UNIVERSITY OF SOUTHAMPTON

International Law of the Sea

Artificial Islands and Other Installations on the Seas

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Southampton, October 1990

A mon père, Edouard HONEIN

Acknowledgements

I wish to express my deepest appreciation and gratitude to my supervisor, Dr. Ralph Beddard, for his consistent support, guidance and direction in helping me develop my ideas throughout the process of research and writing. The Faculty of Law and the Hartley Library, University of Southampton, were equally generous in their assistance. For their kind cooperation, my thanks to Chris Colbourn and Anthony Roberts, of the psychology department, for helping me resolve computer difficulties. Also, I am indebted to my wife, Astrid, for her patience and encouragement which helped the completion of this work.

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PART TWO

Abstract

The object of the present dissertation is to deal with the legal aspects related to the international régime governing the construction and operation of immovable artificial islands and installations on the seas, such structures being man made, non floating but fixed to the seabed, surrounded by water and premanently above sea level.

Thus, it is useful to examine, first, the competence of states under international law to exercise their legal authority in view to permiting or prohibiting the construction of artificial islands and installations within their internal waters, territorial sea, exclusive economic zone and continental shelf. Further, there are certain restrictions, which might vary from one belt of waters to another, on the coastal state's right to build or grant its permission for the construction of artificial islands and installations, as the erection of such structures should not interfere with the rights and interest of other states. Such restrictions include the right of innocent passage by foreign vessels through the territorial sea of a coastal state, the right of transit passage through international straits and the requirement not to produce unreasonable interference with recognized sea lanes essential to international navigation.

Then, the right to construct artificial islands and installations in areas beyond the limits of national jurisdiction, i.e. in the high seas and on the seabed beyond the limits of the continental shelf, is analysed with due regard for the interests of other states in their exercise of activities permitted under international law, and with reference to the principle advocating that the Area and its resources are the common heritage of mankind and, therefore, not subject to appropriation by states or by natural or legal persons, and open to use exclusively for peaceful purposes and with reasonable regard for other activities in the marine environment.

Also, attention is given to the exercise of jurisdiction and control to regulate activities on artificial islands and installations in the various belts of waters, including internal and territorial waters, the exclusive economic zone, the continental shelf and the area of the deep seabed beyond the limits of the continental shelf.

Further, the legal repercussions, if any, on the delimitation of the maritime zones following the construction of artificial islands and installations are studied, as well as the right of states constructing or authorizing such constructions to establish safety zones around them.

Furthermore, as environment is undergoing substantial changes due to scientific evolution and modern technology, the need has risen on the international level to increase attention to the environmental problems, including the preservation of the marine environment which is now a matter of international concern, in order to protect and improve the conditions and well being of man in view of a sound economic and social development. Thus, measures to prevent, reduce and control pollution of the marine environment were to be sought, as well as measures to prevent pollution and injury to such environment as a result of dumping of wastes or other matter. Mention is also made as to the prohibition to erect installations of nuclear weapons and other weapons of mass destruction as the existence of such weapons represents a threat to the environment since their use can have dangerous and highly polluting consequences.

Moreover, reference is made to the responsibility of states for harm caused to other states and other users of the seas as a result of the construction and operation of artificial islands and installations. The scope of this section includes the principle of imputability under international law as well as the legal implications where an unlawful international act is imputed to a particular state. This section also describes the situation where the installation is owned and operated by a private company. Reference is also made to the régime of responsibility which applies with respect to the marine environment.

Finally, consideration is given to the obligation to remove an artificial island or installation upon abandonment.

Introduction

Modern civilization is characterized by continuous growth of population and increasing demand for a better life. Ways of improving the quality of human life are to be found through the development of new resources, the creation of substitute resources as well as more efficient means of using them. Moreover, as energy and self sufficiency determine more and more the industrialised countries' economies, new needs for industries as well as considerable improvement of their prospecting technologies urge the governments of those countries to further develop their planning policies for offshore exploration and exploitation of the seabed and subsoil. The exploitation of the mineral resources of the seabed and subsoil has been made possible through special structures duly equipped for that purpose. These structures are constructed on the spot where exploitation of the specific mineral resource is carried on.

Further, the pressure of increasing population, its concentration in urban centres and the high costs of urban real estate create an urgent need for new uses of the seas, which are now possible owing to the development of modern technologies, including the erection of artificial islands and installations for the purpose of creating a living space for men.

Indeed, *the twenty-first century should be, by all accounts, a critical one for humankind owing to the population explosion and its pressure on land. Many experts are predicting that "sea-cities" (ocean based habitation either floating or fixed) could be one answer to the UN warning that the world will double its population within the next 40 years.*[1]

Thus, *in terms of fixed "artificial" islands - that is, offshore man-made facilities attached directly to the seabed by piles or fill but without direct links to land - there have been several ambitious ideas, though none has yet come to fruition. For example, Mitsubishi Corporation developed plans two decades ago for the construction of a coal mining community on a fixed artificial island with accomodation for 5,000 inhabitants.*[2] (The main concern with respect to the construction of artificial islands answering the above description is profitability

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[1] Marine Policy Reports, 1989, vol 1, no 2, Implications of Floating Communities for International Law, by Owen Pawson, p.101.

[2] Marine Policy Reports, 1989, vol 1, no 2, Implications of Floating Communities for International Law, by Owen Pawson, p.103.

and, unless a profitable result is ensured, no such development projects would materialize).

Similarly, *the Pilkington Glass Age Development Committee in the United Kingdom developed plans for a sea-city constructed of glass and concrete to be located in the North Sea, 24 Km (15 miles) from Great Yarmouth. This was to accomodate a self-sufficient population of 30,000 in a facility built on stilts around a central lagoon... The project was proven to be feasible at the time with respect to cost and available technology.*[1]

Hence, sea cities are technically feasible and seem to be cost effective compared to land based construction in the urban centre. As the Pilkington Committee has pointed out, the cost of building a sea city could be much the same as for a similar city on land. Indeed, the construction of such sea cities avoids the acquisition of expensive lands, bearing in mind the shortage of land for building sites. Further, such constructions would relieve the pressure of taking vital agricultural land for urban development and would allow traditionally land based activities to be carried out and expanded.[2]

Indeed, *owing to the scarcity of space on land in some parts of the world it can be expected that there will be a growing tendency to transfer some traditionally wholly land-based activities towards the sea.*[3]

Accordingly, *the oceans are increasingly looked upon as a source of space. This space can be used, by means of the building of artificial islands and installations, to accomodate activities which have traditionally taken place on land.*[4]

These activities may have various purposes and, accordingly, artificial islands and installations are or could be built to serve different functions such as to provide handling facilities to larger ships and especially oil tankers with very deep drafts (deepwater ports), to provide leveled areas where aircraft can take off

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[1] Marine Policy Reports, 1989, vol 1, no 2, Implications of Floating Communities for International Law, by Owen Pawson, p.103.

[2] Marine Policy Reports, 1989, vol 1, no 2, Implications of Floating Communities for International Law, by Owen Pawson, p.102 and 104.

[3] W. Riphagen, International Legal Aspects of Artificial Islands, International Relations 1973, p.327-328.

[4] Alfred H.A. Soons, Artificial Islands and Installations in International Law, Occasional Paper Series, Law of the Sea Institute, University of Rhode Island, occasional paper no. 22, July 1974, p.1.

and land (airports), to carry out scientific research... Also, offshore structures may be erected to house industries, including waste processing plants or nuclear power stations.

Whatever purpose artificial islands or installations are built for, their presence should be controlled and safeguards should be introduced in order to avoid serious conflicts between the users of such constructions and other legitimate uses of the seas. Indeed, artificial islands should be made compatible with other activities on the seas and their users should have reasonable regard to the interests, rights and duties of other users and should therefore comply with the obligation not to pollute the marine environment and not to produce unreasonable interference with international navigation, fishing, laying or maintaining submarine cables and pipelines, conservation of living resources and scientific research.

Accordingly, *the 1982 Convention on the Law of the Sea, which was adopted as a comprehensive package, introduced a new equity in the relationship among states with respect to the uses of the ocean and the allocation of its resources.*[1]

Indeed, with respect to artificial islands and installations, which are the topic of this dissertation, the adoption of the 1982 UN Convention on the Law of the Sea would represent a new attempt to establish legal order on the seas, taking into consideration modern science and technology, in view to avoid serious conflicting claims which might lead to dangerous international turmoil.

Thus, the complex legal problems which might arise as a consequence of this relatively modern use of the seas will be discussed below especially, where appropriate, in the light of the above mentioned UN Convention which is the result of some 15 years of efforts under the Third UN Conference on the Law of the Sea (UNCLOS III) and, which has been described as the largest and longest international legal conference ever held, with more than 155 nation-states and other entities in attendance.[2]

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[1] Marine Policy Reports, 1989, vol 1, no 1, p.1-3, A Constitution for the Ocean: The 1982 UN Law of the Sea Convention, by Satya Nandan.

[2] Ocean Development and International Law, 1989, vol 20, no 2, When Will the UN Convention on the Law of the Sea Come Into Effect?, by David L. Larson, p.175.

Although the 1982 UN Convention has not yet come into force, still, it has enjoyed wide support since its adoption. Indeed, a record number of 159 states signed the new instrument before it was closed for signature on 9 December 1984. The fact that a vast majority of states have signed the Convention underlines the intent of such majority to commit themselves to the objectives, purposes, rules and regulations set out in the new régime.[1]

Accordingly *In the absence of any significant state practice, reliance will be placed, in the first instance, on provisions in the Law of the Sea Convention 1982; juristic opinion will be referred to as a subsidiary means of determining the law.*[2]

On the other hand, the 1958 Geneva Conventions on the Law of the Sea should not be set aside as *there are those who would attach greater weight, as against a multilateral Convention that has yet to enter into force, to the pre-existing body of rules found in customary international law and the 1958 Geneva Conventions on the Law of the Sea.*[3]

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[1] Marine Policy Reports, 1989, vol 1, no 1, p.1-3, A Constitution for the Ocean: The 1982 UN Law of the Sea Convention, by Satya Nandan.

[2] International Journal of Estuarine and Coastal Law, 1988, vol 3, no 2, Offshore Nuclear Power Stations: Putting Pressure on the Law of the Sea, by J.C. Woodliffe, p.146.

[3] International Journal of Estuarine and Coastal Law, 1988, vol 3, no 2, Offshore Nuclear Power Stations: Putting Pressure on the Law of the Sea, by J.C. Woodliffe, p.146.

Part one

1. Definition of artificial island and installation

The object of the present dissertation is to deal with those legal aspects defined in the plan of work and which are related to the international régime governing the construction and operation of immovable artificial islands and installations on the seas, such structures being man made, non floating but fixed to the seabed, surrounded by water and permanently above sea level.

Where the terms artificial island and/or installation are used hereafter, they are so used with further reference to the meaning conferred on them by the following definitions:

Artificial island

The term "artificial island" refers to the constructions created by man's dumping of natural substances like sand, rocks and gravel on the seabed.[1]

Installation

The term "installation" refers to constructions resting upon the seafloor and fixed there by means of piles or tubes driven into the bottom of the seafloor, and/or to concrete structures which become fixed there by their own weight.[2]

Thus, in these definitions there is no mention of any additional requirement that such artificial islands and installations ought to satisfy, for instance, as to the use of sea space, or as to the need, if need be, that such artificial islands and installations should be appropriate for human occupation and activity and, if so, on which scale and over what period of time. However, could the measurement of "sea space", of the "scale" of human occupation and the amount of "time" be designated accurately in a strict definition? Understandably, it is difficult to elaborate more detailed definitions as such definitions would not be

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[1] Alfred H.A. Soons, Artificial islands and installations in international law, Occasional Paper Series, Law of the Sea Institute, University of Rhode Island, occasional paper no. 22, July 1974, p.3.

[2] Alfred H.A. Soons, Artificial islands and installations in international law, Occasional Paper Series, Law of the Sea Institute, University of Rhode Island, occasional paper no. 22, July 1974, p.3.

comprehensive enough because of the different uses of artificial islands and installations as well as the rapidly changing modern technologies.

The definitions above cited make an interesting distinction between the meaning of artificial island and that of installation. Yet, the 1982 UN Convention on the Law of the Sea seems to make no difference as to the application of the international legal régime to such constructions and, accordingly, both kinds of constructions are equally subject to the same international laws and regulations provided by the Convention with respect to the different belts of waters within national jurisdiction or beyond the limits of such jurisdiction. Indeed, in several instances the Convention uses simultaneously both terms[1] of artificial islands and installations[2] (in some instances,[3] the term installation is coupled with the term structure) where referring to constructions on the seas and seabed.

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[1] For instance the following articles of the United Nations Convention on the Law of the Sea (1982): art 11; art 56(1)(b)(i); art 60; art 87(1)(d); art 208(1).

[2] Although these terms are found in several articles of the 1982 UN Convention on the Law of the Sea, they are not, however, defined in that Convention.

[3] United Nations Convention on the Law of the Sea (1982) art 56(1)(b)(i); art 60(b) and (c).

2. State authorisation as to the construction of artificial islands and installations

It seems that the developing law, as to the authority to establish such islands and installations, is moving towards concepts of belts of waters, within defined distances from coasts, and within which state jurisdiction is conceded on different bases.

States' "legal authority" and "jurisdiction" refer to the competence of such states, under international law, to exercise their legislative and judicial powers in order to make and apply the law with respect to particular facts or events.

Within internal waters

Article 8(1) of the 1982 UN Convention on the Law of the Sea states that

... waters on the landward side of the baseline of the territorial sea form part of the internal waters of the state.

Thus, lakes and rivers included in the land territory of a state, as well as waters on the landward side of baselines from which the breadth of the territorial sea is measured, form part of the internal waters of the coastal state and are subject to its sovereignty.[1]

Since the sovereignty of a state applies to its internal waters, the construction of artificial islands or installations in these waters is a matter of internal concern of the coastal state. Therefore, the coastal state has authority, by reason of its exclusive sovereignty, to construct and operate such installations according to its own laws and regulations.

Also, the express permission of the coastal state is needed to allow a foreign state or any company, whether local or foreign, to build and operate any such structure within the internal waters.

It should be pointed out that, although the legal interests of the coastal state amount to sovereignty over both internal waters and territorial sea as to the

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[1] D.P. O'Connell, International Law, vol.I, 2nd ed., London 1970, p.483.

construction of artificial islands and installations, still, there is a distinction between these two areas, namely in respect of the right of innocent passage, whereas no such right is granted in the case of internal waters apart, however, from the exception quoted in the UN Convention on the Law of the Sea:[1]

Where the establishment of a straight baseline in accordance with the method set forth in article 7 has the effect of enclosing as internal waters areas which had not previously been considered as such, a right of innocent passage as provided in this Convention shall exist in those waters.

Obviously, the above mentioned provision involves some implications as to the construction of artificial islands and installations in such areas. These implications will be dealt with further in this dissertation while commenting on the right of innocent passage.

In the territorial sea

The territorial sea is a belt of water not exceeding 12 nautical miles measured from the baselines of the coastal state.[2]

Although it is not expressly mentioned, within the 1982 UN Convention on the Law of the Sea, that a coastal state has authority to allow the construction and operation of artificial islands and other installations within its territorial waters,[3] such authority is implied as the sovereignty of a coastal state extends, beyond its land territory and internal waters, to that adjacent belt of water described as the territorial sea:

The sovereignty of a coastal state extends, beyond its land territory and internal waters and, in the case of an archipelagic state, its archipelagic waters, to an adjacent belt of sea, described as the territorial sea.[4]

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1 United Nations Convention on the Law of the Sea (1982) art 8(2).

2 United Nations Convention on the Law of the Sea (1982) art 3.

3 Nevertheless, provision I of the Informal Working Paper No 12, 20 August 1974, prepared during the second Caracas session of the Third United Nations Conference on the Law of the Sea, provided that the "coastal State is entitled to construct artificial islands or immovable installations in its territorial sea".

4 United Nations Convention on the Law of the Sea (1982) art 2.

Thus, the territorial sea being under the exclusive sovereignty of the coastal state, the authority to allow the construction and operation of any installation must rest with the coastal state alone.

However, there are certain restrictions on the coastal state's right to build or grant its permission for the construction of islands and installations, as the construction of these structures in the territorial sea could interfere with the rights of other states. Thus, the coastal state has to exercise its sovereignty in this matter taking into consideration other rules of international law.

Article 2(3) of the 1982 UN Convention on the Law of the Sea stipulates that

the sovereignty over the territorial sea is exercised subject to this Convention and to other rules of international law.

In which way, however, could the construction of artificial islands and installations in the territorial sea interfere with the rights of other states and, therefore, which are the limitations that international law imposes on the coastal state in respect of the permissibility to build such structures in these waters.

Article 60(7) of the 1982 UN Convention on the Law of the Sea provides that

artificial islands, installations and structures and the safety zones around them may not be established where interference may be caused to the use of recognized sea lanes essential to international navigation.

Although this article is included within the part of the UN Convention governing the international legal régime of the Exclusive Economic Zone, still, it has a wide ambit and would also be applicable to artificial islands and installations erected in a coastal state's territorial waters.[1]

Also, the right of innocent passage by foreign vessels through the territorial sea of a coastal state is a recognized principle of international law. It is a sort of agreement between states on the necessity of international navigation and the requirement to protect the rights and interests of the coastal state.

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[1] Marine Policy Reports, 1989, vol 1, no 2, Implications of Floating Communities for International Law, by Owen Pawson, p.108.

Article 17 of the 1982 UN Convention on the Law of the Sea stipulates:

Subject to this Convention, ships of all states, whether coastal or land-locked, enjoy the right of innocent passage through the territorial sea.

Further, article 24 of the above mentioned convention describes the duties of the coastal state as follows:

1. *The coastal state shall not hamper the innocent passage of foreign ships through the territorial sea except in accordance with this convention. In particular ... the coastal state shall not:*
a) *impose requirements on foreign ships which have the practical effect of denying of impairing the right of innocent passage.*
2. *The coastal state shall give appropriate publicity to any danger to navigation, of which it has knowledge, within its territorial sea.*

Hence, these articles stress the importance of international navigation by pointing out the duties of the coastal state to allow innocent passage through its territorial sea and, further, to facilitate such passage by giving appropriate publicity to any danger to navigation, of which it has knowledge, within its territorial sea.

Therefore, if any artificial island or installation is to be constructed within the territorial sea of a coastal state, due consideration ought to be given as to the impact such constructions might create on the users of sea routes within that area. Thus, there is an obligation on the coastal state not to produce unreasonable interference with international navigation and to prevent obstruction to navigation. Even where the coastal state grants its permission, to a foreign state or company, for the construction of an artificial island or installation within its territorial waters, it will still be responsible for the preservation of the right of innocent passage through these waters, as well as for the requirements of safe navigation.

Article 25 section 3 of the 1982 UN Convention on the Law of the Sea confers on the coastal state the right to suspend innocent passage temporarily in specified areas of the territorial sea if such suspension is essential for the protection of its security:

The coastal state may, without discrimination in form or in fact among foreign ships, suspend temporarily in specified areas of its territorial sea the innocent passage of foreign ships if such suspension is essential for the protection of its security, including weapons exercises. Such suspension shall take effect only after having been duly published.

Thus, the temporary suspension of innocent passage is allowed only in connection with the coastal state's security. It means that there are not many situations where the coastal state could seriously interfere with international navigation except where its security is threatened or at stake.

However, it should not be infered that artificial islands and installations cannot be built in areas of international traffic within the territorial sea of a coastal state. Nothing in the 1982 UN Convention on the Law of the Sea implies such a limitation.

As long as the construction of artificial islands or installations does not entirely hamper[1] or unreasonably interfere with innocent passage, such structures could be built on sites where international traffic is involved if, nevertheless, there is no other choice or possibility. Thus, where the inconvenience caused by such structures is reasonable and, therefore, manageable, their presence would not be regarded as a denial of or a hindrance to the right of innocent passage.

Further, article 22 of the 1982 UN Convention on the Law of the Sea confers on the coastal state the right to regulate the passage of foreign ships through its territorial sea where it is concerned in the safety of navigation:

the coastal state may, where necessary having regard to the safety of navigation, require foreign ships exercising the right of innocent passage through its territorial sea to use such sea lanes and traffic separation schemes as it may designate or prescribe for the regulation of the passage of ships.

Innocent passage through the territorial sea of a coastal state leads to another topic which is transit passage through international straits; bearing in mind, though, that such topic is dealt with after innocent passage for a matter of convenience, as its place would not entirely fit in with the heading of territorial sea.

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[1] M.W. Mouton, The Continental Shelf, The Hague 1952, p.228.

What is transit passage through international straits and, accordingly, which straits are considered to be international?

It seems that before the decision in the Corfu Channel Case, some authorities[1] asserted that a strait was international if it was indispensable for passage between two parts of the high seas and was used by a great number of foreign ships.

However, according to the judgment of the International Court of Justice in the Corfu Channel Case:[2]

The decisive criterion is rather its geographical situation as connecting two parts of the high seas and the fact of its being used for international navigation. Nor can it be decisive that this strait is not a necessary route between two parts of the high seas, but only an alternative passage between the Aegean and the Adriatic Seas. It has nevertheless been a useful route for international maritime traffic.

Article 44 of the 1982 UN Convention on the Law of the Sea describes the duties of states bordering straits as follows:

States bordering straits shall not hamper transit passage and shall give appropriate publicity to any danger to navigation or overflight within or over the strait of which they have knowledge. There shall be no suspension of transit passage.

As stated in the above mentioned article 44, there shall be no suspension of transit passage of foreign ships through straits. Thus, it appears that the coastal state has even less control in the case of transit passage through international straits than it has over innocent passage through its territorial sea, where the right of passage may be suspended temporarily by the coastal state if such suspension is essential for its security.

Hence, no artificial islands or installations are allowed to be built where their presence could result in denying, hampering or suspending the right of transit passage through straits which are used for international navigation between one

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1 Gidel iii, p.729-64.
2 I.C.J. Reports (1949), p.28.

part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone.[1]

However, transit passage does not apply where either one of the following two exceptions is said to exist:

1. If the strait is formed by an island of a state bordering the strait and its mainland, transit passage shall not apply if there exists seaward of the island a route through the high seas or through an exclusive economic zone of similar convenience with respect to navigational and hydrographical characteristics;[2]

2. and where straits are used for international navigation between a part of the high seas or an exclusive economic zone and the territorial sea of a foreign state.[3]

Still, where any of the conditions described above arises, the régime of innocent passage shall apply and, therefore, there shall be no suspension of innocent passage through such straits.[4]

Nevertheless, is the régime of transit passage through international straits different from the régime of innocent passage through the territorial sea of a coastal state. In other words, is there a condition of innocence as such attached to transit passage through straits which are used for international navigation between one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone?

Article 16(4) of the 1958 Convention on the Territorial Sea states that

there shall be no suspension of the innocent passage of foreign ships through straits which are used for international navigation between one part of the high seas and another part of the high seas or the territorial sea of a foreign state.

Further, in the Corfu Channel case the Court emphasized that

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[1] United Nations Convention on the Law of the Sea (1982) art 37.
[2] United Nations Convention on the Law of the Sea (1982) art 38(1).
[3] United Nations Convention on the Law of the Sea (1982) art 45(1)(b).
[4] United Nations Convention on the Law of the Sea (1982) art 45(2).

states in time of peace have a right to send their warships through straits used for international navigation between two parts of the high seas without the previous authorisation of a coastal state, provided that the passage is innocent.[1]

In the above mentioned case, British warships passing through the Corfu Channel were fired upon by Albanian guns. Later, British cruisers and destroyers sailed through the Channel and two of them were seriously damaged on striking mines. After the latter incident, British vessels swept the Channel to clear it of the mines. The Court noted that the minesweeping operation was in no way innocent and constituted a violation of Albania's sovereignty, whilst the earlier passages by British vessels were legal.[2]

Furthermore, the 1982 UN Convention on the Law of the Sea establishes that the right of transit passage involves the exercise of the freedom of navigation solely for the purpose of continuous and expeditious transit of the strait.[3] Moreover ships, while exercising the right of transit passage, shall proceed without delay through the strait; shall refrain from any threat or use of force against the sovereignty, territorial integrity or political independence of states bordering the strait and shall refrain from any activities other than those incident to their normal modes of continuous and expeditious transit unless rendered necessary by force majeure or by distress.[4]

Innocent passage is not the only restriction imposed upon the coastal state and, therefore, limiting its sovereign rights over its territorial sea. Indeed, there is another limitation in relation with the effects that might be felt within the territories of other states due to the construction of artificial islands and installations in the territorial sea of the coastal state.

As responsibility is regarded as a general principle of international law, the relations between sovereign states are governed by the general principles of international responsibility. Therefore, states may be liable for the activities of hazardous nature they undertake where the consequences of such activities are considered to be harmful.

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1 ICJ Reports, 1949, p.28.
2 ICJ Reports, 1949, p.30-33.
3 United Nations Convention on the Law of the Sea (1982) art 38(2).
4 United Nations Convention on the Law of the Sea (1982) art 39(1).

In the Trail Smelter arbitration,[1] the tribunal observed that

under the principles of international law ... no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence.

Of course, the territory of a coastal state includes its territorial sea as the sovereignty of such a state extends, beyond its land territory and internal waters, to an adjacent belt of sea, described as the territorial sea.[2] This sovereignty also extends to the airspace over the territorial sea as well as to its bed and subsoil.[3]

Thus, before the coastal state undertakes or allows the construction of artificial islands and installations in its territorial sea, it should assess whether any harm would be suffered, as a consequence of the presence and/or operation of such structures, by any other states concerned and particularly the neighbouring states.

In this respect and in the interest of maritime navigation, Belgium had submitted the following far sighted proposal[4] as a working base for the preparation of new draft articles:

Article (a): *The coastal State is entitled to construct artificial islands or immovable installation in its territorial sea; it must not, through such structures, impede access to the ports of a neighbouring State or cause damage to the marine environment of the territorial seas of neighbouring States.*

Article (b): *Before commencing the construction of artificial islands or installations as mentioned in the preceding Article, the coastal State shall publish the plans thereof and take into consideration any observations submitted to it by other States. In the event of disagreement, an interested State which deems itself injured may appeal to IMCO, which though not empowered to prohibit the construction may prescribe such changes or adjustments as it considers essential to safeguard the lawful interests of other States.*

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1 American Journal of International Law (1941), p.684.

2 United Nations Convention on the Law of the Sea (1982) art 2(1).

3 United Nations Convention on the Law of the Sea (1982) art 2(2).

4 Working Paper Concerning Artificial Islands and Installations, submitted to the UN Sea Bed Committee by Belgium, UN Doc. A/AC. 138/91, 11 July 1973.

However, the outcome of such a proposal is meant to limit the discretionary powers of the coastal state as regards the construction of artificial islands and installations. Therefore, states are still reluctant to accept such a restriction as to their discretion within their own territorial sea.

Alfred H.A. Soons makes an interesting comment[1] on this subject, saying that

the provisions of article (b) represent an entirely new approach. They are intended to safeguard the interests of other States by giving them an opportunity to participate in the decision-making process of the coastal State, and by providing recourse to an impartial body in the event of disagreement. In a sense, this is a formulation of the existing obligation of the coastal State to enter into negotiations with neighbouring States in the case that a proposed structure could have damaging effects on the territory of these States. But it goes further in making obligatory the publication of all plans and in providing the appeal to IMCO. There are two objections against this arrangement. First, the requirement of publication of the plans for the construction of any artificial island or immovable installation can be considered an unnecessary administrative burden for the coastal State, especially with respect to those structures which will be situated too far from other States to cause any damage to their territory, including territorial sea, and which cannot possibly interfere with the passage of foreign ships. And secondly, some States will not be willing to publish any plans for structures relating to their national defense.

Thus, the proposition with respect to the obligation of the coastal state to publish all plans of the structures it is intending to erect in its territorial waters has, unfortunately, been omitted from the 1982 UN Convention on the Law of the Sea. Instead, article 60(3) of that Convention only provides the following:[2]

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[1] Alfred H.A. Soons, Artificial islands and installations in international law, Occasional Paper Series, Law of the Sea Institute, University of Rhode Island, occasional paper no. 22, July 1974, p.6-7.

[2] As mentioned earlier on in this dissertation, although article 60(3) is included within the part of the UN Convention governing the international legal régime of the EEZ, still, it has a wide ambit and would also be applicable to artificial islands and installations erected in a coastal state's territorial waters.

Due notice must be given of the construction of such artificial islands, installations or structures, and permanent means for giving warning of their presence must be maintained.

In the exclusive economic zone

The exclusive economic zone is an area beyond and adjacent to the territorial sea.[1] The exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.[2]

The concept of the exclusive economic zone is recent and quite important as it widens the national jurisdiction of coastal states over their adjacent seas. Indeed, this zone is now claimed by a large number of states and, therefore, its establishment is widely accepted within the international community.

Article 56 of the 1982 UN Convention on the Law of the Sea defines the rights of the coastal state in the exclusive economic zone as follows:

1. *In the exclusive economic zone, the coastal State has:*

(a) *sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the sea-bed and of the sea-bed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds.*

With respect to artificial islands and other installations, article 60 of the 1982 UN Convention on the Law of the Sea provides the following:

1. *The coastal state shall have the exclusive right to construct and to authorise and regulate the construction, operation and use of:*
a) *artificial islands;*
b) *installations and structures for the purposes provided for in article 56 and other economic purposes;*
c) *installations and structures which may interfere with the exercise of the rights of the coastal state in the zone.*

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[1] United Nations Convention on the Law of the Sea (1982) art 55.
[2] United Nations Convention on the Law of the Sea (1982) art 57.

Hence, it is obvious that the coastal state has the exclusive right to construct and authorise the construction and operation of artificial islands and other installations in its exclusive economic zone.

Further, as far as artificial islands, installations and other structures are concerned, it appears that the 1982 UN Convention on the Law of the Sea applies the same identical rules in the exclusive economic zone and on the continental shelf.[1] Therefore, a more detailed analysis of state authorisation as to the construction of these structures will follow in the next paragraph related to the area subject to the regime of the continental shelf.

However, it should be mentioned at this stage that whilst exercising its right to construct and authorise the construction and operation of artificial islands and installations in the exclusive economic zone, the coastal state *shall have due regard to the rights and duties of other States and shall act in a manner compatible with the provisions of this Convention.*[2]

Further, the 1982 UN Convention on the Law of the Sea sets out different rules for the construction, location and operation of artificial islands in the exclusive economic zone. Indeed, *due notice must be given of the construction of such artificial islands, installations or structures, and permanent means for giving warning of their presence must be maintained. Any installations or structures which are abandoned or disused shall be removed to ensure safety of navigation ... Such removal shall also have due regard to fishing, the protection of the marine environment and the rights and duties of other States. Appropriate publicity shall be given to the depth, position and dimensions of any installations or structures not entirely removed.*[3]

Furthermore, the coastal state is permitted, where necessary, to establish reasonable safety zones around artificial islands and installations, in which it may take appropriate measures to ensure the safety both of navigation and of such artificial islands and installations.[4]

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1 United Nations Convention on the Law of the Sea (1982) art 60 and 80.
2 United Nations Convention on the Law of the Sea (1982) art 56(2).
3 United Nations Convention on the Law of the Sea (1982) art 60(3).
4 United Nations Convention on the Law of the Sea (1982) art 60(4).

Moreover, there is an overriding duty on the coastal state not to establish artificial islands and other installations and the safety zones around them *where interference may be caused to the use of recognized sea lanes essential to international navigation.*[1]

Within the area subject to the regime of the continental shelf

The continental shelf of a coastal State comprises the sea-bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.[2]

Hence, the above mentioned definition of the continental shelf includes the exclusive economic zone's 200 miles belt of water.

The coastal state exercises sovereign rights for the purpose of exploring and exploiting the natural resources of the continental shelf.[3] Further, article 60 of the 1982 UN Convention on the Law of the Sea, which applies to the exclusive economic zone, also applies to artificial islands, installations and structures on the continental shelf.[4]

Therefore, on the continental shelf, the coastal state shall have the exclusive right to construct and to authorize and regulate the construction, operation and use of:

(a) artificial islands[5]

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1 United Nations Convention on the Law of the Sea (1982) art 60(7).

2 United Nations Convention on the Law of the Sea (1982) art 76(1).

3 United Nations Convention on the Law of the Sea (1982) art 77(1).

4 United Nations Convention on the Law of the Sea (1982) art 80.

5 It should be noted that there seem to be no limitations with respect to the purpose for which "artificial islands" may be built on the continental shelf. On the other hand, the purposes for which "installations and structures" may be built are those provided for in article 56 of the UN Convention, as well as other economic purposes. Nevertheless, the scope of such economic purposes is very wide indeed as no restrictive definition could be elaborated in view to draw a line between economic and non economic purposes.

(b) installations and structures for the purposes provided for in article 56 and other economic purposes;

(c) installations and structures which may interfere with the exercise of the rights of the coastal state in the zone.

Thus, the coastal state has exclusive rights to construct and operate on its continental shelf artificial islands, and installations for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, current and winds,[1] and for other economic purposes.[2]

These rights to construct and operate artificial islands for the purpose of exploring and exploiting the natural resources of the continental shelf, as well as for other economic purposes, are a corollary of the sovereign rights the coastal state exercises over its continental shelf.

These sovereign rights the state exercises over the continental shelf are exclusive in the sense that if, for instance, the coastal state does not explore the continental shelf or exploit its natural resources, no one may undertake these activities without the express consent of the coastal state.[3]

Thus, as a consequence of the exclusiveness of the coastal state's rights, other states are not allowed under international law to build any structure on the continental shelf of the coastal state, without the consent of the latter, for the purpose of exploring or exploiting the natural resources of that continental shelf.

