Chapter-4

Regional Efforts to Regulate Dumping of Radioactive Wastes
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4.1. Introduction

Against the backdrop provided by the international regime of the 1996 Protocol amending the London Convention, it is our endeavour to examine the efforts made by the international community on a regional basis for protection of the seas in general, and preventing radioactive dumping at sea in particular.

Apart from international legal framework provided by the London Convention 1972 (as amended by the 1996 Protocol) there are a number of regional conventions, as well as instruments adopted under the regional seas programme of the United Nations.

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Environment Programme (UNEP), which play an important role in regulating ocean dumping.

In fact, Article 197 of the UN Convention on the Law of the Sea (UNCLOS) 1982, establishes the basis for regional cooperation, when it provides:

States shall endeavour to harmonise the policies in this connection at the appropriate regional level. It further provides that States, acting specially through competent international organizations or diplomatic conference, shall endeavour to establish global and regional rules and standards and recommended practices and procedures to prevent, reduce and control pollution of the marine environment from land based sources, taking account of characteristic regional features, the economic capacity of developing States and their need for economic development.

The drafters of UN Convention on the Law of the Sea had clearly envisaged that different regions may require separate and more stringent regimes for regulating marine pollution, even when the Convention laid down the general obligation to protect and preserve the marine environment.

It is against this backdrop that the ensuing Chapter seeks to address the following issues:

(a) Compatibility of a global regime vis-à-vis a regional one;
(b) Specific regional conventions addressing dumping of radioactive waste such as the North East Atlantic Region, Baltic region, which are not regulated under the auspices of the UNEP Regional Seas Programmes;
(c) The efforts of UNEP towards establishing a global network of a regional seas programmes towards protection and preservation of the marine environment; and
(d) A specific case study of Russian nuclear waste disposal programme.
4.2. Global Regime vis-à-vis Regional Regime

In 1972, with the convening of the United Nations Conference on Human Environment (UNCHE) a number of principles and recommendations defining objectives towards environmental protection were enunciated and given effect in various international and regional instruments. One of the immediate fallouts of the UNHCE was the establishment of a specialized agency the United Nations Environment Programme (UNEP), exclusively devoted to environmental matters.

While bearing in mind that more than hundred coastal states are involved in these regional seas programmes, it would be pertinent to weigh the benefits of following a regional approach to combat ocean-dumping vis-à-vis an international regime.

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However, the UNEP Regional Seas Programmes would be addressed later during the course of the chapter.

Before the International Oil Pollution Convention\textsuperscript{7} was adopted there was not a single regime regulating marine pollution prevention and control. It was only, later, in 1958 that the Geneva Conventions on the Law of the Sea\textsuperscript{8} was adopted. This apparent lack of international concern led to growth of regional trends, wherein the industrialized countries of Europe adopted a number of marine pollution control instruments, peculiar to the needs of their region.

There can be several reasons for advocating a regional regime over that of global approach to protect the marine environment.\textsuperscript{9} First, it is seen that a regional approach takes into consideration the economic, geographic and the ecological needs of the marine region. Due to this, most of the countries are able to formulate

\begin{itemize}
\item United Nations Treaty Series (UNTS), vol. 327, (1954), at p.3.
\end{itemize}
their policies on the basis of a coordinated and concerted approach taking into account the local conditions and needs of the region.\textsuperscript{10}

Secondly, coastal States have a common interest as against individual actions for the protection and improvement of the shared common area. This has been called the "dilemma of common aversion".\textsuperscript{11} An advantage of a regional approach is that States (developing and developed alike) co-operate in a common concern for the protecting marine environment.

This is especially seen in the Mediterranean region where the developed countries provided special assistance and financial aid to some developing countries of the region for coping with the pressures of preserving the marine environment.\textsuperscript{12} A regional approach also helps to water down the principle of sovereignty, wherein States co-operate for the common cause of preservation of the marine environment on the basis of a holistic normative structure that has been created.

Thirdly, regional co-operation often helps in cutting across political and ideological barriers for preserving the marine environment. This is easily perceived in the regional cooperation


amongst the Baltic States where a number of erstwhile communist countries who did not have a full-fledged environmental regime in place, received assistance from other countries of the region.

Lastly, apart from the reasons mentioned above it may also be added that because of economic homogeneity, as well as, commonly shared desires and values, regional approaches often provide for more stringent regime for combating marine pollution, as compared to a global one. These regimes are influenced by various principles, declarations and recommendations adopted by the regional community. An example of this could be the OECD region or the countries of the European Community. With a common goal and stringent domestic legislation and policy, the OECD countries have adopted principles such as ‘precautionary approach’ and the ‘polluter pay’ and guidelines such as Best Environmental Practice (BEP) and Best Available Technique (BAT) for dealing with environmental problems.

Besides, the decisions of the European Community are binding on all the Member States. There is also evidence to show that regional agreements involving homogenous developed States adopt systemic approaches to tackle the problem of marine pollution holistically and not by piecemeal means. A shining example is the Mediterranean Action Plan (MAP), which addresses
pollution of the region caused by noxious substances, by vessels, by dumping and also from land-based sources.\textsuperscript{13}

However, notwithstanding these obvious advantages of the regional approach, it needs to be noted that an international regime can be more suited because of its vast range, as well as the fact that all-the developed, developing and under developed are a part of it.

Regional approaches often fail to promote uniformity as regards application of international norms and standards, which are required for implementing international laws.\textsuperscript{14} They are not suited for control of certain pollution activities. Examples of these can be vessel-source pollution and pollution caused by nuclear activities. In both these instances it is important that all countries follow the standards set by the International Maritime Organization (IMO) and the IAEA respectively.

It may also be added that regionalism often can become a club of developed countries who are able to control pollution based on their economic superiority, but may be unable to comply with global standards, as is the case with London Convention.

While some have argued that a global regime on the subject of ocean dumping such as London Convention would suffice for

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establishment of global rules, the reality with the European States is different. Immediately after the London Convention was adopted, they adopted the Oslo Convention on Dumping of Wastes from Aircrafts and Ships in 1974.\textsuperscript{15} What can be made of such an effort, perhaps that the developed countries having reached an advanced stage of industrialization, wanted more stringent standards of pollution control or felt more comfortable having a regional regime on the same subject comprising homogenous States.

While in the earlier chapter, we saw how the global regime—the London Convention works, in this chapter it would be our endeavour to study the different marine regions of the world and their efforts to regulate dumping of radioactive wastes.

It is, also felt, that it would be easier to undertake a region wise study, beginning with the North Sea and Baltic Sea regimes, which incidentally, do not have a UNEP regional Seas programmes, but separate and also more stringent regimes.

4.2.1. The North Sea Regime\textsuperscript{16}

The area of the North Sea is semi-enclosed with a volume of about 47,000 cubic kilometres and an average depth of 70 meters. Despite covering only 0.2 percent of the world’s oceans, it amounts for 4 percent of the world’s total fish catch. Moreover, it is also one

\textsuperscript{15} Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft (Oslo), ILM, vol.11 (1972), pp.262.

of the busiest sea trafficking routes on account of production of offshore oil and gas.

The North Sea environmental regime consists of a two-pronged approach i.e. a traditional legal (convention) based approach and a political (conference) approach.\textsuperscript{17}

The environmental regime consists of the Agreement for Cooperation in dealing with Pollution of the North Sea by Oil (Bonn Agreement 1969),\textsuperscript{18} the Oslo Convention for the Prevention of Pollution by Dumping 1972, and the Paris Convention for the Prevention of Marine Pollution from Land based Sources, 1974.\textsuperscript{19}

For the purposes of the present study, we would concentrate on the work and functioning of the Oslo Convention, which regulates amongst others, dumping of radioactive wastes.

\textbf{4.2.1.1. The Oslo Convention}

The Oslo Convention was adopted in 1972 and entered into force on 6 July 1974. It was one of the earliest conventions to regulate pollution of the marine environment. Initially it covered dumping of wastes at sea by ships and aircraft and was later amended to include incineration of wastes at sea.

The Convention owes its origin to the attempt by a Dutch ship, \textit{Stella Maris} to dump 650 tones of chlorinated waste in the northern region of the North Sea, as discussed earlier. However,
owing to strong public protest as well as governmental intervention the ship was made to return without dumping.

Another Convention also adopted in 1974, which entered into force in 1978, was the Paris Convention that regulated pollution entering the North Sea from international watercourses and other land-based sources.

4.2.1.2. The Oslo and Paris (OSPAR) Convention\textsuperscript{20}

In 1992 the Oslo Convention, as well as the Paris Convention that regulate marine pollution from land-based sources were clubbed together to form the OSPAR Convention. It was felt that such a move would be in the best interest of the region to unify and further simplify all the sources of pollution of the area, into one single unified convention. The OSPAR Convention was signed in Paris on 22 September 1992 and entered into force on 1998.

The OSPAR Convention (Convention) consists of 34 articles and four annexes. Annex II deals with the Prevention and Elimination of Pollution by Dumping or Incineration. It is a comprehensive convention that takes into account all aspects of marine pollution. The preamble “recognizes that concerted actions at national, regional and global levels are needed...to eliminate marine pollution and achieve sustainable management...”

