? A dosage, which is low as prescribed by the ICRP, can after a stage of accumulation, become a significant risk to the human body. Moreover, an anthropocentric view, totally disregards the effect of even de-minimus or trace contaminants can have on humans or lower animals and fishes, as well as the marine biota and organisms.

Claims for environmental damage would also involve a higher standard of care or burden of proof applicable when undertaking an obligation to avoid transboundary harm. Even if it were accepted that a rule for preventing transboundary harm does exist, one would need to justify an accepted standard of care for imposing strict or absolute liability. In the absence of proof of care of due
diligence, the civil liability regimes have established absolute or strict liability with certain exceptions. However, in case of radioactive waste dumping the operator of the vessel or the aircraft, is strictly liable, albeit with a number of exculpatory provisions.

Along with a legal claim we would require to fulfil test of imputability of the operator/State for having caused the wrongful act or those involved in radioactive dumping are to be held responsible for nuclear damage. Issues of attributability or imputability would require proof that such operator was under the control of the state or other organizations within the jurisdiction of the state. To offset such jurisdictional problems, as well as those of imputability the civil liability conventions for nuclear damage clearly established the liability of the operator with certain defences for exempting liability. For the purpose of the present study, this would entail fixing the primary liability on the operator of the vessel/aircraft undertaking dumping activities. However, such situations cannot cover the large instances of clandestine dumping of radioactive waste where the operator is not known. Besides, there can also be situations where the State and the operator are the same entity. Such a situation was seen in case of the Russian Federation where the Navy was involved in disposal of nuclear wastes produced from civilian as well as military use.

In a case for environmental damage, it is also important to know what is the relief sought? Traditional law of international responsibility provide for reparation and compensation. As per the
Chorzow Factory (Indemnity)(Merits) Case,\textsuperscript{73} the remedy by way of reparation will lie when an obligation provided under a convention has been violated. Such reparation can be in kind, monetary terms or \textit{restitutio in integrum}.

While \textit{restitutio in integrum}, which shall entail restoring the environment to its earlier self before nuclear damage occurred would be an onerous task to undertake, it would be the best remedy available as the polluting State can be made responsible for not only present, but also future damages.

Identification of the cause of action will involve proof of environmental damage based on a violation of an international obligation and the rules of evidence.

\textbf{\textit{5.7.2. Rules of Evidence and Violation of Existing International Obligation}}

To be able to bring a claim for environmental damage, evidence or fault of the polluter will have to be proved. It is sad that many of the sectoral civil liability regimes, the work of the ILC on “Allocation of Loss”, as well the liability regime envisaged under the London Convention, all provide for a fault-based liability. Although some may argue that the civil liability regimes provide for strict liability, the exculpatory provision in the Paris and the Vienna Conventions provide sufficient leeway to show that the operator is primarily liable for the damage caused.

Radioactive waste once dumped gets scattered over a period and would there require proof of the polluter’s culpability. The

\textsuperscript{73} PCIJ Reports, Series A, No.17, (1928), pp. 46-48.

309
pollution Victim/claimant State will have a difficult time tracing the actual dumping state or the operator who caused the damage. Under traditional customary international law there is no clear standard applicable to absolute liability for prevention of transboundary nuclear harm. What is provided for is a generally required is only a duty of due diligence that does not cause damage to the environment of other state.

For proof of transboundary radioactive damage would require evidence that will withstand judicial scrutiny. A claimant State will have to prove beyond reasonable doubt (test of preponderability) that the pollution damage has been caused by a particular incident having occurred in the territorial waters of another State or the nexus of the damage is with neighbouring state or State that is alleged to have dumped radioactive substances.

This by any standard will become an impossible task, if the claimant State cannot provide scientific evidence that fulfils the test of proximity of damage and not that of foreseeability or remoteness. In case of ocean dumping of radioactive wastes, this situation is partially changed as the 1996 Protocol to the London Convention, now adopts a precautionary approach whereby the burden of proof is on the defendant to come clean and show that the dumped substance was not hazardous.

It however, remains to be seen whether the “greening” of the Convention would be translated into action whereby majority of the dumper States ratify the Protocol, for it to take effect.
5.7.3. Harm to the Environment per se or to the Global Commons

How does one sue for damage to the environment per se? It is seen that claims for compensation for radioactive damage are largely brought against damage caused to persons and the property. Rarely has the damage to the environment been subject matter of a treaty. Questions relating to the state of origin from which a State undertook the dumping activity, the burden of proof for establishing a causal link between the dumping state and the injuries suffered by the claimant State, do not have any established rules of procedures. Moreover, how does one measure damage to the environment.

Areas beyond of national jurisdiction, some would argue are terra nullis, but in reality they are res communis. While these areas, open spaces or global commons are not regulated by any national law, customary law provides that reasonable regard be shown to rights of neighbouring States.