Further, it appears that the exclusive rights of the coastal state are not only restricted to the exploration and exploitation of the natural resources of the continental shelf but also extend to other economic purposes and, therefore, to the construction and operation of artificial islands and installations for any other uses or purposes than the exploration and exploitation of the natural resources.

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[1] United Nations Convention on the Law of the Sea (1982) art 56(1)(a).
[2] United Nations Convention on the Law of the Sea (1982) art 60(1)(b).
[3] United Nations Convention on the Law of the Sea (1982) art 77(2).

Indeed, the 1958 Geneva Convention on the Continental Shelf used to recognise the coastal state's sovereign rights on the continental shelf only for specific purposes limited to the exploration and exploitation of its natural resources. Article 2(1) of that Convention provided that

the coastal State exercises over the continental shelf sovereign rights for the purpose of exploring and exploiting its natural resources.

Further, article 5 of that same Convention, in its sections 2 and 4, provided the following:

Subject to the provisions of paragraphs 1 and 6 of this Article, the coastal State is entitled to construct and maintain or operate on the continental shelf installations and other devices necessary for its exploration and the exploitation of its natural resources....

Such installations and devices, though under the jurisdiction of the coastal State, do not possess the status of islands....

However, artificial islands and/or installations for any economic purposes can now be constructed exclusively by the coastal state on its continental shelf by virtue of the 1982 UN Convention on the Law of the Sea[1] and, therefore are covered by the articles and provisions of that convention.

It has been noted, in this respect, that

it is clear that all artificial islands and all resource and other economic off-shore installations (e.g. artificial deep water ports) are ipso facto, subject to coastal State exclusive rights.[2]

It has further been said that a new rule of international law has emerged, *which may be summarized as being that a coastal State may exercise jurisdiction over all installations erected on the soil of its continental shelf, no matter for what purpose.*[3]

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[1] United Nations Convention on the Law of the Sea (1982) art 60(1)(b).
[2] J.R. Stevenson and B.H. Oxman, The Third United Nations Conference on the Law of the Sea, the 1975 Geneva Session, 69 A.J.I.L. (1975), p.763-777.
[3] H.F. Van Panhuys and M.J. Van Boas, Legal Aspects of Pirate Broadcasting, a Dutch Approach, 60 A.J.I.L., (1966), p.337.

Hence, it might no longer be argued that artificial islands and installations constructed for purposes other than the exploration and exploitation of the natural resources of the continental shelf fall outside the scope of exclusivity and they, therefore, can be built without the permission of the coastal state. States, other than the coastal state, cannot build any construction on the continental shelf without the permission of the latter state, as such a construction would be regarded as an interference with the exclusive rights of the coastal state,[1] since it appropriates a specified area of the continental shelf, hence removing the possibility of present access or future use of that area of the shelf, by the coastal state, in view of undertaking activities involving the construction of artificial islands or installations for whichever economic purpose.

Moreover, it has further been noted,[2] in relation with article 60(1)(c) of the 1982 UN Convention on the Law of the Sea, that

it is equally clear that the "may interfere" test in sub-paragraph (c) "tilts" heavily towards the coastal State even with respect to non-economic installations in the economic zone.

Indeed, whichever construction, irrespective of its purpose, erected by a state on the exclusive economic zone or the continental shelf of the coastal state, without the permission of the latter, "may interfere" with the exercise of the rights of the coastal state and therefore appears to be subject to its exclusive jurisdiction, authorization and control.

Further, since the modern trend is towards an increase of coastal states' jurisdiction, it does not seem likely that these states would allow the construction of foreign installations, without their consent, in areas of their continental shelf or economic zone. This is due to several considerations as

no State would like to see valuable resources so near its coasts to be exploited by another State. No State would like to see foreign installations being built so near its territorial waters. Let us admit immediately that the fear is more of a

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[1] United Nations Convention on the Law of the Sea (1982) art 60(1)(c).

[2] J.R. Stevenson and B.H. Oxman, the Third United Nations Conference on the Law of the Sea, the 1975 Geneva Session, 69 A.J.I.L. (1975), p.763-777.

theoretical than of practical nature, because the building of installations in front of a foreign coast does not seem practicable in most cases.[1]

Furthermore, the security interests of the coastal states are involved and the protection of these interests, by preventing the construction of artificial islands and installations on their continental shelf, is justifiable as it appears that constructions which had been previously built for the extraction of natural resources might be used for military purposes. As a matter of fact,

the United States has employed the shelf for military purposes by using the structures originally designed to extract oil and other minerals.[2]

Moreover, the awareness of the security interests of the coastal state and of the danger of interference with its right to explore and exploit the natural resources of its continental shelf, along with other economic rights the coastal state has now over its shelf, make it necessary to recognize the coastal state's exclusive authority and jurisdiction over any construction of artificial island or installation on its shelf:

... considerations of coastal security and of honouring the now-recognised authority over the continental shelf, for exploitative purposes make it imperative to recognise exclusive coastal control over any use of the continental shelf which requires emplacing relatively fixed installations. It would be most inadvisable, for example, to permit an uncontrolled competence in non-coastal States to erect structures on the continental shelf, while at the same time authorising the coastal State to exploit the natural resources of the continental shelf. The possibilities of conflict are too obvious.[3]

The above mentioned modern trend can be noticed, for instance, in the working paper submitted by Ecuador, Panama and Peru,[4] which contains a provision on offshore facilities in the adjacent sea, which is defined in article 1 of the draft articles as the sea adjacent to the coast and up to a limit not exceeding a distance of 200 nautical miles.

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1 M.W. Mouton, The Continental Shelf, 1952, p.293.

2 M.S. Mc Dougal and W.T. Burke, The Public Order of the Oceans, 1962, p.718.

3 M.S. Mc Dougal and W.T. Burke, The Public Order of the Oceans, 1962, p.719.

4 Draft articles for inclusion in a convention on the law of the sea, working paper submitted by the delegations of Ecuador, Panama and Peru, UN Doc. A/AC.138/SC.II/L.27, 13 July 1973.

Article 12 of those draft articles states the following:

The emplacement and use of artificial islands and other installations and devices on the surface of the sea, in the water column and on the bed or in the subsoil of the adjacent sea shall be subject to authorization and regulation by the coastal State.

Further, in its working paper on artificial islands and installations,[1] Belgium proposed the following provisions:

Article (c): *The coastal State may, on the conditions specified in the following article, authorize the construction on its continental shelf of artificial islands or immovable installations serving purposes other than the exploration or exploitation of natural resources...*

Article (d): *Before commencing the construction of artificial islands or installations as mentioned in article (c), the State shall publish the plans thereof and take into consideration any observations submitted to it by other States. In the event of disagreement, an interested State which deems itself injured may appeal to ... which shall prescribe where appropriate, such changes or adjustments as it considers essential to safeguard the lawful interests of other States.*

In the Belgian proposal, article (d), after the words *an interested State which deems itself injured may appeal to ...* a footnote is inserted which states:

It would seem advisable not to specify at present the body which would be competent to entertain such an appeal. It could be the tribunal of the international machinery, if that was though appropriate, or there could be the triple possibility of recourse to IMCO in respect of complaints affecting navigation, to the regional fisheries organization in respect to those concerning fishing, or to the international authority for the marine environment pollution, if one is established.

The Belgian proposal does confer on the coastal state the right to authorize the construction of artificial islands and installations on its continental shelf, for

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[1] Working paper submitted by Belgium, UN Doc. A/AC.138/91, 11July 1973.

purposes other than the exploration or exploitation of natural resources, although it puts forward the condition of publishing the plans of such structures and taking into consideration any observations submitted to the coastal state by other states.

Further, the Belgian proposal shows concern as regards sufficient guarantees for the protection of the interests of other states. Hence the provision where any interested state which deems itself injured by the construction of artificial islands or installations may, according to article (d), have the right to appeal to an independent organization which shall prescribe, where appropriate, changes or adjustments.

However, it appears that, even though there might be a large percentage of risk of injury to other states due to the construction and operation of artificial islands and installations by the coastal state, yet the 1982 UN Convention on the Law of the Sea neither includes the Belgian proposal nor does it introduce detailed safeguards for other states in the form of specific restrictions on the construction and operation of such structures. This might have been achieved by stipulating that an independent organization should promulgate compulsory international standards to which any construction and its operation must conform.

Also, the same modern trend can be seen in articles 23 and 24 of the Draft Articles on the Territorial Sea, Epicontinental Sea and Continental Shelf, submitted to the Seabed Committee by Argentina, which read as follows:

Article 23: *A coastal State shall authorize the laying of submarine cables and pipelines on the continental shelf, without restrictions other than those which may result from its rights over the same.*

Article 24: *The establishment of any other type of installation by third States or their nationals is subject to the permission of the coastal State.*[1]

Moreover, article 7 of the Draft Articles submitted by Colombia, Mexico and Venezuela[2] reads as follows:

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[1] UN Doc. A/AC.138/SC.II/L.37, 16 July 1973.

[2] Draft Articles submitted by Colombia, Mexico and Venezuela, UN Doc. A/AC.138/SC.II/L.21, 21 April 1973.

The coastal State shall authorize and regulate the emplacement and use of artificial islands and any kind of facilities on the surface of the sea, in the water column and on the seabed and subsoil of the patrimonial sea.[1]

Further, article 5 of the Russian Decree of 6 February 1968, entitled On The Continental Shelf Of The USSR, states that

foreign physical and juridical persons shall be prohibited from surveying, exploring or exploiting the natural resources or carrying on any other activity on the continental shelf of the USSR unless such activity is specifically provided for by an agreement between the USSR and the foreign State concerned or by special permission granted by the competent authorities of the USSR.[2]

Furthermore, in the Outer Continental Shelf Lands Act (7 August 1953)[3] which regulates the United States' legal regime of the continental shelf,

... the subsoil and sea-bed of the outer Continental Shelf appertain to the United States and are subject to its jurisdiction, control and power of disposition....[4]

Also, the above mentioned Act extends the

constitution and laws and civil and political jurisdiction of the United States... to the subsoil and sea-bed of the outer Continental Shelf and to all artificial islands and fixed structures which may be erected thereon for the purpose of exploring for, developing, removing and transporting resources therefrom, to the same extent as if the outer Continental Shelf were an area of exclusive Federal jurisdiction located within a State.[5]

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[1] The patrimonial sea concept is a variant of the EEZ concept. See E.D. Brown, Maritime Zones. A survey of claims, in new directions in the law of the sea, Collected Papers, vol. III, published by the British Institute of International and Comparative Law, 1973, p.157-192. See also D.P. O'Connell, The International Law of the Sea, 1982, vol I, p.552: The EEZ was also called the patrimonial sea during its generic phase.

[2] Decree of the Presidium of the Supreme Soviet of the USSR, dated 6 February 1968, entitled On The Continental Shelf Of The USSR, UN Leg. Ser. Doc. ST/LEG/SER.B/15, 1970, p.441-443.

[3] UN Leg. Ser. ST/LEG/SER.B/15, 1970, p.462.

[4] 43 U.S.C.S. 1332 (a) (1953).

[5] 43 U.S.C.S. 1333 (a) (1) (1953).

Thus, in United States v. Ray,[1] two rival and imaginative private groups of entrepreneurs, Louis M. Ray and Acme General Contractors, sought to construct artificial islands and establish independent states on coral reefs, located outside the territorial waters and on the continental shelf ten miles from the southeastern Florida mainland and four and one-half miles from Elliot Key, the nearest landward island, by engaging in dredging and filling operations. The Atlantis Development Corporation, which had acquired the rights of a Mr. Timothy Thomas Anderson, was also allowed to intervene in the proceedings. The reefs involved in this dipute are Triumph and Long, on which Atlantis had commenced the installation of buildings[2] and where the defendants Acme and Ray, the latter being at that time president of Acme, dredged and filled three areas. The states Atlantis and Acme wanted to create were to be named, respectively, Atlantis, Isle of Gold and Grand Capri Republic. The United States sought to forbid these activities as to defendants and intervenor on the grounds that their building operations, which were causing destructive and irreparable damage to the reefs, constituted trespass upon an area which was subject to the jurisdiction and control of the United States, and that the defendants' activities were unlawful since they had undertaken such activities without the required authorization from the Secretary of the Army.[3]

The district court found that the reefs formed part of the seabed and subsoil of the outer continental shelf and constituted natural resources within the terms both of the Outer Continental Shelf Lands Act and the Convention on the Continental Shelf. The court granted the injunctive relief sought because the construction work undertaken by the defendants constituted artificial islands and fixed structures designed for the purpose of developing the reefs, which required the approval of the Secretary of the Army. Failure of the defendants to secure the required approval made their activities unlawful. However, the court further held that the jurisdictional rights claimed by the United States constituted neither possession nor ownership and therefore were insufficient to support an action for common law trespass.

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[1] 423 F.2d 16 (5th Cir. 1970).

[2] Atlantis plan contemplated the construction of 2,600 acres at a cost of approximately US$ 250,000,000 housing a radio and television station, post office, stamp department and foreign offices, government palace, congress, international bank and including a gambling casino.

[3] See S. Eckhardt, Atlantis, "Isle of Gold", 6 San Diego Law Review, 1969, p.487-498. See also Nikos Papadakis, The International Legal Regime of Artificial Islands, 1977, p.74-75.

This denial of the trespass claim was reversed on appeal by the Fifth Circuit, and the rights of the United States on the continental shelf were stated more broadly. The court pointed out that there was no question about the exclusive right of the United States to explore and exploit the reefs under the Convention on the Continental Shelf and the Outer Continental Shelf Lands Act. The court found that the trespass allegation was *inaccurately framed,* and that the government was in fact seeking *restraint from interference with rights to an area which appertains to the United States and which under national and international law is subject not only to its jurisdiction, but its control as well.*[1] Those rights, and the interest in preventing interference with them, were found sufficient by the court to affirm the injunctive relief and uphold the trespass claim.[2] Judge Ainsworth said:

Neither ownership nor possession is, however, a necessary requisite for the granting of injunctive relief... The evidence overwhelmingly shows that the Government has a vital interest, from a practical as well as an aesthetic viewpoint, in preserving the reefs for public use and enjoyment... Obviously the United States has an important interest to protect in preventing the establishment of a new sovereign nation within four and one-half miles of the Florida Coast, whether it be Grand Capri Republic or Atlantis, Isle of Gold. The rights of the United States in and to the reefs and the vital interest which the Government has in preserving the area require full and permanent injunctive relief against any interference with those rights by defendants and intervenor.[3]

Thus, as to the freedom to construct or authorize the construction of artificial islands and other installations in the various belts of waters aforementioned, it has to be noted that the coastal state exercises the same immutable exclusive rights from one belt to the other, as long as these rights are subject to the agreed rules and standards and are compatible with the different interests and activities of other states within the various belts of waters. Obviously, this immutability does not apply to the powers of the coastal state as to other matters (security, customs, sanitary control...).

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[1] 423 F.2d, p.22.

[2] S.A. Dorshaw, The International Legal Implications of Offshore Terminal Facilities, 9 Texas Int Law Jnl, 1974, p.205-223.

[3] 423 F.2d 16, p.22-23.

With respect to the different interests, activities and rights of other states within the continental shelf of the coastal state, the latter is under the obligation to ensure that no infringement nor *any unjustifiable interference with navigation and other rights and freedoms of other States as provided for in this Convention* shall result from the exercise of its rights over the continental shelf.[1]

In addition, the 1982 UN Convention on the Law of the Sea sets out different rules for the construction, location and operation of artificial islands on the continental shelf. Indeed, *due notice must be given of the construction of such artificial islands, installations or structures, and permanent means for giving warning of their presence must be maintained. Any installations or structures which are abandoned or disused shall be removed to ensure safety of navigation ... Such removal shall also have due regard to fishing, the protection of the marine environment and the rights and duties of other States. Appropriate publicity shall be given to the depth, position and dimensions of any installations or structures not entirely removed.*[2]

Further, the coastal state is permitted, where necessary, to establish reasonable safety zones around artificial islands and installations, in which it may take appropriate measures to ensure the safety both of navigation and of such artificial islands and installations.[3]

Moreover, there is an overriding duty on the coastal state not to establish artificial islands and other installations and the safety zones around them *where interference may be caused to the use of recognized sea lanes essential to international navigation.*[4]

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[1] United Nations Convention on the Law of the Sea (1982) art 78(2).
[2] United Nations Convention on the Law of the Sea (1982) art 80(3).
[3] United Nations Convention on the Law of the Sea (1982) art 80(4).
[4] United Nations Convention on the Law of the Sea (1982) art 80(7).

3. The right to construct artificial islands and installations in areas beyond the limits of national jurisdiction

On the high seas

The term high seas means all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a state, or in the archipelagic waters of an archipelagic state.[1]

An artificial island or installation not only uses an area of the sea but also a part of the seabed beneath that area of the sea.

In this respect, it has to be pointed out that the area of the continental shelf and the area of the high seas do not usually coincide except as mentioned hereunder. Accordingly, most of the high seas are more likely to be superjacent to the seabed and subsoil beyond the area of the continental shelf, that is, beyond the limits of national jurisdiction.

Nevertheless, the seabed and subsoil beyond the limits of national jurisdiction have a legal régime of their own, with respect to the construction of artificial islands and installations, which shall be discussed in the following section. It should be mentioned, at this stage, that the freedom to construct artificial islands and installations on the high seas, which is confered on states by article 87 of the 1982 UN Convention on the Law of the Sea cited below, applies where, as it sometimes occurs, the waters superjacent to a part of the continental shelf form part of the high seas. This is so where the outer edge of the continental margin lies more than the 200 miles breadth of the exclusive economic zone which are measured from the baselines of a coastal state. On the other hand, with respect to the high seas submerging the deep seabed beyond the limits of the continental shelf, the freedom to erect artificial islands and installations is restricted to those structures built for purposes unrelated to the exploration and exploitation of the natural resources of the deep seabed.

Article 78 of the 1982 UN Convention on the Law of the Sea, in its section 1, provides that

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[1] United Nations Convention on the Law of the Sea (1982) art 86.

the rights of the coastal State over the continental shelf do not affect the legal status of the superjacent waters or of the air space above those waters.

Article 2 of the 1958 High Seas Convention made no reference to the construction of artificial islands and other installations in the high seas. As technology at that time was not sufficiently advanced for the purpose of exploring and exploiting the subsoil of the high seas that includes the farthest parts of the continental shelf deeply covered by such seas or, indeed, the subsoil beyond those parts of the continental shelf, this particular point was at issue merely at a theoretical level.

Accordingly, the International Law Commission[1] made the following comment in 1956:

The Commission has not made specific mention of the freedom to explore or exploit the subsoil of the high seas. It considered that apart from the case of the exploitation or exploration of the soil or subsoil of a continental shelf... such exploitation had not yet assumed sufficient practical importance to justify special regulation.

However, with modern technology, the rise of industry and the new needs it requires, the matter becomes of a practical nature as it is now believed that the erection of artificial islands and other installations in the deepest parts of the high seas submerging the continental shelf, and even further, is very much feasible.

Thus, article 87 of the 1982 UN Convention on the Law of the Sea specifically includes, in its definition of the legal régime of the high seas, the freedom to construct artificial islands and other installations. The above mentioned article reads as follows:

1. *The high seas are open to all States, whether coastal or land-locked. Freedom of the high seas is exercised under the conditions laid down by this Convention and by other rules of international law. It comprises, inter alia, both for coastal and land-locked States:*

(a) *freedom of navigation;*
(b) *freedom of overflight;*

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[1] *Yrbk*, I.L.C. (1956), ii. p.278, paragraph 2 of commentary on article 27.

(c) *freedom to lay submarine cables and pipelines, subject to PartVI;*
(d) *freedom to construct artificial islands and other installations permitted under international law, subject to Part VI;*[1]
(e) *freedom of fishing, subject to the conditions laid down in section2;*
(f) *freedom of scientific research, subject to Parts VI* [2] *and XIII.*[3]

2. *These freedoms shall be exercised by all States with due regard for the interests of other States in their exercise of the freedom of the high seas, and also with due regard for the rights under this Convention with respect to activities in the Area.*

However, article 89 of the 1982 UN Convention on the Law of the Sea provides that

no State may validly purport to subject any part of the high seas to its sovereignty.

This statement simply confirms the generally accepted principle of international law which is the freedom of the high seas and, therefore, the rights and interests of states in their exercise of such freedom.

Yet, if the construction of artificial islands and other installations is one of the freedoms conferred on states by virtue of the above mentioned convention, the state exercising such freedom and thus erecting an artificial island accordingly, is meant to use permanently and exclusively an area of the high seas and, therefore, may be regarded as subjecting such area to its own sovereignty.

The answer to this might be that international law does already allow some sort of activities to take place in the high seas although such activities might have an exclusive and permanent character as they require specific uses of parts of the high seas.

Fisheries[4] by means of equipment embedded in the sea floor offer an example of such an exclusive and permanent use.

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[1] Concerning the continental shelf.
[2] Concerning the continental shelf.
[3] Concerning marine scientific research in general.
[4] See O. de Ferron, Le Droit International de la Mer, 1960, vol.2, p.79-82.

Further, the high seas not being open to acquisition by occupation on the part of states, it seems that permanent and exclusive use are permitted in so far as such use does not lead to effective occupation or appropriation and hence to a claim to sovereignty laid by states individually or collectively.

Furthermore, as provided in section 2 of article 87,[1] the freedoms of the high seas shall be exercised by all states with due regard for the interests of other states in their exercise of the freedom of the high seas. Accordingly, artificial islands and/or installations can only be constructed in areas where they do not unreasonably or seriously interfere with the rights and interests of other states in their exercise of activities which are permitted under international law and by the rules and conditions laid down by the 1982 UN Convention on the Law of the Sea.

Even where the permissibility of new uses of the high seas, before the freedom to erect artificial islands and other installations was conferred on states by the 1982 UN Convention on the Law of the Sea, was viewed with great suspicion by those only admitting a limited number of long established uses fearing that the construction of artificial islands in the high seas would allow states to appropriate large areas of those seas in violation of the principle of the freedom of the high seas, Mr. Margue, in his report to the Council of Europe on the legal status of artificial islands built on the high seas,[2] made the following comment:

As a corollary of the freedom of the high seas the creation of an artificial island on the high seas shall be free on condition that it does not encroach upon the rights of other States, that is, that it does not interfere with the free use of the seas.

Speaking of the same report, a quick parenthesis should be opened in relation with the sentence that follows the above cited comment made in 1971:

No special authority is required to create an artificial island situated outside the territorial waters of any State.

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1 United Nations Convention on the Law of the Sea (1982).

2 Report on the legal status of artificial islands built on the high seas, by Mr. Margue, Council of Europe, Consultative Assembly, Doc. 3054, 9 Dec. 1971, p.10, para 31.

However, according to the latest rules and regulations provided by the 1982 UN Convention on the Law of the Sea and as discussed earlier on in this dissertation, a special authority on behalf of the coastal state is required to create an artificial island situated outside the territorial waters of the latter state, first in the exclusive economic zone which extends up to 200 miles from the baselines from which the breadth of the territorial sea is measured and, second, on the high seas superjacent to the continental shelf of the coastal state, whereas such continental shelf extends further than the 200 miles breadth of the exclusive economic zone, as the latter state alone can authorize the construction of an artificial island on its continental shelf. With respect to the high seas superjacent to the seabed and subsoil beyond the continental shelf of the coastal state and, therefore, beyond the limits of national jurisdiction, the construction of an artificial island, as will be discussed in the following section, is subject to the authorization of the Authority, at least in the case where such construction is related to the exploration and exploitation of the deep seabed.

Thus, special authority is most of the time required to erect an artificial island outside the territorial waters of any state, whether such authority belongs to the coastal state in some cases or to the Authority in some others. As already mentioned, (apart from the case where installations are built on the high seas, submerging the deep seabed beyond the limits of the continental shelf, for purposes unrelated to the exploration and exploitation of the natural resources of the deep seabed) the freedom to construct artificial islands or installations on the high seas, conferred on states by the 1982 UN Convention on the Law of the Sea, is restricted, as the case may be, to those parts of the high seas superjacent to the parts of the continental shelf exceeding the 200 miles limit of the exclusive economic zone, where, nevertheless, coastal states alone may exercise the freedom to construct or authorize the construction of such installations, each of the latter states exercising such freedom on the high seas submerging its own part of the shelf, exceeding the 200 miles limit, over which it exercises exclusive rights in that respect.

As freedom to construct artificial islands or installations in the high seas is no longer the matter in dispute, the international community now faces the challenge of making artificial islands compatible with activities of other users of the sea and minimizing the impact of such constructions vis à vis those users by having reasonable regard to their interests, rights and duties under international law.

Thus, there is an obligation upon states undertaking the construction of artificial islands and installations in the high seas not to produce unreasonable interference with fishing, (as all states have the right for their nationals to engage in fishing on the high seas...[1]) conservation of living resources, (as all states have the duty to take, or to cooperate with other states in taking, such measures for their respective nationals as may be necessary for the conservation of the living resources of the high seas[2]) scientific research (as it is a generally accepted freedom of the high seas[3]) and laying or maintaining submarine cables or pipelines (as all states are entitled to lay submarine cables and pipelines on the bed of the high seas beyond the continental shelf[4]).

Also, new safeguards should be introduced to prevent unreasonable interference with international navigation and prevent obstruction to such navigation as artificial islands and other installations might constitute a navigational hazard.

Further, as artificial islands and installations can be a source of pollution, states erecting those constructions on the high seas should, by some means or other, prevent or at least minimize such pollution and the harmful effects it causes.

In this respect, Alfred H.A. Soons makes the following comment:[5]

The construction of artificial islands and installations may not cause harmful effects to the marine environment beyond a reasonably tolerable level. Absolute prohibition of any damage would be unreal since every structure will inevitably have some disturbing effects on the marine environment. What is tolerable depends in part on the value which society attaches to the benefits deriving from the activities on the structure.

On the whole, the construction of artificial islands and other installations should take place subject to generally accepted rules and regulations.

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1 United Nations Convention on the Law of the Sea (1982) art 116.
2 United Nations Convention on the Law of the Sea (1982) art 117.
3 United Nations Convention on the Law of the Sea (1982) art 87(1)(f).
4 United Nations Convention on the Law of the Sea (1982) art 112(1).
5 Alfred H.A. Soons, Artificial islands and installations in international law, Occasional Paper Series, Law of the Sea Institute, University of Rhode Island, occasional paper no. 22, July 1974, p.10.

Further, there are some propositions as to a multilateral approach, for the construction of artificial islands, that would lead to an international legal régime regulating such constructions.

Indeed, Belgium has submitted the following text[1] concerning the construction of artificial islands and installations on the high seas beyond the limits of the continental shelf:

Any construction of an artificial island or immovable installation on the high seas beyond the limits of the continental shelf shall be subject to the authority and jurisdiction of the international machinery for the sea-bed. The international authority may authorize a State to erect such islands or installations and delegate jurisdiction over such structures to that State.

Furthermore, it has been suggested by M.W. Mouton[2] that plans of any future construction on the high seas should be submitted to the judgment and decision of an international body:

In order to achieve a reasonable application of different ways of using the high seas, it would be recommendable to create an international body, judging plans submitted to it and giving binding decisions.

Before ending this section, it is worth mentioning the recommendation presented by the Legal Affairs Committee of the Council of Europe[3] which states that

the Assembly,
3. Noting that an increasing number of artificial islands are being built on the high seas by natural persons and bodies corporate under private law, for the most varied purposes (oil prospecting, scientific exploration, pirate radio stations, tourist development);
4. Considering the obstacles to freedom of navigation and fishing, the dangers of fraud and of infringement of the laws of coastal States and the risks of pollution and nuisances inherent in the phenomenon of artificial islands;

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1 Working paper concerning artificial islands and installations submitted by Belgium, Doc. A/AC.138/91, 11 July 1973.
2 M.W. Mouton, The Continental Shelf, 1952, p.229.
3 Nikos Papadakis, The International Legal Regime of Artificial Islands, 1977, p.61-62.

5. Considering that these islands do not come under the legal order of any particular State and that the absence of authoritative international regulations in the matter constitutes a source of conflicts and problems;
6. Considering that the creation of an artificial island on the high seas amounts to the exclusive occupation of a portion of international public property;
7. Considering that it would be advisable to try and regulate this situation on a multilateral basis;
10.Considering that it is necessary to subject the creation of artificial islands on the high seas to control, possibly under the aegis of an international organisation, in order to reconcile the general interests of the international community, the national interests of States, especially of coastal States, and the lawful claims of those who build, own and develop these islands;

Recommends that the Committee of Ministers ask member States to define a common attitude to the problem of the legal status of artificial islands on the high seas, taking into account the interests of coastal States, and to make joint proposals on this subject at the International Conference on the Law of the Sea in 1973.

Nevertheless, the 1958 High Seas Convention and, afterwards, the 1982 UN Convention on the Law of the Sea confered only on states the exercise of the freedoms of the high seas. Indeed, article 2 of the former convention stated that

the high seas being open to all nations, no State may validly purport to subject any part of them to its sovereignty.

Also, article 87 of the latter Convention states that

the high seas are open to all States...

And, article 89 of the same Convention provides that

no State may validly purport to subject any part of the high seas to its sovereignty.

Further, Part VII of that Convention, related to the high seas, as well as the 1958 High Seas Convention, do not hint at natural persons and bodies corporate under private law being permitted to erect artificial islands or installations in the area of the high seas.

However, it appears that specific provisions aiming to control and regulate the construction of artificial islands and installations by private persons and/or companies are missing from the 1982 UN Convention on the Law of the Sea, except as far as unauthorized broadcasting from the high seas is concerned.

Indeed, article 109 of the 1982 UN Convention on the Law of the Sea provides the following:

1. *All States shall co-operate in the suppression of unauthorized broadcasting from the high seas.*

2. *For the purposes of this Convention, "unauthorized broadcasting" means the transmission of sound radio or television broadcasts from a ship or installation on the high seas intended for reception by the general public contrary to international regulations, but excluding the transmission of distress calls.*

Referring to the principle of the freedom of the high seas with respect to the construction of artificial islands and installations, which is to be enjoyed only by states, or subject to their authority, the following comment has been made:[1]

A point of considerable interest is that the Text [2] *envisages that the freedom exists only for States: there is no suggestion that, beyond national jurisdiction, private entities should be free to construct islands or installations. Indeed, if agreed rules and standards are to be applied, and the normal rules of State responsibility applied where damage is caused to the rights or interests of another State, it is essential that construction should take place only by a State, or under the authority and responsibility of a State.*

Further, *since article 2 of the High Seas Convention refers only to States, the freedom of the high seas are to be regarded as rights of States. As a result, individuals wishing to construct an artificial island or installation in the high seas can only do so under the authority of a State willing to accept the responsibility. Individuals not acting under the authority or responsibility of a State cannot legally be protected against the actions of a third State, since they*

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[1] D.W. Bowett, The Legal Regime of Islands in International Law, 1979, p.124-125.

[2] Referring to the Informal Composite Negotiating Text.

cannot invoke the freedom of the high seas against that State and there is no State obliged to protect them.[1]

Moreover, as artificial islands and other installations are also fixed to the bottom of the sea, besides from being permanently above sea level, it follows that in case the spot of the seabed to which they are fixed is part of the continental shelf of a coastal state, then their construction is subject to the régime of the continental shelf and, hence, to the authorization of that coastal state. This is so even where the spot of the continental shelf to which such structures are fixed lies beneath the waters defined as high seas.

On the other hand, where such spot happens to lie beyond the limits of the continental shelf and, therefore, beyond the limits of national jurisdiction, the construction of artificial islands and other installations has to be subject to the permission of the Authority, at least with respect to those constructions related to the exploitation and exploration of the natural resources of the deep seabed.

On the seabed beyond the limits of national jurisdiction

As the exploration and exploitation of the mineral resources of the seabed and subsoil beyond the limits of national jurisdiction, that is beyond the limits of the continental shelf,[2] have technically become feasible and, before deep seabed mining beyond national jurisdiction makes any progress, a widely recognized international legal régime governing and allowing such exploration and exploitation to proceed in an orderly manner had to be set out. Accordingly, pressure for the establishment of a new régime developed in the General Assembly Committee on Peaceful Uses of the Seabed and an attempt to create such a régime took place in the early 1970s.

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[1] Alfred H.A. Soons, Artificial islands and installations in international law, Occasional Paper Series, Law of the Sea Institute, University of Rhode Island, occasional paper no. 22, July 1974, p.30, note number 75.

[2] According to the definition of the continental shelf, (art 76(1) of the 1982 UN Convention on the Law of the Sea) the latter includes, in all cases, the exclusive economic zone and extends, in some cases, to distances beyond the 200 miles limit of that exclusive economic zone. The above mentioned Convention also sets out technical criterias for the delimitation of the outer limits of the continentla shelf where it extends beyond 200 miles. However, the permissible limit of the continental shelf is no more than 350 miles. (art 76, paragraphs 4 to 6).

Indeed, the United Nations General Assembly has adopted, in 1970, the Declaration of Principles Governing the Seabed and the Ocean Floor and the Subsoil Thereof Beyond the Limits of National Jurisdiction,[1] which reflects the general opinion of the international community and expresses the new emerging trend of international law through a substantial agreement on certain principles, namely, that the Area[2] and its resources are the common heritage of mankind and, therefore, shall not be subject to appropriation by states or by natural or legal persons, that an international régime should be established to govern the activities regarding the exploitation of the natural resources of the Area as well as the management of that Area and its resources and, that the Area shall be open to use exclusively for peaceful purposes. As a matter of fact, this Declaration of Principles was designed to set the course for the negotiations that were to follow.