“Pollution” defined as “introduction by man, directly or indirectly, of substances or energy into the maritime area which results, or is likely to result in hazards...” shows the influence of the precautionary rule. Moreover, the term ‘sustainable management’ instead of the more common ‘sustainable development’, points to a pro-preservationist or ecosystemic approach rather than an ‘anthropocentric, developmental’ one.

The scope of the Convention includes:

Internal waters, terrestrial seas, EEZ of the Parties, as well as high seas, including the beds of all the waters and subsoil situated in North East Atlantic, Arctic oceans, including the North Sea, but not the Baltic and Mediterranean Seas.

It introduced a listing system, wherein the grey list allows for dumping of substances with special permits and the black list totally prohibits dumping of hazardous substances, among which radioactive waste was one of the foremost substances to be banned.

The Contracting Parties are obligated to take all possible steps to prevent and ‘eliminate’ marine pollution applying the two cardinal principles of precautionary approach and the principle of polluter pays. The precautionary principle reads:

The preventive measures which are to be taken when there are reasonable grounds for concern that substances or energy introduced directly or indirectly, into the marine environment may bring about the hazard to human health, harm living resources and marine ecosystems, damage amenities or interfere with other legitimate uses of the sea, even when there is no conclusive evidence of a causal relationship between inputs and effects.
The word ‘eliminate’ signifies a more stringent standard or regime than the UNEP due diligence test of “prevent, reduce and control.”

The polluter pays principle in the Convention provides that “costs of pollution prevention, control and reduction measures are to be borne by polluter.”

Apart from these two guiding principles, Article 3 of the Convention calls upon Parties to use Best Available Techniques (BAT) and clean technologies in the implementation of the programmes and measures aimed at meeting the objectives of the Convention. Other rights provided under the Convention include the right of access of general public to information regarding the state of the maritime area and the measures introduced in accordance with the convention.

As regards the institutional mechanism, Article 10 of the Convention provides for the establishment of a Commission consisting of all the Contracting Parties. The OSPAR Commission is responsible for administering the Convention and also drawing up the strategies on international agreements covered by the agreements. The Commission plays a central role supervising, monitoring and implementing various programmes drawn up for prevention and control of dumping.
4.2.1.3. OSPAR and Problem of Radioactive Waste Dumping

It is common knowledge that radioactive waste dumping in the North – East Atlantic commenced in the early 1950s. Under Article 4 of the Convention all Contracting Parties agree “to take all possible steps to prevent and eliminate pollution by dumping or incineration....as provided in Annex II.”

There are two interpretations to this obligation. One, that the Convention adopts stringent measures wherein Parties are called upon to take all steps possible to ‘prevent and eliminate’ dumping irrespective of their capacities to do so. On the other hand there is criticism that the obligation is rather hortatory and does not in any way proscribe dumping of radioactive wastes, owing to the pressures exerted by France and UK in the OSPAR Commission.

4.2.1.4. Intransigence of the United Kingdom and France to Circumvent OSPAR Provisions

In this regard, it is an open secret that France and UK have played a rather dubious role in undermining OSPAR commitments and keeping the option of ocean disposal at sea open. The UK has long been accused of using the Irish Sea for dumping its military ammunition and other radioactive wastes. On 7 November 1997 the UK Government of the day accepted in Parliament that it had dumped radioactive material in the Irish Sea off the coast of Anglesey.21

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What was known by many, but not officially confirmed was the fact that the Ministry of Defence of the UK had clandestinely dumped through the fifties, sixties and seventies huge amounts of radioactive wastes, chemical weapons and other ammunition in a number of non-regulated dump-sites off the coast of Scotland and Ireland.22

Most of this dumping took place in the Beaufort Dyke and the Channel Islands. The Greenpeace expose also revealed that nearly 28,500 barrels of radioactive waste were dumped by UK in its territorial waters in the Hurd Deep, off the coast of Channel Islands.23 The barrels dumped somewhere between 1950 and 1963, lie at a shallow depth of only 100 meters on the seabed. It is shocking to note that according to the IAEA's 1999 Global Inventory of Radioactive Wastes in the Marine Environment, the total inventory of the Hurd Deep is a staggering 57,942 Giga Becquerel.24

The mix-up of chemical weapons, with other ammunition and radioactive wastes forms an extremely potent combination. What is worse is that all these toxic substances are often swept to the shore due to the changing oceanic gradient and tidal waves. Nearly 700,000 tonnes of such toxic wastes have admittedly

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22 See ibid., for work of the Celtic League, an organization championing the cause of cleaner oceans in Scotland.
23 Ibid., pages 2 and 3.
disappeared, rather been dumped at sea, without any scope of monitoring or segregation from the public.

Added to this, is another instance by France and UK of attempting to circumvent the mandate of the London Convention and regional conventions banning dumping of radioactive wastes. The nuclear reprocessing facilities at Sellafield (UK) and at La Hague (France) are reported to be discharging hundreds of million of litres of liquid radioactive waste into the sea. Moreover, the Greenpeace has recorded that the radioactivity from these plants has been detected in the marine life around the coasts of Scandinavian countries, Iceland and the Arctic and will affect the food chain and continue to threaten the health of millions of people in the region.

Despite mounting pressures from the States of the North Sea Conferences, UK and France have stood their ground and favour ocean dumping at sea, when no other options are available. The Hague International North Sea Conference held in 1987 adopted a statement that “disposal of radioactive wastes at sea or the seabed of the North Sea was not a suitable option as based on the

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recommendation of competent international organizations."26 At that time too UK had disagreed with the Hague Declaration.

During the negotiations of OSPAR, UK and France lobbied hard to incorporate their positions in the text. After protracted negotiations a compromise was reached, which appears more of a sell-out than a compromise! UK and France were allowed reservations to Article 3 (3) and sub-paragraph 3 (3) (b) of Annex II, which prohibits dumping of low-level and intermediate level radioactive wastes at sea. This reservation provides a moratorium on dumping for 15 years i.e. 1993 + 15 = 2008 until other alternate options for disposal are found. The only obligation they have is to report to the meeting of the OSPAR Commission that meets biennially.

This escape route can be further prolonged and extended, if in 2008 they require more time and can continue to retain the option of ocean dumping. The OSPAR decisions and recommendations are only binding if adopted unanimously which would mean that any opposition by UK and France, would lead them as victors.27

Both France and UK have claimed that using a discharge pipe from land territory to transmit radioactive wastes into the sea, does not amount to dumping as per OSPAR 1992 and the London

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26 See Andresan, n.17, p.383.
Convention. It is submitted that the London Convention is very clear and unambiguous on this count. Article 3 of the Convention provides that dumping means:

(i) any deliberate disposal at sea of wastes or other matter from vessels, aircraft, platforms or other man-made structures at sea;
(ii) any deliberate disposal at sea of vessels, aircraft, platforms or other man-made structures at sea....

From the definition it is amply clear that dumping would include disposal of any “man-made structure” and a discharge pipe to empty liquid radioactive wastes would surely constitute dumping.

4.3. Political Approach

Apart from these Convention processes, the second important aspect of the North Sea regime is the International North Sea Conferences (INSC).28 The political approach enunciated by these conferences signifies the policies of the regions towards harmonizing actions of all the parties.

The first such conference was held in Bremen, Germany in 1984. And a second conference was held in London in 1987. However, it is the 1998 conference held in Sintra, Portugal, which laid down clear policy guidelines for prohibiting disposal of radioactive wastes at sea.

4.3.1. Sintra Statement of the OSPAR Commission with Regard to Radioactive Substances

The Sintra meeting of the OSPAR has gone down as one of the most important policy efforts of the North Sea States to save the area around the North Sea and the North-East Atlantic from pollution caused by radioactive substances. The Statement was adopted unanimously (except France and UK) to ban the dumping of low level and intermediate level radioactive waste. The Contracting Parties also agreed to prevent pollution of the maritime area from ionizing radiation through progressive, substantial reductions of discharges caused by radioactive substances, with an ultimate aim of the concentration of the environment to reach “near background values for naturally occurring radioactive substances and close to zero to artificial radioactive substances”.

The OSPAR strategy also states that by the year 2000 “the OSPAR Commission will, for the whole maritime area, work towards achieving further substantial reductions or elimination of discharges, emissions and losses of radioactive substances”.

The OSPAR strategy while undertaking this objective would have to take into account three factors:

(i) Legitimate uses of the sea;
(ii) Technical feasibility; and
(iii) Impacts of radiological substances on man and marine biota.

