

Regulation of Land-Based Marine Pollution in International Law: A Comparative Analysis Between Global and Regional Legal Frameworks

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I. Introduction

Land-based pollution represents the single most important cause of marine pollution.¹ The threat of land-based pollution to the marine environment is a serious one since it mainly affects coastal waters, which are sites of high biological productivity.² As typically shown in Minamata disease which was caused by mercury

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¹ It is suggested that land-based sources contribute approximately 80 per cent of marine pollution. UN General Assembly, Oceans and the Law of the Sea, Report of the Secretary-General of 18 August 2004, A/59/62/Add.1, 29, para. 97. In accordance with the Report, sewage remains the largest source of contamination. *Ibid.*

² S. Kuwahara, *The Legal Regime of Protection of the Mediterranean Against Pollution from Land-Based Sources*, Dublin 1984, xvii; A. Nollkaemper, *Balancing the Protection of Marine Eco-*

poisoning through liquid waste from a factory in Japan, contaminations in coastal waters may pose serious risks to marine ecosystems as well as human health. Thus, there is no exaggeration to say that the very survival of coastal populations depends on a healthy marine environment.³ Whereas the types of land-based sources vary, it may be broadly considered that such sources include municipal, industrial or agricultural sources, discharges from which reach the marine environment, in particular: (i) from the coast, including from outfalls discharging directly into the marine environment and through run-off, (ii) through rivers, canals of other watercourses, including underground watercourses, (iii) via the atmosphere, and (iv) from activities conducted on offshore fixed or mobile facilities within the limits of national jurisdiction.⁴ In a broad context, the land-based marine pollution is a result of the imbalance between human populations and industrial activities and the limited capacity of the marine environment to absorb the wastes they produce.⁵ It has been estimated that at least 60 percent of the world's population live within 100 km of the coast. Hence, it is conceivable that with rapid population growth, marine pollution from land-based activities will become more problematic.⁶

Owing to the transboundary nature of land-based marine pollution, the protection of the marine environment from the land-based sources and activities cannot be achieved by only one State. Accordingly, the international co-operation between States becomes a prerequisite in order to prevent the land-based marine pollution. Furthermore, the establishment of international rules in this field is of particular importance with a view to ensuring fair economic competition at the international level. Thus, it is arguable that there is a strong need to develop an international legal framework regulating the land-based marine pollution. Nonetheless, to date, there is no global agreement on this issue,⁷ and marine pollution from land-based sources is regulated primarily by a limited number of regional agreements. Hence, the first issue to be addressed in this study concerns the question of why the legal regulation of land-based marine pollution remains inadequate at the global level.

systems with Economic Benefits from Land-Based Activities: The Quest for International Legal Barriers, 27 *Ocean Development and International Law (ODIL)* 154 (1996).

³ Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities, para. 2. The text is available at <<http://www.gpa.unep.org/bin/php/home/index.php>>.

⁴ The 1985 Montreal Guidelines for the Protection of the Marine Environment against Pollution from Land-Based Sources, 1 (b). Reproduced in: H. H o m a n n (ed.), *Basic Documents of International Environmental Law*, vol. I, London et al. 1992, 130-147.

⁵ The interdependence of human populations and the coastal and marine environment is recognised in the 1995 Washington Declaration on Protection of the Marine Environment from Land-Based Activities. The text is available at <<http://www.gpa.unep.org/bin/php/home/index.php>>.

⁶ Thus, D a h l argues that ultimately the control of human population sizes and densities, the reduction of consumption levels, and the use of cleaner technologies will also be required. A.L. D a h l, *Land-Based Pollution and Integrated Coastal Management*, 17 *Marine Policy* 562 (1993).

⁷ M e n g Q.-N., *Land-Based Marine Pollution: International Law Development*, London et al., 1987, xi.

Furthermore, considering that States are usually unwilling to take strong measures to regulate land-based activities, legal techniques to limit the margin of discretion of States is at the heart in the protection of the marine environment from land-based pollution. In this respect, it is important to note that legal techniques and approaches to enhance the regulation of land-based marine pollution are developing particularly in regional conventions. It would seem that those regional treaties may provide a useful insight to consider legal techniques and institutions reconciling the protection of the marine environment from land-based sources and the economic development. Thus, the second question to be examined in this study is whether and to what extent those approaches enshrined in regional treaties may serve for enhancing the regulation of marine pollution from land-based activities in international law.

Accordingly, the present paper will contain four subdivisions. Following the introduction in Part one, Part two will examine limits of global legal framework concerning the regulation of land-based pollution. Part three will then analyse the development of approaches and legal techniques to this issue at the regional level. Special emphasis will be on the identification of harmful substances, precautionary approach, regulatory measures, and the international control ensuring the implementation of relevant rules.⁸ Finally, general conclusion will be added in Part four.

II. Limits of Global Legal Framework for the Regulation of Land-Based Marine Pollution

A. Analysis on Global Legal Framework

1. Customary International Law and General Principles of Law

Regulation of marine pollution, in particular land-based marine pollution, is a novel phenomenon in the law of the sea. Owing to the paucity of State practice in this area, it is not surprising that customary law contains few rules relevant to the question of marine pollution.⁹ Probably the most important customary rule on this issue would be that no State has the right to use or permit the use of its territory in such a manner as to cause injury in or to the territory of another State. The rule of *sic utere tuo ut alienum non laedas* (use your own property so as not to injure that

⁸ Thus, this study does not purport to examine each and every element appeared in regional conventions in this field. In addition, the analysis on liability for marine pollution damage beyond the scope of this article because of the limited space.