The first five operative paragraphs of the Declaration of Principles state the following:

1. *The sea-bed and ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction (hereafter referred to as the area), as well as the resources of the area, are the common heritage of mankind.*

2. *The area shall not be subject to appropriation by any means by States or persons, natural or juridical, and no State shall claim or exercise sovereignty or sovereign rights over any part thereof.*

3. *No State or person, natural or juridical, shall claim, exercise or acquire, rights with respect to the area or its resources incompatible with the international régime to be established and the principles of this Declaration.*

4. *All activities regarding the exploration and exploitation of the resources of the area and other related activities shall be governed by the international régime to be established.*

5. *The area shall be open to use exclusively for peaceful purposes by all States whether coastal or land-locked, without discrimination, in accordance with the international régime to be established.*

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1 U.N.G.A. Res/2749 (XXV), Dec. 17, 1970.

2 United Nations Convention on the Law of the Sea (1982) art 1(1)(1).

Further, paragraph 9 states that

on the basis of the principles of this Declaration, an international régime applying to the area and its resources and including appropriate machinery to give effect to its provisions shall be established by an international treaty of a universal character, generally agreed upon. The régime shall, inter alia, provide for the orderly and safe development and rational management of the area and its resources and for expanding opportunities in the use thereof and ensure the equitable sharing by States in the benefits derived therefrom, taking into particular consideration the interests and needs of the developing countries, whether land-locked or coastal.

Since that Declaration of Principles, there has been a continuous effort to set out an adequate régime for the Area under the auspices of the Third United Nations Conference on the Law of the Sea. Indeed, as a new era of seabed exploitation was opened, widely recognized regulations were required to avoid disputes, prevent serious outbreak of conflict over ocean resources and govern deep seabed mining in order to provide the appropriate climate for investment by mining companies and also to bring world order to the oceans and equitably distribute wealth between all nations, taking into consideration the interests and needs of the developing countries.

Until now, natural resources were mainly extracted from the land based reserves. However, as a consequence of technological changes as well as rising new industries, the seabed beyond national jurisdiction could develop into a new and substantial source for those natural resources, in case the economic conditions for such development improve and the régime established by the 1982 UN Convention on the Law of the Sea is widely approved, especially by the developed countries, before eventually coming into force.[1]

As far as the economic conditions are concerned, it seems that the more economical land based deposits of natural resources are diminishing quickly and

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[1] The 1982 UN Convention on the Law of the Sea will come into force between the ratifying states 12 months after the deposit of 60 ratifications or instruments of accession, see art 308(1). "Already, it has received 40 ratifications. Further, at least four states have indicated that they have completed the internal legislative procedures to enable them shortly to deposit their instruments of ratification." (Marine Policy Reports, vol 1, no 1, 1989, p.1, A Constitution for the Ocean: The 1982 UN Law of the Sea Convention, by Satya Nandan; see idem from page 7 to 12 with respect to the table of signatures and ratifications as of 30 March 1989).

those deposits which are left lie very deep and, therefore, are more expensive to extract. Accordingly, the exploitation of the seabed beyond the limits of national jurisdiction may now become very much attractive as man is no longer lacking the capability to exploit the potential resources of the Area.

With respect to the approval of the 1982 UN Convention on the Law of the Sea, the latter has been signed by 159 states including some industrially developed ones, namely the Soviet Union, Japan, France, Italy and Belgium,[1] *presumably in order to secure their participation in the work of the Preparatory Commission. Observers will be enabled to take part in the work of the Commission but only States that sign the Convention can participate in the decision-making on, most importantly, the establishment of the International Sea Bed Authority and the International Tribunal for the Law of the Sea.*[2]

However, some other industrialized nations such as the United States, West Germany and the United Kingdom were not very satisfied with the outcome of the Convention as to the deep seabed régime and, therefore, have not signed that Convention.[3]

Indeed, *President Reagan announced formally on 9 July, 1982, that the U.S. would not adhere to the Convention primarily because of objections to the form and content of the proposed régime on future sea-bed mining.... The Administration's objections went especially (i) to the provisions in Part XI of the Convention on the powers and functions of the International Sea-Bed Authority and its organs, which, it was claimed, would not give the United States or others of the technologically-advanced States "...a rôle that fairly reflects and protects their interests...", (ii) to the provisions as to amendment of the Convention by majority vote - described as a procedure "...clearly incompatible with the United States approach to such treaties...", (iii) to the provisions requiring the mandatory transfer of private technology to the International Sea-Bed Authority, and (iv) to those provisions in the Convention that would "...deter future development of*

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1 Ocean Development and International Law, vol 20, no 3, 1989, p.276, (A. Marvasti, Conceptual Model for the Management of International Resources: The Case of Seabed Minerals).

2 K.R. Simmonds, UN Convention on the Law of the Sea 1982, Oceana Publications, 1983, introduction p. xx.

3 Marine Policy Reports, vol 1, no 1, 1989, p.2-3, A Constitution for the Ocean: The 1982 UN Law of the Sea Convention, by Satya Nandan. However, Mr. Nandan further comments that the U.K. and West Germany are members of the European Community, which has signed as an intergovernmental organization.

deep sea-bed mineral resources, when such development should serve the interests of all countries...."[1]

Accordingly, and in order to protect their interests with respect to deep seabed mining, some of the developed countries, such as the United States, West Germany, the United Kingdom and including France although the latter has signed the above mentioned Convention, have adopted national domestic laws which allow private companies to register claims and demand permits for commercial mining. *Notable amongst these measures are the United Kingdom Deep Sea Mining (Temporary provisions) Act, 1981 (c.53), the Federal Republic of Germany's Act of Interim Regulation of Deep Seabed Mining (of 16 August, 1980, as subsequently amended) and the French Law on the Exploration and Exploitation of Mineral Resources of the Deep Seabed (of 23 December, 1981).*[2]

Further, in order to legitimate such unilateral legislations under international law, mini treaties have been established among some industrialized states and outside the UN régime in view to assure coordination between them as well as reciprocity, since licences issued by one state party to a treaty will be recognized by the other states parties to the same treaty.

Indeed, *confident that its central objections to the deep sea-bed mining provisions of the Convention would be shared in large measure by the other major industrialised nations, the U.S. Administration continued to explore the possibility of drawing up a "mini-treaty" which would at least provide for interim arrangements designed to afford a degree of protection and security for pioneer operators.* (Pioneer operators or investors are states or private entities from Japan, France, the Soviet Union, India as well as four multinational consortia,[3] which will receive priority in obtaining seabed mining contracts, after the Convention comes into force, in order to protect the investments already made by them - with respect to the exploration but not the commercial

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[1] K.R. Simmonds, UN Convention on the Law of the Sea 1982, Oceana Publications, 1983, introduction p. xvi and xvii.

[2] K.R. Simmonds, UN Convention on the Law of the Sea 1982, Oceana Publications, 1983, introduction p. xviii and xix.

[3] Ocean Development and International Law, vol 20, no 3, 1989, p.276, (A. Marvasti, Conceptual Model for the Management of International Resources: The Case of Seabed Minerals). The four multinational consortia are nationals of, or controlled by, Belgium, Canada, the Federal Republic of Germany, Italy, Japan, the Netherlands, the United Kingdom and the United States. (Marine Policy Reports, vol 1, no 1, 1989, p.4, A Constitution for the Ocean: The 1982 UN Law of the Sea Convention, by Satya Nandan; for further comment on pioneer investors, see idem p.5-6).

exploitation of a selected area of the deep seabed - prior to the entry into force of that Convention. The Enterprise is also recognized as a pioneer operator and will have priority for production authorization of two projects.[1] Room is still left for future investments by developing countries and hence for the registration of additional pioneer investors from those developing countries if, however, such investments do have the scale needed to qualify. "For developing countries, there was an undertaking by the applicants to assist the Preparatory Commission in the exploration of a mine site for the first operation of the Enterprise, and the extension, until the entry into force of the Convention, of the time limit established in Resolution II[2] for the expenditures on seabed mining research ($ 30 million) that would qualify a developing country for registration as a pioneer investor".[3]) *It was encouraged in this by common attitudes displayed in the variety of national enactments dealing with temporary or interim arrangements that had come into being since the U.S. Deep Seabed Hard Minerals Resources Act of 28 June, 1980. Those enactments reflect a common view, resting on political and economic ideology, that the Convention provisions would not bring about either a more orderly or a more productive use of deep sea-bed resources.*[4]

Consequently, *an Agreement concerning Interim Arrangements Relating to Polymetallic Nodules of the Deep Sea Bed, which entered into force on 2 September, 1982, provides the framework for a mini-treaty as originally envisaged by France, the Federal Republic of Germany, the United Kingdom and the United States. Accession to this Agreement is, unusually, by signature only. Its most significant feature is a scheme for arbitration between the signatories in the event of disputes between them over proposed licence areas authorised by the national legislation of the parties.*[5]

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[1] Ocean Development and International Law, vol 20, no 3, 1989, p.276, (A. Marvasti, Conceptual Model for the Management of International Resources: The Case of Seabed Minerals).

[2] Referring to Resolution II of the Third United Nations Conference on the Law of the Sea.

[3] Marine Policy Reports, vol 1, no 1, 1989, p.5, A Constitution for the Ocean: The 1982 UN Law of the Sea Convention, by Satya Nandan.

[4] K.R. Simmonds, UN Convention on the Law of the Sea 1982, Oceana Publications, 1983, introduction p. xviii.

[5] K.R. Simmonds, UN Convention on the Law of the Sea 1982, Oceana Publications, 1983, introduction p. xix.

Those mini treaties established outside the UN régime, the above mentioned Agreement[1] being an illustration, bring out important questions, namely, does a state party to those treaties act illegally where it licenses a company to exploit natural resources of the deep seabed? Also, will that state still be acting illegally where it did not ratify the UN Convention and where, eventually, the Convention comes into force?

It should first be noted that the most important cause of disagreement between the group of states acting within the UN régime and the other acting outside that régime is related to the different meaning they give to the words "common heritage of mankind". Whereas the United States, for instance, do not confer any specific legal meaning to those words, the developing states, however, give great importance to them.

Indeed, *to the developing nations, the fact that deep seabed minerals are the common heritage of mankind represents more than simply a slogan. There are common legal interpretations of the phrase running through the usage of many national delegates and independent observers. First, in its most fundamental sense, the common heritage of mankind is meant to refer to property rights. Unlike the United States, many nations claim that it implies common ownership of resources or common property. Second, it is interpreted as meaning that this common property cannot be appropriated without first obtaining the consent of states, either through a treaty or establishment of an appropriate international organization. If these are the elements upon which this principle is predicated, it follows that any area or resources covered by it cannot be appropriated without the express approval of the international community. In other words, those nations possessing the techonology to exploit these resources are prohibited from doing so until the international community or its legitimate representative establishes the terms of exploitation.*[2]

On the other hand, *one seldom finds any mention of the common heritage in any of the speeches or pronouncements of U.S. officials, no doubt because of the more expanded meaning brought to the phrase by developing nations. The United States firmly denies that the phrase has any specific legal meaning, as the*

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[1] For the text of the Agreement Concerning Interim Arrangements Relating to Polymetallic Nodules of the Deep Sea Bed, see K.R. Simmonds, UN Convention on the Law of the Sea 1982, Oceana Publications, 1983, appendix II, p. xxxi.

[2] J.N. Barkenbus, Deep Seabed Resources, 1979, p.41.

chief negotiator on the seabed issue for many years stated in congressional testimony: "In essence, we defined our understanding of the term common heritage to mean whatever the collection of treaty articles ultimately means, that the term would have no independent meaning.... We think that the common heritage of mankind principle, if I can be blunt, is a glittering generality. Therefore, we can leave the phrase alone, provided the rest of the treaty says the right things."[1]

Yet, *to most developing nations, the common heritage of mankind represents a combination of moral, legal and political principles, which is certainly not what the United States was voting for when it supported the 1970 Declaration of Principles.*[2] *Some have noted, nevertheless, that should the United States at some time in the future unilaterally license domestic companies to mine the seabed, or simply allow miners to exploit nodules as a high seas freedom, the U.S. vote in favor of the Declaration of Principles could come back to haunt it, i.e., in a court case before the International Court of Justice. Realizing this dilemma, Northcutt Ely wryly noted in congressional testimony, "We should apparently regard the unfortunate vote of the American representative for the 1970 Resolution as being due to a bad telephone connection with Washington."*[3]

It is worth noting that although, as already mentioned, one initial aspect of the issue between the states which have signed the UN Convention and the nonsignatory industrialized states consists in the principle of the common heritage of mankind which was the basis on which the whole work of the Third Conference on the Law of the Sea was built, still it has been said in this respect that

when the content of the principle is examined, it can be seen that no government has been opposed to it, since that would entail its claiming the seabed area beyond the limits of its national jurisdiction as being subject to its appropriation. It would also entail assuming that such an area can be used for nonpeaceful purposes, in other words, for agressive activities; that other nations are not

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1 J.N. Barkenbus, Deep Seabed Resources, 1979, p.41.

2 This resolution was adopted by a vote of 108 in favour, none against, with 14 abstentions (Ian Brownlie, Basic Documents in International Law, reprinted second edition, 1978, p.112).

3 J.N. Barkenbus, Deep Seabed Resources, 1979, p.42.

entitled to any interest or benefit therefrom; and that the area would not be subject to international rules governing mining activities.[1]

Thus, the reservations expressed by some industrialized countries and hence the clash of interests between those countries and the developing nations exists only with respect to a few provisions contained in the part of the UN Convention related to deep seabed mining.

Indeed, *a careful examination of the matter reveals that there are only five or six issues. These can be identified as follows:*

(1) The obligation on the contractor to sell technology in the last resort to the Authority (Annex III, article 5);
(2) The production policy provisions (article 151) (which is also referred to as the problem of access to seabed mining);
(3) A seat in the Council for the United States (article 161);
(4) Decision-making procedures (article 162);
(5) The procedures for the adoption of amendments by the Review Conference (article 155); and
(6) More recently, the financial implications for States parties have also been raised as an issue.[2]

Be that as it may, ever since the Declaration of Principles was adopted unanimously, its provisions reflected the general opinion of the international community and, therefore, were the expression of emerging rules of international law and had great moral significance. Although that General Assembly resolution is not binding as such, its acceptance by a majority vote constitutes evidence of the general opinion of states.

Indeed, *although General Assembly resolutions enunciating general principles for state activities have a recommendatory character and cannot be seen as compulsory juridical acts they, nevertheless, have great political and moral significance. This is especially true for resolutions adopted unanimously or by an overwhelming majority of votes of all three basic state groupings - the socialist,*

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[1] Ocean Development and International Law, 1989, vol 20, no 5, The Deep Seabed Mining Regime: Terms and Conditions for its Renegotiation, by Francisco Orrego Vicuna, p.532.
[2] Ocean Development and International Law, 1989, vol 20, no 5, The 1982 UN Convention on the Law of the Sea: At a Crossroad, by Satya Nandan, p.516. For a comment on a possible compromise which could be found with respect to these issues, see further pages 517-518.

western and neutral countries, including the major powers... They may also be the first formulation of provisions that in the future can turn into compulsory juridical rules of common or treaty character.[1]

With respect to the 1982 UN Convention on the Law of the Sea which followed, it might be said that the deep seabed régime established by it formulates rules of international customary law at least among the states signing the Convention and, hence, pending the coming into force of that Convention, those states parties to it are morally, if not legally, committed to prohibit their nationals from exploiting the deep seabed contrary to the principles and regulations of the Convention. Further, such commitment to be bound by the rules and regulations of the Convention is consequent upon the existing general obligation, under the Vienna Convention on the Law of Treaties, that states parties to a treaty must refrain from acts which would defeat the object and purpose of such treaty prior to its entry into force.[2]

However, when this Convention comes into force, the rules set out in the part related to the deep seabed régime may also become binding on non parties in case such rules are recognized as customary rules of international law. Indeed, article 38 of the Vienna Convention on the Law of Treaties stipulates that

nothing in articles 34 to 37 precludes a rule set forth in a treaty from becoming binding upon a third State as a customary rule of international law, recognized as such.

However, *the debate over the status in international law of the principles and the provisions in the individual parts of this Convention*[3] *will take place in the next decade, as it has since 1967, within the context of the confrontation between geography and ideology.*[4]

While describing the international UN régime governing the exploration and exploitation of the deep seabed and while giving some indications about the other régime created by some industrialized nations, a clearer idea is in fact given

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1 G.F. Kalinkin, Problems of Legal Regulation of Sea-Bed Uses Beyond the Limits of the Continental Shelf, 3 Ocean Development and International Law, 1975, p.146.

2 Vienna Convention on the Law of Treaties, 1969, art 18.

3 Referring to the 1982 UN Convention on the Law of the Sea.

4 K.R. Simmonds, UN Convention on the Law of the Sea 1982, Oceana Publications, 1983, introduction p. xxiv.

with respect to the question of the permissibility to construct artificial islands and installations in the Area for the purpose of its exploitation. However, a closer look at the provisions of the UN Convention is necessary in view of a better definition of such permissibility.

The 1982 UN Convention on the Law of the Sea refers to the seabed and subsoil beyond the limits of national jurisdiction as the Area. Article 1, section 1, subsection 1 of that convention, related to the use of terms, states the following :

1. *For the purpose of this Convention:*

(1) *"Area" means the sea-bed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction.*

Where the purpose of building an artificial island or other installation is to explore and exploit the mineral resources of the seabed beyond the limits of national jurisdiction, no rights to such resources may be claimed by a state individually as these resources belong to the common heritage of all mankind.

Indeed, article 136 of the 1982 UN Convention on the Law of the Sea states that

the Area and its resources are the common heritage of mankind.

Also, article 137 of the same convention, related to the legal status of the Area and its resources, provides the following:

1. *No State shall claim or exercise sovereignty or sovereign rights over any part of the Area or its resources, nor shall any State or natural or juridical person appropriate any part thereof. No such claim or exercise of sovereignty or sovereign rights nor such appropriation shall be recognized.*

2. *All rights in the resources of the Area are vested in mankind as a whole, on whose behalf the Authority*[1] *shall act. These resources are not subject to alienation. The minerals recovered from the Area, however, may only be alienated in accordance with this Part and the rules, regulations and procedures of the Authority.*

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[1] "Authority" means the International Sea-Bed Authority (1982 UN Convention on the Law of the Sea, art 1, section 1, subsection 2).

3. *No State or natural of juridical person shall claim, acquire or exercise rights with respect to the minerals recovered from the Area except in accordance with this Part. Otherwise, no such claim, acquisition or exercise of such rights shall be recognized.*

The UN Convention is concerned with the redistribution of wealth through the exploitation of the natural resources of the deep seabed. As a matter of fact, the Convention is an important attempt by the United Nations to implement the New International Economic Order,[1] which is a vision of the future formulated by the developing nations and their expression of a general consensus claiming that the prevailing international economic system *had failed to adequately address global economic needs and that this failure was the direct responsibility of the industrial nations. There was also consensus that a new international economic order should take the place of the old as soon as possible.*[2]

Hence, article 140 of the UN Convention states the following:

1. *Activities* [3]*in the Area shall, as specifically provided for in this Part, be carried out for the benefit of mankind as a whole, irrespective of the geographical location of States, whether coastal or land-locked, and taking into particular consideration the interests and needs of developing States....*

Further, the objective of creating a New International Economic Order is to close the gap between industrialized and developing countries through transfer of technology promoted by the International Seabed Authority. The latter is the international body established through the UN Convention in order to exercise

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[1] At the sixth special session of the UN General Assembly held from April 9th to May 2nd 1974, the latter Assembly adopted a Declaration of a New International Economic Order which includes the following proclamation:
"We, the Members of the United Nations, ...solemnly proclaim our united determination to work urgently for the establishment of a New International Economic Order based on equity, sovereign equality, interdependence, common interest and cooperation among all States, irrespective of their economic and social system, which shall correct inequalities and redress existing injustices, make it possible to eliminate the widening gap between the developed and developing countries and ensure steadily accelerating economic and social development and peace and justice for present and future generations." (Gen. Ass. Res. 3201 (S-V1), May 1st, 1974).

[2] J.N. Barkenbus, Deep Seabed Resources, 1979, p.164.

[3] "Activities in the Area" means all activities of exploration for, and exploitation of, the resources of the Area (1982 UN Convention on the Law of the Sea, art 1, section 1, subsection 3).

overall responsibility for the control and regulation of the exploration and exploitation of the deep seabed and redistribute the wealth deriving from such exploitation. Indeed, section 2 of the above mentioned article 140 states the following:

The Authority shall provide for the equitable sharing of financial and other economic benefits derived from activities in the Area through any appropriate mechanism, on a non-discriminatory basis, in accordance with article 160, paragraph 2(f)(i).

Also, article 153 of the 1982 UN Convention on the Law of the Sea provides in its section 1 that

activities in the Area shall be organized, carried out and controlled by the Authority on behalf of mankind as a whole in accordance with this article as well as other relevant provisions of this Part and the relevant Annexes, and the rules, regulations and procedures of the Authority.

Further, section five of the same article 153 states that

the authority shall have the right to take at any time any measures provided for under this Part to ensure compliance with its provisions and the exercise of the functions of control and regulation assigned to it thereunder or under any contract. The Authority shall have the right to inspect all installations in the Area used in connection with activities in the Area.

All the above mentioned provisions of the deep seabed régime give a clear indication that the International Seabed Authority exercises substantial control over the exploitation of the deep seabed. Hence, it appears that as far as the permissibility to erect artificial islands and other installations in the Area, for the purpose of the exploitation of its resources, is concerned, such constructions fall within the scope of the deep seabed régime and hence are subject to the authorization of the International Seabed Authority.

Indeed, article 147 of the 1982 UN Convention on the Law of the Sea, in its paragraph 2, provides that

installations[1] *used for carrying out activities in the Area shall be subject to the following conditions:*
(a) *such installations shall be erected, emplaced and removed solely in accordance with this Part and subject to the rules, regulations and procedures of the Authority....*

Thus the above mentioned conditions, which should be met in view to carry out the construction of an installation for the purpose of exploring and exploiting the natural resources of the deep seabed, are meant, amongst other reasons, to safeguard the rights of all states to the natural resources of the Area, by making sure that such installation would not interfere with present or future exploitation of the Area.

Further, article 147 of the 1982 UN Convention on the Law of the Sea introduces some safeguards in order to make the construction and use of installations in the Area compatible with other activities in the marine environment. Indeed, the above mentioned article provides that activities in the Area shall be carried out with reasonable regard for other activities in the marine environment. Further, due notice must be given of the erection, emplacement and removal of installations used for carrying out activities in the Area, and permanent means for giving warning of their presence must be maintained. Furthermore, such installations may not be established where interference may be caused to the use of recognized sea lanes essential to international navigation or in areas of intense fishing activity. Moreover, safety zones shall be established around such installations with appropriate markings to ensure the safety of both navigation and the installations. The configuration and location of such safety zones shall not be such as to form a belt impeding the lawful access of shipping to particular maritime zones or navigation along international sea lanes. In addition, of course, such installations shall be used exclusively for peaceful purposes.

On the other hand, the 1982 UN Convention on the Law of the Sea only establishes some general restrictions with respect to activities unrelated to the exploration or exploitation of the deep seabed, including, presumably, the

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[1] No mention of artificial islands has been made in article 147 of the UN Convention. Nevertheless, it should not be implied and therefore argued that the regulatory powers contained in article 147 would not equally apply to artificial islands. Indeed, nothing in this part of the Convention allows to make such a suggestion; on the contrary, there is a strong presumption that, in this context, the term "installations" is comprehensive and its scope would include artificial islands if such islands were to be built in the Area.

construction of installations not involved in deep seabed exploration or exploitation, as article 147(3) of that Convention provides the following:

Other activities in the marine environment shall be conducted with reasonable regard for activities in the Area.

However, since all sorts of artificial islands and installations erected in the Area may interfere with the exploration and exploitation of its natural resources, it seems safer to allow the Authority to exercise functions of control, regulation and supervision also with respect to the erection of all types of structures unrelated to the exploration and exploitation of the deep seabed.

Further, as the Area itself, and not only its resources, belongs to mankind, why should not all installations erected in the Area be used for the benefit of mankind and the entire international community and, hence, be equally subject to the control of the Authority?

Accordingly, the Belgian government had submitted to the United Nations Sea-Bed Committee the text cited hereafter as a working paper on the construction of artificial islands or installations on the high seas beyond the limits of the continental shelf:

Any construction of an artificial island or immovable installation on the high seas beyond the limits of the continental shelf shall be subject to the authority and jurisdiction of the international machinery for the seabed. The international authority may authorize a State to erect such islands or installations and delegate jurisdiction over such structures to that State.[1]

However, provisions to that effect are missing from the 1982 UN Convention on the Law of the Sea which only deals with installations related to the exploration and exploitation of the natural resources of the deep seabed.

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[1] Artificial Islands and Installations, working paper submitted by Belgium, UN Doc. A/AC.138/91, 11 July 1973.

Nevertheless, such provision, which is now unfortunately omitted, was included in the Informal Working Paper No.12, of 20 August 1974[1] and used exactly the same words as those cited in the above mentioned Belgian working paper.

Accordingly, this implies that the erection of artificial islands and other installations for whichever purpose unrelated to the exploration for or the exploitation of the natural resources of the deep seabed, provided it is a peaceful purpose, would remain free. As mentioned above, there is no description, in the 1982 UN Convention on the Law of the Sea, of international standards and regulations to be followed in view to authorize the construction of such installations. Such international standards and regulations, if they had existed, would have provided more comprehensive safeguards to the rights and interests of other legitimate uses of the high seas, especially with respect to the exploitation of the natural resources of the deep seabed as well as the preservation and protection of the marine environment, as such preservation and protection is not yet taken seriously by some states.

The importance of this section dealing with the seabed beyond the limits of national jurisdiction is obvious, insofar as it might be regarded as an example or reference with respect to other attempts to design international régimes for the regulation of international common resources, which are likely to increase in a near or distant future, namely, international régimes related to the exploration and perhaps the exploitation of space.

Before starting the next section, it is worth summing up few comments made earlier on in the above sections related to the high seas and the seabed beyond the limits of national jurisdiction. Thus, it should be noted that whilst writing about the high seas, a distinction should be made, in the light of the 1982 UN Convention on the Law of the Sea, between the following two parts of those waters:

1. The part of the high seas superjacent to the part of the continental shelf exceeding, as the case may be, the 200 miles limit (location 1);
2. the part of the high seas superjacent to the deep seabed beyond the limits of the continental shelf and, therefore, beyond the limits of national jurisdiction (location 2).

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[1] Nikos Papadakis, The International Legal Regime of Artificial Islands, 1977, p.65 and 141-142.

This distinction should be emphasized because it affects the international legal régime related to the right to construct artificial islands and installations. Indeed, as these structures are fixed to the seabed and emerge permanently from the waters above that seabed, therefore, not only the régime of the freedom of the high seas should be taken into consideration but, further, the régime of the seabed beneath those waters should also be taken into account as the latter régime brings some limitations to the freedom of the high seas with respect to the construction of artificial islands and other installations. Furthermore, as article 78 of the 1982 UN Convention on the Law of the Sea provides that the rights of the coastal state over the continental shelf do not affect the legal status of the superjacent waters or of the air space above those waters, it might also be said, presumably, that the freedom of the high seas does not affect the legal status of the seabed beneath those waters or its subsoil. Moreover, the international legal régime of the seabed varies whether it is related to the continental shelf or to the deep seabed beyond the limits of that continental shelf.

Hence, although the 1982 UN Convention on the Law of the Sea stipulates that the freedom of the high seas may be exercised by all states and comprises the freedom to construct artificial islands and other installations permitted under international law, it is to be noted that the latter freedom is affected by the location of the construction to be erected, whether such construction is to be erected in location 1 or location 2 of the high seas.

Indeed, with respect to location 1, the freedom to construct artificial islands and installations can only be exercised by the coastal state as the latter state alone may construct or authorise the construction of artificial islands and installations on its continental shelf. Further, the coastal state may construct or authorise the construction of all artificial islands or installations, whether such constructions are related to the exploration and exploitation of the natural resources of the continental shelf or to other economic purposes. Thus, a state other than the coastal state cannot build on the continental shelf of the latter state, without its permission, any sort of installation for whichever purpose.

With respect to location 2, the freedom to construct artificial islands and installations is limited, for all states, to those structures unrelated to the exploration and exploitation of the natural resources of the Area. Indeed, all

activities related to such exploration and exploitation are subject to the authorization and control of the Authority.

Thus it appears that the meaning of the words freedom of the high seas, as regards the construction of artificial islands and installations, does not amount to absolute freedom but is restricted to the freedom for any state to erect, apart from on its own continental shelf, an installation in location 2, which activities are unrelated to the exploration or exploitation of the natural resources of the area.

To illustrate the limited scope of the words freedom of the high seas, with respect to the erection of artificial islands and installations, the following example might be used : What would be the case where a land locked state is willing to construct, on the high seas, an artificial island for the purpose of exploring and exploiting the natural resources of the seabed? In such a case, the latter state would not be able to exercise the freedom to construct such installation neither on the high seas submerging the continental shelf of any other state, nor on the high seas submerging the deep seabed beyond the limits of national jurisdiction as, in the first case, the authorization of the coastal state will be needed and, in the second case, the authorization of the Authority will be needed. Further, what would be the case if that same state is willing to construct, on the high seas, an artificial island or installation unrelated to the exploration or exploitation of the natural resources of the seabed? In that case, the latter state would be able to exercise the freedom of the high seas to construct such installation solely on those waters submerging the deep seabed beyond the limits of national jurisdiction as, in such waters, the authorization of the Authority is not needed with respect to the erection of artificial islands and other installations for whichever purpose unrelated to the exploration for or the exploitation of the natural resources of the deep seabed, provided it is a peaceful purpose. Indeed, the erection of such installations in the Area seems to remain free.

As a matter of fact, artificial islands and other installations would be subject to the legal régime of the seabed they are fixed or rest upon, which is more restrictive than the free régime of the high seas they emerge from. In other words such installations would be considered, as regards the authorisation to erect them, as if they were merely and directly fixed upon the bottom of the sea and permanently submerged by the high seas, as may be the case with respect to under water cities or future platforms used and operated for the exploitation of the natural resources of the seabed.

4. Exercise of jurisdiction and control in the different belts of waters to regulate activities on artificial islands and installations.

Within both internal and territorial waters, the coastal state has the exclusive right to authorise, as discussed earlier on in this dissertation, the construction of artificial islands and installations. Also, the coastal state exercises in those waters exclusive jurisdiction and control by virtue of its sovereignty and, therefore, is entitled to regulate all activities taking place on artificial islands and installations situated in such waters.

Indeed, the jurisdiction exercised by the coastal state on both internal and territorial waters is an extension of its jurisdiction over its land territory.

However, what does the law specifically provide where a state or a state owned company, other than the coastal state's, has the authorization of the latter state to construct and operate an artificial island or installation in the exclusive economic zone or on the continental shelf of the coastal state and, where there are substantial legal ties and interests between the state undertaking such construction and its nationals conducting the activities on that construction? In such a case, which state does have jurisdiction and which law is applicable with respect to the regulation of such activities? Would it be the coastal state's as the latter has jurisdiction over the above mentioned areas and because its interests are most likely to be affected by the erection and operation of an artificial island or installation in such areas; or would it be the law of the state carrying out the construction as it has the nationality link, along with other interests, with the workers, engineers and other persons involved in the construction and operation activities?

Unfortunately, no specific provisions on this delicate issue have been included in the 1982 UN Convention on the Law of the Sea in view to avoid conflicting claims.

Nevertheless, with respect to the continental shelf, which in all cases includes the area of the exclusive economic zone, it should be noted that since articles 77 (which is the same as article 2 of the 1958 Geneva Convention on the Continental Shelf) and 80 have been introduced in the 1982 UN Convention on the Law of the Sea, it appears that the coastal state has inherent and primordial rights over

artificial islands and installations built on its continental shelf, although these rights do not amount to territorial rights.

Indeed, that question of territoriality had risen when, in 1964, the Netherlands sought to deal with the problem of pirate radio as *a structure was erected on the seabed of the North Sea outside the territorial waters of The Netherlands and began transmitting to the shore. The Netherlands Government proposed to enact legislation to prohibit this activity. The projet de loi initially based the international legal competence to do so upon the proposition that The Netherlands exercised sovereign rights over the seabed in question because it was part of the continental shelf, and the substantive part of the law would then extend the criminal law to installations erected thereon "as forming part of the territory of the Netherlands". That proposal encountered objections, and so the Government sought advice from the International Law Consultative Committee.*[1]

The Commission[2] *supported the view that The Netherlands was competent to enact the proposed law... The Commission ... linked the theory of a general protective jurisdiction in international law with the special interest of the coastal State in its continental shelf, and proposed to the Government that the legislation should be drafted so as to "coincide" with the limits of the continental shelf... The legislation enacted pursuant to this advice... extended the Netherlands penal law to any person who committed an offence upon an installation within these limits, and authorized the specific application of administrative regulations.*[3]

According to these considerations, the Netherlands based its North Sea Installations Act whereby it extended its criminal law *to persons committing any offence on any "installation created outside territorial waters on the bed of that part of the North Sea the boundaries of which correspond with those of that portion of the continental shelf which appertains to the Netherlands". (North Sea Installations Act of December 3, 1964; text in 60 A.J.I.L. 340).* [4]

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[1] D.P. O'Connell, The International Law of the Sea, 1984, vol II, p.816.
[2] Referring to the International Law Consultative Committee.
[3] D.P. O'Connell, The International Law of the Sea, 1984, vol II, p.816-817.
[4] W. Riphagen, International Legal Aspects of Artificial Islands, International Relations 1973, p.344.