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29 OSPAR 98/14/1- E, Annex 35, paragraph 1.1.
30 OSPAR 98/14/1 - E, Annex 35, paragraph 4.1 (a).
Moreover, OSPAR 2000 established the Radioactive Substances Committee (RSC) to facilitate the implementation of the OSPAR Strategy. It may be worth noting as to what are the terms of reference of the RSC? While implementing the OSPAR Plan of Action and taking into account all the recommendations and methodologies to be used and the legally binding international instruments, the RSC shall:

(i) identify the pressures and their impact on the marine environment;
(ii) assess the effectiveness of various programmes and measures and the need and scope for further action;
(iii) undertake development of studies and prepare draft descriptions of better BAT and BET;
(iv) prepare draft recommendations, decisions and other measures for the progressive and substantial reduction of discharges, emissions and losses of radioactive substances;
(v) assess the compliance of Contracting Parties with agreed programmes and measures; and
(vi) coordinate the work and exchange information with other Committees of OSPAR and report on its work to the OSPAR Commission.

As regards radioactive substances the statement clearly brings out the views of the Contracting Parties to the OSPAR Convention that the dumping of the substances, including discharging emissions and losses and the concentrations in the environment near background values for naturally occurring radioactive substance and artificial radioactive substances should be zero or close to zero.
It however, may be noted that these policy statements are largely non-binding in nature, although they have a very important moral and persuasive role to play.

At the Conference of the North Sea held in Copenhagen in June 2000, issues relating to reprocessing of nuclear wastes and the discharges into the sea from nuclear reprocessing facility were discussed. The OSPAR Decision 2000/1 adopted by the Contracting Parties called for "substantial reductions and elimination of discharges, emissions and losses of radioactive substances, with special emphasis on nuclear reprocessing." This decision was largely based on the efforts of Denmark and Ireland, who called for stoppage of dumping/release of nuclear substances by the Sellafield and Dounreay (UK) and the La Hague (France) nuclear plants into the Irish Sea.

Particularly, Ireland has been protesting that the discharge of these nuclear substances would amount to an indirect dumping of nuclear waste and it has raised this issue before the Consultative Meeting of the London convention as well as in the MOX Plant case brought before the International Tribunal of Law of the Sea.31

Lastly, the Copenhagen meeting also adopted a decision for a more detailed implementation of the OSPAR strategy to reduce the discharge of radioactive substances into the sea, as was considered

at the Sintra meeting in 1998. The Bergen Declaration of the North Sea States (2002) also resolved to undertake measures to halt release of radioactive wastes at sea.\footnote{See website of the Ministry of Environment, Norway \url{http://www.odin.dep.no/md/nsc/declaration p.31}, paragraph 68.}

4.3.2. Baltic Sea\footnote{This area comprises Sweden, Denmark, Germany, Finland, Russian Federation, Estonia, Latvia, Lithuania and Poland and the EC.}

Another regional sea not regulated by the UNEP Regional Sea programme is Baltic Sea. With an area of about 370,000 square km and volume of 21,000 cubic km, the Baltic Sea is the largest body of brackish water in the world. More than 85 million people live in that area.


The Helsinki Convention was adopted on 22 March 1974 and entered into force on 3 May 1980. Article 3 of the Convention provides that all Contracting Parties "shall individually and jointly take appropriate legislative, administrative or other relevant
measures in order to prevent and abate pollution and to protect and enhance the marine environment of the Baltic Sea Area".36

It is a framework convention, which regulates different types of marine pollution. Certain fundamental principles such as the precautionary principle, the polluter pays principle, principles of best environmental technology (BET) and best available technology (BAT), govern the implementation of the Convention.

The Convention adopts a listing system of black, grey and white, like the London Convention for disposal of wastes.

With regard to radioactive wastes, the Helsinki Commission (HELCOM) the administrative body like the OSPAR Commission established a Group of Experts on Monitoring of Radioactive Substances (MORS). This included environmental monitoring and annual monitoring of releases from nuclear facilities discharging radionuclides into the Baltic Sea, in close cooperation with the IAEA.

As stated earlier, the 1974 Helsinki Convention was further revised by adopting a new Convention on 9 April 1992. This Convention will replace the 1974 Convention when it enters into force.

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Unlike the 1974 Convention, the 1992 Convention provides for a separate Annex dealing with “the exemptions from the general prohibition of dumping of wastes and other matter.” It has a few novel features, wherein the scope includes “internal waters,” to be able to eliminate all toxic substances from the Baltic Sea. A mandatory requirement of environmental impact assessment is provided for as a principle.

Like the North Sea States, a number of policy decisions have influenced these efforts to regulate dumping. These include the Ministerial Declaration in 1988, Baltic Sea Declaration 1990, Baltic Sea Environmental Declaration, 1992 and also the Gdansk Declaration on Resource Mobilization for the Joint Comprehensive Environmental Action Programme, 1993. All of these declarations have called upon Baltic States to “minimize or eliminate as soon as possible any pollution by radioactive discharge from all nuclear industries, including reprocessing plants into the marine environment...”.

After having seen the efforts made by the North Sea and States, it will be our endeavour to study the efforts of the UNEP in regulating radioactive waste disposal at sea.

4.4. UNEP Regional Seas Programme and control on Radioactive Waste Disposal

The UNEP has initiated fourteen Regional Seas Programme and Conventions for protection and preservation of the marine

37 Fitzmaurice, n.34, p.388 and 389.
38 Ibid., p.390.
environment, involving more than 150 countries. These include agreements concluded covering the regions of the Mediterranean, the Black Sea, the Wider Caribbean, West and Central Africa, East Africa, the Red Sea and the Gulf of Aden, the ROPME Area, the Pacific, South East Pacific, the North East Pacific, South Asian Seas, East Asian Seas, the North West Pacific, North East Pacific and the Upper South West Atlantic.

In 1974, the UNEP established the regional seas programme to be able to help and assist the coastal nations in their endeavour to mitigate and prevent the pollution and degradation of the world's coastal areas, inshore waters and open oceans. The Regional Seas Programme has been viewed by many as a "comprehensive, progressive assault upon the degradation of the marine environment."\(^{39}\) This programme is often tailor-made to suit the peculiar needs and circumstances of the regions.

It largely involves: an action plan for cooperation and the management, protection, rehabilitation and development of coastal and marine resources; an intergovernmental agreement in the nature of Framework Convention embodying in most instances a set of general principles and obligations, (although in some cases there may be binding obligations); and, detailed protocols dealing with specific regional problems such as oil spills, dumping, emergency co-operation and also specially protected marine areas.

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\(^{39}\) See L.K. Caldwell, *International Environmental Policy* (London, 1990), p.129; Also see generally Hulm n.6; Thacher and Nikki n.6.
As regards the legal scope of these regional conventions, they largely apply to their respective regions. However, in some cases invitations are open to States and other intergovernmental and international organizations to participate.

For the purpose of our study, it would be worthwhile to have a cursory glance at about 10 regional seas programmes and agreements and the different action plans for designated areas. It may however, be noted that not all of these regional programmes have highly evolved legal mechanisms to combat dumping of radioactive wastes, although, there are legal instruments governing marine pollution as a whole.

These Regional Seas Programmes cover areas of the Mediterranean Sea, the Black Sea, the South Pacific, South East Pacific, the ROPME (Kuwaiti) Area, West and Central Africa, the Red Sea and Gulf of Aden, Wider Caribbean and the East Africa.

The Upper South West Atlantic,40 South Asian Seas,41 the East Asian Seas42 and North West Pacific43 regions do not have developed regional programmes governing dumping or other aspects of marine pollution.

40 Countries of this region include: Brazil, Uruguay and Argentina.
41 Countries of this region include: India, Bangladesh, Pakistan, Sri Lanka and Maldives.
42 Countries of this region include: People’s Republic of China, Republic of Korea, Philippines, Vietnam, Thailand, Cambodia, Singapore, Malaysia, Indonesia and Australia.
43 Countries of this region include: Russian Federation, Democratic Republic of Korea, Republic of Korea and China.
4.4.1. Mediterranean Region44 (Convention for the Protection and Development of the Marine Environment and Coastal of the Mediterranean Sea (Barcelona Convention), Barcelona 1976)

This Convention also called the Barcelona Convention was adopted on 16 February 1976, and entered into force on 12 February 1978.45 It adopts the definition for pollution provided by the UN Convention on the Law of the Sea wherein 'pollution is largely regarded as anthropocentric'. It calls upon the Contracting Parties to undertake individual and joint due diligence measures to prevent, abate and combat pollution in the Mediterranean Sea area.

The Convention also calls upon the Parties to prevent pollution caused from a number of point sources. For the purpose of the present study, it would be germane to mention that Article 5 titled "Pollution caused by Dumping from Ships and Aircrafts" calls upon the Contracting Parties to take all appropriate measures to prevent and abate pollution of the Mediterranean Sea area caused by dumping from ships and aircrafts.

44 Countries of this region include: France, Monaco, Spain, Malta, Tunisia, Morocco, Algeria, Libya, Croatia, Slovenia, Italy, Bosnia and Herzegovina, Yugoslavia, Albania, Greece, Turkey, Cyprus, Syria, Lebanon, Israel and Egypt.
To keep pace with the growing environmental consciousness in the region, the Barcelona Convention was revised in 1995 and a new convention titled Convention for the Protection of Marine Environment and Coastal Region of the Mediterranean was adopted in 1995. Unlike the 1976 Barcelona Convention, the amended Convention provides for a set of general obligations.