⁹ L. J u d a, *International Law and Ocean Use Management: The Evolution of Ocean Governance*, London 1996, 103. Possibly the first international document which addressed the regulation of land-based marine pollution was the 1972 Stockholm Action Plan. See Recommendations 86 (f) as well as 92 (b) of the Stockholm Action Plan. The Stockholm Action Plan was reproduced in: H o h m a n n (note 4), 27-47.

of another) was explicitly expressed in the *Trail Smelter* arbitration (1938-41).¹⁰ Although the context is different, it may also be recalled that the ICJ, in the *Corfu Channel* case of 1949, has already referred to the “every State’s obligation not to allow knowingly its territory to be used for acts contrary to the rights of other States”.¹¹ Later on, this rule was further elaborated in Principle 21 of the Stockholm Declaration of 1972.¹² Moreover, the 1992 Rio Declaration, which was adopted in the United Nations Conference on Environment and Development, confirmed Principle 21, by stating that:

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 and developmental 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.¹³

At present, there is no doubt that the rule of *sic utere tuo ut alienum non laedas* reflects customary international law. Indeed, the customary law character of this rule was clearly confirmed by the International Court of Justice (ICJ) in the *Advisory Opinion concerning Legality of the Threat or Use of Nuclear Weapons*,¹⁴ as well as in the *Gabčíkovo-Nagymaros Project* case of 1997.¹⁵ Undoubtedly the rule of *sic utere tuo ut alienum non laedas* is a basic principle in international environmental law. With respect to the scope and the function of this rule, however, the following limits must be noted.

First, it is understood that this rule provides an obligation to use “due diligence” not to cause transfrontier damage.¹⁶ This means that a State is not responsible in damage if it has paid such a “due diligence”. Yet “due diligence” is a very vague concept. Indeed, it is conceivable that the degree of “due diligence” may vary depending on the nature of specific activities, technical and economic capabilities of States, and the effectiveness of territorial control etc. Furthermore, a reasonable standard of “due diligence” may change with the passage of time as well as the de-

¹⁰ The *Trail Smelter* case, International Environmental Law Reports, vol. 1, Cambridge 1999, 310.

¹¹ ICJ Reports (1949), 22.

¹² Principle 21 stated that: “States have [...] 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.” The Stockholm Declaration was reproduced in: H o h m a n n (note 4), 21-26.

¹³ Principle 2 of the Rio Declaration. The text is available at <<http://sedac.ciesin.org/entri/texts/rio.declaration.1992.html>>. Furthermore, the similar rule is also incorporated in the Draft Articles on the Prevention of Transboundary Harm from Hazardous Activities of 2001. Article 3 of the latter stipulates that: “The State of origin shall take all appropriate measures to prevent significant transboundary harm or at any event to minimize the risk thereof.” The text is available at <http://untreaty.un.org/ilc/texts/9_7.htm>.

¹⁴ ICJ Reports (1996), 241-242, para. 29.

¹⁵ ICJ Reports (1997), 41, para. 53.

¹⁶ Cf. R. P i s i l l o - M a z z e s c h i, The Due Diligence Rule and the Nature of the International Responsibility of States, 35 GYIL 38 (1992).

velopment of science and technology.¹⁷ In this regard, the general formulation of “due diligence” is not helpful very much since it offers little guidance with respect to specific measures which should be taken by each State.¹⁸ In addition, currently a question may arise how “due diligence” interacts with the principle of “common but differentiated responsibility,” which is becoming a concept of particular importance in the international environmental law.¹⁹ Thus, the concept of “due diligence” needs further clarification in each particular situation.

Secondly, as will be seen, land-based marine pollution involves various substances, sources and actors. It is also possible that marine contaminations may be produced by activities in more than two States in the same region. Accordingly, in certain circumstances, it is difficult to clearly identify sources and activities which threaten to the marine environment. In such cases, the general obligation of “due diligence” may encounter difficulties as to implementation.

Thirdly, the rule of *sic utere tuo ut alienum non laedas* essentially functions after damage has been caused in the other State’s territory in terms of establishing State responsibility. In other words, basically this rule relates to the law of State responsibility concerning already caused damage. Considering that environmental damage is often irreversible, however, arguably much weight should be given to the prevention of such damage.²⁰

Finally, it is argued that the rigid application of this rule might be quixotic since various transboundary environmental harms occur every day. As Schachter pointed to, no-one expects that all injurious activities can be eliminated by general legal fiat.²¹ Accordingly, it is suggested that the harm must be significant or sub-

¹⁷ On this point, ILC Commentaries on Draft Articles on Prevention of Transboundary Harm from Hazardous Activities enumerates factors to be considered in determining the due diligence requirement in each instance. Such factors contain: the size of the operation, its location, special climate conditions, materials used in the activity, and whether the conclusions drawn from the application of these factors in a specific case are reasonable. ILC, Draft Articles on Prevention of Transboundary Harm from Hazardous Activities with Commentaries (electronic version available at <http://untreaty.un.org/ilc/texts/9_7.htm>), 394. In a general context, Pisillo-Mazzeschi pointed to a series of objective factors, which must be considered in order to establish the degree of diligence required of the State: (i) the degree of effectiveness of the State’s control over certain areas of its territory (ii) the importance of the interest to be protected (iii) the degree of predictability of the harm. Pisillo-Mazzeschi (note 16), 44.