States suffer from lack of locus standi to be able to bring a claim for harm to the global commons. As was seen earlier few or none of the international conventions recognize claim/compensation for the environment per se. The concept of erga omnes obligations wherein States owe a duty to the international

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74 Exceptions include a number of conventions in the Antarctic treaty regime.
Community as a whole is not well recognized in international law. Recognition of such a duty would call for an *actio popularis* or international public interest litigation for the preservation of the marine environment. Though there is growing literature on the subject, State practice is limited.

Moreover, the time factor (inter-temporal element) plays a very important role in cases of radioactive pollution, as the effects of dumping are not known for years together. The effects of pollution on the human body and marine life caused by low-level radioactive waste can only be known after long periods of gestation. The work of Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP) and the International Commission for Radiological Protection (ICRP) are a testimony to this fact.

The environmental harm caused by radioactive waste pollution is often cumulative in nature, as the effects are only known once the human body or the marine life have undergone serious mutational and cellular changes. The effects of radioactive damage being so catastrophic, calls for the need to establish *precautionary funds* to be able to meet future requirements of

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pollution victims. Examples of similar funds are found in the proposal by the United Nations Conference on Trade and Development (UNCTAD) to impose an international carbon tax of emitter of greenhouse gases.\textsuperscript{79}

Also, the Oil pollution Fund Convention and the International Convention for Prevention of Marine Pollution (MARPOL) 73/78 provide for the establishment of a precautionary, future compensatory fund, which will be used to provide compensation for activities, which are harmful to the human life and the loss of environment \textit{per se}. The Lockheed case\textsuperscript{80} as well as those relating to the Three Mile Incident\textsuperscript{81} and the Chernobyl disaster, provides instances wherein the needs of future victims of nuclear fallout and their medical upkeep, point towards establishment of future precautionary funds.\textsuperscript{82}

\textsuperscript{79} A study was undertaken by Michael Grubb, one of the lead authors of the Intergovernmental Panel on Climate Change (IPCC) Working Group II on carbon emission trading, in the run-up to the adoption of the Kyoto Protocol.

\textsuperscript{80} Friends for All Children v. Lockheed Aircraft Corporation, F 2d, 816, District Court, 1984, p.746.


\textsuperscript{82} However, there are few judicial decisions taking an \textit{ad hocist} approach to the issue of compensation. In the pollution of Rhine cases, even when it was established that the French potassium mines situated in Mulhouse were responsible to the damage caused in the Netherlands, expert opinion was called for quantification of the amount of damage. As such quantification could not be established the Parties agreed to a lump sum payment of damages. Similar was the case concerning the oil spill caused off the coast of Brittany by the oil tanker Amoco Cadiz, where the Court of First Instance, the District Court of Northern Illinois stating that the owner of the wrecked ship, the Standard Oil Company of New Jersey was responsible for damage, held that it was extremely difficult to be able to quantify the compensation to be awarded. While a number of fishermen had filed class action suits and spirited NGO's argued for establishment of a future claims compensation fund or damage to the environment, compensation finally awarded was only for the material damage suffered,
From an ecological angle, assessment of the damage caused to marine life and ecology is not always feasible or possible for several reasons. Once radioactive substances have been dumped, it is impossible to recover these pollutants. The quality of the waters of the sea would be polluted for a long time to come unless the radioactive substance completely disintegrates. This we have seen could take couple of thousands of years of even more. Moreover, diffused sources will severely effect and impede an impartial or fair investigation of the damage caused. The monetary compensation that is awarded is largely for present day assessed damage. However, this does not take into account future damages for environmental harm caused by radioactive substances.

5.8. Rules of Private International Law

Suggestions have also been made to apply rules on private international law for transboundary damage. Issues of private international law such as law proprio (proper law of contract), lex fori (law of the forum) have been used for the enforcement of judicial decisions with regard to damage caused to the environment. However, there are conflicting views on how to apply rules of private international law to the subject of environmental damage. One view believes the traditional rules would apply the law of the polluter or defendant whereby the claimants would have to sue before the courts of the polluter.
The other believes that the victim was in no way responsible for the injury suffered, as he had not gone to the territory or the land of the defendant for the damage caused. This divergence in state practice has often resulted in parties resorting to forum shopping for availing maximum compensation. As was held in the case of HandleSkewrij G.J. Bier v Mines de Potasia d'alsse SA,83 where the Court of Justice of the European Communities applying the principle of forum shopping held that in such a situation the victim can choose the forum for filing his claim for compensation, depending upon how easy and how much compensation will be awarded to him.

With respect to lex fori it is often seen that the Tribunal decides the law to be applied. However, in some cases, a plaintiff's choice of rule has also been accepted. For the purpose of the present study, it has seen that no single form of compensation can be said to be the most feasible in a given situation. Claims for compensation for radioactive waste pollution could apply either rules of private international law or the traditional rules of state responsibility and the evolving regime on liability.