These obligations follow a similar due diligence approach to prevent, control and reduce marine pollution. However, it needs to be noted that general obligations also include a more pro-active role by Contracting Parties wherein there are called upon to "...combat and to the fullest possible extent eliminate pollution from the Mediterranean sea area and to protect and enhance the marine environment in that area so as to contribute to its sustainable development".

The principle of "sustainable development" has been given the status of a general obligation under this Convention. This substantive obligation is further developed as Contracting Parties are bound by the obligation to undertake and apply within their capabilities, the principles of precautionary rule, the polluter pays, environment impact assessment and promote an integrated management of the coastal zones bearing mind the ecological needs of the region. Article 5 of the Convention titled "Pollution caused by Dumping from Ships and Aircrafts or Incineration at Sea" provides that "the Contracting Parties shall take appropriate measures to prevent, abate and to the fullest extent eliminate pollution of the
Mediterranean Sea area caused by dumping from ships and aircraft or incineration at sea.”

The Convention also provides for detailed institutional mechanisms within the auspices of the UNEP for implementation of the obligations provided thereunder.

A Protocol to the Barcelona Convention titled Protocol for the Prevention and Elimination of Pollution of the Mediterranean by Dumping from the Ships and Aircraft (Dumping Protocol) was adopted in Barcelona Spain 1976 and entered into force on 12 February 1978. This Protocol was succeeded by the Protocol for the Prevention and Elimination of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft and Incineration at Sea, 1995.

4.4.2. Black Sea (Convention on the Protection of the Black Sea against Pollution, Bucharest, 1992)

The Bucharest Convention was adopted on 21 April 1992 and entered into force on 15 January 1994. Similar to the Barcelona Convention, the Bucharest Convention adopts the definition of pollution provided by the UN Convention on the Law of the Sea. The definition of dumping is also in line with that of the London Dumping Convention definition. Dumping thus includes “any deliberate disposal of waste or other matter from the vessels or aircraft and any deliberate disposal of vessels and aircraft themselves”.

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47 Countries of this region include: Bulgaria, Ukraine, Russian Federation, Romania, Turkey and Georgia.
A general provision adopting international law proscriptions provides that the Contracting Parties will participate in the Convention bearing in the mind the “sovereign equality of the States, non-interference in internal matters, mutual benefit and respect for relevant principles and norms of international law”.

It is however, difficult to understand as to why the Convention provides sovereign immunity to State owned ships and warships that are anyway immune from the application of this Convention. In this regard, it may seen as no mere coincidence that during the erstwhile regime of communist rule in Soviet Union, the largest amount of clandestine dumping of radioactive waste was undertaken by State owned vessels and warships.

The Bucharest Convention is a framework convention and like all UNEP regional sea instruments, provides for a set of due diligence obligations to prevent, reduce and control pollution. Article X of the Convention specifically deals with pollution by dumping and calls upon Contracting Parties to undertake mandatory measures to prevent, reduce and control pollution caused by dumping in the Black Sea area. It also prohibits granting of any permits by Contracting Parties within their jurisdiction to allow dumping by natural or juridical persons hailing from non-Black Sea States. A novel section dealing with protection of the marine living resources is provided for under Article XIII of the Bucharest Convention. It calls upon the Contracting Parties to, not only, prevent, reduce and control
pollution in the Black Sea area, but also ask them to pay special attention to,

Avoiding harm to marine life and living resources, in particular by changing their habits and creating hindrance to fishing and other legitimate uses of the Black Sea, and in this respect shall give due regard to recommendations of the competent international organizations.

A detailed clause on responsibility and liability has also been provided for, wherein Contracting Parties have been called upon to adopt rules and regulations “on liability for damage caused by the natural or juridical persons to the marine environment of the Black Sea in areas where it exercises, in accordance with international law, its sovereignty, sovereign rights or jurisdiction.”

The Convention makes it mandatory for the Contracting Parties to harmonize their legal systems to be able to provide prompt and adequate compensation for the pollution caused by the marine environment.

An institutional mechanism in the form of a Commission has been provided for implementation of the Bucharest Convention. It is also important to note that the Convention does not provide for any form of reservation.

4.4.2.1. Protocol on the Protection of the Black Sea Marine Environment against by Pollution by Dumping

A Protocol was adopted along with Convention on 21 April 1992\textsuperscript{49} and it entered into force on 15 January 1994. Article 2 of

the Protocol provides "dumping in the Black Sea of wastes or other matter containing substances listed in annex 1 of this Protocol is prohibited". Annex 1 of the Protocol prohibits a number of substances, chief among them being "radioactive substances and waste, including used radioactive fuel."

The Protocol follows the listing system whereby permits are required for dumping of noxious, as well as, other wastes on the basis of their toxicity and scientific quality. It may also be noted that the Protocol follows the reverse listing procedure adopted by the 1996 Protocol to the London Convention, wherein only those substances that are listed are prohibited.

In such a situation there is a mandatory obligation upon the Contracting Parties to only allow substances of lesser hazardous value and risk, to be allowed for dumping. Moreover, such a reversal of listing also leads to the reversal of the 'burden of proof', whereby the dumper will have to show that all dumped substances are safe and it is not for the pollution victim to prove his case.

The precautionary approach prohibits the dumping of hazardous nuclear waste on the excuse that insufficient scientific evidence is available as to the future effects on human body and surrounding environment.

The Commission provided under the Bucharest Convention has been given an important role of monitoring dumping activities wherein competent national authorities who have issued permits
for dumping in accordance with Article 3, 4 and 5 would have to submit their records to it for perusal.

The Protocol also provides for a compulsory obligation to cooperate and exchange information on all activities concerning dumping and issuance of permits between the Contracting Parties. The Annexes appended to the Protocol form an integral part of the Protocol. Moreover, the characteristics and composition of the dumped matter will have to be taken into consideration while issuing permits for dumping at sea. The important factors that need to be taken into account include: amount of matter to be dumped, physical and biological properties, long term toxicity, persistence, bio-accumulation and transformation in the marine environment and the probability of the dumped substance affecting the marketability of marine resources, such as fishes.

Further, the Contracting Parties will also have to bear in mind the possible effects on the other legitimate uses of the sea while undertaking dumping.

It is also to be noted that the practical availability of alternate disposal options would have to be found to safeguard dumping at sea, which would entail exhausting land-based disposal options, before issuing permits for dumping of radioactive waste.

At the policy level too, it is seen that Black Sea States have adopted various regional policy decisions calling for a ban on radioactive dumping at Sea. The Odessa Ministerial Declaration on
the Protection of the Black Sea adopted on 7 April 1993 took a decision “to ban, with immediate effect, the dumping of radioactive materials in the Black Sea”.

4.4.3. South Pacific\textsuperscript{50} (Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, Noumea 1986)

The Pacific region comprises 22 island States with 33 million square km. area, i.e. nearly four times the area of the continent of Australia and three times that of USA. Even as it represents 6 per cent of the earth’s surface, land area of the region is only 2 per cent. There is great disparity among the islands in size and economic wellbeing. For example Papua New Guinea the largest State of the region is 93,000 times larger than the smallest island of Pitcairn.\textsuperscript{51}

The area around the Pacific has been one of the worst polluted due to the long standing policy of France to conduct underground and atmospheric nuclear tests in the Muraroa and Fangatufa Atolls in the South Pacific region and also the nuclear testing by the United States in the Bikini Atolls.

For the Pacific Islanders the ocean is a way of life. They are intrinsically involved with the oceans as a means of food source and a basis of their rituals, traditions and customs. It is because of

\textsuperscript{50} Countries of this region include: Federated States of Micronesia, USA, Republic of Marshall Islands, Nauru, Tuvalu, Kiribati, Cook Islands, France, Palau, Australia, Papua New Guinea, New Zealand, Fiji, Solomon Islands, Niue, Western Samoa and UK.

\textsuperscript{51} See generally J. Carew-Reid, Environment, Aid and Regionalism in the South Pacific (Canberra, 1989).
this link that any threat or destruction of the oceans is viewed as
destruction of their culture and way of life. The activities which
impact upon their marine environment include over fishing, use of
poisons and explosives for fishing, pollution from sewage,
fertilizers, toxic substances and numerous other anthropocentric
activities. Although the region has witnessed environmental
degradation from various sources, radioactive pollution and the
innate inability of the Pacific Island States to do anything, is one
that has caught the eye of the international community.52

Environmental issues were first addressed in the South
Pacific through the South Pacific Conference held in 1950. But it
was the US and French nuclear tests that brought the community
together. The efforts of non-governmental organizations, such as
the World Conservation Union or the IUCN, led to the adoption of
the Convention for the Protection of the Natural Resources and the
Environment of the South Pacific, also called the Noumea
Convention.