¹⁸ P. Birnie/A. Boyle, *International Law and Environment*, 2nd ed., Oxford 2002, 113. In this respect, Article 5 of the 2001 Draft Articles on the Prevention of Transboundary Harm from Hazardous Activities obliges States concerned to take the necessary legislative, administrative or other action, including the establishment of suitable monitoring mechanisms to implement obligations to prevent significant transboundary harm.

¹⁹ M.A. Fitzmaurice, *International Protection of the Environment*, 293 RCADI 288-289 (2001).

²⁰ In this respect, the view of the ICJ in the *Gabčíkovo-Nagymaros Project* case is worth quoting: “in the field of environmental protection, vigilance and prevention are required on account of the often irreversible character of damage to the environment and of the limitations inherent in the very mechanism of reparation of this type of damage.” ICJ Reports (1997), 78, para. 140.

²¹ O. Schachter, *International Law in Theory and Practice*, Dordrecht 1991, 365.

stantial in order to recourse to the rule of *sic utere tuo ut alienum non laedas*.²² Yet it is difficult, if not impossible, to define the concept of the “significant or substantial harm” in a precise manner.²³ Hence, a determination of “significant or substantial harm” would be a subjective judgment. In conclusion, it must be admitted that the general rule of *sic utere tuo ut alienum non laedas* alone is inadequate to protect the marine environment.

Another possible rule which may be relevant in the regulation of land-based marine pollution is the obligation relating to abuse of rights.²⁴ In international law, abuse of rights is at issue where a State exercises a right either in a way which impedes the enjoyment by other States of their own rights or for an end different from that for which the right was created, to the injury of another State.²⁵ Although the legal nature of the doctrine of abuse of rights remains a matter of discussion,²⁶ this doctrine is, in the context of law of the sea, clearly reflected in Article 300 of the UN Convention on the Law of the Sea (hereafter the 1982 LOSC):

²² In relation with this, it should be remembered that the *Trail Smelter* award conditioned the application of this rule, by adding that, “when the case is of serious consequence and the injury is established by clear and convincing evidence”. The *Trail Smelter* case (note 10), 310.

²³ Schachter (note 21), 366. In this regard, ILC Commentaries on Draft Articles on Prevention of Transboundary Harm from Hazardous Activities accepts that the term “significant” is not without ambiguity and a determination has to be made in each specific case. According to the Commentaries, it involves more factual considerations than legal determination. In addition, the term “significant” also involves a value determination which depends on the circumstances of a particular case and the period in which such determination is made. ILC, 2001 Draft Articles on Prevention of Transboundary Harm from Hazardous Activities with Commentaries (electronic version), 2005, 388-389.

²⁴ With respect to the doctrine of abuse of right, see in particular, R. Kolb, *La bonne foi en droit international public: contribution à l'étude des principes généraux de droit*, Paris 2000, 429-486; V. Paul, *The Abuse of Rights and Bona Fides in International Law*, 28 *Österreichische Zeitschrift für Öffentliches Recht und Völkerrecht* 107-130 (1977); B.O. Iluyomade, *The Scope and Content of a Complaint of Abuse of Right in International Law*, 16 *Harvard International Law Journal* 47-92 (1975); K. Najiima, *Abuse of Right in International Law* (in Japanese), Tokyo 1968; A. Kiss, *L'abus de droit en droit international*, Paris 1953; B. Cheng, *General Principle of Law as Applied by International Courts and Tribunals*, London 1953, 121-136; N. Politis, *Le problème des limitations de la souveraineté et la théorie de l'abus des droits dans les rapports internationaux*, 6 *RCADI* 1925-I, 1-121 (1926) (in particular, 86-109).

²⁵ A.C. Kiss, *Abuse of Rights*, in: R. Bernhardt (ed.), *Encyclopedia of Public International Law*, vol. 1, Amsterdam et al. 1992, 4. See also Sir Gerald Fitzmaurice, *The Law and Procedure of the International Court of Justice*, vol. I, Cambridge 1986, 12. *Dictionnaire de la terminologie du droit international* defines the concept of abuse of rights as: “Exercice par un Etat d'un droit d'une manière ou dans des circonstances qui font apparaître que cet exercice a été pour cet Etat un moyen indirect de manquer à une obligation internationale lui incombant ou a été effectué dans un but ne correspondant pas à celui en vue duquel ledit droit est reconnu à cet Etat.” *Dictionnaire de la terminologie du droit international*, Paris 1960, 4.

²⁶ I. Brownlie, *Principles of Public International Law*, 6th ed., Oxford 2003, 429-430. Some writers regard the doctrine of abuse of rights as a general principle of law. For instance, Brownlie, *ibid.*; Najiima (note 24), 118; Iluyomade (note 24), 61; P. Guggenheim, *Traité de Droit international public*, t. 1, Genève 1953, 154. With respect to a thorough analysis on opinions of writers on this issue, see Kolb (note 24), 442-450.

States Parties shall fulfil in good faith the obligations assumed under this Convention and shall exercise the rights, jurisdiction and freedoms recognised in this Convention in a manner which would not constitute an abuse of right.