Although most of the Netherlands Parliament were critical of the proposed law on the ground of the freedom of the high seas,[1] it might now be suggested that such freedom does not extend, in the case of an installation erected on the continental shelf beyond the 200 miles limit and emerging from the high seas superjacent to that part of the shelf, to such or any other part of the continental shelf which is subject to an international legal régime completely different from the "free" régime of the high seas. In other words, the right of states to exercise their freedom of the high seas does not affect the legal status of the seabed beneath those waters.

Thus, the above mentioned Act extended the Netherlands criminal jurisdiction to all installations erected on the continental shelf of the latter state, including those installations erected for purposes other than the exploitation and exploration of the natural resources of that continental shelf. However, the continental shelf is not assimilated to the national territory of the coastal state and, therefore, the laws of the latter do not apply to the installations erected on its continental shelf as a consequence of territoriality.

Indeed, *because legislation applies the corpus of the national law to activities on the continental shelf it should not be assumed that this has the effect in constitutional law of incorporating the continental shelf within the national territory.*[2]

Thus, *in 1966, the Conseil d'Etat of Belgium gave an avis on the projet de loi on the continental shelf of Belgium. It examined the expression "sovereign rights", and concluded that, if it were used in the loi, the result would be that the continental shelf would not form part of the national territory, or of the public domain, but would be subject only to certain particular competences.*[3]

Hence, following which theory or principle do the laws of the coastal state extend to the installations erected on its continental shelf?

In the North Sea Continental Shelf Case, the International Court said that *the "most fundamental" principle of the continental shelf doctrine is that the rights of the coastal State in respect of the area of continental shelf that constitutes a*

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1 D.P. O'Connell, The International Law of the Sea, 1984, vol II, p.817.
2 D.P. O'Connell, The International Law of the Sea, 1982, vol I, p.486.
3 D.P. O'Connell, The International Law of the Sea, 1982, vol I, p.486-487.

natural prolongation of its land territory into and under the sea exist ipso facto and ab initio.[1]

The 1982 UN Convention on the Law of the Sea, (as well as the 1958 Geneva Convention on the Continental shelf, article 2) in its article 77, clearly specifies that "the coastal State exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources". Further, these rights "are exclusive in the sense that if the coastal State does not explore the continental shelf or exploit its natural resources, no one may undertake these activities without the express consent of the coastal State". Furthermore, "the rights of the coastal State over the continental shelf do not depend on occupation, effective or notional, or any express proclamation".

Thus, where artificial islands and installations are erected on the continental shelf of the coastal state for the purpose of exploring and exploiting its natural resources, the latter state enjoys sovereign rights over such installations as a consequence of the sovereign rights it exercises over its continental shelf.

Nevertheless, what does the expression "sovereign rights" mean, especially with respect to the exercise of jurisdiction and control on the continental shelf in view to regulate activities on artificial islands and installations?

Still in connection with the North Sea Continental Shelf Case, D.P. O'Connell says that *there is a link between sovereignty over the land and sovereign rights over the continental shelf. This is amplified by the Court in further passages. It is said that the right of the coastal State "is based on its sovereignty over the land domain, of which the shelf area is the natural prolongation into and under the sea"*[2]

Commenting on the drafting history, before 1958, of the expression "sovereign rights", D.P. O'Connell says that

two things may be suggested : "sovereign rights" was a compromise expression to gain agreement so that work would proceed, but that some States accepted it because it was, in their view, tantamount to sovereignty; and, secondly, the compromise was reached only because there was a minority which was fearful

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[1] D.P. O'Connell, The International Law of the Sea, 1982, vol I, p.480.
[2] D.P. O'Connell, The International Law of the Sea, 1982, vol I, p.481.

that sovereignty would blur the distinction between the seabed and superjacent waters; there was no intention to limit the coastal State's power of government in respect of the submerged land, only in respect of the sea.[1]

Therefore it is clear that, as far as those installations erected for the purpose of the exploration and exploitation of the continental shelf are concerned, there is no intention to limit the coastal state's power of government and, hence, it appears that the coastal state is entitled to exercise jurisdiction and control and extend its laws in order to regulate activities on artificial islands and installations built on its continental shelf.

However, are these powers restricted to those artificial islands and installations only built for the exclusive exploration and exploitation of the natural resources of the continental shelf?

It was thought that *if the exclusive right to authorize the construction and operation of artificial islands and installations in the Economic Zone will be conferred on the coastal State, it is only logical to provide that the structures fall under the exclusive jurisdiction of the coastal State.*[2] The same reasoning would also apply with respect to the continental shelf.

Commenting on the subject of the juridical nature of the continental shelf, D.P. O'Connell says that some countries of whom France, the United Kingdom, Germany and the United States, *potentially do not limit the application of law to the continental shelf.*[3]

Thus, *the French loi of 30 December 1968 applies French law to activities on installations on the continental shelf, and extends French mining law thereto and treats products of the continental shelf for customs purposes, as extracts of a nouvelle partie du territoire douanier, and for fiscal purposes, as extracts du territoire francais métropolitain. (Yet the French Government disclaimed any intention of incorporating the continental shelf within the national territory, and that interpretation was later endorsed by the Conseil d'Etat.*[4])[5]

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1 D.P. O'Connell, The International Law of the Sea, 1982, vol I, p.480.

2 Alfred H.A. Soons, Artificial islands and installations in international law, Occasional Paper Series, Law of the Sea Institute, University of Rhode Island, occasional paper no. 22, July 1974, p.23.

3 D.P. O'Connell, The International Law of the Sea, 1982, vol I, p.485.

4 Ministre d'Etat chargé de la défense nationale v. Starr in 99 Clunet (1972), 572.

Further, *the United Kingdom Continental Shelf (Jurisdiction) Order in Council, 1968, amplifies section 3 of the Continental Shelf Act, 1964, by specifying the areas in which English, Scottish, or Northern Irish Law, respectively, is to apply, and indicates the respective judicial jurisdiction. Section 3 of the Act makes any act or omission which takes place on, under or above, an installation in a designated area, or any waters within 500 metres of it, an offence of it would be an offence if it occured in the United Kingdom.*[1]

It should be suggested that the situation has indeed developed since the 1958 Geneva Convention on the Continental Shelf which did only recognise the coastal state's exclusive jurisdiction over installations and devices erected on its continental shelf for the purpose of exploring and exploiting its natural resources.[2] Accordingly, the 1982 UN Convention on the Law of the Sea has extended these exclusive rights to all artificial islands and installations built on the continental shelf of the coastal state for economic purposes other than its exploration and the exploitation of its natural resources.

Thus, articles 60 and 80 of the 1982 UN Convention on the Law of the Sea related to those areas respectively, provide in their section 1 and 2 the following:

In the exclusive economic zone (and on the continental shelf), *the coastal State shall have the exclusive right to construct and to authorize and regulate the construction, operation and use of:*
(a) artificial islands;
(b) installations and structures for the purposes provided for in article 56 and other economic purposes;
(c) installations and structures which may interfere with the exercise of the rights of the coastal State in the zone (and on the continental shelf).

The coastal State shall have exclusive jurisdiction over such artificial islands, installations and structures, including jurisdiction with regard to customs, fiscal, health, safety and immigration laws and regulations.

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5 D.P. O'Connell, The International Law of the Sea, 1982, vol I, p.485-486.
1 D.P. O'Connell, The International Law of the Sea, 1982, vol I, p.485-486.
2 1958 Geneva Convention on the Continental Shelf, art 5(2) and (4).

Hence, all artificial islands and installations located within the boundaries of the exclusive economic zone or of the continental shelf of a coastal state, whether they have been erected by the latter state or subject to its authorization, fall under the scope of jurisdiction[1] of that state, which means in other words, that the coastal state has the right and power to interpret and apply the law within the limits of its continental shelf.

Further, it should be suggested that article 77 of the 1982 UN Convention on the Law of the Sea should be read in conjunction with the above mentioned article 80 of the same Convention by virtue of which the legal significance of the terms sovereign rights might no longer remain limited to artificial islands and installations strictly concerned with the exploration and exploitation of the natural resources of the continental shelf, but presumably extends to those installations erected on the continental shelf for other economic purposes.

Indeed, *as it is virtually inconceivable that a coastal State could deal with the seabed and its subsoil except for the purpose of exploration and exploitation... there is little theoretical limit to the practical application of its laws to cover virtually every conceivable activity on the continental shelf. To this extent the tendency towards assimilation of "sovereign rights" and "sovereignty" would in actual cases be evident, although in strict theory the continental shelf would be legally extra-territorial.*[2]

Of course, the legal meaning of "sovereign rights" does not extend or affect the legal status of the superjacent waters or of the air space above those waters.[3]

Further, the exercise of the rights of the coastal state over the continental shelf must not infringe or result in any unjustifiable interference with navigation and other rights and freedoms of other states as provided in the UN Convention.[4]

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1 "Jurisdiction" refers to particular aspects of the general legal competence of states often referred to as "sovereignty". Jurisdiction is an aspect of sovereignty and refers to judicial, legislative, and administrative competence (see Ian Brownlie, Principles of Public International Law, third edition, 1979, p.298).

2 D.P. O'Connell, The International Law of the Sea, 1982, vol I, p.484.

3 United Nations Convention on the Law of the Sea (1982) art 78(1).

4 United Nations Convention on the Law of the Sea (1982) art 78(2).

What about jurisdiction over artificial islands and installations erected on the deep seabed beyond the limits of national jurisdiction and, therefore, beyond the limits of the continental shelf, the legal status of which we discussed above?

Where the location of an offshore installation is on the high seas superjacent to the deep seabed beyond the limits of national jurisdiction and, where the activities undertaken by such construction are related to the exploration and exploitation of the natural resources of the deep seabed, the Authority exercises overall responsibility as regards the authorization to erect that construction as well as the exercise of the functions of control and regulation assigned to it under the 1982 UN Convention of the Law of the Sea. Hence, it might be suggested that such construction should fall within the scope of jurisdiction of the state which has been authorized to build it.

Indeed, *it must be assumed that the Authority will, under the terms of its licence, make specific provision for the assertion of jurisdiction by a State which applies for a licence or contract. Jurisdiction must be entrusted to a State, for it could not in practical terms be assumed by the Authority itself. The Authority would lack the civil and criminal codes and the system of courts necessary to give jurisdiction any effective meaning.*[1]

As a matter of fact and as already mentioned, the Informal Working Paper No.12 of 20 August 1974, UNCLOS III, Caracas Session, Committee II, provided, although that provision was later omitted, that the international authority may authorize a state to erect any construction of an artificial island or immovable installation and delegate jurisdiction over such structure to that state.

However, what would be the situation in the event where a licence is granted by the Authority to an entity other than a state, especially if such entity does not have a specific national character, because if it does, it might construct and operate the installation under the jurisdiction of the state with which it is associated, as the Authority might delegate jurisdiction over such installation to that state. In case the national character does not exist, it would then be necessary to apply some form of international jurisdiction under the auspices of the Authority, that is theoretically, for, in practical terms, the Authority might not be able to assume such jurisdiction. If such situation occurs, perhaps an agreement

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[1] D.W. Bowett, The Legal Regime of Islands in International Law, 1979, p.134.

might be reached whereby the Authority would delegate its jurisdiction in favour of a state which hence would be permitted to exercise exclusive jurisdiction and control over the installation in question.

What if the artificial island or installation, when located on the high seas superjacent to the seabed beyond the limits of national jurisdiction, carries out activities unrelated to the exploration or exploitation of the natural resources of the deep seabed? In that case, such installation would not fall within the international legal régime of the UN and, therefore, within the scope of authorization and control of the Authority.

Although the circumstances of the above mentioned case in 1964, where the Netherlands sought to deal with the problem of pirate radio were different, still, there are some similarities and, therefore, the comment made by the International Law Consultative Committee in that respect is relevant for the purpose of answering the above question.

Indeed, that Committee *suggested that the freedom of the seas did not require toleration of an absence of all authority at sea, and a vacuum juris. It said that, to the extent that the absence of competence of any particular State would have led to a vacuum juris, with respect to objects located in the high seas or human activities occuring there, there had never been any hesitation in the taking of the necessary measures. The 'law of the flag' was the particular measure adopted in the case of ships. When the matter concerned installations, not intended for exploration or exploitation of the natural resources of the seabed, it was equally desirable to take the necessary steps to avoid a vacuum juris, and to prevent activities upon such installations adversely affecting the legal interests of other subjects of the law.*[1]

Further, with respect to the jurisdictional status of immovables erected on the high seas, it has been said, that *once their introduction is permitted, the obvious starting point - in a functional approach - is, that the State, which introduces the immovable - or under whose auspices it is introduced - exercises "jurisdiction over" the immovable. Indeed the introduction itself should only be permissible under the "flag" of some State which, then, should be responsible for the observance of the rules of international law relating to such introduction and to the subsequent activities "on board". The counterpart of such responsibility is*

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[1] D.P. O'Connell, The International Law of the Sea, 1984, vol II, p.816.

that the "flag" State has jurisdiction over the persons engaged in the introduction and subsequent activities.[1]

Thus, the principles of jurisdiction over artificial islands and installations, under the flag of the state which introduces such structures, would be similar to the principles of jurisdiction presently applying to ships sailing on the high seas which, under international law, must be shown to belong to some state. Indeed, ships are deemed to have a nationality for international law purposes such as jurisdiction and state responsibility, they *have the nationality of the State whose flag they are entitled to fly. There must exist a genuine link between the State and the ship,*[2] and, further, *ships shall sail under the flag of one State only and, save in exceptional cases expressly provided for in international treaties or in this Convention, shall be subject to its exclusive jurisdiction on the high seas.*[3] Accordingly, a ship that flies the flag of a state is subject to the laws and regulations of that state and, therefore, the law of the flag governs the rights and liabilities aboard such ship. Furthermore, *every State shall effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag.*[4] Moreover, *vessels on the high seas are subject to no authority except that of the State whose flag they fly.*[5] In other words, a vessel flying a state's flag is an extension of that state in so far as jurisdiction is concerned. The flag state has responsibility for and jurisdiction over the ship. That jurisdiction is quasi territorial in character.

Therefore, if the principle of the flag state was to be adopted in connection with artificial islands and installations erected on the high seas, such jurisdiction would extend not only to the construction introduced by the flag state and to the latter's nationals and properties on that construction, but also to all foreigners and their belongings existing on such construction.

What would be the alternative jurisdiction if the flag state jurisdiction was to be disregarded?

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1 W. Riphagen, International Legal Aspects of Artificial Islands, International Relations 1973, p.343.

2 United Nations Convention on the Law of the Sea (1982) art 91(1).

3 United Nations Convention on the Law of the Sea (1982) art 92(1).

4 United Nations Convention on the Law of the Sea (1982) art 94(1).

5 General principle enunciated by the Permanent Court in the Lotus case: (1927), P.C.I.J., Ser. A, no. 10, p.25.

On the question of jurisdiction in general, it has been said that *state jurisdiction is the power of a state under international law to govern persons and property by its municipal law. It includes both the power to prescribe rules (prescriptive jurisdiction) and the power to enforce them (enforcement jurisdiction). The latter includes both executive and judicial powers of enforcement. Jurisdiction may be concurrent with the jurisdiction of other states or it may be exclusive. It may be civil or criminal. The rules of state jurisdiction identify the persons and the property within the permissible range of a state's law and its procedures for enforcing that law.*[1]

The two generally recognized bases for jurisdiction of all types are the territorial and nationality principles.[2]

In the Lotus case[3] the Court said the following:

Far from laying down a general prohibition to the effect that States may not extend the application of their laws and the jurisdiction of their courts to persons, property or acts outside their territory, it leaves them in this respect a wide measure of discretion which is only limited in certain cases by prohibitive rules....

Nevertheless, states might not extend the application of their laws and the jurisdiction of their courts to persons, property or acts outside their territory unless they are allowed to do so on the legal basis of the nationality link principle. The application of the nationality link principle as a basis for jurisdiction over extra territorial acts, persons or property is subject to the operation of other principles as such acts, persons or property can only lawfully be the object of jurisdiction if certain general principles are observed. Accordingly and amongst those principles there should be a substantial and genuine connection between the subject matter of jurisdiction and the source of such jurisdiction.[4]

Further, *The governing principle is that a state cannot take measures on the territory of another state by way of enforcement of national laws without the consent of the latter. Persons may not be arrested, a summons may not be served,*

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1 D.J. Harris, Cases and Materials on International Law, second edition, 1979, p.235.
2 Ian Brownlie, Principles of Public International Law, third edition, 1979, p.309.
3 Verzijl, 8 Neths. Int. L.R. (1961), p.18-19.
4 Ian Brownlie, Principles of Public International Law, third edition, 1979, p.309.

police or tax investigations may not be mounted, orders for production of documents may not be executed, on the territory of another state, except under the terms of a treaty or other consent given.[1]

However, as the high seas are not open to acquisition or appropriation by way of occupation on behalf of states and, therefore, as no territorial sovereignty exists upon the high seas, the extension of states' national jurisdiction over their own nationals and their property on such seas seems to be easier.

Indeed, *although jurisdiction cannot be founded on non-territorial property so as to exclude or diminish territorial jurisdiction, the possession of an object as property at least forms a reasonable ground for the attribution of exclusive control to its owner when no equal or superior right of control can be shown by another .... It is consequently the settled usage that as a general rule persons belonging to a State community, when in places not within the territorial jurisdiction of any power, are in the same legal position as if on the soil of their own State, and that, also as a general rule, property belonging to a State or its subjects, while evidently in the possession of its owners, cannot be subjected to foreign jurisdiction.*[2]

It has further been stated that *any State ... is authorised under international law to apply its law and jurisdiction to its own nationals on an installation owned by them on the high seas.*[3]

As an illustration and although the following circumstances were different as they took place long before the continental shelf doctrine existed, still it is worth mentioning the below statement made by the American State Department where, in 1918, an American citizen asked the State Department what would be the legal attitude of the United States toward an artificial island constructed by an American national on the high seas, 40 miles from the coast of the United States. The State Department answered that

although the Department can give no assurances on the subject, that it would seem possible that, if an island were constructed 40 miles from the coast of the United States by the efforts of American citizens and inhabited and controlled by

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1 Ian Brownlie, Principles of Public International Law, third edition, 1979, p.306-307.
2 Hall's International Law, 8th edition, 1924, p.300-301.
3 Sir Humphrey Waldock, Rechtsgeleerde Adviezen, p.31.

them in the name of the United States, this Government would assume some sort of control over the island. However, it would seem that some special action by the President and Congress would be necessary to this end. If the island were erected, and if the United States assumed control over it, it would then be possible to take such steps as were necessary to protect the rights of the occupants.[1]

Thus, it appears that under international law, the national state is authorised to exercise jurisdiction and control and, therefore, apply its laws and regulations to its own nationals on installations owned by them on the high seas, since there is an absence of territorial jurisdiction upon such seas.

However, having accepted in principle the jurisdiction of the national state over its own nationals on installations owned by them on the high seas, what would be the practical advantages of the flag state jurisdiction with respect to the construction of artificial islands and installations unrelated to the exploration and exploitation of the natural resources of the deep seabed beyond the limits of national jurisdiction, in comparison with the nationality principle as a basis for jurisdiction over extra territorial acts, persons or properties?

First it should be emphasized, as mentioned earlier on in this dissertation, that both the 1958 High Seas Convention and the 1982 UN Convention on the Law of the Sea have confered only on states the right to exercise the freedoms of the high seas. Further, Part VII of the latter Convention related to the high seas, which has included the freedom to construct artificial islands and installations, does not hint at natural persons and bodies corporate under private law being permitted to erect such artificial islands or installations in the area of the high seas. Therefore, beyond the limits of national jurisdiction, individuals or private companies are not free and should not have the power to construct artificial islands and other installations unless so authorized by a state which is accordingly willing to assume responsibility for such constructions.

Hence and in the light of the 1982 UN Convention on the Law of the Sea, as the freedom to construct and the right to authorize the construction of an artificial island, unrelated to the exploitation and exploration of the natural resources of the deep seabed beyond the limits of national jurisdiction, belong only to states and, as the state authorizing the construction of such installation would be

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[1] Hackworth, Digest of International Law, 1941, vol II, p.680.

responsible for it, as suggested above by W. Riphagen, therefore it seems safer, logical and practical that the aforementioned installation would consequently be built under the jurisdiction of the state authorizing its construction and that its operation would accordingly fall under the same exclusive jurisdiction of the latter state.

Indeed, the right of a state to authorize the construction of an artificial island should be closely linked with the responsibility of that state over such installation. Such responsibility should include the exercise of exclusive jurisdiction over the installation and over the persons constructing and operating it. In other words, such responsibility would amount to what has been described as the flag state jurisdiction as presently applied to ships.

In case individuals intend to build an artificial island, unrelated to the exploration or exploitation of the natural resources of the deep seabed beyond the limits of national jurisdiction, without any state's authorization, the construction of such installation would be contrary to the rules and regulations set out by both the 1958 High Seas Convention and the 1982 UN Convention on the Law of the Sea.

Since both those Conventions refer only to states, the freedoms of the high seas are to be regarded as rights of states. Thus, *individuals wishing to construct an artificial island or installation in the high seas can only do so under the authority of a State willing to accept the responsibility. Individuals not acting under the authority or responsibility of a State cannot legally be protected against the actions of a third State, since they cannot invoke the freedom of the high seas against that State and there is no State obliged to protect them.*[1]

Thus, if no state is obliged to protect those individuals, the state of which such individuals are nationals might not offer them any protection either as they did not act under its authority or responsibility. If such situation occurs, it might lead to the position where persons and their properties, in particular artificial islands or installations, would no longer be subject to any definite legal order on the high seas.

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[1] Alfred H.A. Soons, Artificial islands and installations in international law, Occasional Paper Series, Law of the Sea Institute, University of Rhode Island, occasional paper no. 22, July 1974, p.30, note number 75.

Further, as an illustration of the above, the following statement,[1] although made with regard to stateless ships on the high seas, might be useful with respect to the parallel situation involving stateless installations on such seas:

In the interest of order on the open sea, a vessel not sailing under the maritime flag of a State enjoys no protection whatever, for the freedom of navigation on the open sea is freedom for such vessels only as sail under the flag of a State.

Thus, practically, artificial islands and installations would not be built on the high seas without the actual involvement of a state authorizing their construction and being responsible for them. As already mentioned, such responsibility would be described as the flag state jurisdiction. However and for the sake of developing a few ideas, it is worth further pointing out why, as a matter of fact, the flag state jurisdiction is more convenient than the national state jurisdiction.

The following passage of Sir Humphrey Waldock has been quoted above:

Any State, it seems to me clear, is authorised under international law to apply its law and jurisdiction to its own nationals on an installation owned by them on the high seas.

Indeed, where an installation is owned by some nationals of a specific state and where such installation is also inhabited by those or other nationals of the same state, the application of that national state's jurisdiction seems to raise no legal question.

However, such question may be raised where foreigners to the above mentioned state also inhabit the same installation. In that case, is the state which owns, or whose nationals own, such installation entitled to exercise its jurisdiction upon those foreigners?

The answer might not be obvious. Thus, in order to avoid such an argument, it seems more practical to apply the jurisdiction of the flag state. Further, if the view is taken that the owner state or the state authorizing the construction of the installation is not entitled to exercise its jurisdiction over foreigners, the situation would arise where different laws and jurisdictions would

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[1] Oppenheim's International Law, 6th edition, vol I, p.546.

simultaneously govern the same installation and the people living on it, which might lead to conflicting claims.

On the other hand, if the view is taken that the owner state or the state authorizing the construction of the installation is so entitled to exercise its jurisdiction over foreigners, the result would be very much similar to the adoption of the principle of the flag state jurisdiction.

Further, as to the national state jurisdiction, another difficulty might arise with regard to such jurisdiction over persons having a double nationality. Indeed, since *the incidence of dual nationality create parallel jurisdiction and possible double jeopardy, many states place limitations on the nationality principle, and it is often confined to serious offences.*[1] Such limitations would then leave some offences, with less "serious" aspects, outside the jurisdiction of the national state; a situation which would not exist under the flag state jurisdiction.

Moreover, with respect to the complications that might turn up with respect to the jurisdiction of the national state, it is worth noting the following comment made by N. Papadakis,[2] whereby he says that two questions arise,

the first is concerned with the jurisdictional status of installations which are not shown to have a certain national character, while the second question is whether proof of the national character of the installations under consideration, is subject to any particular requirements.

He then further adds that *as regards the first question, persons or objects on the high seas which are not shown to have a certain national character would probably be assimilated to stateless ships. It is then arguable that the assertion of jurisdiction by any State is not a violation of international law, according to the principles laid down by the British Privy Council in the case of Naim Molvan v. Attorney-General for Palestine (1948).*
With regard to the second question, whether proof of the national character is subject to any particular requirements or whether it is enough simply to prove ownership by the State itself or by its nationals, Sir Humphrey Waldock has suggested that in the case of lighthouses, light-beacons and submarine cables ownership by itself certainly appears to suffice.

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1 Ian Brownlie, Principles of Public International Law, 1979, p.303.
2 Nikos Papadakis, The International Legal Regime of Artificial Islands, 1977, p.137-138.

Thus, if the jurisdiction of the national state was to be applied, such questions as to the national character and the proof of such national character, which involve the assertion of jurisdiction, would have to be faced and answered. Therefore, why should the question of jurisdiction be answered to later, with the risks such answer involves, rather than sooner by a mere formality of registration under the flag of a particular state? Indeed, settling such question at the early stages before starting the construction of an artificial island on the high seas would be far better than running the risk of a foreign jurisdiction and its implications being asserted by a foreign state.

However, as artificial islands and installations unrelated to the exploration and exploitation of the natural resources of the deep seabed beyond the limits of national jurisdiction, should be allocated to some specific legal responsibility under the jurisdiction of the flag state, it therefore follows that the system of registration would be the centre of such a régime of jurisdiction.

With respect to ships, states have different rules and regulations as to the question of registration. Some states apply very strict rules and regulations and others adopt a much more liberal attitude in view to attract many vessels which will fly their flags without, however, having a real connection with such vessels. The latter attitude towards ships registration is called "flag of convenience".

The flag of convenience system of registration, as currently applied to ships, should be either avoided or very carefully and strictly controlled if applied to the construction and operation of artificial islands and installations, in order not to encounter the same range of difficulties experienced with regard to responsibility and control over ships registered under such a system.

Indeed, the international community has expressed concern on the question of flags of convenience with regard to ships, as the operation of such a system, unless properly supervised, provides low standards of control and responsibility and increased risks to other shipping. Accordingly, the 1958 High Seas Convention (article 5, section 1) as well as the 1982 UN Convention on the Law of the Sea (article 91, section 1) advocate the existence of a genuine link between the state and the vessel flying its flag. However, could such goal as high standards of responsibility and control be achieved through such means as the establishment of a genuine link?

Some views are expressed which do not attach a great deal of importance to the fact that a genuine link should exist. Indeed, *since all shipping companies owning ships under open registries are not the same, all open registries are not the same, nor are all non-open registries necessarily more responsible than all open registries, as annual loss statistics show. It is, of course, tempting to see all the various parts of the evil as consequences of the same cause, namely, the lack of a genuine link between flag-state and ownership. However, the mere insistence on a genuine link would solve nothing, since there is no certainty that all states will be vigorous in attacking the various manifestations of the lack of a genuine link.*[1]

Nevertheless, the United Nations Convention on Conditions for Registration of Ships 1986 which has not yet entered into force provides, on ownership, that a flag state, in its laws and regulations, *shall include appropriate provisions for participation by that State or its nationals as owners of ships flying its flag or in the ownership of such ships and for the level of such participation;* the laws and regulations *should be sufficient to permit the flag State to exercise effectively its jurisdiction and control over ships flying its flag.*[2]

Thus, *one particular point to notice here is that effective jurisdiction and control do not depend on registration, but on ownership.*[3]

Yet, *the ownership condition is optional, and the flag state may establish the genuine link either through ownership or through manning.*[4]

Hence, apparently, *a flag state which chooses to establish its genuine link through regulations concerning manning is thus absolved from the need to exercise effective jurisdiction and control. One may doubt whether this was the intention of the delegates at the Conference, but that is what the Convention says.*[5]

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[1] The United Nations Convention on Conditions for Registration of Ships, by S.G. Sturmey, 1987 LMCLQ, p.100.

[2] Article 8 paragraph 2; see the United Nations Convention on Conditions for Registration of Ships, by S.G. Sturmey, 1987 LMCLQ, p.101.

[3] The United Nations Convention on Conditions for Registration of Ships, by S.G. Sturmey, 1987 LMCLQ, p.101.

[4] The United Nations Convention on Conditions for Registration of Ships, by S.G. Sturmey, 1987 LMCLQ, p.101.

[5] The United Nations Convention on Conditions for Registration of Ships, by S.G. Sturmey, 1987 LMCLQ, p.101.

However, if such a situation where a flag state can be absolved from the need to exercise effective jurisdiction and control could arise, then the purpose of allocating artificial islands and installations, unrelated to the exploration and exploitation of the natural resources of the deep seabed beyond the limits of national jurisdiction, to some specific legal responsibility under the jurisdiction of the flag state authorizing their construction would not be reached. Therefore, obviously, the necessary measures should be taken to avoid and prevent the occurence of such an undesirable result.

To summarize, it is worth pointing out that while maintaining the principle of the freedom of the high seas, a coherent régime of jurisdiction ought to be brought about by the new practice of states with a view to forge a new customary rule which will subject the construction of artificial islands and installations, unrelated to the exploration and exploitation of the natural resources of the deep seabed beyond the limits of national jurisdiction, to the discipline of law and order.

Indeed, *the concept of the freedom of the seas is neither absolute nor static: it embodies the balance of jurisdictional functions among States which at any time best serve the community of nations, and its content is subject to constant modification as that community adjusts itself to the solution of new problems. Where it is generally thought acceptable that States should insist upon certain conduct on or over the high seas, the abstract freedom of the sea will not stand in the way.*[1]

Thus, the principle of the law of the flag state seems to be a very sound and attractive way to implement a feasible régime of jurisdiction with respect to the construction of artificial islands and installations on the high seas, hence maintaining the equilibrium between the principle of the freedom of the high seas and the necessity of legal order upon such waters. Nevertheless, the possibility of organized control and jurisdiction under the auspices of the Authority, over all artificial islands and installations erected on the high seas submerging the deep seabed beyond the limits of national jurisdiction, is still open.

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[1] D.P. O'Connell, The International Law of the Sea, 1984, vol II, p.796-797.

5. Effects on baselines. Safety zones

Effects on baselines

The normal baseline from which the breadth of the territorial sea is measured is the low water line along the coast.[1] However, it should be noted that some man made artificial constructions would influence the delimitation of maritime zones under the régime set out by the 1982 UN Convention on the Law of the Sea. Indeed, some artificial constructions may legally modify the shape of the baselines from which the breadth of the territorial sea and exclusive economic zone is measured, as article 7(4) of the UN Convention provides the following:

Straight baselines shall not be drawn to and from low-tide elevations, unless light houses or similar installations which are permanently above sea level have been built on them.

A light house is defined as a tall structure topped by a powerful light used as a beacon or signal to aid marine navigation.[2] Hence, the scope of article 7(4) is very narrow as the description of a light house is limited to those constructions built to perform a specific function which is to give a continuous signal for guiding navigators. Presumably, the words "similar installations" should be interpreted restrictively and should therefore be assimilated to light houses.

Thus, unless an artificial island or installation qualifies as a light house or similar installation, where such artificial island or installation is constructed and attached to a low tide elevation it must be excluded from the scope of article 7(4) above mentioned which is limited to light houses and similar installations and, therefore, must not be used in drawing the straight baselines from which the breadth of the territorial sea is measured.

So, what are the legal repercussions on the delimitation of the maritime zones following the construction of artificial islands and installations on the seabed?

Articles 60(8) and 80(8) of the 1982 UN Convention on the Law of the Sea, related to the exclusive economic zone and the continental shelf respectively, are very

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[1] United Nations Convention on the Law of the Sea (1982) art 5.

[2] The American Heritage Dictionary, second college edition.

clear as to the effect of artificial islands and installations on the delimitation of the territorial sea, the exclusive economic zone or the continental shelf. The above mentioned articles provide the following:

Artificial islands, installations and structures do not possess the status of islands. They have no territorial sea of their own, and their presence does not affect the delimitation of the territorial sea, the exclusive economic zone or the continental shelf.[1]

Thus, an artificial island or installation introduced in the marine environment does not possess the status of a natural island and should not be assimilated to land territory and, therefore, does not have a territorial sea of its own or a continental shelf. Indeed, *...the State which introduces such immovable should not in principle thereby acquire exclusive rights of use of the marine environment itself... If one takes the view that the creation of an "artificial island" is in itself already a withdrawal of some "space" from the marine environment, there would seem to be no justification for attaching to it, on top of that, the acquisition of rights of use in respect of the marine environment around such "artificial island"*[2]

Further, artificial islands and installations may not be used to extend the breadth of the territorial sea, exclusive economic zone or continental shelf.[3] Following the above reasoning of W. Riphagen, if a coastal state wishes to erect an artificial island or installation, it will be using some space from the marine environment

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[1]The same provision can also be found in article 147(2)(e) under the section of the UN Convention governing the Area. However, as article 4 of the same Convention states that "the outer limit of the territorial sea is the line every point of which is at a distance from the nearest point of the baseline equal to the breadth of the territorial sea", it is difficult to imagine how artificial islands or installations built beyond the 12 miles limit (which is the breadth of the territorial sea according to article 3) could have had any effect on the delimitation of the breadth of the territorial sea as they would have been at a distance from the baseline exceeding the breadth of the territorial sea (nevertheless, this would not have been the case where a coastal state claims for a breadth of territorial sea exceeding the 12 miles limit as, for example, Ecuador which claims for a 200 miles territorial sea). Indeed, apart from the case of light houses built on low tide elevations, only natural elevations situated at a distance not exceeding the breadth of the territorial sea, as measured from the mainland, may be used to draw the baseline. It is needless to say that the above mentioned light houses ought to be built within the limits of the territorial sea in order also to be used to draw the baseline.