The South Pacific Regional Environmental Programme
(SPREP) was established in 1978. Though in the initial years it
functioned as a part of the South Pacific Commission, today it
functions independently. Presently, a host of conventions - the
Noumea Convention, the United Nations Convention on the Law of
the Sea 1982 and others regulate the South Pacific region. But for

52 See generally D. P Finn, "Nuclear Waste Management Activities in the
Pacific Basin and Regional Cooperation on the Nuclear Fuel Cycle" Ocean
the purpose of our study, relating to ocean dumping of radioactive wastes, we will concentrate on: the Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (the Noumea Convention), 1986 its Protocol, and the Raratoga Protocol.

4.4.3.1. The Noumea Convention

The Noumea Convention area comprises all the Pacific Island States, Australia and New Zealand. Besides these States, the scope of the Convention includes "areas of high seas which are enclosed from all sides by the 200 nautical mile zones." The Convention further permits addition of new areas within its geographical scope. Article 3 provides:

Any Party may add areas under its jurisdiction within the Pacific Ocean between the Tropic of Cancer and 60 degrees South latitude and between 130 degrees East longitude and 120 degrees West longitude to the Convention Area.

Adopting the London Convention definition on dumping, the Convention provides for a set of general obligations. These include a due diligence approach of preventing, reducing and controlling pollution caused by dumping. Parties shall utilize their fullest capacities towards this end and shall endeavour to harmonize their national policies. Bearing in mind the peculiar problems of the region, the parties are also called upon to formulate regional standards, agreed measures and procedures taking into

consideration international standards prescribed by various competent global and regional organizations.

Articles 10 of the Noumea Convention titled “Disposal of Wastes”, calls upon Parties to adopt a due diligence approach towards controlling pollution caused by dumping of wastes, which also includes “...prohibition of dumping radioactive wastes or other radioactive matter in the Convention area”.

To be able to save the seabed from dumping, Article 10 also provides:

Without prejudice to whether or not disposal into the seabed and subsoil of wastes or other matter constitutes ‘dumping’, the Parties agree to prohibit the disposal into the seabed and subsoil of the Convention Area of radioactive wastes or other radioactive matter.

A further extension of this resolve is seen, wherein disposal would also “...apply to the continental shelf of a Party where it extends, in accordance with international law, outwards beyond the Convention area.”

Article 12 is separately devoted to prohibition of nuclear testing. Although appearing to be a meek effort it calls upon Parties to take all appropriate measures to prevent, reduce and control pollution in the Area, which might result from the testing of nuclear devices.

The Noumea Convention calls upon Parties to “take appropriate measures to protect and preserve rare or fragile ecosystems and depleted, threatened, or endangered flora and fauna, as well as their habitat in the Convention area.”
Parties are also obligated to develop and maintain with the assistance of global and regional organisations, technical guidelines and legislation giving adequate emphasis to environmental and social factors to facilitate balanced development of their natural resources and planning of their major projects, which affect the marine environment. Other obligations include: cooperation in combating pollution in cases of emergency; scientific and technical cooperation; sharing of information and a clause on liability and compensation.

The South Pacific Commission serves as the institutional mechanism for implementation of the Convention.

4.4.3.2. Protocol to the Noumea Convention for the Prevention of Pollution of the South Pacific Region by Dumping, 1986

To be able to cope better, with the persistent problem of dumping of wastes, the Protocol for the Prevention of Pollution of the South Pacific by Dumping\(^5^4\) was adopted in 1986.

The Protocol also lays down the obligation to prevent, reduce and control pollution with due diligence. However, it must be noted that dumping in the territorial sea, the EEZ or the continental shelf of a Party shall not be carried out without the express prior approval of the Party. Any approval of such dumping will have to be undertaken pursuant to agreement of the other Parties to the Protocol and the geographical situation to be affected by the dumping operation. Parties are also called upon to ensure that

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national laws and regulations are consistent with relevant internationally recognized rules and procedures relating to dumping. Parties are under an obligation to undertake environmental impact assessments (EIAs) before undertaking any hazardous operation.

In tune with the global regime on dumping i.e. the London Convention adopts a listing approach whereby listed “prohibited substances” in Annex I of the Protocol are prohibited from dumping. A permit system is provided for issuance of special permits and general permits for dumping of substances listed in Annexes I and II.

It however, needs to be noted that certain exculpatory situations have been provided wherein an emergency situation “posing unacceptable risk to human health,” without any other recourse would make it obligatory upon a Party to issue a permit for dumping.

Under the Protocol, Parties would have to designate appropriate authorities that shall oversee dumping activities and are also responsible for implementation of the Protocol. The SPREP is the institutional mechanism responsible for assisting the Parties in preparation of reports as well as conveyance of notification of proposed dumping activities.
4.4.3.3. The South Pacific Nuclear Free Zone Treaty (Raratonga Treaty)


Although in essence, the Treaty is a nuclear free zone treaty, the reach of the agreement has wider ramification for radioactive contamination of the region.\textsuperscript{56}

The preamble of the Treaty, while emphasizing the catastrophe nuclear weapons can cause also reflects the resolve of the Pacific community whereby they are “Determined to keep the region free of environmental pollution by radioactive wastes and other radioactive waste matter.”

The Treaty has two provisions on dumping of radioactive wastes. Under Article 7 of the Treaty Parties undertake “…not to dump radioactive wastes at sea within the South Pacific nuclear free zone; and two, “…not to assist anyone in dumping such wastes at sea, in the zone”. It also obligates Parties “to support the conclusion of a regional protocol as soon as possible to the Noumea Convention which would preclude dumping of radioactive wastes at sea by anyone anywhere in the region.” Such an obligation was fulfilled by adoption the adoption of the 1986 Protocol to the Noumea Convention.

\textsuperscript{55} ILM, vol. 25, no. 5 (1985), pp. 1440-1463.
To add to these obligations, Parties are called upon to "...respect international law with regard to the freedom of the seas and ...to ensure that performance of obligations is verifiable by international standards."

4.4.3.4. Waigani Convention

As opposed to the Noumea and the Raratonga treaties, the Waigani Convention\(^5^7\) per se deals with the movement and disposal of hazardous wastes in the South Pacific region.

The Convention reflects inter-generational equity concerns of the region in the first preambular paragraph, which provides that Parties to the Convention are "...conscious of their responsibility to protect, preserve and improve the environment of the South Pacific for the good health, benefit and enjoyment of present and future generations of the people of the South Pacific". Further it adds that the Parties are "concerned about the dangers posed by radioactive wastes to the people and environment of the South Pacific."

Although, the Convention does not deal with radioactive waste disposal/dumping, Article 4 casts a 'general obligation' upon Parties. Paragraph 1 (a) of Article 4 titled "Hazardous Wastes and Radioactive Wastes Import and Export Ban," provides:

That each Pacific Island Developing Party shall take appropriate legal, administrative and other measures within the area under its jurisdiction to ban the import of all hazardous and radioactive wastes from outside the Convention area. ...further, such import shall be deemed an illegal and criminal act.

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\(^5^7\) Available at [www.greenpeace.org.au/toxics/government/waigani/html](http://www.greenpeace.org.au/toxics/government/waigani/html)
Paragraph 3 titled "Ban on Dumping of Hazardous Wastes and Radioactive Wastes at Sea" provides that "each Party which is a Party to the London Convention, the South Pacific Nuclear Free Zone Treaty, 1985, the United Nations Convention on the Law of the Sea 1982 or the Protocol for the Prevention of Pollution of the South Pacific Region by Dumping, 1986 reaffirms the commitment under those instruments which require it to prohibit dumping of hazardous and radioactive wastes at sea". Further, it exhorts States which are "...not a Party either to the London Convention or the Protocol for the Prevention of Pollution of the South Pacific Region by Dumping 1986, should consider becoming a Party to both of these instruments".

For reasons above, such a proliferation of lawmaking has led to establishment of an effective legal framework regulating entry, handling, transport, discharge, dumping and other activities associated with radioactive substances.

4.4.4. South East Pacific Region\(^5^8\) (Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific, Lima 1981)

The South East Pacific Region (Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific, also called the Lima Convention 1981, adopts the UN Convention on the Law of the Sea definition of 'pollution of the marine environment'. The Convention follows a due diligence

\(^5^8\) Countries of this region include: Panama, Chile, Peru, Ecuador and Columbia
approach to prevent, reduce and control pollution caused by dumping. Parties are also called upon to ensure that regulations and laws are consistent with accepted international standards on dumping. Principle 21 of Stockholm Conference is echoed in the general obligations, wherein Parties shall:

Take measures to ensure that activities under their jurisdiction or control are so conducted that they do not cause damage by pollution to others or to their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not, as far as possible, spread beyond the areas where the High Contracting Parties exercise sovereignty and jurisdiction.

Article 4 of the Lima Convention provides for a combined effort to prevent, reduce and control pollution of the marine environment, which includes combating pollution from land-based sources, dumping, vessels and installations.

It also provides for cooperation during emergencies, monitoring of pollution, a mandatory environmental impact assessment, exchange of information and data and a clause on liability and compensation. To further strengthen their resolve to keep radioactive contamination out of the South-East Pacific, a Protocol on radioactive pollution was adopted.