Furthermore, in the 1982 LOSC, the doctrine of abuse of rights is also reflected in other provisions, that is to say, Article 294 (an abuse of legal process), Article 297 (3) (b) (ii) and (iii) (arbitral refuse of the determination of the allowable catch as well as the allocation of the surplus) and Article 187 (b) (ii) (excess of jurisdiction on a misuse of power of the International Seabed Authority). In accordance with this doctrine, it can be argued that marine pollution is illegal if it is so excessive that the interests of other States are disproportionately affected.²⁷ The doctrine of abuse of rights can therefore be an instrument to prevent the marine pollution.²⁸ In this regard, it should not be forgotten that Article 300 comes within the scope of Part XV for the compulsory dispute settlement mechanism. This means that apart from certain exceptions in Article 297, the invocation of abuse of rights in Article 300 is under the control of third-party dispute settlement mechanism in the LOSC.²⁹

On the other hand, a fundamental question associated with the doctrine of abuse of rights is that a criterion to identify abuse of a right remains obscure.³⁰ Without a specific criterion to determine the point at which the exercise of a legal right has degenerated into abuse of a right, this doctrine will remain a highly abstract principle. Hence, the specification of such a criterion is of particular importance.³¹ In this regard, it is argued that such a criterion cannot be established by a general rule, but only by the activities of international courts in each particular case.³² It would seem, however, that the criterion to identify abuse of rights could be developed only at a slow pace in the international community where international courts have no compulsory jurisdiction without the agreement of States. It appears that cur-

²⁷ Cf. A.E. Boyle, Land-based Sources of Marine Pollution: Current Legal Regime, 16 Marine Policy 20-21 (1992).

²⁸ It would seem that the doctrine of abuse of rights is full of potentialities in the international law of the sea. On this point, see Kolb (note 24), 476-479.

²⁹ M.H. Nordquist (ed.), United Nations Convention on the Law of the Sea 1982: A Commentary, vol. V, Dordrecht et al. 1989, 152.

³⁰ Najima (note 24), 100. In this respect, it is of particular interest to note that Judge *ad hoc* Ečer, in the *Corfu Channel* case (Merits) of 1949, attempted to specify a subjective standard (intention) and an objective standard (the methods used) when evaluating abuse of a right by the United Kingdom. ICJ Reports (1949), 129-130. Similarly, Siorat distinguished objective and subjective aspects in evaluating the existence of abuse of rights. L. Siorat, *Le problème des lacunes en droit international: contribution à l'études des sources du droit et de la fonction judiciaire*, Paris 1958, 403-405. While this distinction is worth considering, the concept of intention and its proof might present considerable difficulty. In this respect, Ilyomade has argued that this difficulty had prevented States from invoking the concept of abuse of right. Ilyomade (note 24), 91.

³¹ Sir H. Lauterpacht, *The Development of International Law by the International Court*, Cambridge 1982, 162.

³² Thus Lauterpacht stated that: "The exercise of such activity, [...], is particularly important in the international society in which the legislative process by regular organs is practically non-existent." *Ibid.*

rently the criterion to determine abuse of a right is not clearly established in the context of the protection of the marine environment.

In summary, it would seem that the abstract nature of rule of *sic utere tuo ut alienum non laedas* as well as doctrine of abuse of rights may give rise to questions concerning their practical application. Furthermore, those rules themselves do not directly oblige States to protect the marine environment or to regulate specific sources of marine pollution. Hence, more specific rules regulating land-based marine pollution are required at the treaty level.

2. The UN Convention on the Law of the Sea (1982)

At present, the 1982 LOSC is the only treaty which provides general obligations to prevent land-based pollution at the global level. In this respect, Article 194 (1) obliges States to take all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities.³³ It is apparent that land-based pollution is covered by this provision. Article 194 (2) further imposes a duty upon States to 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 in accordance with the 1982 LOSC. In addition, Article 194 (3) (a) stipulates that measures taken pursuant to Part XII shall include, *inter alia*, those designed to minimise to the fullest possible extent “the release of toxic, harmful or noxious substances, especially those which are persistent, *from land-based sources*, from or through the atmosphere or by dumping” (emphasis added). In so providing, it is argued that the 1982 LOSC marks an important advance over the earlier Geneva Conventions, which covered only limited sources of marine pollution.³⁴

More specifically, the 1982 LOSC provides prescriptive and enforcement jurisdiction relating to the regulation of land-based pollution. With respect to prescriptive jurisdiction, Article 207 (1) calls upon States to adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources, “taking into account internationally agreed rules, standards and recommended practices and procedures”. In relation with this, Article 207 (3) places an

³³ Arguably, the term “the best practicable means at their disposal and in accordance with their capabilities” may introduce a double standard, since, in theory, developing States with limited capabilities may not be required to take as costly or sophisticated actions as developed States. Even so, it is not suggested that developing States may be free from the obligations to protect the marine environment. J.I. Charney, *The Marine Environment and the 1982 United Nations Convention on the Law of the Sea*, 28 *The International Lawyer* 886-887 (1994). Furthermore, the 1982 LOSC obliges States to provide appropriate assistance especially to developing States. See Articles 202, 203.

³⁴ Birnie/Boyle (note 18), 352. In the Geneva Conventions, land-based pollution as well as airborne pollution were free from regulation.

explicit obligation upon States to endeavour to harmonise their policies in this connection at the appropriate regional level. Furthermore, Article 207 (4) obliges States to endeavour to establish global and regional rules preventing pollution from land-based sources, and to harmonise their policies in this connection at the appropriate regional level. Concerning the enforcement jurisdiction, Article 213 ensures that States shall enforce their laws and regulations adopted under Article 207 and take other measures necessary to implement applicable international rules and regulations. States are also under the duty to take other measures as may be necessary to prevent, reduce and control such pollution in accordance with Article 207 (2).