[2] W. Riphagen, International Legal Aspects of Artificial Islands, International Relations 1973, p.345-346.

[3] It is meant where the outer edge of the continental margin does not naturally extend up to a distance of 200 miles from the baselines from which the breadth of the territorial sea is measured.

and, therefore, there is no reason to compensate the loss of sea space for that state by extending its territorial waters and exclusive economic zone beyond their original limits.

Also, offshore installations and artificial islands are not considered as permanent harbour works for the purpose of delimiting the territorial sea. If they were so considered, they would have been regarded as forming part of the coast and, therefore, of the normal baseline for measuring the breadth of the territorial sea.

Indeed, article 11 of the 1982 UN Convention on the Law of the Sea reads as follows:

For the purpose of delimiting the territorial sea, the outermost permanent harbour works which form an integral part of the harbour system are regarded as forming part of the coast. Off-shore installations and artificial islands shall not be considered as permanent harbour works.

The distinction between permanent harbour works and offshore installations may not be easy to make. However, the above article shows the reluctance to move seawards the limits of the territorial waters and exclusive economic zone of the coastal state, *to the effect of creating new rights of use of the coastal State in respect of a part of the marine environment.*[1] Hence, unless artificial islands and installations qualify as permanent harbour works which form an integral part of the harbour system, such constructions will not affect the delimitation of the territorial sea.

Safety zones

As mentioned above, artificial islands and installations do not have a territorial sea of their own. However, states constructing or authorizing such constructions are permitted to establish safety zones around them, where appropriate measures to protect both constructions and navigation can be taken.

Safety zones are specific to the construction of artificial islands and installations in the belts of waters beyond the territorial sea. Indeed, *in the early days of the I.L.C.'s deliberations on the topic in 1951,* (before the concepts of the continental

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[1] W. Riphagen, International Legal Aspects of Artificial Islands, International Relations 1973, p.346.

shelf and exclusive economic zone were implemented) *the point had been made that works and installations established in the high seas for exploitation (sic) the soil and subsoil would not have their own territorial sea, but safety zones of security.*[1]

As the sovereignty of a coastal state extends, beyond its land territory and internal waters, to its territorial sea[2] and, therefore, as the latter state may, where necessary having regard to the safety of navigation, require foreign ships exercising the right of innocent passage through its territorial sea to use such sea lanes and traffic separation schemes as it may designate or prescribe for the regulation of the passage of ships,[3] thus the establishment of safety zones around installations in the territorial sea does not seem necessary.

Further, the coastal state may adopt laws and regulations relating to innocent passage through its territorial sea, in respect of the protection of navigational aids and facilities and other facilities or installations.[4]

Clearly, the intent of articles 21 and 22 of the 1982 UN Convention on the Law of the Sea is to permit the coastal state to enact safety rules and regulations in view to control shipping activities within its territorial waters and to regulate the right of innocent passage enjoyed by foreign vessels, in order to protect artificial islands and other installations erected in its territorial waters. However, the coastal state may adopt laws for the regulation of maritime traffic only in conformity with the provisions of the UN Convention and other rules of international law.[5] Further, in the designation of sea lanes and the prescription of traffic separation schemes under article 22 of the Convention, the coastal state shall take into account any channels customarily used for international navigation. Hence, artificial islands and other installations should not be located where interference may be caused to the use of recognized sea lanes essential to international navigation.

To come back to the subject of safety zones established around artificial islands and installations erected beyond the territorial waters of the coastal state, articles 60 and 80 of the 1982 United Nations Convention on the Law of the Sea, related

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1 Symmons, The Maritime Zones of Islands in International Law, p.105.
2 United Nations Convention on the Law of the Sea (1982) art 2(1).
3 United Nations Convention on the Law of the Sea (1982) art 22(1).
4 United Nations Convention on the Law of the Sea (1982) art 21(1)(b).
5 United Nations Convention on the Law of the Sea (1982) art 21(1)(a).

to the exclusive economic zone and the continental shelf respectively, provide the following:

4. *The coastal State may, where necessary, establish reasonable safety zones around such artificial islands, installations and structures in which it may take appropriate measures to ensure the safety both of navigation and of the artificial islands, installations and structures.*

Further, in paragraph 5 of articles 60 and 80, the breadth of the safety zones shall be determined by the coastal state, taking into account applicable international standards. Such zones shall not exceed a distance of 500 metres around the artificial islands or installations, except as authorized by generally accepted international standards or as recommended by the competent international organization.

In the 1958 Geneva Convention on the Law of the Sea[1], the safety zones could only extend up to a distance of 500 metres around the installations and other devices which had been erected, since the purpose of this provision was basically to enable the coastal state to regulate navigation so as to minimize and possibly avoid any risk of ships colliding with the devices. However, the above mentioned articles 60 and 80, in their paragraph 5, keep the 500 metres limit as safety zones, but allow extension "...as authorized by generally accepted international standards or as recommended by the competent international organization."

Understandably, articles 60 and 80 might be concerned with the adequacy of the 500 metres limit for safety zones as such a breadth might not satisfy the various modern requirements for the use and operation of artificial islands and installations. Also, the aforementioned articles 60 and 80 might be concerned not only with the safety of the devices as regards navigation and avoidance of ships colliding with them, but also with their safety in relation with any possible belligerant acts or acts of sabotage, as offshore platforms might represent strategic targets for terrorist and/or enemy attacks in period of war or hostilities. Hence the statement that the coastal state may take, in the safety zones, appropriate measures to ensure the safety both of navigation and of installations.

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[1] Article 5 of the Continental Shelf, section 3.

Thus, the state constructing or authorizing the construction of artificial islands and installations is entitled to take appropriate measures of protection in order to ensure their safety and prevent any offence being committed within the safety zones around them. Further, as far as jurisdiction within these safety zones is concerned, *It would seem that de lege ferenda "protective jurisdiction"* (i.e. determining jurisdiction by reference to the national interest injured by the offence[1]) *generally with respect to all immovables introduced in the marine environment is, in principle, acceptable.*[2] Furthermore, all ships must respect these safety zones.[3] Hence it might be assumed that the right of passage for ships of all states, notwithstanding innocence, can be prohibited in such safety zones.

However, artificial islands and installations and the safety zones around them may not be established where interference may be caused to the use of recognized sea lanes essential to international navigation.[4] Obviously, such safety zones are temporary in nature and are permitted to exist only in so far as the artificial island or installation stands.

Also, safety zones shall be established around installations used for carrying out activities in the Area, with appropriate markings to ensure the safety of both navigation and the installations. The configuration and location of such safety zones shall not be such as to form a belt impeding the lawful access of shipping to particular maritime zones or navigation along international sea lanes.[5] It is worth noting that no breadth for the safety zones surrounding artificial islands and installations erected in the Area is mentioned in the relevant article of the UN Convention. However, there is no indication that the breadth of such safety zones might be unreasonable.

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1 D.J. Harris, Cases and Materials on International Law, second edition, 1979, p.235.
2 W. Riphagen, International Legal Aspects of Artificial Islands, International Relations 1973, p.345.
3 United Nations Convention on the Law of the Sea (1982) art 60(6) & 80(6).
4 United Nations Convention on the Law of the Sea (1982) art 60(7) & 80(7).
5 United Nations Convention on the Law of the Sea (1982) art 147(2)(c).

Part two

6. Protection and preservation of the marine environment

Measures to prevent, reduce and control pollution of the marine environment

Environment is undergoing substantial changes due to scientific evolution. Pollution by man, especially during the twentieth century, is associated with the growth of modern technology and represents grave dangers if not properly controlled.

Therefore, the need has risen, on the international level, to increase attention to the environmental problems in order to protect and improve the conditions and well being of man in view of a sound economic and social development. Also, preservation of the marine environment is now a matter of international concern.

The modern principles of international law of the sea, which contain provisions relating to the protection of the marine environment, represent the outcome of a rising international interest in regulating the use of the seas, which led to the 1958 United Nations Convention on the Law of the Sea, and kept on evolving through the Third United Nations Convention on the Law of the Sea signed at Montego Bay, Jamaica, on December 10th 1982.

Nevertheless, the treatment of environmental problems, such as pollution, is yet to be improved. In this regard, it is worth quoting the observation made by the World Commission on Environment and Development in its report entitled Our Common Future:[1]

National and international law has traditionally lagged behind events. Today, legal régimes are being rapidly outdistanced by the accelerating pace and expanding scale of impacts on the environmental base of development. Human laws must be reformulated to keep human activities in harmony with the unchanging and universal laws of nature.

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[1] Oxford University Press, 1987, p.330.

Further, the UN Governing Council for Environmental Programmes has many tasks to accomplish in order to develop the principle of state responsibility and implement international recommendations and regulations, as international authority is still limited in various areas of the marine environment and, in particular, with respect to compensation for damage to the marine environment, intervention in cases of emergency, cleaning up operations and installation of adequate facilities to allow effective application of the rules.[1]

What is the meaning of marine pollution and what are the legal measures taken to deal with its prevention and control?

Worldwide, man's activities increasingly introduce material and energy into the environment as a consequence of the use of new resources and their development;

when that material or energy endangers or is liable to endanger man's health, his well being or his resources, directly or indirectly, it is called a pollutant. When we say that something is polluted, we are in fact making a value judgement about the quality or quantity of foreign matter present. This judgement may be based on objective facts, but it also depends on other value judgements that vary with social and economic circumstances.[2]

As to the pollution of the marine environment, it is *the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.*[3]

Pollution may result in harmful effects to states and/or their nationals and/or their property and/or to the marine environment as such. Indeed, in the

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[1] As an example of the obligation to install such facilities, article 8 under chapter 3 of the Marine Environmental Protection Law of the People's Republic of China requires the offshore oil operators "to install pollution-preventing facilities and equipment and to take effective technical measures to prevent blow-out and oil leackage accidents" (International Journal of Estuarine and Coastal Law, 1988, vol 3, no 2, China's Offshore Oil Development Policy and Legislation: An Overall Analysis, by Paul C. Yuan, p.129-131).

[2] United Nations Conference on the Human Environment, (1972), "Identification and control of pollutants of international significance" Doc. A/CONF. 48/8.

[3] United Nations Convention on the Law of the Sea (1982) art 1(4).

Commonwealth of Puerto Rico v. SS Zoe Colcotroni,[1] a case which is relevant to the pollution of the marine environment, the Court said that

the loss... is not only to certain plant and animal life but, perhaps more importantly, to the capacity of the now polluted segments of the environment to regenerate and sustain such life for some time into the future... In recent times mankind has become increasingly aware that the planet's resources are finite and that portions of the land and sea which at first seem useless like salt marshes, barrier reefs, and other coastal areas often contribute in subtle but critical ways to an environment capable of supporting... human life.

Thus, marine pollution is the consequence of human activity in the marine environment which causes or is likely to cause harmful effects to man and/or his property or to the marine environment as such. It is now accepted that states have the right to an unpolluted marine environment. Indeed, under principle 1 of the Stockholm Declaration on the Human Environment (1972), *man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being and he bears a solemn responsibility to protect and improve the environment for present and future generations.*[2] It therefore follows that there is a duty not to pollute such environment and that transgression of this duty entails responsibility and hence compensation for the victim state in order to rehabilitate the injured marine environment to its preexisting condition or as close to such condition as possible under the existing circumstances.

The principal pollutants of the seas so far are oil spills, wastes and escapes which can be caused, amongst other reasons, as a consequence of shipping casualties or offshore oil production including discharges from drilling rigs and accidental well blow outs, all of which resulting in grave danger of pollution of sea and coastlines.

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1 Commonwealth of Puerto Rico v SS Zoe Colcotroni, F 2d, 1980 AMC, p.38.

2 "The importance of Principle 1 of the Declaration lies in that it gave expression to a trend of international law latently existing at the time of the adoption of the Declaration, and provided the basis for further, more concrete, comprehensive and coordinated environmental action at the national, regional and global level, thus positively contributing to the formulation of a new principle of customary international law". (GR. J. Timagenis, International Control of Marine Pollution, 1980, vol I, p.89).

Indeed, pollution from the exploration and exploitation of the seabed presents problems of its own. *Exploitation of the seabed under national jurisdiction (continental shelf) is marked by the exclusiveness of the rights of the coastal State. However, pollution arising therefrom is of wider interest. The superjacent waters and their living resources are to a great extent internationally shared, and pollution in one area of the sea can easily be transferred to another by the currents. Thus, it is necessary to establish some international standards for seabed pollution without prejudice to the exclusive rights of the coastal State.*[1]

Accordingly, the international community had to react by making new rules and then trying to enforce them in an efficient way. Hence, principle 7 of the Stockholm Declaration on the Human Environment (1972) reads as follows:

States shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

Further, recommendation 18 of the 1972 Stockholm Conference[2] states that *coastal states should ensure that adequate and appropriate resources are available to deal with pollution incidents resulting from the exploration and exploitation of seabed resources in areas within the limits of their national jurisdiction.*

Thus, some states have taken steps, on a regional scale, in order to prevent pollution of the sea adjacent to their coasts and, in particular, to protect such sea against pollution resulting from offshore activities. Indeed, *a growing awareness of threats to the environment in the early 1970s, which led to the 1972 Stockholm Conference on the Human Environment, combined with the first studies of the state of pollution of the Mediterranean that predicted an imminent environmental collapse of that sea, set in motion the initiative of the Mediterranean coastal states to save their waters. After several meetings at the subregional level, the successful and effective action of the Mediterranean states began in 1975 under the auspices of the United Nations Environment Program*

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1 GR. J. Timagenis, International Control of Marine Pollution, 1980, vol I, p.17.

2 At the United Nations Conference on the Human Environment held in Stockholm in 1972, a Declaration on the Human Environment as well as an Action Plan, which is in the form of recommendations for future action to be taken by states for the preservation of the environment, were adopted.

(UNEP),[1] *which had taken over the coordinative work assigned to it after the 1972 Stockholm Conference.*
In January 1975 UNEP convened in Barcelona the first of a series of intergovernmental meetings of the Mediterranean coastal states. It approved an ambitious and comprehensive plan of action now known as the Mediterranean Action Plan.[2]

The Mediterranean Action Plan called for, amongst other things, the creation of a framework convention and its related protocols, each dealing with specific aspects of the protection of the Mediterranean environment.[3]

Accordingly, the coastal states convened again in Barcelona and adopted a framework Convention for the Protection of the Mediterranean Sea Against Pollution which contains general provisions and undertakings,[4] along with two initial protocols,[5] which came into force in 1978. A third protocol[6] entered into force in 1983 and a fourth protocol[7] entered into force in 1986.[8]

The draft of a fifth Mediterranean protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and Its Subsoil was

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1 UNEP was established by the United Nations General Assembly in 1972, UN General Assembly Resolution A/RES/2997 (XXVII), Dec 15, 1972.
2 Marine Policy Reports, 1989, vol 1, no 2, Draft Protocol for the Protection of the Mediterranean Sea Against Pollution Resulting from Offshore Activities, by Maja Sersic, p.161-165.
3 Marine Policy Reports, 1989, vol 1, no 2, Draft Protocol for the Protection of the Mediterranean Sea Against Pollution Resulting from Offshore Activities, by Maja Sersic, p.161-165.
4 Article 7 of the Barcelona Convention states that the contracting parties shall take "all appropriate measures to prevent, abate, and combat pollution of the Mediterranean Sea Area resulting from exploration and exploitation of the continental shelf and the sea bed and its subsoil".
5 The Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircrafts, and the Protocol Concerning Cooperation in Combatting Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency.
6 Protocol for the Protection of the Mediterranean Sea Against Pollution from Land Based Sources.
7 Protocol Concerning Mediterranean Specially Protected Areas.
8 Marine Policy Reports, 1989, vol 1, no 2, Draft Protocol for the Protection of the Mediterranean Sea Against Pollution Resulting from Offshore Activities, by Maja Sersic, p.161-165.

submitted to the contracting parties of the Barcelona Convention, held in Athens in 1987.[1]

The draft protocol provides that offshore activities will be permitted only on the basis of prior written authorization by competent authorities of the coastal state and, that the request for authorization for offshore activities must contain a survey concerning the effects of the proposed activities on the environment, as well as safety measures, contingency plan and monitoring procedures in case such activities are likely to endanger the marine environment. Further, if the proposed activities might cause detrimental effect to the marine environment, the coastal state can require the applicant to prepare an environmental impact assessment of the proposed activities to the marine environment. Furthermore, the coastal state should ensure that safety measures are taken in design, construction, placement, equipment, operation, staffing and maintenance of offshore installations so as to minimize risks of pollution. Moreover, the coastal state should require the operator to measure the effects of offshore operations on the environment and to report on them periodically or upon request. In addition, the competent authorities of the coastal state should survey the installations regularly to ensure that the conditions under which the authorization was granted are being met and to monitor the effects of the installations and their operation on the environment. However and despite preventive measures, pollution may occur as a result of an unforseen event. Therefore, the draft protocol provides that the coastal state should require the operator to prepare a plan, which has to be approved by the coastal state, to deal with a contingency.[2]

On a much larger international scale, the 1982 UN Convention on the Law of the Sea, in its article 194, paragraphs 2 and 3, provides some measures to prevent, reduce and control all sources of pollution to the marine environment, including pollution related to the exploration and exploitation of the natural resources of the seabed and subsoil under the jurisdiction of the coastal state:

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[1] Marine Policy Reports, 1989, vol 1, no 2, Draft Protocol for the Protection of the Mediterranean Sea Against Pollution Resulting from Offshore Activities, by Maja Sersic, p.161-165.

[2] Marine Policy Reports, 1989, vol 1, no 2, Draft Protocol for the Protection of the Mediterranean Sea Against Pollution Resulting from Offshore Activities, by Maja Sersic, p.161-165.

2. States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other states and their environment, and that pollution arising from incidents or activities under their jurisdiction and control does not spread beyond the areas where they exercise sovereign rights in accordance with this Convention.
3. The measures taken pursuant to this Part shall deal with all sources of pollution of the marine environment. These measures shall include, inter alia, those designed to minimize to the fullest possible extent:
c) pollution from installations and devices used in exploration or exploitation of the natural resources of the seabed and subsoil, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, and regulating the design, construction, equipment, operation and manning of such installations or devices;
d) pollution from other installations and devices operating in the marine environment, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, and regulating the design, construction, equipment, operation and manning of such installations or devices.

However, it should be noted that the fifth Mediterranean Protocol is more precise than the UN Convention as to the provisions for the prevention of pollution resulting from exploration and exploitation of the continental shelf, the seabed and its subsoil, as the above mentioned protocol describes more accurately the specific measures to be taken with respect to offshore activities and the marine environment. Indeed, this Protocol is characterized by a comprehensive approach and a detailed formulation of rules and regulations whilst, on the other hand, the provisions of part XII of the UN Convention, which are related to the protection and preservation of the marine environment, are more general and lack precision in those respects related to offshore activities. Indeed, these provisions set out general directions to be followed by states for the preservation of the marine environment, with constant emphasis on generally agreed rules and regulations of international law. The general provisions contained in part XII of the Convention deal with different aspects of prevention and control of marine pollution such as technical assistance,[1] research programmes and exchange of information,[2] monitoring[3] and environmental assessment.[4]

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1 United Nations Convention on the Law of the Sea (1982) art 202.
2 United Nations Convention on the Law of the Sea (1982) art 200.
3 United Nations Convention on the Law of the Sea (1982) art 204.

Further, article 208 of the UN Convention reads as follows:

Coastal States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment arising from or in connection with sea-bed activities subject to their jurisdiction and from artificial islands, installations and structures under their jurisdiction, pursuant to articles 60 and 80.[1]

Furthermore, states shall enforce such laws and regulations and shall adopt laws and regulations to implement applicable international rules and standards to prevent, reduce and control pollution of the marine environment arising from artificial islands and installations under their jurisdiction.[2] Thus, enforcement of laws and regulation adopted to preserve the marine environment would be effected by states through their own legal systems, which probably is the best practical way, presently, to implement international standards for the preservation of the marine environment.

However, article 194(1) of the UN Convention provides that states shall take all measures necessary to prevent, reduce and control pollution of the marine environment, using the best practicable means at their disposal and in accordance with their capabilities. Presumably, this provision is intended to lighten the burden on developing states. Nevertheless, there should not be different sets of international standards, for the protection of the marine environment, which would apply to the various nations according to their level of industrial development as *pollution, whether emanating from the developed or developing countries, can cause equal harm to the marine environment.*[3] Accordingly, transfer of technology, proper training and technical assistance should be provided by developed countries to the developing nations in order to improve the pollution control standards of the latters as pollution in general and marine pollution in particular disregards maritime zones and boundaries. Hence, the awareness of a common world and a common future is now rightfully prevailing.

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4 United Nations Convention on the Law of the Sea (1982) art 206.

1 United Nations Convention on the Law of the Sea (1982) art 208(1).

2 United Nations Convention on the Law of the Sea (1982) art 214.

3 K. Ramakrishna, Environmental Concerns and the New Law of the Sea, 1985, 16 Jnl of Mar Law and Com, p.14.

With respect to the prevention and control of pollution from activities taking place beyond the limits of national jurisdiction, the UN Convention provides the following:

Subject to the relevant provisions of this section, States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from activities in the Area undertaken by vessels, installations, structures and other devices flying their flag or of their registry or operating under their authority, as the case may be.[1]

Further, international rules, regulations and procedures shall be established to prevent, reduce and control pollution of the marine environment from activities in the Area.[2]

The 1972 Stockholm Conference also outlines some general guidelines and recommendations for the preservation of the marine environment, which apply to areas beyond national jurisdiction where an internationally shared resource is located:

1. *Every state has a duty to protect and preserve the marine environment and, in particular, to prevent pollution that may affect areas where an internationally shared resource is located.*
2. *Every state should adopt appropriate measures for the prevention of marine pollution, whether acting individually or in conjunction with other states under agreed international arrangements.*
5. *States should assume joint responsibility for the preservation of the marine environment beyond the limits of national jurisdiction.*
15. *Every state should cooperate with other states and with competent international organizations... in the exchange of technological information on means of preventing marine pollution, including pollution that may arise from offshore resource exploration and exploitation.*
19. *States should cooperate in the appropriate international forum to ensure that activities related to the exploration and exploitation of the seabed and the ocean floor beyond the limits of national jurisdiction shall not result in pollution of the marine environment.*

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1 United Nations Convention on the Law of the Sea (1982) art 209(2).
2 United Nations Convention on the Law of the Sea (1982) art 209(1).

However, *pollution from the exploration and exploitation of the seabed area beyond the limits of national jurisdiction cannot be accommodated by either flag State or coastal State jurisdiction. The pollution control system in this area should be adjusted to the common heritage concept and the peculiarities of the emerging Seabed Authority.*[1]

Indeed, although article 209 of the 1982 UN Convention provides that states shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from activities in the Area carried out by the use of installations operating under their authority, still, such national regulations would take into account the international rules and regulations to be established in accordance with Part XI of the UN Convention, whereby article 145 provides that the Authority shall adopt appropriate rules, regulations and procedures for the prevention, reduction and control of pollution and other hazards to the marine environment, including the coastline, and for protection from harmful effects caused by drilling, dredging, excavation, construction and operation or maintenance of installations related to such activities.

Pollution of the marine environment could also be caused as a consequence of activities other than exploration and exploitation of the seabed and subsoil, such as nuclear activities where, for instance, nuclear reactors using water as part of the cooling system are situated in coastal areas and hence creating a potential threat to the marine environment or, where nuclear waste is dumped into the sea. Further, nuclear reactors could also be based, in the future, on artificial islands and installations on the seas. It was reported, in 1982, that there existed about 250 land based nuclear power stations in operation around the world and yet, in 1961 there only existed ten similar stations.[2] As a matter of fact, nuclear power has and may still have an important role in meeting the future energy needs. However, for environmental reasons, the siting of nuclear power stations on land has become a major issue as the construction of land based nuclear power stations is now questioned by public opinion. Indeed, since the 1986 reactor accident at the Chernobyl nuclear power plant, near Kiev in the Soviet Union, there is worldwide questioning of nuclear safety standards, if not of nuclear use altogether.

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[1] GR. J. Timagenis, International Control of Marine Pollution, 1980, vol I, p.17.
[2] The Star, 6 May 1982.

Moreover, with ever growing public interest in nuclear safety matters, nuclear power station operators are urged to keep the public fully informed with respect to their operations relating to this much feared industry. Indeed, *"when people hear an engineer talking about nuclear power on the radio, it leaves 99 per cent of the population cold", acknowledges Richard Taylor, head of health and safety at Nuclear Electric, the UK's biggest nuclear power station operator.*[1]

Accordingly, *experts from almost every country which boasts a nuclear power station have spent the past year working out a standardised nuclear incident scale. They hope it will help to dispel the technological fog surrounding nuclear power.*[2]

Thus, *a 12 month trial of the scale starting later this year has already been agreed by about a dozen countries, including the Soviet Union, the UK, West and East Germany, Italy, Czechoslovakia and India. The International Atomic Energy Authority (IAEA) hopes that the US and China will be among other countries signing up for the trial.*
Indeed, the nuclear scale will stand or fall in terms of how widely it is accepted by the general public or, more precisely, by the mass media.
...The scale... runs from "major accident" (level 7) to "anomaly" (level1). Events which have no safety significance are to be classified as level 0 or "below scale". Levels 1-3 are described as "incidents", while levels 4-7 are "accidents".
...Three criteria will be used in classifying an accident or incident in a nuclear power plant: off-site impact, on-site impact and the extent to which safety barriers have been breached.[3]

Nevertheless, the point remains that the development and operation of a standardised worldwide nuclear incident scale would deal with post incident information rather than prevent the nuclear incident or accident from actually happening, or provide any solution in this respect. Further, *anti-nuclear campaigners are likely to criticise the absence from the trial of reprocessing, one of the main focuses of nuclear safety concern.*[4]

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[1] Financial Times, June 1st 1990, by David Thomas.
[2] Financial Times, June 1st 1990, by David Thomas.
[3] Financial Times, June 1st 1990, by David Thomas.
[4] Financial Times, June 1st 1990, by David Thomas.

Thus, the sentiment that the construction of nuclear power stations could be a potential hazard of pollution caused by the release of radioactivity is still felt widely and strongly. Constructing such power plants offshore does not eliminate the risk of pollution and nuclear contamination of the marine environment. Nevertheless, this would permit transfer of environmentally damaging activities from densely populated areas on land. Therefore, mention should be made of the feasibility of siting nuclear power plants on offshore installations and, for the sake of marine environment, of the safety considerations to be dealt with by those countries willing to locate such plants off their coast.

It appears that the siting of a nuclear power plant on an artificial island or installation is a lawful activity by the present standards of international law. Further, it seems that some plans have been drawn up in this respect such as the establishment, off the Belgian coast, of an artificial island in view to house a nuclear plant for the desalination of seawater. Furthermore, there are advanced plans in the United States to install nuclear power stations on artificial islands 3 and 40 miles off the New Jersey and Californian coastlines respectively.[1]

Moreover, *probably the most detailed study yet made of the practicability of artificial islands for the purpose of nuclear power generation, is the report* [2] *prepared for the Directorate for Science, Research and Development of the Commission of the European Communities by the UK firm of consullting engineers, Binnie & Partners... A major part of the Report is concerned with reviewing the alternative methods of island construction and their application to nuclear power station siting... An overriding design requirement that an offshore island supporting a nuclear power station must satisfy is an exceptionally high degree of security... A second aspect of security that design criteria must take account of is the ability of an island supporting a nuclear power station to withstand natural phenomena such as severe storms or earthquakes as well as man-made hazards such as ship collision, aircraft impact, sabotage or military action. Another factor influencing the choice of site is the geology of the sea-bed. This in turn will determine the settlement, stability and feasibility of a given type of island.*[3]

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[1] International Journal of Estuarine and Coastal Law, 1988, vol 3, no 2, Offshore Nuclear Power Stations: Putting Pressure on the Law of the Sea, by J.C. Woodliffe, p.139.

[2] Islands for Offshore Nuclear Power Stations, published in 1982 by Graham and Trotman for the Commission of the European Communities, Doc. EUR 7534.

[3] International Journal of Estuarine and Coastal Law, 1988, vol 3, no 2, Offshore Nuclear Power Stations: Putting Pressure on the Law of the Sea, by J.C. Woodliffe, p.139-142.

The Report, while it concludes that in principle construction of an offshore island to support a nuclear power station is feasible, cautions that *the present development of nuclear power has not... reached the stage where offshore siting can be considered as a near or medium-term proposition.*[1]

The requirement of an exceptionally high degree of security with respect to the future construction of artificial islands to support nuclear power plants should involve participation in decision making as such islands would be used for a highly sensitive activity in the marine environment.[2] Indeed, agreed standards for possible siting, construction, use and operation of offshore nuclear power stations should be implemented under the auspices and with the effective cooperation of the international community as a whole and, particularly, with the coordination of the states concerned about their safety and the safety of their environment which might be at risk as the result of the construction of such offshore nuclear plants.

Indeed and in this respect the Belgian proposals as to the construction of artificial islands in the territorial sea and on the continental shelf of a coastal state, mentioned earlier on in this dissertation, would have been useful to include in multinational treaties as they suggest that before commencing the construction of artificial islands or installations, the coastal state shall publish the plans thereof and take into consideration any observations submitted to it by other states. In the event of disagreement, an interested state which deems itself injured may appeal to an international body which, though not empowered to prohibit the construction, may prescribe such changes or adjustments as it considers essential to safeguard the lawful interests of other states.

Nevertheless, the 1982 UN Convention on the Law of the Sea does contain some general directions as to monitoring and environmental assessment as it provides that states shall keep under surveillance the effects of any activities which they permit or in which they engage in order to determine whether these activities are likely to pollute the marine environment.[3] Further, states shall publish reports of the results obtained or provide such reports at appropriate intervals to the competent international organizations, which should make them available to all

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[1] International Journal of Estuarine and Coastal Law, 1988, vol 3, no 2, Offshore Nuclear Power Stations: Putting Pressure on the Law of the Sea, by J.C. Woodliffe, p.141-153.

[2] "Marine environment" has a comprehensive scope and would therefore contain the various maritime zones altogether.

[3] United Nations Convention on the Law of the Sea (1982) art 204(2).

states.[1] Furthermore, when states have reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of or significant and harmful changes to the marine environment, they shall, as far as practicable, assess the potential effects of such activities on the marine environment and shall communicate reports of the results of such assessments accordingly.[2]

Indeed, it is for the protection of their own interests as well as of the interests of the international community that states, which should undertake the construction of artificial islands and installations either to support nuclear power plants or other plants that may cause significant pollution to the marine environment, or even for the purpose of exploring and exploiting the natural resources of the seabed and subsoil, should agree to the assessment of planned activities and to pollution monitoring by competent international organizations.

However, though states might not have reached yet the point of submitting their construction plans to international organizations, still, they may request such plans as well as monitoring and environmental assessment reports from the offshore oil operators who have been chosen to carry out the construction of artificial islands and installations off their coast. For example, the provisions under chapter 3 of the Marine Environmental Protection Law of the People's Republic of China, promulgated on 23 August 1982, require the offshore oil operators:

(1) *to submit a marine environmental impact report, including effective measures to prevent pollution and damage to the marine environment, before the submission of development plans.*[3]

As artificial islands and installations are immovable constructions, monitoring is therefore an easier task in view to assessing their impact on the surrounding environment as the pesence of such fixed constructions, although provisional, represents a constant factor in relation to a particular marine environment; unlike ships in motion, the monitoring of which might be more complicated as

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1 United Nations Convention on the Law of the Sea (1982) art 205.

2 United Nations Convention on the Law of the Sea (1982) art 206.

3 International Journal of Estuarine and Coastal Law, 1988, vol 3, no 2, China's Offshore Oil Development Policy and Legislation: An Overall Analysis, by Paul C. Yuan, p.129-131.

it is sometimes difficult to determine exactly where and when the polluting incident occured in order to assess, accurately, the impact on the environment.[1]

As to the environmental assessment of exploration and exploitation activities related to oil, for instance, a unique computer software programme that has reached the final stages of development could be used by governments and oil companies for risk assessment when considering exploration and drilling at a particular site. Dr Cekirge, who began development of this software package back in 1979 under grants from the Saudi government and Aramco, says: *We can run a risk analysis for an entire area. We can say the chance of a spill reaching that area would be 90%, for another area 40%, and for yet another area 30%. Then, an intelligent decision about drilling or not drilling could be made. This is something that is needed for all sensitive waters of the world.*[2]

The programme can also forecast the size, shape and path of an oil spill in just 12 minutes. It can produce three dimensional graphics in less than 90 minutes that project size, shape, concentration and path of the spill all the way from the ocean floor to the surface. Further, computer graphics showing how a spill would react based on millions of computations of factors such as wind, tides and ocean currents can be sent instantly via telefax to end users such as on site clean up teams. It would be equally easy to continue composing and telefaxing updated graphics and models as conditions at the site change.[3] *This is a know your enemy situation. We will know the behaviour of an oil slick. We could tell in plenty of time whether a beach area would be destroyed, allowing better deployment of equipment and task forces for clean up.*[4]

Prevention of pollution and injury to the marine environment as a result of dumping of wastes or other matter

It is important that best practicable means are used to control the pollution of the seas by dumping of harmful substances from artificial islands or other installations, such as the development of processes and installation of facilities

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[1] However and with respect to oil spills, it seems that a new computer software programme is now being developed whereby a simulator programme can be run backwards to pinpoint all tanker traffic that has been in the area of a spill. It then can go on to identify specifically which vessel was responsible for that spill (Lloyd's List, Tuesday February 6th 1990, by Joel Glass).