4.4.4.1. Protocol for the Protection of the Southeast Pacific against Radioactive Pollution, 1989

The Protocol to the Lima Convention\(^{59}\) of 21 September 1989 applies to the maritime area of the South-East Pacific within the

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200-mile maritime zone over which the High Contracting Parties exercise sovereignty and jurisdiction. It also applies to the entire continental shelf when the High Contracting Parties extend it beyond their 200 miles.

It provides for a detailed set of general obligations where the Contracting Parties agree, “to prohibit dumping of radioactive wastes and other radioactive substances in the sea and or on the seabed within the Protocol area.”

The Protocol also provides that Contracting Parties agree, “to prohibit all burial of radioactive wastes and other radioactive substances in the marine subsoil within the area to which the Protocol applies”.

The definition of dumping is more expansive than the London Convention, wherein dumping means,

Any deliberate disposal at sea of radioactive wastes and other radioactive substances from vessels, aircraft, platforms or other man-made structures at sea; any deliberate sinking at sea of vessels, aircraft, platforms or other man-made structures containing or transporting such wastes or other substances.

The Protocol provides for undertaking due diligence obligations for the prevention, reduction and control of radioactive pollution in the region. It makes it obligatory for all High Contracting Parties to enact national laws and regulations to prohibit the dumping and burial of radioactive wastes and other substances. It calls upon Parties to cooperate for exchange of
scientific information, monitoring programmes, cooperation in times of emergencies and training programmes.

A novel system of penalties imposing a compliance mechanism has been provided for, wherein “Each High Contracting Party undertakes to ensure compliance with the provisions of the Protocol and to take steps to prevent and penalize any activity in contravention thereof.” To ensure stringent compliance, no reservations are permitted under the Protocol.

The Permanent Commission for the South Pacific serves as the executive Secretariat and the institutional mechanism for the implementation of the Protocol.

The Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean, 1967 (Tlatelolco Treaty)\(^{60}\) also prohibits contamination of the marine environment by radioactive wastes and other substances.

4.4.5. **ROPME Region**\(^{61}\) (Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution 1978)

The Governments of Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates adopted the Kuwait Convention for the protection of the marine environment.

Like other UNEP conventions, the Kuwait Convention\(^{62}\) also adopts the Law of the Sea definition of the “pollution of the marine

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\(^{60}\) See, www.iaea.org/publications/documents/treaties/Tlatelolco.html

\(^{61}\) Countries of this region include: Iraq, Iran, Kuwait, Saudi Arabia, Bahrain, Qatar, the United Arab Emirates and Oman.

environment." It places due diligence obligations on all the Contracting Parties to prevent, abate and combat pollution of the marine environment in the Kuwait sea area. The Parties are called upon to establish national standards, laws and regulations on dumping which are consistent with established standards of the London Convention.

Article 5 titled 'Pollution caused by Dumping from Ships and Aircrafts states:

The Contracting Parties shall take all appropriate measures to prevent, abate and combat pollution in the sea area caused by dumping of waste and other matter from ships and aircraft, and shall ensure effective compliance in the sea area with applicable international rules relating to the control of this type of pollution as provided for in relevant international conventions.

The Kuwait Convention provides for co-operation in dealing with pollution emergencies, scientific and technical co-operation, environmental impact assessment as well as liability and compensation measures for pollution damage. It also establishes regional organizations for the protection of the marine environment.

Although the Convention provides for adoption of additional protocols, presently there is no specific protocol regulating pollution of the sea area by dumping. A protocol on protection of the marine environment against pollution from land-based sources was adopted on 21 February 1990.

The Abidjan Convention\textsuperscript{64} while following a due diligence approach to the control of marine pollution adopts the Law of the Sea definition for "pollution of the marine environment." Parties are called upon to undertake general obligations for establishing national laws and standards governing pollution by dumping in accordance with those established by international and regional organizations. They also have to take measures to avoid cross-sectoral positions as a part of the larger environmental management of the Convention area. Article 6 provides that:

The Contracting Parties shall take all appropriate measures to prevent, reduce, combat and control pollution in the Convention area caused by dumping from ships and aircraft, and shall ensure the effective application in the Convention area of the internationally recognized rules and standards relating to control of this type of pollution.

The Abidjan Convention also provides for combating pollution emergencies, development of environmental impact assessment, technical co-operation and rules on liability and compensation for pollution damage.

Although the Convention provides for adoption of additional protocols, no specific protocol governing pollution by dumping is in place.

\textsuperscript{63} Countries of this region include: Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon and Sao Tome and Principe.

4.4.7. Red Sea and Gulf of Aden\textsuperscript{65} (Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment 1982)

The Jeddah Convention like another UNEP Conventions adopts the Law of the Sea definition of marine pollution and calls upon Member States to follow due diligence approach towards preventing, reducing, abatement and \textit{combating} marine pollution. The word "combating", not found in other UNEP Regional Seas Programmes, shows a more stringent resolve of the region to fight pollution, as they already suffer from vessel-source pollution.

It also provides for a definitional clause on conservation which means rational use by man of living, non-living and marine coastal resources in a manner ensuring optimum benefit for the present generations, while maintaining the potential of the environment to meet needs and aspirations of future generations. Such a definition should be construed as including conservation, protection, maintenance, sustainable and renewable utilization, and enhancement of the environment.

Article V which deals with pollution by dumping provides:

Contracting Parties Shall take all appropriate measures to prevent, abate and combat pollution in the sea area caused by dumping of wastes and other matters in this sea area with generally recognized international rules relating to the control of this type of pollution as provided for in relevant international conventions.

\textsuperscript{65} For the text of the Convention see \textit{Journal of Environmental Policy \& Law}, vol. 56, 1982, pp.151-195 Countries of this region include: Israel, Egypt, Sudan, Jordan, Saudi Arabia, Djibouti, Somalia and Yemen.
The Convention provides for rules on co-operation in pollution emergencies, scientific co-operation, EIA and rules on liability and compensation.

Regional organization for the conservation of the Red Sea and the Gulf of the Aden environment has been established for implementing the Convention. Presently, the Convention does not have a protocol governing pollution by dumping.

4.4.8. Wider Caribbean66 (Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region)

The Cartagena Convention67 adopted on 24 March 1983 provides for a due diligence approach to reduce, prevent and control pollution in the Convention area.

Articles 6 of the Convention calls upon the Contracting Parties to take appropriate measures to prevent, reduce and control pollution caused by dumping of wastes consistent with applicable international standards.

Similar to other UNEP Conventions, the Cartagena Convention has obligations to co-operate in cases of emergencies, environment impact assessment, scientific and technical co-operation and rules on liability and compensation, in accordance with international law.

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66 Countries of this region include: Cuba, Haiti, Jamaica, Mexico, Belize, Guatemala, Honduras, Nicaragua, Costa Rica, Panama, Columbia, Bahamas, Dominican Republic, Netherlands, Antigua and Barbuda, Saint Christopher and Nevis, Dominica, France, Saint Lucia, Barbados, Saint Vincent and Grenadines, Grenada, Trinidad and Tobago, Suriname, Guyana, Venezuela, UK and USA.

Although, the Cartagena Convention provides for a Protocol concerning Pollution from Land-based sources, there is no specific protocol on dumping of radioactive substances. This is not to deny that the Protocol can regulate pollution caused by radioactive substances that are passed as effluents and emissions from land based sources.


The Nairobi Convention calls upon Parties to protect and manage the marine and coastal environment on a due diligence basis. Contracting Parties have also been called upon to take measures in conformity with international law and regulate effective discharge of pollutants consistent with established international standards on dumping.

Article 6 dealing with "pollution by dumping" in a similar way states that Parties shall take all appropriate measures to prevent, reduce and combat pollution of the Convention area caused by dumping bearing in mind applicable international standards and recommended practices. The Convention provides similar co-operation for combating pollution emergencies, technical assistance, EIA and rules of liability. The UNEP has been designated with secretarial functions.

68 Countries of this region include: Somalia, Kenya, Tanzania, Seychelles, Comoros, Mozambique, Madagascar, Mauritius, France (Reunion) and South Africa.
4.5. Appraisal of the UNEP Regional Seas Programme and Dumping

A perusal of these UNEP Regional Seas Programmes shows that the Barcelona Convention, the Lima Convention and the Noumea Convention provide for specific protocols regulating dumping from aircrafts and ships. The reasons are self-evident, as these are the regions that have borne the brunt of ocean dumping of radioactive waste, since the early 1940s.

In contrast, the other regions, which have been more prone to pollution caused by oil and other transboundary shipment of hazardous wastes, have not felt the need for adopting a specific protocol governing dumping by radioactive waste.

The Noumea Convention and the Lima Convention have specific protocols titled “radioactive waste protocols”, because of the extensive dumping that has been undertaken by some European States in the Pacific Islands and the Islands in South East Pacific.

The UNEP has not been able to develop regional conventions governing the East Asian Seas, South Asian Seas, Upper South Atlantic, North West Pacific, North East Pacific and the Arctic Region.