And lastly, issues of nuclear damage require specialized tribunals and enforcement mechanisms as has been provided by the Optional Protocol to the Vienna Convention. Traditional dispute settlement mechanism such as those of the compulsory

jurisdiction of the ICJ could involve difficulties as very few States have accepted the compulsory jurisdiction of the statute of the ICJ.

With regard to civil liability regimes, it may be stated that though these regimes have established a deterrent absolute liability regime, these regimes do not apply to cases of damage to the environment *per se*. Moreover, a number of States who are major users of nuclear energy are still not Parties to these conventions. These liability regimes provide compensation for a very small amount and do not include in their ethic, the concept of future damages. There is also a time bar of ten years for bringing of suits for nuclear damage.

This period may appear ridiculous as the effects of nuclear substances can be seen after thousands of years because of their differing levels of radioactivity and their standard half-life periods.

Lastly, it is also seen that the operator alone is held responsible for nuclear damage and state is absolved of any liability or has only residual/supplementary liability. The deep pocket theory propagated by Calabresi,\(^8\) would require that claims be brought against the party that is in the best position to pay compensation as that party is not only in the best position to pay, but also because it derives the maximum amount of benefit. In incidents where the operator is unable to pay because of either

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grave natural disaster or *force majeure*, the State should intervene to supplement the compensation to be paid.

While remembering all these grounds for compensation, it is often forgotten that there may be genuine exculpatory defences for dumping radioactive wastes. These include: absence of obligations (doctrine of laches or no clear obligations to preserve the environment); contributory negligence (will not stand the test of judicial scrutiny, for you cannot claim contributory negligence, if you dump hazardous substances in the territorial seas or high seas surrounding my EEZ); act of God (genuine defence); impossibility of performance of obligations (too risky a defence for a operator to take); beyond due diligence (standard of care without any rigors, this has changed after the 1996 Protocol to the London Convention); and the necessity or opting for lesser harm, while trying to avoid a greater harm (to save life, a ship full of radioactive waste can be dumped at sea. However, such situations could occur in the 19th century ships where you had to off-load goods to maintain weight and balance. However, the same cannot be true of modern ships, which carry goods many times their weight and are fitted with state-of-the art life saving gadgets.)

The topic is intended to cover activities, which are not expressly prohibited under international law because of the beneficial role in society. Moreover, States have viewed it as a sovereign right to conduct activities in their territory. From the ambit of its definition, an attempt is being made to see whether
“radioactive dumping could fall into the category of activities involving a risk of causing significant transboundary harm through their physical consequences.”

However, its very substance could very well fit in for the purpose of the present study, as dumping of radioactive waste is not an activity totally prohibited under the London Dumping Convention.

5.9. Conclusion

The importance of the ILC work on prevention of transboundary damage by hazardous substances can be assessed in two ways. First, the collective aggregation in a single draft convention/agreement of principles relevant to international environmental law; and second, the triggering of the rules of allocation of loss/liability or the apportionment of compensation to the innocent victim (not necessarily the State concerned) after establishment of primary liability by the polluter or operator.

It must also be borne in mind that as of date, the ILC as well as Sixth Committee of the United Nations have adopted rules on state responsibility and it is expected that these draft articles may be placed before diplomatic conference for adoption in the form of a convention. To reiterate again, many aspects of state responsibility have attained customary law status and hence adoption of a convention would only further strengthen their status.

The principles of prevention largely flow from the customary law maxim of sic utero tuo and provide for a pre-liability phase for
management of hazardous substances. The importance of the concept of prevention to the issue of radioactive waste dumping cannot, but be overemphasized. Principles of prevention also give rise to a host of other principles, which we have enumerated in Chapter 2 of the present study.

The precautionary rule, which is largely of recent origin, is an essential corollary of the principle of prevention. Radioactive substances when dumped cause damage that not only is irreversible, but also largely untraceable because of the flow of ocean currents and also the intermingling with other pollutants.

The real germane issue of relevance to the present study is the harm to the global commons. This aspect was given short shrift by the present study on "allocation of loss," by the Commission. States are largely concerned with channelling of liability, just like those by the sectoral Conventions, which we have examined in the course of the Chapter.

The remedy of restitutio in integrum too cannot work in cases of radioactive waste dumping, as the cement canisters used for disposal often cannot be traced. Moreover, issues of liability, which have been debated in different international and regional fora, have not been able to conclude a full proof agreement without exculpatory clauses in emergencies.

The dangers emanating from substances that have been dumped need to be controlled and managed before the hazardous effects take place. In this regard, the work on Prevention of
Transboundary harm from Hazardous Activities needs to be appreciated as it forms an important basis and essential part of the larger regime on international liability.

In light of the views expressed above, it is surmised that although the London Convention has not taken up the study of liability on account of the moratorium, it is a topic that merits a full-fledged study. The work of the Commission especially on prevention and allocation of loss, could help immensely in formulating rules of liability for dumping of radioactive wastes at sea.