[2] Lloyd's List, Tuesday February 6th 1990, by Joel Glass.

[3] Lloyd's List, Tuesday February 6th 1990, by Joel Glass.

[4] Lloyd's List, Tuesday February 6th 1990, by Joel Glass (statement made by Dr Cekirge).

which will minimize the amount of harmful wastes that need to be disposed of, as well as research on alternative methods of disposal of harmful substances.

For the purposes of the 1972 London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter,[1] (art III,a) dumping means:

i. *any deliberate disposal at sea of wastes or other matter from vessels, aircrafts, platforms or other man made structures at sea*
ii.*any deliberate disposal of vessels, aircraft, platforms or other man made structures at sea.*[2]

As to the precise meaning of waste, the Canada's Arctic Waters Pollution Act (1970) section 2(h) defines it as follows:

i- *any substance that, if added to any waters, would degrade or alter or form part of a process of degradation or alteration of the quality of those waters to an extent that is detrimental to their use by man or by any animal, fish or plant that is useful to man and,*
ii-*any water that contains a substance in such a quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any waters, degrade or alter or form part of a process of degradation or alteration of the quality of those waters to an extent that is detrimental to their use by man or by any animal, fish or plant that is useful to man.*

The 1972 Stockholm conference, in its general guidelines and recommendations for the preservation of the marine environment, stresses that

3. *States should use the best practicable means available to them to minimize the discharge of potentially hazardous substances to the sea by all routes, including... as well as dumping by or from ships, aircraft and platforms.*

Also, recommendation 86 of the Stockholm recommendations on development and environment (Stockholm Conference 1972), reads as follows:

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1 This Convention came into force in 1975.
2 Same definition can be found in the United Nations Convention on the Law of the Sea (1982).

c) *Ensure that ocean dumping by their nationals anywhere, or by any person in areas under their jurisdiction, is controlled and that Governments shall continue to work towards the completion of, and bringing into force as soon as possible of, an over-all instrument for the control of ocean dumping as well as needed regional agreements within the framework of this instrument...*

Further, principle 6 of the 1972 Stockholm Declaration on the Human Environment relates to the prevention of discharge of harmful substances into the environment and provides the following:

The discharge of toxic substances and the release of heat, in such quantities or concentrations as to exceed the capacity of the environment to render them harmless, must be halted in order to ensure that serious or irreversible damage is not inflicted upon ecosystems.[1]

It therefore follows that pollution, as the result of waste disposal at sea, occurs where the quantity or nature of the waste disposed of cannot be broken down, diluted or dispersed and assimilalted by natural regeneration processes in order to render it harmless to the marine environment.

Yet it has been found with respect to oil substances, for instance, that *the marine environment eventually recovers from even the most serious oil pollution incidents.*[2]

However, although it may be recognized that in the long term the marine environment could recover from the effect of some pollutants, still such pollutants do give rise in a shorter term to damage to marine environment, coasts, persons and property. Moreover, some kinds of persistent wastes do take, relatively, a very long time to lose their harmful effects.

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[1] "Principle 6 relates to all discharges on land, at sea, in the air and even in outer space. The language of this Principle is very wide and covers virtually all substances, either toxic or not, including oil, nuclear waste or other noxious substances in solid, liquid or aerial form. It further includes accidental and voluntary discharges, including operational ones and dumping at sea" (GR. J. Timagenis, International Control of Marine Pollution, 1980, vol I, p.90).

[2] The Eighth Report on Oil Pollution of the Sea (Royal Commission on Environmental Pollution) reported in Newsletter issued by the SA National Committee for Oceanographic Research, Pretoria, July 1982, p.9).

Hence, it might be useful to include within the concept of harmful substances a time limit for the assimilation of such substances by the marine environment and the regeneration of the latter subsequently, in order either to include or exclude the substance disposed of from the scope of harmfulness. In this respect Annex I, mentioned in article IV(1)(a) of the 1972 London Convention on Dumping, provides under paragraph 8 that *the preceding paragraphs of this Annex* (whereby dangerous substances are listed, the dumping of which is prohibited outright) *do not apply to substances which are rapidly rendered harmless by physical, chemical or biological processes in the sea...* However, the term "rapidly" is yet to be defined in time. Further, it remains to be seen which technique is to be used in view to assess the assimilative capacity which would also depend on the nature of the ecosystem that receives the waste disposed of.

Nevertheless, the 1972 London Convention on Dumping completely prohibits any dumping of materials and substances classified as extremely toxic and long lasting. Indeed, under the provisions of article IV(1)(a), contracting parties shall prohibit the dumping of wastes or other matter listed in Annex I and considered as highly dangerous. Annex I includes organohalogen compounds, mercury and mercury compounds, cadmium and cadmium compounds, persistent plastics and synthetic materials, crude oil, fuel oil, heavy diesel oil, lubricating oil, hydraulic fluids, high level radioactive wastes, materials produced for biological and chemical warfare.

However, there is an exception provided for in article V(2) of the London Convention which reads as follows:

A Contracting Party may issue a special permit as an exception to Article IV(1)(a), in emergencies posing unacceptable risk relating to human health and admitting no other feasible solution. Before doing so the Party shall consult any other country or countries that are likely to be affected and the Organization which, after consulting other Parties, and international organizations as appropriate, shall, in accordance with Article XIV, promptly recommend to the Party the most appropriate procedures to adopt. The Party shall follow these recommendations to the maximum extent feasible consistent with the time within which action must be taken and with the general obligation to avoid damage to the marine

environment and shall inform the Organization of the action it takes. The Parties pledge themselves to assist one another in such situations.[1]

Article IV(1)(b) of the London Convention refers to Annex II and requires a prior special permit to dispose of the materials and substances listed in that Annex which include wastes containing significant amounts of arsenic, lead, copper, zinc and their compounds, organosilicon compounds, cyanides, fluorides, pesticides and their byproducts. Further, a special permit is needed to dispose of large quantities of acids and alkalis containing the substances above listed in Annex II and/or baryllium, chromium, nickel, vanadium and their compounds. Furthermore, containers, scrap metal and other bulky wastes liable to sink to the sea bottom, radioactive wastes or other radioactive matter not included in Annex I also necessitate a special permit to be disposed of.

Article IV(1)(c) of the same Convention provides that the dumping of all other wastes or matter requires a prior general permit. Wastes or other matter are defined in article III(4) as meaning *material and substance of any kind, form or description.* Hence, although the purpose of the Convention is to prohibit the disposal of polluting material and substance which may harm the marine environment, this purpose might be better achieved by controlling the disposal of material and substance of any kind, form or description whatsoever. Indeed, it is thought that more emphasis should be placed on prohibiting ocean dumping rather than permitting and regulating such dumping. Accordingly, under article IV(3) of the London Convention, *no provision... is to be interpreted as preventing a Contracting Party from prohibiting, insofar as that Party is concerned, the dumping of wastes or other matter not mentioned in Annex I....*

However, article V(1) of the London Convention provides the following exception:

The provisions of Article IV shall not apply when it is necessary to secure of human life or of vessels, aircraft, platforms or other man-made structures at sea

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[1] Such exception seems permissive and might therefore allow a contracting Party to benefit from it. It might be suggested that the Organization should have the power not only to recommend the appropriate procedures to be adopted by the party willing to carry out dumping, but also to judge whether the case of emergency pleaded is highly justifiable and, if so, to control the whole dumping operation.

in cases of force majeure caused by stress of weather,[1] *or in any case which constitutes a danger to human life or a real threat to vessels, aircraft, platforms or other man-made structures at sea, if dumping appears to be the only way of averting the threat and if there is every probability that the damage consequent upon such dumping will be less than would otherwise occur.*[2] *Such dumping shall be so conducted as to minimize the likelihood of damage to human or marine life and shall be reported forthwith to the Organization.*

As to the distinction between the special and general permits required respectively by subsections (b) and (c) of article IV (1) of the London Convention, article III of the same Convention provides the following definitions:

5. *Special permit means permission granted specifically on application in advance and in accordance with Annex II and Annex III.*
6. *General permit means permission granted in advance and in accordance with Annex III.*

Hence, *the difference between the two kinds of permits... is that a "special permit" (a) is required for every single case of dumping, (b) is granted only upon an application and (c) is subject to the requirements of both Annexes II and III. In contrast a "general permit" (a) may relate to a series of dumping operations, not necessarily individually identified, (b) can be granted without an application, e.g. through general regulations, and (c) is subject to the requirements of Annex III only.*[3]

As to Annex III, it sets out the provisions to be considered in establishing criteria governing the issue of permits for the dumping of matter at sea, which include careful consideration of the characteristics and composition of the matter to be disposed of, characteristics of dumping site and method of dumping as well as other general considerations and conditions such as possible effects on amenities, marine life and other uses of the sea.

Further, the London Convention provides in article VIII the following:

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[1] It is to be noted that force majeure must have been caused by stress of weather in order to justify dumping. Where force majeure is due to any other reason, dumping would still be prohibited.
[2] Such case or situation might be difficult to judge or control and might provide an escape route through which dumping would be justified after it occurs.
[3] GR. J. Timagenis, International Control of Marine Pollution, 1980, vol I, p.212.

In order to further the objectives of this Convention, the Contracting Parties with common interests to protect in the marine environment in a given geographical area shall endeavour, taking into account characteristic regional features, to enter into regional agreements consistent with this Convention for the prevention of pollution, especially by dumping....

Accordingly and as an example of a regional agreement with respect to the use and disposal of harmful substances, the fifth mediterranean draft protocol on pollution establishes three categories of harmful substances, each of them being subject to specific rules, some of which prohibit the use and disposal of one category and some other require a special or general permit for the use and disposal of the other two categories, to be issued by the competent national authorities of the coastal state. As to oil, oily mixtures and drilling fluids, the draft protocol requires the coastal state to formulate and adopt common minimum standards for their disposal from offshore installations.[1]

The 1982 United Nations Convention on the Law of the Sea, article 210, provides that states shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment by dumping.

However, the UN Convention in its article 1(5)(b)(i) states that dumping does not include

the disposal of wastes or other matter incidental to, or derived from the normal operations of vessels, aircraft, platforms or other man-made structures at sea and their equipment, other than wastes or other matter transported by or to vessels, aircraft, platforms or other man-made structures at sea, operating for the purpose of disposal of such matter or derived from the treatment of such wastes or other matter on such vessels, aircraft, platforms or structures.[2]

Thus, the above mentioned article leaves us with a narrower scope as to the evaluation of cases of dumping. Further, it would also be useful to define what exactly are *the normal operations of vessels, aircraft, platforms or other man-*

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1 Marine Policy Reports, 1989, vol 1, no 2, Draft Protocol for the Protection of the Mediterranean Sea Against Pollution Resulting from Offshore Activities, by Maja Sersic, p.161-165.

2 Same exclusion is found in the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter, (1972), art III, section b(i).

made structures at sea and their equipment...[1] which are left outside the meaning of dumping.

Moreover, article III (1)(c) of the 1972 London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, says that

the disposal of wastes or other matter directly arising from, or related to the exploration, exploitation and associated offshore processing of seabed mineral resources will not be covered by the provisions of this convention.

Hence, *The provision in Article III (1)(c) concerning wastes from the exploration and exploitation of the sea-bed is a major exception and it limits the scope of the Convention considerably. It was proposed by the United States and it was accepted by the Conference on the grounds that this kind of marine pollution was to be dealt with by the then forthcoming UN Conference on the Law of the Sea. Subsequent developments in this latter Conference have shown that the exception was unnecessary....*[2]

Indeed, such exception cannot be found in the 1982 UN Convention on the Law of the Sea. Further, article XII of the above mentioned 1972 London Convention mentions that

the Contracting Parties pledge themselves to promote, within the competent specialized agencies and other international bodies, measures to protect the marine environment against pollution caused by:
f. wastes or other matter directly arising from, or related to the exploration, exploitation and associated offshore processing of seabed mineral resources.

In this respect, it is worth noting that in the Barcelona Protocol related to dumping,[3] *the definition of dumping is taken directly from the London Convention. The language is almost identical and the concept is also the same*

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1 United Nations Convention on the Law of the Sea (1982) art 1(5)(b)(i).
2 GR. J. Timagenis, International Control of Marine Pollution, 1980, vol I, p.200.
3 This Barcelona Protocol is called "Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft". However, the terms "ships and aircraft" are defined in article 3 of the Protocol as meaning "waterborne or airborne craft of any type whatsoever. This expression includes air-cushioned craft and floating craft whether self-propelled or not, and platforms and other man-made structures at sea and their equipment".

with one exception in that the Protocol does not exclude the disposal of sea-bed wastes from the definition of dumping, in contrast to the London Convention.[1]

It is useful to point out that there are unilateral measures which deal with the question of pollution by dumping of waste related to the exploration and exploitation of the natural resources of the seabed and its subsoil:[2]

2.(1) *If any oil or mixture containing oil is discharged as mentioned in the following paragraphs into waters to which this section applies, then, subject to the provisions of this Act, the following shall be guilty of an offence, that is to say:*
e- *if the discharge... is the result of any operations for the exploration of the seabed and subsoil or the exploitation of their natural resources, the person carrying on the operations.*
2. *This section applies to the following waters, that is to say :*
a- *the whole of the sea within the seaward limits of the territorial waters of the United Kingdom*
b- *all other waters (including inland waters) which are within those limits and are navigable by sea going ships.*
3.(1) *If any oil to which section 1 of this Act applies,*[3] *or any mixture containing such oil, is discharged into any part of the sea*
a- *from a pipeline, or*
b- *(otherwise than from a ship) as the result of any operation for the exploration of the seabed and subsoil or the exploitation of their natural resources in a designed area,*
then, subject to the following provisions of this Act, the owner of the pipeline or, as the case may be, the person carrying on the operations shall be guilty of an offence unless the discharge was from a place of his occupation and he proves that it was due to the act of a person who was there without his permission (express or implied).

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1 GR. J. Timagenis, International Control of Marine Pollution, 1980, vol I, p.298.
2 The United Kingdom : An Act to consolidate the oil in Navigable Waters Acts 1955 to 1971 and section 5 of the Continental Shelf Act 1964.
3 Section 1 of this Act applies :
a) to crude oil, fuel oil and lubricating oil
b) to heavy diesel oil.

Further, the provisions under chapter 3 of the Marine Environmental Protection Law of the People's Republic of China, promulgated on 23 August 1982, require the offshore oil operators

(3) *to prevent oil leakage accidents; oil residues and waste oil should be recovered and not be discharged into the sea;*
(4) *not to discharge oil-containing wastes and oily mixtures emanating from oil-drilling vessels, drilling platforms and production platforms directly into the sea; the oil content of such wastes to be discharged after recovery shall not exceed the standards set by the state;*
(5) *not to dispose of oil containing industrial wastes from oil-drilling vessels, drilling platforms and production platforms in the sea area; other industrial wastes shall be disposed in such a way as not to pollute and damage the fishery waters and navigational channels;*
(6) *not to discharge oil and oily mixtures into the sea while the well is put to an oil test at sea; steps shall be taken to have it fully burned out to prevent marine pollution.*[1]

Prohibition to erect installations of nuclear weapons and other weapons of mass destruction

It is believed that military risks might be quite similar to other environmental risks as regarding pollution. The existence of nuclear weapons and weapons of mass destruction represents a threat to the environment as their use can have dangerous and highly polluting consequences. Therefore, disarmament procedures can be as useful as prevention of pollution by other means in order to safeguard the well being of mankind.

Hence, principle 26 of the Stockholm Declaration on the Human Environment (1972) states that

man and his environment must be spared the effects of nuclear weapons and all other means of mass destruction. States must strive to reach prompt agreement, in the relevant international organs, on the elimination and complete destruction of such weapons.

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[1] International Journal of Estuarine and Coastal Law, 1988, vol 3, no 2, China's Offshore Oil Development Policy and Legislation: An Overall Analysis, by Paul C. Yuan, p.129-131.

However, what are the legal implications of the use of the seabed for the construction of artificial islands and installations for military purposes?

The internal and territorial waters being under the exclusive sovereignty of the coastal state, the latter has the exclusive right to use the seabed of such waters for military purposes, whether nuclear or conventional. Nevertheless, there are certain restrictions on the coastal state's right to build fixed military installations and platforms in those waters, as such installations must not interfere with the rights of other states and, in particular, with the right of innocent passage by foreign vessels.

With respect to the continental shelf, the coastal state has exclusive rights to construct and operate artificial islands and installations for the purpose of exploring and exploiting its natural resources and for other economic purposes. Therefore, it might be argued that as military purposes are not related either to exploration and exploitation or to other economic purposes, thus the construction of artificial islands and installations for such military uses may not be carried out by the coastal state on its continental shelf.

Further and as already mentioned earlier on in this dissertation, the security interests of the coastal state and the danger of interference with its rights to explore and exploit the natural resources of its continental shelf, along with other economic rights it has over its continental shelf, make it imperative to recognize the coastal state's exclusive authority and control over any use of the shelf which would require the construction of artificial islands and installations. It therefore follows that the continental shelf of a coastal state is not free for military use by any other country as such use would not be compatible with the security interests of the coastal state and its exclusive rights over the continental shelf.

In this respect, it is interesting to note that under provision VI of the Informal Working Paper No 12, of 20 August 1974, no state or foreign nationals may establish *on or over the continental shelf of another State any military installations or devices or any other installations for whatever purposes without the consent of the coastal State.* Although no such provision exists in the 1982 UN Convention, still the meaning it contains is clearly implied in article 80 of the UN Convention whereby the coastal state has the exclusive right to construct and to authorize and regulate the construction, operation and use of artificial islands and installations for all economic purposes or structures which may

interfere with the exercise of its rights on the continental shelf. Obviously, installations for military purposes would seriously interfere with the exercise of the rights of the coastal state on its shelf.

As to the possible use of atificial islands and installations erected in the Area to place nuclear weapons and other weapons of mass destruction, the 1982 UN Convention makes it very clear that use of the Area is exclusively for peaceful purposes. Indeed, *the Area shall be open to use exclusively for peaceful purposes by all States, whether coastal or land-locked, without discrimination and without prejudice to the other provision of this Part.*[1] Further, installations erected in the Area shall be used exclusively for peaceful purposes.[2] The words "exclusively for peaceful purposes" presumably mean that installations might not be erected and used for military purposes of any kind.

Further, there exists a Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof, done at London, Moscow and Washington, 11 February 1971.[3] *The States Parties to this Treaty, Recognizing the common interest of mankind in the progress of the exploration and use of the sea-bed and the ocean floor for peaceful purposes... Convinced that this treaty constitutes a step towards a treaty on general and complete disarmament under strict and effective internatonal control, and determined to continue negotiations to this end... Have agreed as follows:*

Art I

1- The States Parties to this Treaty undertake not to emplant or emplace on the sea-bed and the ocean floor and in the subsoil thereof beyond the outer limit of a sea-bed zone, as defined in article II, any nuclear weapons or any other types of weapons of mass destruction as well as structures, launching installations or any other facilities specifically designed for storing, testing or using such weapons.
2- The undertakings of paragraph 1 of this article shall also apply to the sea-bed zone referred to in the same paragraph, except that within such sea-bed zone they

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1 United Nations Convention on the Law of the Sea (1982) art 141.
2 United Nations Convention on the Law of the Sea (1982) art 147(2)(d).
3 Entered into force on 18 May 1972. For the text of the treaty, sea United Nations Legislative Series, National Legislation and Treaties Relating to the Law of the Sea, United Nations, New York, 1980.

shall not apply either to the coastal State or to the sea-bed beneath its territorial waters.[1]

Art II
For the purpose of this Treaty, the outer limit of the sea-bed zone referred to in article I shall be coterminous with the twelve mile outer limit of the zone referred to in part II of the Convention on the Territorial Sea and the Contiguous Zone, signed at Geneva on 29 April 1958, and shall be measured in accordance with the provisions of part I, section II, of that Convention and in accordance with international law.

Thus, the prohibition to place nuclear weapons applies to the seabed beyond the outer limit of a seabed zone which is a variant of the twelve mile outer limit of the contiguous zone as referred to in the 1958 Geneva Convention on the Territorial sea and the Contiguous Zone.[2] Therefore, beyond the twelve mile limit which is exempted, the coastal state cannot erect installations to house nuclear weapons or weapons of mass destruction.

As the treaty is only concerned with nuclear weapons and weapons of mass destruction, it may therefore be assumed that conventional military equipment is permitted to be installed, by the contracting parties, on artificial islands and installations erected on their continental shelf beyond the twelve mile limit. However, the contracting parties might take into consideration the view that military purposes are not related neither to exploration and exploitation nor to other economic purposes, which makes the construction of such artificial islands

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1 Theoretically, this means that if the coastal state claims a 12 miles territorial sea, these 12 miles would be considered as an exempted zone. On the other hand, if the coastal state claims less than 12 miles territorial sea, only the breadth of the territorial sea it is claiming would be considered as an exempted zone and treaty prohibition would apply beyond the outer limit of the territorial sea but within the twelve miles limit. One should bear in mind that section 2 of article I was drafted before the new continental shelf concept which gave the coastal state exclusive jurisdiction over all installations built on its continental shelf was implemented. At that time, if a state claimed a territorial sea less then the twelve miles limit and the treaty prohibition were to apply beyond such limit, that would leave an unregulated zone where states other than the coastal state could establish nuclear weapons on fixed installations subject to the régime of the freedom of the high seas, but provided that this military use were compatible with the rights of the coastal state to explore and exploit, as no requirement that the high seas shall be reserved for peaceful purposes was then contained in the 1958 Geneva Convention on the High Seas (such provision is now included under article 88 of the 1982 UN Convention).

2 Article 33 of the 1982 UN Convention on the Law of the Sea advocates a contiguous zone extending up to 24 miles from the baseline from which the breadth of the territorial sea is measured.

and installations on their shelf, if such view is correct, contrary to the rules and regulations of the UN Convention. Nevertheless, this legal point at issue is far from being clear. Indeed, *during the 1958 Geneva Conference on the Law of the Sea a proposal was made by India to insert in the Continental Shelf Convention a provision prohibiting the use of the continental shelf "for the purpose of building military bases or installations." This proposal was not adopted,*[1] *inter alia (and at least according to the arguments put forward by several delegations) on the ground that the scope of the Convention was limited to exploration and exploitation of natural resources.*[2]

Further, *the Treaty does not define the term "weapons of mass destruction", although the United States has said that it includes chemical and biological weapons.*[3] *The term was adopted, in the full consciousness of its imprecision, by the United States as a counter to the proposal of the Soviet Union for a complete prohibition of military activities on the ocean floor introduced into the Disarmament Conference on 18 March 1969. The United States argued that the Soviet proposal, by using phrases such as "military purposes" and "other objects of a military nature", was ambiguous, and would cause difficulties of interpretation: only weapons of mass destruction were of immediate concern. The verification of a prohibition on the emplacement of these weapons would be relatively simple, whereas in the case of the Soviet proposal, verification would be virtually impossible. The United States made it clear that some conventional military defensive devices played a role in the balance of power and hence were a necessary ingredient of international peace.*[4]

As a matter of fact and in so far as pollution is concerned, nuclear weapons and weapons of mass destruction particularly should be barred from being installed on artificial islands and installations as such weapons could cause considerable

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1 Neither was it adopted in the 1982 UN Convention on the Law of the Sea.

2 W. Riphagen, International Legal Aspects of Artificial Islands, International Relations 1973, p.331.

3 "Statement of the US Representative before the CCD on 7 October 1969, 61 Dept. of State Bull. (1969), 365. One definition was offered by the Assistant Secretary of the Navy in Hearings before the subcommittee on Ocean Space of the Senate Committee on Foreign Relations, 91 Cong., 1st sess. 36 (1969): 'A weapon which is capable of and designed to kill large numbers of people and/or destroy large amounts of property' " (See D.P. O'Connell, The International Law of the Sea, 1984, vol II, p.826) Yet, there remains to define the terms "large numbers of people" and "large numbers of property": how "large" should those numbers be and what should be the scale of destruction? Is it not preferable to emphasize the design, use and effect of the weapon?

4 D.P. O'Connell, The International Law of the Sea, 1984, vol II, p.826-827.

harm to the environment. Indeed, it might be more realistic to restrict the types of weapons which might be located on fixed installations and therefore prohibit those which are less conventional and highly dangerous to the human environment.

It should be noted that *the Treaty does not ban facilities or installations erected on the seabed which are not "specifically designed" for nuclear weapons or weapons of mass destruction, although they might later be converted to such use.*[1] With respect to such situation, it should be recalled that *the United States has employed the shelf for military purposes by using the structures originally designed to extract oil and other minerals.*[2]

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1 D.P. O'Connell, The International Law of the Sea, 1984, vol II, p.828.

2 M.S. Mc Dougal and W.T. Burke, The Public Order of the Oceans, 1962, p.718.

7. State responsibility

Under international law, states may be permitted, prohibited or required to act in a specific way. In a case where their conduct is in violation of international law, they will be responsible to the international community for such conduct.

Which leads to the following question: what is international law and how is it made?

The creation of international law depends on the existence of international treaties as well as custom. Both of them are sources of international law and provide the basic principles of the international legal régime. Whether based on custom or treaty, international law is created by states.

Treaties and agreements, however, are the most important source of international law. Multilateral treaties, such as the 1982 United Nations Convention on the Law of the Sea, have primary concern in developing rules of international law in distinct fields. They create general legal norms for the future conduct of the parties. However, such treaties do not derive their binding force from being the result of a law making organ, similar to that which exists within a state (parliament...), that has the legislative power to create legally binding municipal rules.

No such organ for the creation of rules of international law exists and multilateral treaties are legally binding only because they expressly show states' consent to be bound by them.

The 1969 Vienna Convention on the Law of Treaties, in its article 12(1), deals with state consent to be bound by a treaty:

The consent of a state to be bound by a treaty is expressed by the signature of its representative when:
a) *the treaty provides that signature shall have that effect;*
b) *it is otherwise established that the negotiating states were agreed that signature should have that effect; or*
c) *the intention of the state to give that effect to the signature appears from the full powers of its representative or was expressed during the negociation.*

The way international law is made and the lack of a centralised law making organ sometimes lead to confusion. However, even where there is clear evidence of the contents of international law, as in treaties, its rules are not necessarily applicable to all states as treaties only bind parties to them. A treaty cannot, by its own force, create obligations for non parties.

Article 34 of the Vienna Convention on the Law of Treaties provides that

a treaty does not create either obligations or rights for a third state without its consent.

Hence, the states that are parties to the 1982 United Nations Convention on the Law of the Sea will be bound by the general rules laid out by that convention when it comes into force. Consequently, they will be responsible to make good any violation of international law commited by them. Further, as to the observance of treaties,

a party may not invoke the provisions of its internal law as justification for its failure to perform a treaty.[1]

Also, in the Free Zones case[2] the permanent court stated that

...it is certain that France cannot rely on her own legislation to limit the scope of her international obligations...

Custom is also very important as a source of international law. Customary law rests on the general practice of the bulk of the international community. This general practice becomes accepted as international law when there is sufficient evidence that it is recognized by states as compulsory.

Hence, could a state be accused of violating a customary rule of international law if it was objecting to it while it was being formed?

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1 Vienna Convention on the Law of Treaties (1969) art 27.
2 (1932), P.C.I.J., Ser. A/B, no. 46, p. 167.

In the Fisheries case[1], the court rejected the British argument for want of sufficient evidence. The court meant that even when there is sufficient general practice to support a usage, this usage will be inapplicable as against a state which had always denied it.

Nevertheless, rules in a treaty may become binding on third states through international custom. Article 38 of the Vienna Convention on the Law of Treaties provides that

nothing in articles 34 to 37 precludes a rule set forth in a treaty from becoming binding upon a third state as a customary rule of international law, recognized as such.

Yet, does this provision apply even where the third state has manifested an obvious refusal to accept that rule?

In any case, responsibility is regarded nowadays as a principle of international law and it is further thought that conduct can be classified as legal or illegal by reference to the established general rules creating rights and duties. The duty to make reparation for an injury committed is a long established rule and failure to abide by that rule is therefore considered as illegal. Hence acquiescence or specific consent to such a rule are unnecessary. What is more, no state may object against such a rule and, therefore, even objection from the inception of that rule will not prevent a state becoming bound by it; unlike the situation where a state which had objected a rule of customary law, whilst the rule was being formed as a result of the general practice of states, might avoid being bound by it during the successive stages of its formation and, possibly, after it is acknowledged as such by the community of states.

In a report on the Spanish Zone of Morocco Claims[2] Judge Huber said:

Responsibility is the necessary corollary of a right. All rights of an international character involve international responsibility. If the obligation in question is not met, responsibility entails the duty to make reparation.

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1 Fisheries judgment, (1951) I.C.J. Rep. 116.

2 Translation; French text, *R.I.A.A.* ii, p. 615 at p. 641.

Also in this regard, Eagleton makes the following comment:[1]

Historically, the idea of a responsibility between states may be traced back to the vague origins of rights and duties which have always been regarded as fundamental by mankind. Among these is the conviction that reparation should be made for an injury committed; and this area of responsibility, whether between persons or states, is as old as morality itself.

However, how far has the doctrine of state responsibility[2] developed in relation to the international practice of states and to the exercise of their rights and duties?

In the definition of the term responsibility, it is sometimes pointed out that injury to another state should be caused as a consequence of a state's violation of international law in order to involve the responsibility of the latter.

Answering that allegation, Anzilotti says that international responsibility derives its *raison d'etre* purely from the violation of a right of another state and every violation of a right is a damage.[3]

Indeed, as reported by the International Law Commission to the General Assembly,

the very essence of wrongfulness, as a source of responsibility, is constituted... by the contrast between the State's actual conduct and the conduct required of it under international law. [4]

Thus, international responsibility is the principle which establishes the duty of a state to make good any breach, violation or non performance of an international obligation.

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1 Eagleton, The Responsibility of States in International Law (1928), p.16.

2 The question of state responsibility is presently under consideration by the International Law Commission which has had the codification of the principles of state responsibility on its agenda since its first meating in 1949 and is still in the process of drafting treaty articles.

3 Anzilotti's *teoria generale della responsabilita dello stato nel diritto internazionale (1902).*

4 Ago, Fifth Report on State Responsibility, ii *Yb. Int'l L. Comm'n* 3, at 4, UN Doc. A/CN.4/ 291 and Add. I and 2 (1976).

Therefore, a state's responsibility will not be involved unless the state's act or conduct is in violation of the existing rules of international law to which that state is committed.

Hence, in order to assume their responsibility, states should honour their international obligations. Otherwise, in case of breach of these obligations, adequate reparation should be made for the injury or damage caused, whether damage and/or injury be material or moral.

In the Chorzow Factory case[1], the Permanent Court stated that

it is a principle of international law that the breach of an engagement involves an obligation to make reparation in an adequate form.

However, there are two requirements for responsibility to attach:

a) *conduct consisting of an action or omission is attributable to the state under international law; and*
b) *that conduct constitutes a breach of an international obligation of that state.*[2]

Thus, state responsibility is said to exist only where the act itself is imputed to the state and, where this same act is internationally unlawful.

In the arbitral jurisprudence of the Mexico - United States General Claims Commission[3], it has been stated that

under international law, apart from any convention, in order that a state may incur responsibility it is necessary that an unlawful international act be imputed to it, that is, that there exist a violation of a duty imposed by an international juridical standard.

However, how can we determine which essential conditions are to be established in order to impute an internationally wrongful act to a state as to render it liable

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1 1927 PCIJ, Ser. A, no.9 (Judgment of 26 July 1927), p.21.
2 ILC, Report to the General Assembly, ii *Yb. Int'l L Comm'n* 179, UN Doc. A/9010/ Rev. I (1973).
3 Dickson Car Wheel Co. Case (1931) (US v. Mex.), 4 R. Int'l. Arb. Awards 678.

under international law. In other words, on what grounds and under what circumstances should a particular conduct be considered as an act of state?

Breach of duty arising from the wrongful conduct of a state must be the consequence of an act or omission of any of the organs of that state. Thus, imputability or causal connexion should be established between the state's organ involved and the injury caused.

Hence, responsibility of a state could be involved where it is established that the injurious consequences are the result of a wrongful act commited by a state's organ, or where the inadequacy of the measures taken by the state's authorities, and/or the implied consent of these authorities, allow such organ to commit an act leading to harmful consequences.

It is further believed that the responsibility of the state arises out of its failure to achieve the required amount of due diligence, that is the necessary amount to prevent harm to other states. The amount of due diligence required of the state to prevent injury is that which is necessary to prevent harm as a result of conduct subject to its legal authority and control. Failure to prevent such harm represents a lack of due diligence. It is hence assumed that in order for a state to be acting within the meaning and the scope of due diligence,[1] that state must have jurisdiction and control to act.

A state might violate an international obligation it is bound to respect either by actually committing an act, or by omitting to fulfil any of its engagements under international law. Thus, a state is regarded as responsible for all acts and omissions, internationally illicit, which can be imputed to it.

Moreover, the wrongful conduct of a state may be constituted either by one single act or omission, or through a series of acts or omissions, even though such acts or omissions might not be, independently, in breach of international law. Still, when accumulated, their effects could be considered as being harmful and, consequently, internationally unlawful. (Ago's concept of composite conduct)[2]

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1 However, no definition of the concept of due dilignece can be found in court decisions and no one standard is established as due diligence is a variable standard. It is thought that the amount of due diligence required depends on the different circumstances of each specific case.

2 See Ago, Seventh Report on State Responsibility, ii *Yb. Int'l L. Comm'n* 31 at 47-8, UN Doc. A/CN.4/307 and Add. I and 2 (1978).