After having seen the successful efforts of the UNEP Regional Seas Programmes, it is our endeavour to look at the practices of a single State- the Russian Federation and look at its rather dubious record in the field of radioactive waste management.
Despite the fact that the Russian Federation is a Party to the OSPAR, Baltic Sea and Bucharest Sea conventions, it has totally disregarded international standards and norms governing radioactive waste management.

While it is well known and accepted that the Russian Federation faced difficult economic times after the collapse of the erstwhile Soviet Union, international law prohibits a unilateral right to a State to dump hazardous radioactive wastes in its own territorial waters which affect the rights of neighbouring States.

4.6. Russian Practice on Radioactive Waste Dumping

Although in the introductory chapter, it has been mentioned that the study shall be restricted to the civilian use of nuclear energy, an exception has to be made with respect to Russian Federation because civilian and military control of nuclear energy being under the armed forces or the Military Industrial Complex, of the erstwhile Soviet Union.

In 1993, during the deliberations of the Sixteenth Consultative Meeting of the London Convention, it came to light for the first time that the Russians had been dumping their radioactive wastes at sea, and not storing them on land repositories as was the common understanding and practice. The admission by the Russian delegate brought to light the dangerous ecological legacy

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left behind by the disintegration of the erstwhile Soviet Union.\textsuperscript{70} This admission led the Norwegian Prime Minister to remark "...the dumping of radioactive material represents a security risk to the people and to the natural biology of Northern waters."

The erstwhile Soviet Union, as one of the superpowers, wielded enormous influence in nuclear weapons technology and produced large number of nuclear submarines, nuclear reactors, nuclear warheads and ballistic missiles. The disintegration of the Soviet Union and the ensuing plunge in the domestic economy said to be the fallout of perestroika, without adequate funds to manage their nuclear wastes and the decommissioned submarines and reactors.

Although under rules of State responsibility, States are held responsible for acts of their nationals, there is ample evidence to show that real culprits for the nuclear mess were the Russian navy and its officers who kept under tight wraps the details of their clandestine nuclear programme and the nuclear waste management.

These acts of malfeasance of the Russians are well documented.\textsuperscript{71} In the fifties, wastes from the nuclear plant at

\textsuperscript{70} Andri Zolotkov, a People's deputy in the Supreme Soviet, who represented Murmansk spoke on "Nuclear Legacy of the Soviet- A Deadly One", which was organised by the Greenpeace International and the Russian Information Agency (RIA) on 13 September 1986, held in Moscow.

\textsuperscript{71} One of the foremost campaigners against this policy has been the Bellona Foundation of Norway, which researches radioactive contamination in and around the Russian Federation and the Arctic Ocean. Visit their site at www.bellona.no For a detailed factual account see, Arctic Sea Dumping" TED Case Studies, (http://www.american.edu/ted/ARTIC).
Chelyabinsk were dumped in their own River Techa, which eventually ended up in the Arctic Ocean. Between 1964 and 1986, some 7000 tonnes of solid radioactive wastes and 1600 cubic meters of liquid wastes were dumped into the Kara and Barents Sea from the Murmansk factory which produced icebreakers and nuclear submarines in Russia. Nearly 18 nuclear reactors and nuclear submarines were again dumped in the Barents Sea in 1968. The much reported media incident of the nuclear submarine *Komsomolets* sank 300 miles of the Norwegian coast, along with 42 sailors.

As late as 1993, Greenpeace filmed Russian ships dumping 900 tonnes of liquid radioactive wastes in the Sea of Japan. This list also includes the dumping of 6 nuclear submarines, filled with high-level radioactive wastes, in the shallow territorial waters (only 300 meters deep) of Norway. In 2001, the sinking of the Russian nuclear submarine the *Kursk* with more than 100 crew as even graver than the sinking of the *Komsomolets*.

But the official secrecy and silence was broken by the Report provided Andrei Yablokov, who was appointed by President Yeltsin and the findings of Mr. Andrei Zolotkov himself a nuclear scientist and a Member of the erstwhile Russian Parliament. Their Report

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72 Greenpeace (GreenNet)., *Russians Start Radwaste Dumping* (London 1993).
provided further evidence of the recalcitrant attitude of the Russians towards nuclear waste management.\textsuperscript{73}

The Report states that the Soviet Union dumped nearly 2.5 million curies of radioactive wastes in the Arctic Sea, which also includes 16 nuclear reactors, (nearly 7 reactors containing spent fuel as it was impossible to remove them owing to chances of accidents occurring) and 11,090 containers of solid radioactive waste from the Northern Fleet.\textsuperscript{74}

This uncontrolled pollution, mindless peril and damage have led to speculation as to the amount of the curie count. Although the Russians say it is about 46.2 P Becquerel, the Greenpeace has estimated that, the Russians have dumped nearly 312,500 curies of nuclear wastes from 1959-1991.\textsuperscript{75} Not to mention the fact that, many nuclear experts believe that the area around Chelyabinsk is a "nuclear graveyard," severely affected by radioactive contamination caused by storage and disposal of liquid radioactive waste in rivers.\textsuperscript{76}


\textsuperscript{74} Ibid., IMO Doc. LDC/IGPRAD 6/INF.2, p.13.


\textsuperscript{76} See "Chelyabinsk population was asked about Nuclear Waste", http://www.bellona.no/ dated 11 January 2000, pp. 1-2.
It can be argued theoretically that the oceans should be able to dilute this radioactive material and render it harmless in 40 years. However, the problem is accentuated, due to localized release of highly concentrated nucleides, as happened in the Chernobyl incident in 1986. Currently this figure is nearly twice the IAEA estimate, but the real danger is that the full extent of the damage to the flora and fauna of the Arctic region and the people are still not fully known, although preliminary reports do suggest that the effects of high-level radioactive wastes are beginning to surface.

In 1996, a number of seals and other marine animals were found dead in the White Sea and the Barents Sea due acute blood cancer. By early 1990's reports stated that nearly 6 million starfish, shellfish, seals and turtles were washed up dead and an equal number of flatfish, smelt and cod had migrated away.

The findings of the Northern Polar Institute in Archangel are reason to worry because the autopsies of seals revealed poisoning.


79 See Greenpeace, n.75, p.3ff.
by pollution. If seals that are on top of the food chain are affected, there are strong reasons to believe that other marine benthic organisms and fish will also be affected and in all probability human beings would not be far behind! This is not to forget the severe loss of revenue to local fishing and tourism industry, which radioactive contamination would cause.

4.6.1. Russian Practice and the Violation of International Law on Dumping

Russian practice on abiding with international norms, standards and also national legislation has been abysmal and has often led to a clear violation of international law on the subject. The primary reason for this is the lack of policy, followed by an utter callous and dubious role played by the navy in randomly disposing radioactive material, liquid radioactive wastes and other substances, often in the territorial waters of Russia and neighbouring States.

Russian Federation is a party to the London Convention of 1972 (to which erstwhile USSR became a party and it entered into force for Russia in January 1976), which is the primary global regime governing dumping. In this regard, it may be recalled that for strengthening international resolve to halt radioactive waste dumping, in 1983, the Seventh Consultative Meeting of Contracting Parties adopted resolution LDC. 14(7), which had urged Parties to refrain from dumping.
Further, in 1985 another resolution LC.21 (9) was adopted which had favoured a voluntary moratorium on the disposal of all types of radioactive wastes at sea, pending the completion of an assessment of all aspects of their impact on human health, marine environment and life at sea. For the record, it would be important to highlight that the erstwhile Soviet Union had abstained when voting on the moratorium was taken at the Ninth Consultative Meeting of the Contracting Parties to the London Convention.80

Likewise, Agenda 21 adopted by UNCED 1992, had proposed a “voluntary moratorium on the disposal of low-level radioactive waste at sea” to be able to adopt a complete ban on dumping bearing in mind “the preliminary approach for the purposes of adopting a valid and timely solution to the problem”.81 It was also proposed to States “not to encourage or permit storage or disposal of radioactive wastes ‘near the marine environment’, without having undertaken a preliminary impact assessment of the acceptability of the risk arising from the practice ...”.82

Along with the global regime of the London Convention, applicable to Russia from 1976, there were other instruments, as
we have seen above which proscribe radioactive waste dumping at sea.

The Convention on the Protection of the Marine Environment of the Baltic Sea Area (also called the Helsinki Convention) 1992, requires Parties to adopt a progressive approach to prevent and reduce pollution caused by hazardous substances, which includes radioactive wastes/substances. Similarly, the Convention on the Protection of the Black Sea from Pollution (also called the Bucharest Convention) 1992, to which the Russian Federation is a party, unconditionally prohibits dumping of radioactive wastes in the basin area.