Some argue that these provisions constitute a rule of customary international law.³⁵ Even if this is the case, these provisions are so general that further specification would be required. In particular, there is a need to establish a specific criterion to identify harmful substances from land-based sources. Furthermore, it should be noted that the obligation preventing pollution from land-based sources in the 1982 LOSC is weaker than that concerning pollution from other sources. With respect to pollution from sea-bed activities subject to national jurisdiction, pollution from dumping as well as pollution from vessels, States are under the obligation to adopt laws and regulations which shall be no less effective than international rules and standards.³⁶ Concerning pollution from land-based sources, however, States are required only to “take into account” internationally agreed rules etc. when adopting relevant laws and regulations.³⁷ Thus, States may adopt measures which are either more or less stringent than those embodied in international law.³⁸ In this sense, control by internationally agreed criteria upon national standards remains modest.³⁹ Moreover, it is also a matter for the judgement of each State what measures shall be taken.⁴⁰ In conclusion, it may be said that the territorial sovereignty of a State is dominant in the regulation of land-based pollution under the 1982 LOSC, and the balance between national and international laws is clearly in favour of national laws.⁴¹

³⁵ Ibid., 408.

³⁶ Articles 208 (3), 210 (6) and 211 (2) of the 1982 LOSC.

³⁷ Article 207 (1) of the 1982 LOSC.

³⁸ M.H. Nordquist (ed.), *United Nations Convention on the Law of the Sea 1982: A Commentary*, vol. IV, Dordrecht 1991, 132. See also Birnie/Boyle (note 18), 409.

³⁹ A.E. Boyle, *Marine Pollution under the Law of the Sea Convention*, 79 AJIL 354 (1985). In this regard, Boyle suggests that there is nothing in State practice which amounts to the “internationally agreed rules, standards and recommended practices and procedures” for the control of sources of land-based pollution referred to in Article 207 of the 1982 LOSC. A.E. Boyle, *The Law of the Sea and International Watercourses: An Emerging Cycle*, 14 *Marine Policy* 154 (1990).

⁴⁰ Boyle (note 27), 25.

⁴¹ A. Yankov, *The Law of the Sea Convention and Agenda 21: Marine Environmental Implications*, in: A. Boyle/D. Freestone (eds.), *International Law and Sustainable Development: Past Achievements and Future Challenges*, Oxford 1999, 280.

B. Development of Non-Binding Instruments

In the response to these questions, attempts have been made to develop a global legal instrument relating to the land-based pollution particularly under the auspices of UNEP.⁴² An important outcome was the adoption of the 1985 Montreal Guidelines for the Protection of the Marine Environment against Pollution from Land-Based Sources.⁴³ While the Montreal Guidelines are of a voluntary nature,⁴⁴ it is noteworthy that they specify the measures to be taken in order to “prevent, reduce and control” pollution from land-based sources in detail.⁴⁵ In fact, the Montreal Guidelines enumerates various measures which should be taken by each State. Such measures contain: environmental impact assessment, monitoring, notification, information exchange and consultation, scientific and technical co-operation, assistance to developing countries, development of control strategies etc. In this respect, it is interesting to note that the 1985 Montreal Guidelines stress the need for “a comprehensive environmental management approach”.⁴⁶

This approach is a new concept which needs some clarification. In this regard, it is notable that the 1985 Montreal Guidelines highlighted the inter-linkage between the protection of the marine environment and that of international watercourses. On this point, the Guidelines require that “[i]f discharges from a watercourse which flows through the territories of two or more States or forms a boundary between them are likely to cause pollution of the marine environment, the States concerned should co-operate in taking necessary measures to prevent, reduce and control such pollution”.⁴⁷ Considering that rivers are a major contributor to marine pollution, the co-ordination between a marine pollution regime and environmental regulation of international watercourses becomes particularly important with a view to preventing land-based marine pollution.⁴⁸ Furthermore, one may

⁴² Concerning the attempt to develop a global legal instrument on this subject, see in particular, T.A. M e n s a h, *The International Legal Regime for the Protection and Preservation of the Marine Environment from Land-based Sources of Pollution*, in: Boyle/Freestone (note 41) 297-324 (in particular, 300-315); M e n g (note 7), 92-108.

⁴³ Montreal Guidelines is reproduced in: H o h m a n n (note 4), 130-147.

⁴⁴ Introduction to the Montreal Guidelines.

⁴⁵ With respect to the comprehensive analysis of this Guidelines, see in particular M e n g (note 7), 163-215.

⁴⁶ Guideline 10.

⁴⁷ Guideline 5 (c).

⁴⁸ In reality, at the global level, the inter-linkage between law of the sea and law of international watercourses is reflected in the 1992 Convention on the Protection and use of Transboundary Watercourses and International Lakes (Preamble and Article 2 (6)), the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses (Article 23). At the regional level, such examples may be furnished by the 1996 Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources and Activities (Article 11), the 1992 Convention on the Protection of the Marine Environment of the Baltic Sea Area (Article 6 (4)), Resolution 2 of the 1992 Convention on the Protection of the Black Sea Against Pollution, and the 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) (Article 25). In particular, it is worth noting that Article 25 of the OSPAR Convention explicitly purports to integrate States not bordering

note with interest that the 1985 Montreal Guidelines introduced the concept of specially protected areas with a view to protecting fragile ecosystems from land-based pollution.⁴⁹ In this respect, Annex I to the Guidelines states that the strategy on specially protected areas involves the identification of unique or pristine areas, rare or fragile ecosystems, critical habitats and the habitat of depleted, threatened or endangered species and other forms of marine life. Those areas to be protected or preserved from pollution, including that from land-based sources, are selected on the basis of a comprehensive evaluation of factors, including conservational, ecological, recreational, aesthetic and scientific values. To this end, States are required to notify an appropriate international organisation of the establishment of any modification to such areas, with a view to the inclusion of such information in an inventory of specially protected areas.⁵⁰ Considering that the conservation of the marine ecosystem is becoming an important issue in the international community, it is worth noting that the regulation of land-based pollution is linked to the conservation of the marine ecosystem in the Montreal Guidelines.