A state's responsibility might be engaged for complicity where its action, although in itself not in breach of an international obligation, still helps another state to commit an illicit act.

Hence, what are the legal consequences where a state assists another state in violating an international obligation or, where the conduct of the former state facilitates the breach of an international obligation by the latter state?

Answering this question, draft article 27 of the International Law Commission states:[1]

Aid or assistance by a State to another State, if it is established that it is rendered for the commission of an internationally wrongful act, carried out by the latter, itself constitutes an internationally wrongful act, even if, taken alone, such aid or assistance would not constitute the breach of an international obligation.

When stating that aid or assistance must be rendered for the commission of an internationally wrongful act, in order to engage responsibility according to the terms of draft article 27, it is obvious that the complice state has to have the clear intention of helping the beneficiary state to commit its illicit act.

By way of illustration, the European Agreement for the Prevention of Broadcasts Transmitted from Stations Outside National Territories, was opened for signature by the Council of Europe on January the 20th, 1965. The Agreement came into force on October the 19th, 1967.[2]

This Agreement also seems to cover stations established on fixed installations as article 4(b) states that nothing in the Agreement shall be deemed to prevent a contracting party from applying its provisions *to broadcasting stations installed or maintained on objects affixed to or supported by the bed of the sea.*

Under article 2 of the Agreement, the contracting parties have undertaken to make punishable as offences, acts of collaboration such as the provision and maintenance of equipment, as well as the provision of supplies or services.

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1 ILC, Report to the General Assembly, ii *Yb. Int'l L. Comm'n* 74, p.99, UN Doc. CN.4/Ser.A/1978/Add. I (Pt 2) (1978).

2 For the text, see European Treaty Series, No. 53.

However, what if this intention to facilitate the commission of an unlawful act is not quite obvious, because it is expressed by an omission rather than by effective conduct?

This sort of situation might arise in connection with marine environment, where a technologically developed state might sell its technology related to marine activities to another state, knowing that the latter might cause harm or injury to the marine environment due to costly or highly sophisticated methods to prevent such harm or injury. Where the seller state fails or omits to make sure that adequate measures are taken by the buyer state to prevent harm, the former state might be considered as an accomplice because it knew or should have known of the possible occurence of harm and, presumably, the régime of complicity ought therefore to apply.

As to the issue of whether the responsibility of the assisting state is of the same character as the responsibility of the beneficiary state, the comment of the International Law Commission, in the words of Ago, reads as follows:

...We consider that as a general rule that fact of participation, in the form of aid or assistance - in short, of complicity - in the commission of a wrongful act by another must remain under international law, as it does under internal law, an act distinct from such participation, which is characterized differently and does not necessarily have the same legal consequences.[1]

If a state can be held responsible for having committed an internationally wrongful act, what about the responsibility arising from certain lawful acts, such as nuclear activities or activities and operations related to oil and gas exploration, exploitation and production. Is there any obligation to make good any injurious consequences arising out of activities which, although not prohibited by international law, do present certain risks because of their specific nature?

Julio Barboza, Special Rapporteur, submitted the following draft articles[2] in his third report:[3]

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1 Ago, Seventh Report on State Responsibility, ii *Yb. Int'l L. Comm'n* 31, p. 60, UN Doc. A/CN.4/307 and Add. I and 2 (1978).
2 Julio Barboza, *Yrbk.* , I.L.C. (1987), vol II, part two, p.39, para. 124.
3 UN Document A/CN.4/405.

Art 1. *The present articles shall apply with respect to activities or situations which occur within the territory or control of a State and which give rise or may give rise to a physical consequence adversely affecting persons or objects and the use or enjoyment of areas within the territory or control of another State.*

Art 2. *For the purposes of the present articles:*
1. *"Situation" means a situation arising as a consequence of a human activity which gives rise or may give rise to transboundary injury.*
2. *The expression "within the territory or control"*
c) *applies beyond national jurisdictions... thus extending to any matter in respect of which a right is exercised or an interest is asserted.*
3. *"State of origin" means a State within the territory or control of which an activity or situation such as those specified in article 1 occurs.*
4. *"Affected State" means a State within the territory or control of which persons or objects or the use or enjoyment of areas are or may be affected.*

Art 3. *The requirement laid down in article 1 shall be met even where:*
a) *the State of origin and the affected State have no common borders;*
b) *the activity carried on within the territory or control of the State of origin produces effects in areas beyond national jurisdictions, in so far as such effects are in turn detrimental to persons or objects or the use or enjoyment of areas within the territory or control of the affected State.*

Art 4. *Liability*
The State of origin shall have the obligations imposed on it by the present articles provided that it knew or had means of knowing that the activity in question was carried on within its territory or in areas within its control and that it created an appreciable risk of causing transboundary injury.

Art 5. *Where States Parties to the present articles are also parties to another international agreement concerning activities or situations within the scope of the present articles, in relations between such states the present articles shall apply subject to that other international agreement.*

Art 6. *The fact that the present articles do not specify circumstances in which the occurence of transboundary injury arises from a wrongful act or omission of the*

State of origin shall be without prejudice to the operation of any other rule of international law.

There is an important difference between state responsibility following the breach of an obligation and the draft articles proposed by the Special Rapporteur.

Under part one of the draft articles on state responsibility[1], violation of an obligation is sufficient to engage the liability of a state, existence of actual harm not being a necessary condition. However, as regards the topic of international liability for injurious consequences arising out of acts not prohibited by international law, existence of actual harm is an essential condition.

The Special Rapporteur pointed out that draft article 1 is the key provision, as it sets out the following three distinct conditions which have to be met, for a given activity or situation to fall within the scope of the above mentioned articles:

1. There is the "transboundary effect", which means, for the purposes of the present draft articles,[2]

effects which arise as a physical consequence of an activity or situation within the territory or control of a State of origin and which affect persons or objects or the use or enjoyment of areas within the territory or control of an affected State.

Thus, the effects felt within the territory or control of one state must have their origin in an activity or situation which had occured within the territory or control of another state.

2. An important element in engaging liability under the present topic is the causal relationship between the activity or situation and the adverse effects. Further, it is only in the physical world and, accordingly, through a physical event that such a causal relationship can be established with certainty.

3. The physical event must <u>adversely</u> affect persons or objects and the use or enjoyment of areas within the territory or control of another state. Thus, the affected state might not sue the state of origin following an activity resulting in a beneficial effect, even though the former state does not appreciate such a result.

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1 *Yrbk* 1980, vol II, part two, p.30 *et seq.*

2 Julio Barboza, *Yrbk.* , I.L.C. (1987), vol II, part two, p.39, para. 124, art. 2 section 5.

States are more and more concerned about harmful effects occuring in areas beyond national jurisdictions. Indeed, one of the most important results of the 1972 Stockholm Conference on the Human Environment is the general acceptance, in principle 21 of the Stockholm Declaration, of the principle of state responsibility for environmental damage beyond territorial limits.

In an attempt to respond to that concern, article 3 of the draft articles deals with certain specific cases of transboundary effects. In particular, subparagraph (b) applies where the activity carried on within the territory or control of the state of origin produces effects in areas beyond national jurisdictions in which the affected state has a specific interest.

Further, as article 2, paragraph 2, subparagraph (c) states that the expression "within the territory or control" applies beyond national jurisdictions, therefore it could be said that article 3(b) refers to areas beyond national jurisdiction which are affected by an activity or situation also occuring beyond such jurisdiction.

Furthermore, in reference to draft article 1, where the effects felt within the territory or control of a state must have their origin in an activity or situation which occured within the territory or control of another state, any effect originating in areas beyond national jurisdiction and affecting a state's own territory would also have the same transboundary nature.

Thus, it appears that the draft articles contemplate activities on the high seas or on the seabed beyond national jurisdiction, as well as in areas within which international law admits certain exclusive rights and jurisdiction to coastal states, (example: the exclusive economic zone and the area subject to the régime of the continental shelf) while reserving other specific rights to other states, such as freedom of navigation or freedom to lay submarine cables and pipelines.

Article 4 sets out two conditions which have to be met to engage the responsibility which the draft articles impose upon states:

1. The state of origin had to have knowledge or means of knowing that the activity in question is taking place or is about to take place in its territory.

2. The activity had to create an appreciable risk.

Referring to condition one, the Special Rapporteur considers that knowledge on the part of the state of origin, or the presumption that it had such knowledge because it possessed the means of having it, constitutes the basis and justification for responsibility in the matter.

As to the second condition, it has to be pointed out that the expression "appreciable risk" means that the risk involved must be of some magnitude, therefore appreciable and clearly visible or easy to deduce from the properties of the things or materials used.

The following situation therefore results from draft article 4: where a state has the means of knowing of an activity and, where it has the means of knowing whether that activity is likely to create an appreciable risk, the state's liability would be engaged even if it did not know what it should have known. On the other hand, where a state does not have the means of knowing of the above, it will not be held responsible as it is assumed that it could not have known of that activity or the risk it entailed.

It should be pointed out at this stage that although the above mentioned draft articles of the International Law Commission have a non binding status since they do not amount to state practice and have not yet entered into force, still they exert some influence on the legal opinion of writers, courts and states as an impartial and objective statement of the law made by highly qualified international jurists who take into account actual legal problems and investigate situations in view of developing and determining what is the right rule of international law. Accordingly, professor Parry made the following comment:

Reverting now to the Commission, we have seen that its drafts, even when accorded the least authoritative form of expression available, represent the teachings of the most highly qualified publicists.[1]

Indeed, the considerable work of the International Law Commission related to the codification of the principles of international responsibility is at least equivalent to the writings of the most distinguished international lawyers and might therefore be regarded as evidence of existing trends of international law. Parry indeed goes on to argue that, because the Commission has an international

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1 Parry, The Sources and Evidences of International Law, 1965, p.114.

quality to it and because its members constitute a combination of scholars and practitioners of international law, its output may be accorded a higher status than that given to the writings of publicists.[1] Nevertheless, the work of the Commission might constitute in the future a source of international obligations, as soon as its outcome is accepted by states and adopted by them in the form of a multilateral convention. Although adherence might not be universal, such multilateral convention could also be used as legal reference by non parties, thus promoting the formation of new customary international law.

The above description of the law with respect to state responsibility in general is meant to give a better view of the topic further discussed hereinafter, namely, the responsibility of states for the construction and operation of artificial islands and installations.

Hence, with respect to the more specific régime of state responsibility related to the construction and operation of artificial islands and installations, the following ideas will be developed in connection with marine pollution, the main aspects of which have been considered previously, as the international community is now most concerned about the dangers of pollution of the marine environment and is aware of the need to ensure that remedial measures are taken and adequate compensation made available to persons who suffer damage as a result of such pollution.

Nevertheless, the characteristics of a legal system of marine international responsibility that applies among states for pollution damage to the marine environment suffer from a lack of consistency and are yet to mature in a more comprehensive, sophisticated and effective régime as direct international authority still has a limited scope with respect to the protection of the marine environment.

Once a pollution incident occurs as a result of the operation of an offshore installation, some important legal questions must be dealt with, first with respect to imputability under international law and, second, with respect to the legal implications where an unlawful international act is imputed to a particular state.

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[1] Sir Ian Sinclair, The International Law Commission, 1987, p.120-127.

As to imputability, it *is the legal fiction which assimilates the actions or omissions of state officials to the state itself and which renders the state liable for damage resulting to the property or person of an alien.*[1]

Indeed, as the state is an abstract entity, then in order to impute a particular conduct to a particular state, such conduct should be attributed to a person or persons acting on behalf of that state. Hence, the doctrine of state responsibility depends on the link that exists between the state and the persons committing the unlawful act or omission affecting other states. The state is responsible only for acts committed by its representatives or authorized officials since only such acts can be attributed to it. In other words, international responsibility would attach following attribution to a state of the acts of individuals or groups vested with its authority, i.e. its organs and representatives.

(However, in certain situations a breach of an international obligation attributable to a state may not give rise to responsibility. Generally, force majeure, self defence and state of necessity are the circumstances which may preclude the inference of wrongfulness giving rise to responsibility.[2])

Hence, where an artificial island or installation is operated by a state organ or representative and, where as a result of such operation a pollution incident occurs, the state is held responsible for injuries caused to the marine environment of other states following such pollution incident. Indeed, the legal duties of the state involved in such a breach of environmental engagement include adequate reparation for non performance of its international obligation to protect the marine environment.[3] In the words of the Permanent Court of Justice,

the essential principle contained in the notion of an illegal act -a principle which seems to be established by international practice and in particular by the decisions of arbitral tribunals- is that reparation must, as far as possible, wipe out all the consequences of the illegal act and re-establish the situation which would, in all probability, have existed if that act had not been committed.[4]

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1 Malcolm N. Shaw, International Law, 1986, second edition, p.411.
2 Malcolm N. Shaw, International Law, 1986, second edition, p.417.
3 Article 192 of the 1982 UN Convention on the Law of the Sea clearly provides that states have the obligation to protect and preserve the marine environment.
4 The Chorzow Factory Case (Merits), (1928) PCIJ Ser. A, no.17, p.47.

Thus, what might the term "reparation" mean with respect to marine pollution and environmental damage following an incident related to an offshore installation?

Presumably, the breaching state may be required to take certain measures in view to eliminate the effects of the breach and restore the situation possibly as it existed before the breach occured. Accordingly, the breaching state may have to compensate for remedial measures taken following the breach, such as cleaning up operations undertaken to restore the marine environment as close as possible to its state before the pollution incident occured. Further, the breaching state may be required to compensate for the property damaged as a consequence of the breach, where restitution in kind is not feasible under the circumstances of the case. Indeed, if restitution in kind is not possible, the Permanent Court of Justice provides for

payment of a sum corresponding to the value which a restitution in kind would bear; the award if need be, of damages for loss sustained which would not be covered by restitution in kind or payment in place of it -such are the principles which should serve to determine the amount of compensation due for an act contrary to international law.[1]

Thus, the breaching state may also have to compensate for loss sustained as a consequence of the contamination of the marine environment as a result of a discharge of oil from an offshore installation. Indeed, such contamination may cause considerable harm to fishing activities, for instance, hence inflicting economic losses.

However, what if the offshore installation is owned and operated by a private company. In what circumstances, if any, should the wrongful conduct of a private commercial entity be attributed to the state?

It would seem that *if the state itself views a matter as sufficiently important to treat it as a matter of public concern, it should be respected as public by the rest of the world. The state's own conduct provides the best evidence of the state's definition of public versus private commercial conduct. The actions of the centralized state are, by definition, taken pursuant to public authority and in pursuit of public objectives. When the state elects to act in a central role in a*

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1 The Chorzow Factory Case (Merits), (1928) PCIJ Ser. A, no.17, p.47.

commercial enterprise, through organization, ownership, capitalization, receipt of profits, administration and similar involvements, that action dictates that the entity be treated, at least for purposes of international attribution, as a "public" representative of the state.[1]

Moreover, what if the private commercial entity is legally distinct from the state? Indeed, *the question is different when the actor engaged in the harm-producing enterprise is a private individual... the conduct of private persons subject to the jurisdiction of the state is never attributed to the state.*[2]

Nevertheless, it is thought that a state may incur responsibility where a pollution incident occurs as a result of the operation of an offshore installation located within that state's national jurisdiction because, although such offshore installation might be operated by a privately owned enterprise, pollution of the marine environment in itself is a violation of the state's international duties and obligations related to the protection of the marine environment. Moreover, vis à vis the international community, it is the state which is legally deemed to be responsible for pollution incidents due to the operation of an offshore installation located within its national jurisdiction, since it is the state which virtually performs international environmental obligations either because it is bound by treaties it is party to or because it has to respect generally accepted rules, principles and standards imposed by international customary law.

Hence, a state ought to establish national legislation in view to protect the marine environment, taking into account internationally agreed rules and regulations. If, however, a state fails to provide legislation necessary in order to fulfill its international obligations, it then may be held responsible. Also, a state may be held reponsible for positive acts of legislation in contradiction to international law.[3]

It has been stated, with respect to the responsibility of states regarding offshore installations under their jurisdiction, that *the coastal State, under whose supervision oil exploitation on the continental shelf adjacent to its coasts takes*

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1 Brian D. Smith, State Responsibility and the Marine Environment, 1988, p.30.
2 Brian D. Smith, State Responsibility and the Marine Environment, 1988, p.127.
3 Eagleton, The Responsibility of States in International Law 22 (1928), p.66.

place, takes on an international responsibility to prevent oil pollution in the interest of other States, whose fisheries or shores may be damaged by the oil.[1]

Also, states shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other states and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights.[2]

Further, in part XII of the 1982 UN Convention, section 9 relates to the question of responsibility and liability. Article 235 provides the following:

1. *States are responsible for the fulfilment of their international 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 pollution of the marine environment by natural or juridical persons under their jurisdiction.*

Hence, a state shall be liable where damage by pollution is caused to the marine environment by natural or juridical persons authorized by it to construct and operate artificial islands and installations in the various belts of waters subject ot its jurisdiction and control. (The scope of this article is very wide as it includes the protection of the marine environment as a whole, which is not limited to any zone or area of the seas; it also includes all causes of pollution as nothing is specified to the contrary.)

Furthermore, principle 7 of the 1972 Stockholm Declaration on the Human Environment provides that states must take all possible steps to prevent pollution of the seas and, principle 21 provides that states have sovereign rights to exploit their own resources and are responsible for ensuring that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction. Thus, the right of each state to manage its own resources requires a corresponding responsibility

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1 M.W. Mouton, The Continental Shelf, 1952, p.173.

2 United Nations Convention on the Law of the Sea (1982) art 194(2).

that the resources be managed in such a way as to prevent damage to the environment beyond the state's jurisdiction and control.

Moreover, article 193 of the 1982 UN Convention provides that states have the sovereign right to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment.

Hence, there exists an international obligation that states should not harm the marine environment but have the duty, under international law, to protect such environment; therefore, transgression of this duty would give rise to the responsibility of the state involved in such transgression. Thus, in order for a state to avoid incidents which might trigger its international responsibility as a consequence of transgressions committed by privately owned enterprises acting under its authority, such state should enforce its municipal laws and regulations according to article 214 of the 1982 UN Convention relating to enforcement with respect to pollution from seabed activities. Article 214 reads as follows:

States shall enforce their laws and regulations... and shall adopt laws and regulations and take other measures necessary to implement applicable international rules and standards established through competent international organizations or diplomatic conference to prevent, reduce and control pollution of the marine environment arising from or in connection with sea-bed activities subject to their jurisdiction and from artificial islands, installations and structures under their jurisdiction....

To sum up, where a state is in a position to exercise its effective jurisdiction and authority, it ought to prevent and control any wrongful conduct emanating from the operation of artificial islands and installations on the waters under its jurisdiction and control, even where owned by private enterprises. In other words, a state should bear responsibility for damage to the marine environment of other states caused as a result of the operation of offshore installations, whether such installations are the property of the state or where they are owned by its nationals or other individuals or groups acting under its jurisdiction and control. Indeed, the state's obligation to prevent damage by pollution to the marine environment of other states applies to activities carried out by such state and to activities undertaken by private individuals or companies in all locations under the legal authority and jurisdiction of that state.

This principle can be seen in the decision of the arbitral tribunal in the Trail Smelter case, between the United States and Canada, relating to the duties of the latter state regarding damage which had occured in US territory from fumes emanating and drifting from a private smelting operation in Trail, British Columbia, whereby it was held that

under the principles of international law, as well as of the law of the United States, no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence.[1]

This view is further reflected by the above mentioned draft articles of the International Law Commission regarding International Liability for Injurious Consequences Arising Out of Acts Not Prohibited by International Law, which would apply with respect to activities or situations which occur within the territory or control of a state and which give rise or may give rise to a physical consequence adversely affecting persons or objects and the use or enjoyment of areas within the territory or control of another state.

However, where as a result of the operation of an artificial island or installation harm is caused to the marine environment beyond any state's jurisdiction and, where such harm affects the interests of other users of the high seas, it is thought that the state which has jurisdiction over such artificial island or installation would bear responsibility for the harm caused.

The following comment relating to injury from land based pollution may also be relevant with respect to offshore pollution:

If the injury from land-based pollution of the high seas was to ships or persons engaged in legitimate activities (such as navigation or fishing), the situs of harm (state territory or the high seas) would make little difference because it is clear

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1 Decision of the Trail Smelter Arbitral Tribunal (1941), (US v. Canada), 3 R. Int'l Arb. Awards 1905, n.23, p.1965.

that international law entitles States to protect their vessels and nationals from injury caused by other States on the high seas.[1]

Nevertheless, the rights and interests of other users of the high seas are not merely limited to ships and persons but may further extend to the activities such persons and ships are engaged in, such as fishing.

Further, article 208 of the 1982 UN Convention on the Law of the Sea provides that coastal states shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment arising from or in connection with seabed activities subject to their jurisdiction and from artificial islands, installations and structures under their jurisdiction. Again, the terms "marine environment" have a comprehensive scope and would therefore contain the various maritime zones altogether, including the high seas beyond national jurisdiction.

Furthermore, states shall take all measures necessary to ensure that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights.[2]

In addition, the following recommendations of the 1972 Stockholm Conference evidence the existence of customary duties and obligations with respect to the prevention of environmental injury to the high seas beyond national jurisdiction:

1. *Every State has a duty to protect and preserve the marine environment and, in particular, to prevent pollution that may affect areas where an internationally shared resource is located.*
5. *States should assume joint responsibility for the preservation of the marine environment beyond the limits of national jurisdiction.*
19. *States should cooperate in the appropriate international forum to ensure that activities related to the exploration and exploitation of the seabed and the ocean floor beyond the limits of national jurisdiction shall not result in pollution of the marine environment.*

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1 Hickey, Custom and Land-Based Pollution of the High Seas, 15 San Diego L. Rev. 409, (1978), p.426-431.
2 United Nations Convention on the Law of the Sea (1982) art 194(2).

Yet, one of the most important results of the 1972 Stockholm Conference on the Human Environment is the general acceptance, in principle 21 of the Stockholm Declaration, of the principle of state responsibility for environmental damage beyond territorial limits. Indeed, principle 21 relates to the sovereign rights of states to exploit their own resources and, more importantly, lays stress on their responsibility not to cause damage to areas beyond their national jurisdiction.

Principle 21 reads as follows:

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

It should be noted at this stage that pollution causing damage to the marine environment would be considered as unlawful even where it cannot be proved, at the time where the pollution incident occured, that such pollution has caused any further damage to a state, its nationals or their property. Indeed, if it is thought that international responsibility derives its *raison d'être* purely from the violation of a right of another state and, if it is further accepted that every state has the right to an unpolluted marine environment, then the conduct of the state causing damage to such environment would be contrary to the conduct required of it under international law and would therefore, in itself, constitute a breach of an international obligation of that state, such breach being considered as unlawful and hence as a source of responsibility.

Nevertheless, the consequences of the breach by a state of its obligation to prevent harm to the high seas beyond national jurisdiction are not clear in some respects. It might be understood that compensation would be limited to a particular damage suffered by a claiming state or states. If there is no proof of harm or injury suffered by a particular state, the question remains whether action for compensation for the breach of an international obligation may still be appropriate and, if such action is appropriate, how should compensation be determined and awarded for pollution affecting the marine environment beyond national jurisdiction and yet regarded as a violation of the common rights of the

whole international community, notwithstanding the absence of direct injury to another state or states as a result of such pollution.

Although there might not be an immediate answer as to the rules for compensation where such situation occurs, it might still be suggested that action for such compensation should be permitted as *it is nowadays accepted as an undeniable fact that the earth's biosphere represents a single indivisible system characterized by the interrelation of its various functional and ecological subsystems, the disruption of any one of which promotes the breakdown and destabilization of another.*[1]

Having established that a state is responsible for all pollution incidents occuring as a result of offshore installations operating within the areas under its jurisdiction and control, the question remains as to the régime of responsibility that applies with respect to the marine environment. Is there any requirement of intent or negligence in view to determine a state's responsibility with respect to marine environmental obligations and duties. In other words, does the principle of strict liability[2] apply with respect to the conduct of states in the marine environment and, further, does the same principle of strict liability apply to private conduct subject to the state's authority?

The significant work of the International Law Commission regarding International Liability for Injurious Consequences Arising Out of Acts Not Prohibited by International Law asserts the emergence of a rule of strict liability with respect to environmental injury. In his comments the Special Rapporteur Quentin Baxter stated that wrongfulness must be determined by reference to harm; hence, by implication, when proscribed limits of harm are exceeded, injury is wrongful regardless of fault.[3] In other words, where injury reaches or exceeds a serious or unreasonable level, compensation would then be due. Therefore, it is assumed that only serious harm, in the absence of fault, is prohibited according to the modern trend of international law. Accordingly, a standard of performance is required with respect to environmental duties and obligations in view to prevent

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1 Handl, Territorial Sovereignty and the Problem of Transnational Pollution, 69 Am. J. Int'l L. 50, (1976), p.53.

2 That is liability which is not based on fault, whereby proof of the fact and cause of the harm will permit a claim unless the defendant can establish certain exceptions such as Act of God or independent act by a third party.

3 See Brian D. Smith, State Responsibility and the Marine Environment, 1988, p.122.

environmental injury. Failure to comply with such a standard and, accordingly, failure to prevent injury triggers the principle of strict liability.

Thus, where environmental harm is attributable to the state itself, responsibility would arise either in the event of fault or without reference to fault where the harm is of a serious nature, as such harm was produced in areas under the jurisdiction and control of the state and from activities of which it not only had knowledge, but which were carried out by it. Thus, where the state itself is the operator of an artificial island or installation and where, as a result of such operation environmental injury occurs, the régime of strict responsibility applies unreservedly as the state, which exercises absolute authority over its own operations and activities, has failed to comply with the standard of performance required and, hence, has failed to prevent injury.

Quentin Baxter, in the Third Report on International Liability for Injurious Consequences Arising Out of Acts Not Prohibited by International Law,[1] made the following comment:

At the very end of the day... when a loss or injury has occured that nobody foresaw there is a commitment, in the nature of strict liability, to make good the loss. The Special Rapporteur finds it hard to see how it could be otherwise, taking into account the realities of transboundary dangers and relations between States, and the existing elements of a developing chapter of international law. Every State needs to feel that law assures it large areas of liberty and initiative in its own territory, and more controlled areas of liberty and initiative in international sea and air space; but every State also needs to feel that the law does not leave it at the mercy of developers beyond its own borders.

Further, state practice indicates that states which have participated in the 1976 London Convention on Civil Liability for Oil Pollution Damage Resulting from Exploration for and Exploitation of Seabed Mineral Resources, discussed hereafter, *have subjected themselves, and not only private individuals subject to their uniform laws, to the consequences of the regime of a strict standard of responsibility. A state may find itself in a position of civil liability either as the "person" or "operator"*[2] *engaged in the injurious activity...*[3]

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1 UN Gen. Ass. Doc. A/CN.4/360, 23 June 1982, p.19.

2 See the London Convention on Civil Liability for Oil Pollution Damage Resulting from Exploration for and Exploitation of Seabed Mineral Resources, article 1(3)&(5).

Indeed, in the 1976 London Convention, liability exists without reference to fault. The wording of article 3 states the principle of strict liability as it provides the following:

1) ...*The operator*[1] *of the installation at the time of an incident shall be liable for any pollution damage resulting from the incident....*

3) *No liability for pollution damage shall attach to the operator if he proves that the damage resulted from an act of war, hostilities, civil war, insurrection, or a natural phenomenon of an exceptional, inevitable and irresistible character.*

4) *No liability for pollution damage shall attach to the operator of an abandoned well if he proves that the incident which caused the damage occured more than five years after the date on which the well was abandoned under the authority and in accordance with the requirements of the Controlling State. Where a well has been abandoned in other circumstances, the liability of the operator shall be governed by the applicable national law.*

5) *If the operator proves that the pollution damage resulted wholly or partly either from an act or omission done with intent to cause damage by the person who suffered the damage or from the negligence of that person, the operator may be exonerated wholly or partly from his liability to such person.*

Hence, the régime of strict liability being incorporated in such a significant multilateral convention related to damage caused as a result of the exploration and exploitation of the mineral resources of the seabed, evidence the emergence and the acceptance of such a régime by an important number of states, involved in the construction of offshore installations, in their international practice.

As to whether the principle of strict responsibility applies to private conduct subject to the state's authority, it appears that the answer is yes according to the

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[3] Brian D. Smith, State Responsibility and the Marine Environment, 1988, p.115.

[1] "Operator" means the person designated as operator for the purposes of this Convention by the Controlling State, or, in the absence of such designation, the person who is in overall control of the activities carried on at the installation. "Person" means any individual or partnership or any public or private body, whether corporate or not, including a State or any of its constituent subdivisions. See article 1(3)&(5) of the Convention on Civil Liability.

above mentioned Convention on Civil Liability. Further, *essentially all formulations of strict responsibility in an environmental context have in common the assumption that private activity within state territory is subject to the same strict standard as state conduct.*[1]

Further,*The arbitral award in the Trail Smelter Case is... frequently noted in support of the principle of strict environmental responsibility. The net result of the arbitration was Canadian responsibility for the injury to US interests caused by the flight of sulphur fumes from a private plant situated in British Columbia. It is certainly true that the language of the award appears strictly to attribute responsibility as a consequence of transboundary environmental injury -without any reference to intent or a failure to act with due care. Yet, the evidentiary value of the decision is severely undercut by the fact that the tribunal was not charged to consider, and did not consider, the basis of Canadian responsibility for breach of the preventive obligation. The compromis presented to the Tribunal assumed that Canada was responsible for the injuries experienced in the US. It is, then, perhaps as an instance of state practice, rather than authoritative judicial decision, that Trail Smelter is best cited as evidence of strict responsibility for environmental injury.*[2]

Thus, in so far as states exercise authority and jurisdiction over their territory and over certain sea areas adjacent to their coasts, they are bound to exercise high standards of diligence with respect to private activities originating from those areas within their jurisdiction in view to prevent such activities from causing environmental harm to other states. Indeed, *the obligation of the state to exercise due diligence to prevent environmental injury extends to all private conduct, territorial or extraterritorial, subject to the force of its legal authority.*[3] Moreover, it is *the obligation of the state to exercise its authority with due diligence to prevent conduct which, if the state were the actor, would trigger responsibility.*[4] Therefore, *one might expect that only fault arising out of a failure to exercise due diligence would conclude in state responsibility for any private activity causing environmental injury.*[5] However, where impermissible environmental injury is concerned the principle of strict responsibility applies, whereby the diligence due

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1 Brian D. Smith, State Responsibility and the Marine Environment, 1988, p.127.
2 Brian D. Smith, State Responsibility and the Marine Environment, 1988, p.113.
3 Brian D. Smith, State Responsibility and the Marine Environment, 1988, p.127.
4 Brian D. Smith, State Responsibility and the Marine Environment, 1988, p.127.
5 Brian D. Smith, State Responsibility and the Marine Environment, 1988, p.127.

is elevated in the circumstance of strict responsibility to a strict standard; the state must do that which is necessary to prevent. A failure to prevent is a failure of due diligence.[1]

With respect to the construction of and responsibility for installations in the internal waters of a state, its territorial sea, continental shelf and EEZ, as well as in the Area, it is worth mentioning the following comment made by D.W. Bowett:[2]

The link between the exclusive right of the coastal State to authorise the establishment of islands and installations in internal waters, the territorial sea, the continental shelf and the EEZ and the assumption of responsibility for any harm done thereby to the interests of other States is inescapable. Indeed, in so far as specific obligations are imposed on the coastal State with a view to safeguarding the interests of other States, this necessarily implies State responsibility for any breach. It is probable that, if only because of the coastal State's exclusive jurisdiction, that State will bear general responsibility for any damage caused, whether or not its conduct involves a breach of the specific provisions built into the proposed Law of the Sea Conventions. This will arise not because the islands or installations are regarded as "quasi-territorial" but more because the State's jurisdiction over the shelf and EEZ is quasi-territorial in nature.
The same cannot be true of islands or installations in the area beyond national jurisdiction, and here responsibility will arise either through breach of the conditions or standards imposed by the Authority or on the basis that the constructing State must assume responsibility for that construction (or for authorising its construction). The latter will be the sole basis for responsibility where the island or installation has no connection with activities falling under the supervision of the Authority.

Indeed, as to the construction of installations in the Area for exploration and exploitation purposes, authorization should be granted by the International Seabed Authority which might also delegate jurisdiction to a state which will exercise its authority and control over the installation. Yet, if article 139(1) and (2) of the 1982 UN Convention on the Law of the Sea is taken into account, the régime of strict liability would not apply to seabed resource exploitation. Indeed,

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1 Brian D. Smith, State Responsibility and the Marine Environment, 1988, p.128.
2 D.W. Bowett, The Legal Regime of Islands in International Law, 1979, p.134-135.

the above paragraphs provide that state parties shall have the responsibility to ensure that activities in the Area, whether carried out by state parties, or state enterprises or natural or juridical persons which possess the nationality of state parties or are effectively controlled by them or their nationals, shall be carried out in conformity with part XI related to the Area. Further, damage caused by the failure of a state party to carry out its responsibilities under part XI shall entail liability. However, a state party shall not be liable for damage caused by any failure to comply with part XI by a person whom it has sponsored if the state party has taken all necessary and appropriate measures to secure effective compliance with the relevant provisions of part XI and the rules, regulations and procedures of the Authority.

Hence, it is understood that the régime adopted in the UN Convention relating to responsibility for activities in the Area requires due diligence for compliance with the rules and regulations applied in the Area and does not advocate the principle of strict liability. The question remains whether the Authority itself might bear international responsibility for failure to exercise due diligence and, accordingly, to comply with the standards and conditions related to the Area where an installation is operated under its direct control.