4.6.2. Russian Domestic Law on Dumping\(^{83}\)

The cold war brought with it a rivalry in conventional and nuclear weapons. The nuclear race in Russia lead to the creation of the Northern, Pacific and Baltic fleets, containing a large number of nuclear-powered icebreakers, nuclear-powered submarines, besides nuclear weapons. However, what was ignored was the management and disposal of spent fuel in the reactors involved in these vessels and weapons. Even though, it may be naïve to think that the Russians could have totally forgotten about the need for decommissioning and management of their radioactive wastes, that is actually what happened. The easiest way to find a simple

\(^{83}\) For a first hand account of the Russian practice on dumping, see IMO Doc. LC 16/INF.2, 14 September 1993, Matters related to the Disposal of Radioactive Wastes at Sea: Submitted by the Russian Federation, (hereinafter Russian submissions).
solution to wastes is to dispose radioactive wastes directly in the sea, without a thought given to its regulation.

While a country can blatantly disregard international law, one would ask what about domestic legislations to protect one's own populace against threats of nuclear pollution? To the credit of the Russians, it is seen that there were a number of laws providing safeguards and a normative structure against radioactive contamination.

One of the earliest legislation was the Provisional Sanitary Requirements for Discharge of Liquid Wastes containing Long-lived Radioactive Substances into the Sea from Naval Facilities, 1960.84 These Requirements ensured that any form of disposal of radioactive wastes into the sea should comply with established standards of sanitation and hygiene. Then again in 1962, the Requirements were modified wherein the numerical amount of low-level radioactive waste in terms of volume was determined to be not greater than 50 microns/l (1850kBq/l).

The Requirements also stipulated that the ships be outfitted with equipment to dilute radioactive waste by at least 250 per cent during a dumping operation and all discharges of radioactive waste from nuclear sites were permitted only in emergency situations.

Despite these regulations being in place, it was seen that the Navy implemented a new regulatory measure in 1966 that

84 Russians Submissions, n. 80, p. 18.
permitted dumping of solid low level and liquid wastes from nuclear submarines outside the territorial limit of ten miles.

Furthermore, the measures also provided dumping of solid radioactive wastes (SRW's) in metal containers without special shielding and also large pieces of SRW's, without any containers. The commanders of the Northern and Pacific Fleet took decisions to dump these wastes, without any environmental impact assessment or environmental clearance from the other departments involved. Moreover, the Russian naval commanders should have known that dumping beyond territorial waters is violative of the customary laws of sea and also the 1958 Convention on Territorial Sea.

To overcome some of these anomalies, in 1966 a more detailed regulation called the Provisional Sanitary Requirements for the Disposal of Radioactive Wastes at Sea was approved by the Navy and the USSR ministry of Public Health, approved (VSTZ-66). The VSTZ-66 applied to all facilities where nuclear submarines were based, refuelled or required, as well as ship repair and shipbuilding yards. It provided for requirements for radioactive waste discharge and disposal, identification of sites, standardization and certification of discharge levels, besides radiation hygiene monitoring of dumped substances. Even though the VSTZ-66 complied with generally accepted standards, it should have been approved by the Government of the day, as it applied to areas beyond national jurisdiction. The procedures defined by

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85 Russian Submissions, p. 19.
VSTZ-66 remained in force till 1983; and thereafter, the Soviet Union having acceded to the London Convention on January 1976 was bound to review its national standards and obligations.86

On 6 March 1979, the Soviet Union adopted a resolution which prohibited intentional discharge of radioactive wastes at sea with high levels of radiation insofar as such discharges from Soviet ships, surface vessels, aircraft, platforms, and other artificial structures were unacceptable for biological and other reasons.

As regards dumping of other wastes, the same was permitted subject to special permission being granted by the USSR State Committee for Hydrometeorology (Goskomgidromet), in consultation with the USSR Ministry of Fisheries. Some of the important tasks assigned were: recording the characteristics of the dumped radioactive waste; recording the site, time and method of dumping; overseeing that the dumping operation is in conformity with the purposes of the London Convention; and supplying such information on the dumping operation to the IMO Secretariat and other Contracting Parties.

Thereafter in 1983, in cooperation with the Goskomgidromet, the Navy developed the Regulations for the Discharge of Radioactive Waste at Sea (PS-82).87 Despite this regulation it was seen that the Navy often circumvented necessary procedures and undertook/sanctioned dumping activities, totally disregarding

86 Ibid., p. 20.
87 Russian submissions, p. 21.
international standards and laws. For example, even though PS-82 was advancement over existing regulations, it did not require selection of disposal sites beyond the continental shelf, internal and marginal seas. It did not prohibit disposal of radioactive wastes in areas of high altitude i.e. above 50 degrees north and did not stipulate a regular notification of radioactive waste dumping to the competent international organization, the IMO or the IAEA.

It was also discovered to the chagrin of the Goskomgidromet that, the Navy while applying PS-82 had failed to take into account the IAEA recommendations and standards. This led to a rift between the two departments and the Goskomgidromet refused to endorse dumping operations in the Novaya Zemlya archipelago. From then on, it was the Navy alone that exercised the power to issue permits for dumping.

But the 1990's also witnessed the Russian Federation taking over Russia and the control over its nuclear arsenal. One of the recent additions to the Russian Law on the subject was the Russian Federation Law on the Protection of the Natural Environment, 1991. Article 50 of this legislation titled 'Ecological Requirements in the Use of Radioactive Materials, provides:

The import of radioactive waste and materials from other nations for storage or disposal purposes, and the sinking or sending into space of radioactive waste and materials for disposal purposes is prohibited.

As has been admitted by the Yablokov Report, this law has been broken a number of times. As recent as March 2000, the
Russian Ministry for Atomic Energy (MINATOM) had prepared detailed plans to import 20,500 tonnes of spent nuclear fuel (SNF) for plutonium processing and also disposal for a service charge of $US 21 billion.\textsuperscript{88} Is not it appalling to say the least, that a country that has its own nuclear waste management setup in shambles wants to dispose imported radioactive wastes! While cash short Russia can be called gullible on account of the monetary stakes involved, it is also a sad commentary on greedy States such as Germany, Japan, South Korea, Switzerland, Spain and Taiwan who want to use services of the Russian Federation, knowing fully well that such reprocessing would pose enormous risk to life and of the Russian people.

Another set of rules, which are being misused, are the Rules Governing Charges for Environmental Pollution Disposal, and Other Hazardous Effects, 1992.\textsuperscript{89} One of the important functions of these rules is to levy charges for "several hazardous effects on the environment." Under these rules 'environmental degradation' includes: emission into atmosphere of pollutants; dumping of pollutants into surface and underground water bodies; waste disposal; and other hazardous effects such as radiation and others.\textsuperscript{90}

As per the above-mentioned Rules, charges are levied on two counts- one, emissions within acceptable standards; and two,


\textsuperscript{90} See ibid clause 2; also see Kristin Moody, n. 67, p. 703 and 704.
emissions within established limits. It is also provided that permits are required for a 'user of nature' to dump radioactive wastes at sea. However, due consideration should be paid to ecological factors and socio-cultural needs while issuing certification for disposal. An errant polluter i.e. without the required permit violating the emissions standards will incur heavy penalty.

The Rules themselves have anomalies. The rules are applicable to “enterprises, institutions and organizations and foreign legal and natural persons engaged in any type of activity...involving use and management of nature”. One is not sure whether the 'military' can be included in 'enterprises, institutions or organizations' or they possess immunity! While such deterrent standards could work effectively in a law-abiding society, it cannot work when the military is in control of disposal of all wastes—civilian and nuclear included.

4.7. Conclusions

The foregoing chapter made an attempt to analyze the role played by regional conventions in combating radioactive waste disposal at sea. Regional efforts, it must be stated have appeared to be favoured by States for reasons of proximity, also homogeneity of people, culture, economic well being, all important factors contributing to successful abatement action. The prime example of the Mediterranean Action Plan (MAP) is there for all to see.

While regional approaches also cater to a certain sense of 'regional nationalism', it contributes to weakening the international
regime in place. While few can deny that the London Convention has stood the test of time and increased its scope and effectiveness by the 1996 Protocol, it also is a truism that it has not been able to stop clandestine dumping of radioactive wastes by recalcitrant States such as the Russian Federation. It is the Norwegians, the United States and the Executive Group for Research on Sea Disposal of Radioactive Waste (CRESP) who on account of their stakes in geographic proximity and perhaps nuclear designs, have lent international support and financial contributions.91

Recalcitrance has become an accepted norm among States such as UK, France and Russian Federation who continue to keep their ocean disposal options open despite widespread criticism. It has also been highlighted by various non-governmental organizations such as the Greenpeace, Friends of Earth and Bellona as to how clandestine operations to dump not only low-level radioactive wastes, but also high level wastes, absolutely dangerous for future generations, are on the increase.

Up to now we have made an attempt to study the London Convention as the institutional framework for dumping and other international and regional regimes governing radioactive waste disposal.

While regional efforts have contributed significantly to cleaner oceans and the reduction in hazardous wastes, from an international lawyer's perspective it is also important to understand and analyze the remedies for destroying the marine environment.

It is against this backdrop that the next chapter will focus on the issue of "international liability," for injuries not only to States but also to the 'global commons of the oceans', which is being degraded not only by radioactive pollution, but also by a host of other pollutants.