Later on, a need for the prevention of degradation of the marine environment from land-based activities was stressed by Agenda 21 of 1992.⁵¹ Significantly Chapter 17 of Agenda 21 highlighted the precautionary approach as well as a comprehensive approach in the protection of the marine environment:

*A precautionary and anticipatory rather than a reactive approach is necessary to prevent the degradation of the marine environment. This requires, inter alia, the adoption of precautionary measures, environmental impact assessments, clean production techniques, recycling, waste audits and minimisation, construction and/or improvement of sewage treatment facilities, quality management criteria for the proper handling of hazardous substances, and a comprehensive approach to damaging impacts from air, land and water (emphasis added).*⁵²

This paragraph is set out as a basis for action for marine environmental protection. It would seem to follow that the precautionary approach as well as the comprehensive approach should also be applicable to the regulation of land-based pollution. Furthermore, Chapter 17 explicitly requires States to take action at the national level and, where appropriate, at the regional and subregional levels and take into account the Montreal Guidelines. To this end, States are required to co-

on the marine environment into the regional regime for the protection of the marine environment. Consequently, Switzerland and Luxembourg became the Parties to the Convention. On this issue, see S. Burchi, *International Legal Aspects of Pollution of the Sea from Rivers*, 3 *Italian Yearbook of International Law* 115-142 (1977); Carel H.V. de Villeneuve, *The Contribution of Regional River Treaties to the Protection of the North Sea*, 13 *IJMCL* 373-378 (1998); Boyle (note 39, *Marine Policy*), 151-157; K. Tsukikawa, *Protection of the Marine Environment and the Prevention of Pollution* (in Japanese), Tokyo 1997, 96-105; N. Ando, *The Law of Pollution Prevention in International Rivers and Lakes*, in: R. Zacklin/L. Caflisch (eds.), *The Legal Regime of International Rivers and Lakes*, The Hague et al. 1981, 351.

⁴⁹ Paragraph 1.3.2.3 of Annex I. See also Guideline 7.

⁵⁰ Paragraph, 1.3.2.3 of Annex I.

⁵¹ Paragraph 17.24 ff.

⁵² Paragraph 17.21.

operate in considering the updating, strengthening and extension of the Montreal Guidelines as appropriate. Moreover, States are required to develop means of providing guidance on technologies to deal with the major type of pollution of the marine environment from land-based sources, according to the best scientific evidence.⁵³

At the same time, Agenda 21 required that the UNEP Governing Council should be invited to convene, as soon as practicable, an intergovernmental meeting on the protection of the marine environment from land-based activities.⁵⁴ The global conference envisaged in Agenda 21 was held in Washington, D.C., from 23 October to 3 November 1995. In this conference, two instruments were adopted: the Washington Declaration on the Protection of the Marine Environment from Land-based Activities (hereafter the 1995 Washington Declaration) and the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (hereafter the 1995 GPA).⁵⁵ The 1995 GPA seeks to prevent the degradation of the marine environment from land-based activities by facilitating the realisation of the duty of States to protect the marine environment.⁵⁶ To this end, the 1995 GPA provides guidance on measures which need to be taken by States at national, regional and global levels. In particular, it is worth noting that the 1995 GPA explicitly ensures the application of the precautionary approach to this issue.⁵⁷ It may also be noted that the 1995 GPA requires States to apply environmental impact assessment procedures as well as the best available techniques and best environmental practices.⁵⁸ Furthermore, the 1995 GPA identified the nine main sources of pollution from land-based activities, and provides measures to be taken with a view to addressing pollution from these sources.⁵⁹

The need to implement the 1995 GPA was explicitly stressed in the 1995 Washington Declaration.⁶⁰ In this respect, this Declaration required that Governments

⁵³ Paragraph 17.25.

⁵⁴ Paragraph 17.26.

⁵⁵ Mensah (note 42), 307-308. With respect to the analysis of GPA, see L.A. Kimball, An International Regime for Managing Land-Based Activities that Degrade Marine and Coastal Environment, 29 *Ocean and Coastal Management* 187-206 (1995); C. Williams/B. Davis, Land-Based Activities: What Remains to Be Done, 29 *Ocean and Coastal Management* 207-222 (1995).

⁵⁶ GPA (note 3), para. 3.

⁵⁷ GPA (note 3), para. 24. Later on, the results of the Washington conference were discussed by the General Assembly at its 51st Session in 1996. While endorsing the two documents adopted in the Washington Conference, General Assembly Resolution 51/189 stresses the need for States to take the necessary measures for the implementation of the Global Programme of Action at the national and, as appropriate, the regional and international levels. Paragraph 3 of UN General Assembly Resolution A/RES/51/189, 21 February 1997. Furthermore, that resolution calls upon the UNEP to take expeditious action to provide for the establishment and implementation of the clearing-house mechanism referred to in the GPA. *Ibid.*, paragraph 8.

⁵⁸ GPA, para. 23 (d), para. 26 (a) (i).