Notwithstanding the above situation, having established that, with respect to marine environmental pollution, the régime of strict responsibility applies to a state with respect to installations operated by its public companies or by private entities acting within the state's jurisdiction and control, the practical question remains as to who should pay to compensate for pollution damage where an artificial island or installation is operated by a privately owned company and where, as a result of the operation of such installation, a pollution incident occurs?

One may assume that state responsibility for payment of sums due pursuant to the strict test of liability would arise in any case in which compensation by a private operator was precluded due to the state's failure to perform its treaty obligations, e.g. failing to require adequate financial security or to legislate effective substantive or procedural rules.[1]

Hence, a state would be liable to pay only where the private operator which is in charge of the offshore installation at the time where the pollution incident

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1 Brian D. Smith, State Responsibility and the Marine Environment, 1988, p.115-116.

occured and, therefore, which is responsible for the pollution incident in the first place, fails to effect any payment as a result of the failure of the state authorizing the operations to require financial securities or to legislate and implement effective legislation to provide for compensation in case of pollution incidents.

Accordingly, the governments of Belgium, Denmark, France, the Federal Republic of Germany, Ireland, the Netherlands, Norway, Sweden and the United Kingdom, conscious of the dangers of oil pollution posed by the exploration for and exploitation of certain seabed mineral resources, convinced of the need to ensure that adequate compensation is available to persons who suffer damage caused by such pollution, and desiring to adopt uniform rules and procedures for determining questions of liability and providing adequate compensation in such cases, have participated in the Convention on Civil Liability for Oil Pollution Damage Resulting from Exploration for and Exploitation of Seabed Mineral Resources.

Article 6 of the Convention reads as follows:

1) *The operator shall be entitled to limit his liability under this Convention for each installation and each incident to the amount of 30 million Special Drawing Rights*[1] *until five years have elapsed from the date on which the Convention is opened for signature and to the amount of 40 million Special Drawing Rights thereafter.*

3) *Where in the case of any one installation more than one operator is liable under this Convention, the aggregate liability of all of them in respect of any one incident shall not exceed the highest amount that could be awarded against any of them, but none of them shall be liable for an amount in excess of the limit applicable to him.*

4) *The operator shall not be entitled to limit his liability if it is proved that the pollution damage occured as a result of an act or omission by the operator*

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1 "Special Drawing Rights" means Special Drawing Rights as defined by the International Monetary Fund and used for its own operations and transactions, see article 1(9) of the Convention. However, article 15 of the same Convention provides that the Convention shall not prevent a state from providing for unlimited liability or a higher limit of liability than that currently applicable under article 6 for pollution damage caused by installations for which it is the controlling state and suffered in that state or in another state party.

himself, done deliberately with actual knowledge that pollution damage would result.

5) *For the purpose of availing himself of the benefit of limitation to which he may be entitled under paragraph 1 of this Article, the operator shall constitute a fund for the total sum representing the limit of his liability with the court or other competent authority of any one of the States Parties in which action is brought... The fund can be constituted either by depositing the sum or by producing a bank guarantee or other guarantee, acceptable under the legislation of the State Party where the fund is constituted, and considered to be adequate by the court or other competent authority.*

6) *The fund shall be distributed among the claimants in proportion to the amounts of their established claims.*

Further, article 8(1) of the same Convention provides that to cover his potential liability under the Convention, the operator of the installation shall be required to have and maintain insurance or other financial security (where such operator is not a state party to the Convention because where the operator is a state party, it shall not be required to maintain insurance or other financial security to cover its liability[1]) to such amount, of such type and on such terms as the controlling state shall specify, provided that that amount shall not be less than 22 million Special Drawing Rights until five years have elapsed from the date on which the Convention is opened for signature and not less than 35 million Special Drawing Rights thereafter.

Paragraph 4 of the same article states that any sums provided by insurance or by other financial security maintained in accordance with paragraph 1 of that article shall be available in the first place for the satisfaction of claims under the Convention. Nevertheless, as operators of artificial islands and installations are entitled to limit their liability under the Convention and, bearing in mind that the amounts of claims for pollution damage may well exceed the amounts designated under the Convention, the question remains as to how should the claims exceeding the limitation be settled. An appropriate answer might come from the example set by the International Convention on the Establishment of

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1 See article 8(5) of the Convention on Civil Liability.

an International Fund for Compensation for Oil Pollution Damage (1971)[1], which came into operation in 1978 and which has at its aim the supplementing of the Convention on Civil Liability for Oil Pollution Damage (1969)[2] by the establishment of an international fund, provided by mandatory contributions from the oil companies, for the coverage of shipowners' liability beyond the Civil Liability Convention's limits or where no recovery could be made under the Convention due to any of the exceptions it provides.

Liability for pollution damage may fall upon the operator of an artificial island or installation as a result of a contract between the coastal state issuing the licence and such operator, or as a result of the laws and regulations implemented by the coastal state. As a matter of fact, the countries which issue licences to erect and operate artificial islands or installations, especially offshore facilities for the purpose of exploration, exploitation and production of oil and gas, usually impose liabilities for pollution damage and clean up operations upon the operator, following an escape or discharge of oil, oily mixtures or natural gas liquids from offshore facilities.

By way of illustration, the law[3] provides, under the chapter on legal liability of the Marine Environmental Protection Law of the People's Republic of China, *that those who violate the law resulting in real or potential pollution and damage to the marine environment shall be subject to the sanction of the competent authorities which will set a deadline for elimination and control of the pollution and will require payment of fees and damages to the state... The violator of the law may be subject to criminal prosecution if he is directly responsible for causing pollution and damage to the marine environment resulting in severe loss to private or public property or deaths....*[4]

Moreover, as a result of a greater concern about the marine environment, there has been an urgent need to take better precautions and observe higher safety

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1 See further the Protocol of 1984 to Amend the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1971.
2 Which entered into force in 1975. See further the Protocol of 1984 to Amend the International Convention on Civil Liability for Oil Pollution Damage 1969.
3 It should be noted that the present law is a general framework law with the emphasis on pollution prevention and protection of the marine environment in general. See International Journal of Estuarine and Coastal Law, 1988, vol 3, no 2, China's Offshore Oil Development Policy and Legislation: An Overall Analysis, by Paul C. Yuan, p.129-131.
4 International Journal of Estuarine and Coastal Law, 1988, vol 3, no 2, China's Offshore Oil Development Policy and Legislation: An Overall Analysis, by Paul C. Yuan, p.129-131.

standards to reduce and control the risks of oil pollution damage resulting from the operation of offshore facilities. However, as accidents could still occur and, in view to provide an orderly means for compensation and ensure that proper action is taken to remedy the harm caused as a consequence of such accidents, the operators of offshore oil facilities have established an agreement to ensure that claims for pollution damage arising as a result of offshore exploration and production operations are met and the cost of remedial measures reimbursed in the event of an offshore pollution incident.

Under the Offshore Pollution Liability Agreement (referred to as OPOL) dated 4th September 1974 and which came into effect on 1st May 1975, operating companies agree to guarantee the payment of any sums which are due from one of the participants to claimants in the event such participant fails to satisfy its obligations to claimants after the exercise and exhaustion by claimants of all rights against said participant available to them, provided that said guarantee shall not apply with respect to any participant which, at the time of the incident or incidents, has failed to establish or maintain financial responsibility, or with respect to a participant which status as a party to the Agreement[1] has terminated at such time.[2]

Under clause IV of OPOL,

A. *If a Discharge of Oil*[3] *occurs from one or more Designated Offshore Facilities*[4], *and if, as a result, any Public Authority*[5] *or Public Authorities take Remedial Measures*[6] *and/or any Person*[7] *sustains Pollution Damage,*[8] *then the Party hereto*

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1 OPOL covers escapes or discharges of oil from offshore facilities within the jurisdiction of the United Kingdom, Denmark, the Federal Republic of Germany, France, Ireland, the Netherlands and Norway and can be extended to apply to offshore facilities within the jurisdiction of any other state. The location of the pollution damage or the place where remedial measures are taken need not necessarily be within waters under the jurisdiction of a state designated in OPOL; only the location of the offshore facility itself is relevant.

2 OPOL, clause III(2).

3 Oil means crude oil and natural gas liquids, including such materials when mixed with or present in other substances; OPOL, clause I(10).

4 Designated Offshore Facility means each offshore facility to which a party has made this contract applicable. Each such offshore facility is a designated offshore facility only as to the party who designated the same and only for the period during which that party is the operator thereof; OPOL, clause I(9).

5 Public Authority means the government of any state recognised as such under internatinal law or custom and any public body or authority within such state competent under the municipal law of such state to carry out remedial measures; OPOL, clause I(4).

6 Remedial Measures means reasonable measures taken by any party from any of whose designated offshore facilities a discharge of oil occurs and by any public authority to

who was the operator of said Designated Offshore Facility or Facilities at the time of the Discharge of Oil shall reimburse the cost of said Remedial Measures and pay compensation for said Pollution Damage up to an overall maximum of U.S.$ 60,000,000 per incident, to the extent and subject to the provisions set forth below:

1. *The maximum amount of said costs of Remedial Measures for which any Public Authority or Public Authorities shall be so reimbursed shall be U.S.$ 30,000,000 per incident, plus that portion, if any, of the maximum amount referred to in sub-paragraph 2 which, under the circumstances of the incident, is not in fact due hereunder, less the costs of any Remedial Measures taken by the aforesaid Party. If the aggregate cost of Remedial Measures taken by two or more Public Authorities exceeds the maximum so calculated, it shall be pro-rated among them.*

2. *The maximum compensation payable hereunder for Pollution Damage shall be U.S.$ 30,000,000 per incident, plus that portion, if any, of the maximum amount referred to in sub-paragraph 1 hereof which, under the circumstances of the incident, is not in fact due hereunder. If the aggregate of claims*[1] *for Pollution Damage exceeds the maximum so calculated, it shall be pro-rated among the claimants.*

B. *No obligation shall arise hereunder with respect to Pollution Damage and Remedial Measures taken by a Public Authority arising from an incident if the incident:*

1. *resulted from an act of war, hostilities, civil war, insurrection, or a natural phenomenon of an exceptional, inevitable, and irresistible character;*
2. *was wholly caused by an act or omission done with intent to cause damage by a third Person;*

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prevent, mitigate or eliminate popllution damage following such discharge of oil or to remove or neutralize the oil involved in such discharge, excluding however, well control measures and measures taken to protect, repair or replace any such designated offshore facility; OPOL, clause I(14).

7 Person means an individual or partnership or any public or private body, whether corporate or not, including a state; OPOL, clause I(1).

8 Pollution Damage means direct loss or damage (other than loss of or damage to any designated offshore facility involved) by contamination which results from a discharge of oil; OPOL, clause I(12).

1 Claim means any claim for pollution damage or for the cost of remedial measures filed by a claimant pursuant to the provisions of this contract; OPOL, clause I(15).

3. *was wholly caused by the negligence or other wrongful act of any Government or other authority or resulted from compliance with conditions imposed or instructions given by the Government of the State which issued the licence as to the Designated Offshore Facility involved;*
4. *resulted wholly or partially either from an act or omission done with intent to cause damage by a claimant, or from the negligence of that claimant, in which case any Party hereto which would otherwise be liable hereunder shall be exonerated wholly or partially from its obligations to said claimant.*

Hence, it appears that there are two classes of claimants under OPOL; first, public authorities may claim in respect of costs incured for taking remedial measures to prevent, mitigate or eliminate pollution damage, or to remove or neutralise the oil following an escape or discharge; second, anyone including a public authority may file a claim for compensation for pollution damage resulting from offshore exploration and production operations.

Further, under OPOL, the parties agree that if a discharge of oil occurs from any designated offshore facility, they accept strict liability for pollution damage and the cost of remedial measures up to a maximum limit of U.S.$ 60,000,000 per incident. This maximum amount is allocated for two categories of payments; first, up to U.S.$ 30,000,000 for remedial measures, within which limit there may also be included the costs of remedial measures taken by the party to OPOL involved; second, up to U.S.$ 30,000,000 to cover pollution damage claims. Nevertheless, where all claims in one category have been met, any surplus may be used to meet unsatisfied claims in the other category.

In addition, parties to OPOL agree to establish and maintain financial responsibility to fulfill their duties and obligations under the Agreement.[1]

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[1] OPOL, clause II(c)(2).

8. Removal of artificial islands and installations upon abandonment

Offshore installations and structures are particularly associated, so far, with the exploration and exploitation of the natural resources of the seabed and subsoil, and more specifically with oil and gas exploration and exploitation. The growth of the offshore production of oil and gas has led to the construction of several thousands installations and structures around the world, especially in such areas as the Gulf of Mexico and the North Sea. However, as wells dry up and gas and oil reserves are depleted, some of these installations have already come to the end of their operational lives and have become redundant, and others will follow in the future until they will all become so ultimately. Therefore, the controversial question has arisen as to what should happen to such disused installations; should they be abandoned, used for other purposes, or removed?

The rules already established in the 1958 Geneva Convention on the Continental Shelf prohibit unjustifiable interference with navigation, fishing, or the conservation of the living resources of the sea as a result of the construction and operation of artificial islands and installations for the purpose of exploring the continental shelf and exploiting its natural resources.[1] Indeed, such installations should not be situated on recognized sealanes essential to international navigation, in zones of intensive fishing activities or in areas of other legal maritime activities of vital international interest. Thus, the construction and operation of artificial islands and installations should not result in international disorder in ocean space or interfere with the legitimate rights and interests of all states with respect to navigation, fishing, or other recognized uses of the seas.

Yet, where no unjustifiable interference is said to exist, do installations that have outlived their useful lives still need to be removed. In other words, is there an international duty to remove offshore installations where they do not interfere with other uses of the sea and where no other interests are affected?

Article 5(5) of the 1958 Geneva Convention on the Continental Shelf provides that any installations which are abandoned or disused must be entirely removed. This is a clear indication that, under the Geneva Convention, there is an absolute obligation upon the coastal state to remove entirely any abandoned or disused artificial island or installation on its continental shelf. However, a more flexible

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1 1958 Geneva Convention on the Continental Shelf, article 5(1).

duty is contained in the 1982 UN Convention on the Law of the Sea which provides that

any installations or structures which are abandoned or disused shall be removed to ensure safety of navigation, taking into account any generally accepted international standards established in this regard by the competent international organization. Such removal shall also have due regard to fishing, the protection of the marine environment and the rights and duties of other states.[1]

Thus, although the UN Convention makes no provision for exemption even in those cases where installations do not present any conceivable danger to safety of navigation, fishing, or to the marine environment from any risks of pollution, yet, unlike article 5(5) of the 1958 Geneva Convention on the Continental Shelf, the UN Convention advocates that generally accepted international standards established in this regard by the competent international organization shall be taken into account. It is thought that IMO is the international organization referred to in the 1982 UN Convention as competent to establish international standards for the removal of offshore platforms on the basis of its competence in matters relating to maritime safety. Yet, although IMO has accepted its responsibility as the competent international organization, it might not be the only and exclusive body asked to develop standards related to the removal of offshore installations as the functions and purposes of IMO under its constituent Convention are related to ships not to offshore installations. Article 1(d) of the IMO Convention, as amended, lists among the purposes of IMO to provide for the consideration of any matters concerning shipping that may be referred to it by any organ or specialized agency of the United Nations. The removal of offshore installations does concern shipping, but it also involves fishing and other uses of the sea with which IMO is not primarily concerned.[2]

Moreover, unlike article 5(5) of the 1958 Geneva Convention, which stresses that abandoned installations must be "entirely removed", article 60(3) of the 1982 UN Convention provides that abandoned installations shall be just "removed". The

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1 United Nations Convention on the Law of the Sea (1982) art 60(3). Article 60 of the UN Convention is related to the exclusive economic zone; however, article 80 of the same Convention provides that article 60 applies "mutatis mutandis" to artificial islands, installations and structures on the continental shelf.

2 See Marine Policy, The International Journal of Ocean Affairs, vol 13, no 3, July 1989, Removal of Offshore Platforms and the Development of International Standards, by G.C. Kasoulides, p.249-265.

term "entirely" has then been removed from the wording of article 5(5) above mentioned which described a clear and absolute obligation. Hence, it could be assumed that although the obligation to remove installations and structures does exist and could not be set aside by the coastal state (although the latter has exclusive jurisdiction over such installations and structures[1]) if and where this mandatory rule of international law comes into force, yet such installations and structures could be removed only partially.

Indeed, article 60(3) of the 1982 UN Convention further provides that *appropriate publicity shall be given to the depth, position and dimensions of any installations or structures not entirely removed.* Presumably, such amendments show the intent of some delegations at the Law of the Sea Conference to mitigate the strict application of the clause with respect to the obligation to remove any installations or structures which are abandoned or disused.

Nevertheless, there has been some developments since the 1982 UN Convention. Indeed, the question of removal of offshore installations was considered at the meeting of the Sub-Committee on Safety of Navigation, one of the subsidiary bodies of IMO, during its 33rd session, in January 1987.

The Oil Industry International Exploration and Production Forum (E&P Forum) told the Sub-Committee that most of the world's 6,000 existing fixed installations are built in relatively shallow waters less than 40 metres deep, and proposed that to ensure the safety of navigation, installations in shallow waters should be completely removed, once oil or gas production has ceased, except in certain cases. In deeper waters, installations should be cut down so that there is at least 40 metres unobstructed water below the surface. According to E&P Forum, about 360 installations are in water depths greater than 75 metres. A survey of E&P Forum members showed the cost of removing the 15 largest platforms, some of which are in more than 300 metres of water, could amount to U.S.$ 2,784 million, an average of U.S.$ 186 million per installation.[2]

Nevertheless, although experts agree that the removal of offshore installations would be expensive, the estimates do vary. One operator predicted that removal of all the installations on the Norwegian Ekofisc field would cost approximately U.S.$ 230 million at 1980 prices. Such a complete removal would include 18 main

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1 United Nations Convention on the Law of the Sea (1982) art 60(2).
2 IMO News, number 1, 1987, p.8.

platforms, 15 assisting platforms, 23 pipelines and 158 wells. On the other hand, the removal costs for the Statfjord field are estimated by another oil company to be approximately U.S.$ 270 million per platform at 1979 prices.[1] In any case, *the costs connected with removal have obviously increased. On the other hand, removal would not make oil activity unreasonably burdensome. A certain loss of profitability cannot be enough to make the removal duty obsolete... The use of the ocean for other purposes has also increased, making it more important that removal takes place....*[2]

Thus, the costs involved in the removal of offshore installations or structures explain the interest of some states concerned in favour of a flexible duty to remove depending on the circumstances of each particular case.

However, the Federal Republic of Germany considered that the E&P Forum proposal, with respect to the incomplete removal of installations and platforms, did not take account of the interests of fishermen, subsurface navigation, marine research and the marine environment. Accordingly, the Sub-Committee agreed that a recommendation should cover a broader area than navigational considerations alone, including environmental matters.[3]

Further, the Soviet Union said that exemption from total removal should not be extended to installations in shallow waters not exceeding 300 metres. As to the United States, they proposed the establishment of an international requirement for the removal of installations, with exemption being limited to 2%, or an agreed specification that would limit the amount of structures not completely removed.[4]

On the other hand, the United Kingdom considered that the criteria on which standards for the removal of installations and platforms should be based ought not to involve a number or a percentage of installations and platforms, but that coastal states should be allowed to decide on a case by case basis which platforms should be partially or completely removed. Further, the United Kingdom said

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1 Ocean Development and International Law, 1988, vol 19, no 3, Conflict between Petroleum Production, Navigation and Fisheries in International Law, by Geir Ulfstein, p.248.
2 Ocean Development and International Law, 1988, vol 19, no 3, Conflict between Petroleum Production, Navigation and Fisheries in International Law, by Geir Ulfstein, p.249.
3 IMO News, number 1, 1987, p.8.
4 IMO News, number 1, 1987, p.8.

that a policy calling for the complete removal of all platforms would be contrary to article 60(3) of the 1982 UN Convention on the Law of the Sea.[1]

During its 34th session in February 1988, the Sub-Committee on Safety of Navigation prepared draft Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone. They were submitted to the IMO Maritime Safety Committee for consideration.[2]

Paragraph 2.1 of these draft guidelines provides that

the decision to allow an offshore installation, structure, or parts thereof to remain on the sea-bed should include a case-by-case evaluation, by the coastal State with jurisdiction over the installation or structure, of the following matters:
- any potential effect on the safety of surface or subsurface navigation, or of other uses of the sea;
- the rate of deterioration of the material and its present and possible future effect on the marine environment;
- the potential effect on the marine environment, including living resources;
- the risk that the material will shift from its position at some future time;
- the costs, technical feasibility, and risks of injury to personnel associated with removal of the installation or structure; and
- the determination of a new use or other reasonable justification for allowing the installation or structure or parts thereof to remain on the sea-bed.[3]

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[1] IMO News, number 1, 1987, p.8.

[2] The IMO Maritime Safety Committee later approved, during its 55th session in April 1988, the draft resolution on guidelines and standards for the removal of abandoned or disused offshore installations and structures in the exclusive economic zone and on the continental shelf. Nevertheless, the draft guidelines and standards on removal of offshore platforms adopted by the Maritime Safety Committee of IMO were then referred to another international organization, the Food and Agriculture Organization (FAO), as well as to the contracting parties to the London Dumping Convention (due to the fact that allowing offshore installations to remain in the sea could be interpreted as dumping and therefore such act comes within the scope of the London Dumping Convention) and to the United Nations Environmental Programme. See Marine Policy, The International Journal of Ocean Affairs, vol 13, no 3, July 1989, Removal of Offshore Platforms and the Development of International Standards, by G.C. Kasoulides, p.249-265.

[3] IMO News, Number 2, 1988, p.13. With respect to the guidelines and standards for the removal of offshore installations and structures on the continental shelf and in the exclusive economic zone, see further Marine Policy, The International Journal of Ocean Affairs, vol 13, no 3, July 1989, Removal of Offshore Platforms and the Development of International Standards, by G.C. Kasoulides, appendix p.263-265.

It is thought that the last provision would lead to attempts on behalf of the oil industry to justify the partial or whole abandonment of platforms on the ground that they can provide artificial reefs for the enhancement of living resources. While this alternative use of platforms can be a viable proposition in some cases, still the position of such platforms must be carefully chosen and their ecological and scientific feasibility carefully investigated and evaluated.[1]

According to paragraph 2.3, the determination of any potential effect on the marine environment should be based upon scientific evidence taking into account the effect on water quality, geologic and hydrographic characteristics, the presence of endangered or threatened species, existing habitat types, local fishery resources, the potential for pollution or contamination of the site by residual products from or deterioration of the offshore installation or structure.

Further, where a decision regarding removal is made, the draft guidelines state that the following standards should be taken into account:

3.1 *All abandoned or disused installations or structures standing in less than 75 metres of water and weighing less than 4,000 tonnes in air, excluding the deck and superstructure, should be entirely removed.*

3.2 *All abandoned or disused installations or structures emplaced on the sea-bed on or after 1 January 1998, standing in less than 100 metres of water and weighing less than 4,000 tonnes in air, excluding the deck and superstructure, should be entirely removed.*[2]

The other standards contained in the draft guidelines include:

3.6 *Any abandoned or disused installation or structure or part thereof which projects above the surface of the sea should be adequately maintained to prevent structural failure. In cases of partial removal... an unobstructed water column sufficient to ensure safety of navigation, but not less than 55 metres, should be*

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1 Marine Policy, The International Journal of Ocean Affairs, vol 13, no 3, July 1989, Removal of Offshore Platforms and the Development of International Standards, by G.C. Kasoulides, p.249-265.

2 According to an estimate by the E&P Forum, the result of these combined criteria will be the total and compulsory removal of 94% of all offshore installations and the potential partial removal or abandonment of the remaining 6%. See Marine Policy, The International Journal of Ocean Affairs, vol 13, no 3, July 1989, Removal of Offshore Platforms and the Development of International Standards, by G.C. Kasoulides, p.249-265.

provided above any partially removed installation or structure which does not project above the surface of the sea.

3.13 *On or after 1 January 1998, no installation or structure should be placed on any continental shelf or in any exclusive economic zone unless the design and construction of the installation or structure is such that entire removal upon abandonment or permanent disuse would be feasible.*

Yet, it is thought that some important aspects have not been taken into consideration by the draft guidelines as there is a complete absence of any technical guidelines related to the methods of proper removal of offshore platforms. Indeed, sound environmental techniques should be used and methods causing possible harm to the marine environment, such as the use of explosives, should be prohibited. The guidelines also failed to address the issue of pipelines serving the installation and the obligation of the coastal state either to remove or to monitor, inspect and regulate their state of deterioration.[1]

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1 See Marine Policy, The International Journal of Ocean Affairs, vol 13, no 3, July 1989, Removal of Offshore Platforms and the Development of International Standards, by G.C. Kasoulides, p.249-265.

Conclusion

Thus, it is the large scale introduction into the marine environment of immovable installations which gives rise to the need to introduce new international norms and concepts within the framework of the law of the sea.

What is more, owing to the scarcity of space on land in some parts of the world it can be expected that there will be a growing tendency to transfer some traditionally wholly land-based activities towards the sea.[1]

Indeed, *from the moment men are working and living on a fixed place the tendency to extend this place and the activities undertaken there would seem inevitable. Furthermore, it is submitted that in the long run the law of the sea cannot completely ignore the pressure of lack of suitable space on land, and must allow some transfer of traditionally land-based activities towards "artificial islands" in the seas.*[2]

As a matter of fact, it is now very clear that the pressure to expand seawards exists and will most probably increase in the forthcoming decades. Oceans contain resources that states seek to explore and exploit. Traditionally, man's interests in sea resources were mainly limited to food. However, man's interests have expanded recently to include the natural resources of the seabed and subsoil. Accordingly, states have shown deep concern in the law of the sea régime in view to establish international norms and rules to regulate access to the seas as well as to other different activities in the marine environment, including the construction of artificial islands and installations.

Indeed, *new law is taking the place of old dogmas. The sea is no longer a mere navigation route, a recreation centre or a dumping ground. It is the last phase of man's expansion on earth and must become an area of cooperation for orderly, progressive world development in which all will share equally and equitably.*[3]

Thus, it appears that the coastal state has the right to construct and exercise jurisdiction and control over artificial islands and installations erected in its

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1 W. Riphagen, International Legal Aspects of Artificial Islands, International Relations 1973, p.327-328.
2 W. Riphagen, International Legal Aspects of Artificial Islands, International Relations 1973, p.333.
3 R.P. Anand, Origin and Development of the Law of the Sea, 1983, p.219.

internal waters, territorial seas, exclusive economic zone and continental shelf. This right is affirmed by the provisions of the 1982 UN Convention on the Law of the Sea and may be considered as representing international customary law. Of course, there are certain restrictions, which might vary from one belt of waters to another, on the coastal state's right to build or grant its permission for the construction of artificial islands and installations, since the erection of such structures should not interfere with the rights and interests of other states. Further, special percautions may be taken with respect to the safety of both navigation and installations, since the latter represent vast investment whilst erected and operated on an unpredictable and powerful environment. Moreover, where oil and gas platforms are involved, there might exist a threat to human life and marine environment due to the dangerous nature of such substances. Accordingly, the concept of safety zones was created in view to protect the installations as well as to safeguard shipping by minimizing the risks of collision.

Thus, since the nature of artificial islands and installations involves collision with ships, dumping operations at sea and pollution of the marine environment, that is some of the features and characteristics involved more with shipping than with land based activities, hence an efficient system of registration for such installations might be created on regional levels with a view to monitor their operations as well as control and inspect their condition and equipment, inclusive of the pipelines serving them, in order to keep a required standard of safety for both human life and environment.

Accordingly, special attention should be paid to the protection of the marine environment against dangers of pollution which might arise following the deployment of installations and structures in the seas, in order to protect and improve the conditions and well being of man with a view to a sound economic and social development. Such duty with respect to the marine environment entails responsibility in case of breach of duty causing harm to the marine environment, to other states or other users of the seas.

Nevertheless, the major development since the Geneva Conventions on the Law of the Sea, 1958, relates to the nature of exploration and exploitation of the deep seabed resources beyond the limits of the continental shelf. The principle of the Common Heritage of Mankind was created in view to prevent division and ownership of the deep seabed and put an end to the race for deep seabed resources, hence enhancing the peaceful and orderly use of the seas and

exploitation of the deep seabed by mankind as a whole in order to avoid any threat to world peace. Also, another function of the principle of the common heritage of mankind is to establish a New International Economic Order which is sought by the developing countries to restructure or replace the existing world economy. This principle is linked to the nature of the authority to be granted to the Authority which will have control over exploration and exploitation activities in the Area.

The principle of the common heritage of mankind is contained in the provisions of the 1982 UN Convention on the Law of the Sea. However, what is delaying the coming into force of the UN Convention?

As already mentioned earlier on in this dissertation, a number of technologically advanced states have not yet signed the Convention, namely, the United Kingdom, the Federal Republic of Germany and the United States. The last named has consistently stated that it finds the provisions concerning deep seabed mining unacceptable. This opposition seems to constitute the main obstacle to widespread ratification. Indeed, such opposition of the world's largest economic entity and potentially the largest deep seabed miner has so far discouraged some states from ratifying the Convention.

Indeed, *President Reagan announced formally on 9 July, 1982, that the U.S. would not adhere to the Convention primarily because of objections to the form and content of the proposed régime on future sea-bed mining. In his statement, however, the President did admit that the Convention "...contains many positive and very significant accomplishments...."*[1]

Thus, *the position of the United States is that the nonseabed portions of the Convention represent customary international law, and that all nonsignatory states are able to benefit from those rights and obligations.*[2]

However, *the claim of the United States that it can benefit from the new norms of international law in the Convention without being a signatory or ratifying state does not conform to the simple logic of reciprocity: for every right claimed,*

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1 Kenneth R. Simmonds, U.N. Convention on the Law of the Sea 1982, Oceana Publications, 1983, introduction p.xvi-xvii.

2 Ocean Development and International Law, 1989, vol 20, no 2, When Will the UN Convention on the Law of the Sea Come into Effect?, by David L. Larson, p.176.

there is an equal or equivalent obligation. As former UNCLOS III president Tommy T.B. Koh said: "...The provisions of the Convention are closely interrelated and form an integral package. Thus it is not possible for a state to pick what it likes, and to disregard what it does not like. It was also said that rights and obligations go hand in hand, and it is not permissible to claim rights under the Convention without being willing to shoulder the corresponding obligations."[1]

Further, as world prices of the basic metals that can be produced by deep seabed mining (copper, nickel, cobalt and maganese) are relatively depressed and, as current demand can at present be met by land based production, the pressure of economic necessity has accordingly been reduced and, therefore, pressure on deciding upon the future of the 1982 UN Convention has equally been decreased.

Indeed, it is thought that once the commercial prospects for deep seabed mining become brighter and economically viable, pressure upon the international community would increase in view to opting for a lasting solution.

Nevertheless, a sound and equitable solution is best reached in an attempt to protect the interests of the advanced industrial countries, on the one hand, and the developing countries on the other, through political will and consistent dialogue in order to strengthen the régime established by the 1982 UN Convention on the Law of the Sea, whilst preserving its essence.

It should however be noted that the laws related to the construction of artificial islands and installations are still lacking precision in some important respects, although such structures are being introduced in the marine environment on a large scale. Thus, while the provisions of the UN Convention appear to give states the right to erect artificial islands and installations in the marine environment, those provisions are not very comprehensive, systematic and precise with respect to the conditions to be met by states when exercising their right.

Indeed, some of these conditions *relate specifically to each type of maritime zone; others are general in scope and are designed to protect the interests of the marine environment and its users as a whole. The kinds of consideration involved here*

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1 Ocean Development and International Law, 1989, vol 20, no 2, When Will the UN Convention on the Law of the Sea Come into Effect?, by David L. Larson, p.177.

were put clearly by the Belgian representative at the second session of UNCLOS III:

"...It (i.e. the construction of artificial islands) might prejudice various uses of the sea by other countries, by impeding international navigation, causing sandbanks to form or blocking access to a neighbouring country's ports. Such adverse effects would be specially marked in narrow or shallow waters... The appearance of numerous artificial islands in such waters would be harmful to the marine environment, to fisheries and to other uses of the sea."[1]

Finally, ocean order and stability need to be implemented and preserved through the achievements of a comprehensive and universally supported instrument. Indeed, a broader consensus on such instrument, especially on behalf of the industrialized countries, would practically prepare and safely bring about its coming into force.

So, what of the 1982 UN Convention on the Law of the Sea? Perhaps the best answer is the one given by Professor Louis Henkin who has written that *the treaty is probably the best one obtainable.*[2] Hence, it is probably for the best that it should come into force.

In any case, pending the entry into force of the UN Convention, if and when this happens, it might be useful to see regional agreements, based on generally recognized laws and regulations and taking into account generally accepted trends enhanced by the community of states as a whole, being made between states bordering common seas, as has been the case with respect to the Mediterranean Action Plan approved by the Mediterranean coastal states under the auspices of the United Nations Environment Program. Such agreements might focus on non controversial aspects of the erection and operation of artificial islands and installations, including the prevention and control of pollution, compensation for damage to the marine environment, intervention in cases of emergency, cleaning up operations and installation of adequate anti pollution facilities and equipment on such structures despite of the high costs involved. Such agreements would permit to foresee the hazardous aspects in connection with exploration and exploitation operations and hence prepare the

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1 International Journal of Estuarine and Coastal Law, 1988, vol 3, no 2, Offshore Nuclear Power Stations: Putting Pressure on the Law of the Sea, by J.C. Woodliffe, p.145.
2 Time, 19 July, 1982, p.38.

way for a safe and sound technical evolution instead of being confined to combat pollution on a case by case basis, taking belated actions with inadequate measures, amidst general confusion, controversy and reticence.

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