⁵⁹ Such sources are: sewage, persistent organic pollutants (POPs), radioactive substances, heavy metals, oils, nutrients, sediment mobilisation, litter plastics, and physical alterations and degradation of habitats. Chapter V of GPA.

⁶⁰ Paragraph 13 of the operative part.

and the European Commission participating in the Conference should set “as their common goal sustained and effective action to deal with *all land-based impacts* upon the marine environment” (emphasis added).⁶¹ Moreover, the need to improve and accelerate the implementation of the 1995 GPA was confirmed in the 2001 Montreal Declaration on the Protection of the Marine Environment from Land-Based Activities.⁶² The 2001 Montreal Declaration highlights the need to support the new integrated management model for oceans and coastal governance as an important new element of international environmental governance.⁶³ In this regard, as with the 1985 Montreal Guidelines, the 2001 Montreal Declaration calls for taking appropriate action at the national and regional levels to strengthen institutional cooperation between, *inter alia*, river-basin authorities, port authorities and coastal zone managers, and to incorporate coastal management considerations into relevant legislation and regulations pertaining to watersheds management, in particular, transboundary watersheds.⁶⁴

C. Limits of the Global Legal Framework

The above analysis on the global legal framework governing the land-based marine pollution yields the following conclusions:

(i) The rule of *sic utere tuo ut alienum non laedas* as well as the doctrine of abuse of rights may be relevant in the regulation of land-based marine pollution. In practice, however, the generality of those rules give rise to difficulties as to implementation in the regulation of land-based marine pollution.

(ii) The 1982 LOSC explicitly obliges States to prevent marine pollution from land-based activities. Nevertheless, the relevant provisions in the LOSC are so general that States have a large discretion in this field.

(iii) After the adoption of the 1982 LOSC, the need to regulate marine pollution from land-based activities is repeatedly highlighted in some global documents. It is of particular interest to note that new elements – such as a comprehensive environment management approach as well as the precautionary approach – are being reflected in those documents.

(iv) It must be admitted, however, that overall attempts to address land-based marine pollution at the global level have been made only in the form of less formal instruments. In this sense, it is inescapable to conclude that the regulation at the global level remains a weak one. A question arising here is why the regulation of the land-based marine pollution remains inadequate at the global level. Several reasons explain the weakness of the global legal framework in this field.

⁶¹ Paragraph 1 of the operative part.

⁶² United Nations, Law of the Sea Bulletin, No. 48, 2002, 58-61.

⁶³ *Ibid.*, para. 9 (d).

⁶⁴ *Ibid.*, para. 9 (a). See also the 1995 GPA, para. 34.

First, it must be noted that the activities which may cause land-based pollution are in essence within the territorial sovereignty of each State; and such activities are closely bound up with crucial national programmes for economic, industrial and social development of those countries. The economic costs of measures to regulate land-based pollution are seen as high, and inevitably affect economic development.⁶⁵ Hence, States are often reluctant to approve any attempts at restricting their economic developments by legally binding instruments. States will accept legal regulation only if a global legal instrument will adequately reflect their need for the development and if it will benefit their national interests. It would seem that at the global level, these conditions are not yet fulfilled with respect to the land-based marine pollution.⁶⁶

Secondly, due to its nature, the regulation of land-based pollution is more complex than that of pollution from other sources. In the case of the vessel-source pollution, for instance, sources and substances to be regulated – which are mainly oil and oily mixtures – can be clearly identified. Yet the regulation of land-based pollution involves more substances than oil and oily mixtures. Furthermore, land-based sources are variable in their nature over time. Some may be chronic sources causing a low-level but steady pressure on the marine environment, while others may be episodic, such as the pulse of pollutants flushed into the ocean after heavy rain. Each source requires different measures to prevent environmental damage,⁶⁷ and this requirement makes regulatory measures complex. Moreover, in the case of vessel-source pollution, ships are the only actor, and the shipping industry is the major economic sector to be regulated. By contrast, many actors and activities, such as pollution-generating industrial, agricultural and municipal activities, are involved in pollution from land-based activities. It follows that the regulation of land-based pollution concerns various economic sectors in the State. Thus, arguably the regulation of land-based marine pollution at the global level is more problematic than in the case of vessel-source pollution because, in the former case, it is more difficult to balance the regulation of such pollution with various national economic policies than vessel-source pollution.⁶⁸

Thirdly, attention should be drawn to geographical and ecological divergences in the oceans. In reality, the ocean environment is not homogeneous. The movement of ocean currents and winds are complex and different; the degree of marine pollution varies in each coastal region. It is observed that usually land-based pollutants are not transported far from their sources of discharge, and, thus, the land-based marine pollution is regionalized.⁶⁹ Furthermore, it is conceivable that affects

⁶⁵ Boyle (note 27), 26; Williams/Davis (note 55), 210; Nollkaemper (note 2), 154.

⁶⁶ Mensah (note 42), 312-313; Birnie/Boyle (note 18), 409-410. This is particularly true of developing States.

⁶⁷ Dahl (note 6), 567.

⁶⁸ Meng (note 7), 16.

⁶⁹ M. Schumacher/P. Hoagland, *The Protocol Concerning Pollution from Land-Based Sources and Activities in the Wider Caribbean Region: A Breakthrough for the Caribbean, but How Closely Should Others Follow Their Lead?*, 16 *Ocean Yearbook* 449 (2002).

of land-based pollution are more serious in shallow enclosed or semi-enclosed coastal sea areas than open oceanic areas.⁷⁰ In such areas, more stringent regulation of land-based pollution than in other marine areas will be needed. In fact, almost all regional agreements governing this issue are essentially concerned with enclosed or semi-enclosed seas.⁷¹

Finally, special mention should be made with respect to the economic and technological gaps between developed and developing countries. In reality, developing States do not have adequate technical and financial facilities in order to prevent marine pollution. Furthermore, it is important to note that the protection of the marine environment from land-based pollution is closely linked to the widespread poverty in developing countries. In this respect, the 1995 Washington Declaration clearly recognises that the alleviation of poverty is an essential factor in addressing the impacts of land-based activities on coastal and marine areas.⁷² Similarly, the 2001 Montreal Declaration on the Protection of the Marine Environment from Land-Based Activities makes it clear that the poverty, particularly in coastal communities of developing countries, contributes to marine pollution through lack even of basic sanitation. At the same time, marine degradation generates poverty by depleting the very basis for social and economic development.⁷³ This is a vicious circle. Hence, the regulation of land-based pollution should be considered in the global context of the combat against poverty in developing countries. In light of such countries' economic and technological difficulties, it is difficult to place the same obligations upon them to regulate land-based pollution.⁷⁴

In summary, owing to the economic, technological and geographical divergence in the world, it appears difficult, if not impossible, to establish uniform and detailed rules regulating land-based pollution at the global level. Accordingly, it becomes necessary to tailor any rules preventing marine pollution from land-based sources to the particular needs and circumstances of the States and regions. It would seem to follow that regional agreement which contains more specific rules

⁷⁰ Birnie/Boyle (note 18), 410-411. This does not, however, deny a possibility that certain persistent materials may contaminate the open oceanic areas. Dahl (note 6), 561-562.

⁷¹ Boyle (note 27), 27.

⁷² Paragraph 5 of its Preamble.

⁷³ Law of the Sea Bulletin (note 62), 58.

⁷⁴ It may be arguable here that the principle of common but different responsibility may come into play. In accordance with this principle, developing countries have different and more diminished obligations. This principle is clearly reflected in Principle 7 of the Rio Declaration, as well as various environment-related treaties. In the context of marine environmental protection, it is noteworthy that Article 207 (4) of the 1982 LOSC requires States to take into account "characteristic regional features, the economic capacity of developing States and their need for economic development". It would seem that the principle of common but different responsibility is worth considering in the global regulation of marine pollution from land-based sources. With respect to this principle, see D. French, *Developing States and International Environmental Law: The Importance of Differentiated Responsibilities*, 49 ICLQ 35-60 (2000); Y. Matsui, *The Principle of "Common But Differentiated Responsibilities"*, in: N. Schrijver/F. Weiss (eds.), *International Law and Sustainable Development, Principles and Practice*, The Hague 2004, 73-96.

will assume considerable importance to combat against land-based pollution.⁷⁵ This view is supported by the fact that marine pollution from land-based sources has been regulated primarily by regional treaties. Thus, the next Part will address the question how regional agreements regulate the land-based marine pollution.

III. Analysis of Regional Agreements Concerning the Regulation of Land-Based Pollution

A. General Observation

Treaties regulating marine pollution, including pollution from land-based sources, are increasingly concluded at the regional level.⁷⁶

Table:
Regional Treaties which Cover the Regulation of the Land-Based Marine Pollution

Year	Title	Entered into Force
1974	Nordic Environmental Protection Convention	1976
1974	Convention for the Prevention of Marine Pollution from Land-Based Sources	1978
1974	Convention on the Protection of the Marine Environment of the Baltic Sea Area	1980
1976	Convention for the Protection of the Mediterranean Sea Against Pollution	1978
1978	Kuwait Regional Convention for Co-Operation on the Protection of the Marine Environment from Pollution	1979
1980	Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources	1983
1981	Convention for Co-Operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region	1984

⁷⁵ Mensah (note 42), 322; Yankov (note 41), 282; Birnie/Boyle (note 18), 419. The 1995 GPA also stresses the importance of regional and subregional cooperation and arrangements (note 3), para. 29. In addition, it would seem that Agenda 21 also shows a preference for the regional approach. Dahl (note 6), 564-565. This does not mean, however, that the global legal framework has no role to play in this area. In fact, regional treaties reflect and amplify rules and elements developed at the global level. Hence, attention should be directed to the interaction between regional and global legal frameworks.

⁷⁶ See Table. With respect to regional treaties concerning the marine environmental protection, see also the regional seas programmes of the UNEP <<http://www.unep.org/regionalseas/Programmes/default.asp>>.

Year	Title	Entered into Force
1981	Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific	1986
1982	Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment	1985
1983	Protocol for the Protection of the South-East Pacific Against Pollution from Land-Based Sources	1986
1983	Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region	1986
1985	Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region	1996
1986	Convention for the Protection of Natural Resources and Environment of the South Pacific Region	1990
1990	Protocol to the Kuwait Regional Convention for the Protection of the Marine Environment Against Pollution from Land-Based Sources	1993
1992	Convention on the Protection of the Black Sea Against Pollution	1994
1992	Protocol on Protection of the Black Sea Marine Environment Against Pollution from Land-Based Sources	1994
1992	Convention on the Protection of the Marine Environment of the Baltic Sea Area	2000
1992	Convention for the Protection of the Marine Environment of the North-East Atlantic	1998
1995	Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean	2004
1996	Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources and Activities	*
1999	Protocol Concerning Pollution from Land-Based Sources and Activities to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region	*
		*not entered into force

In particular, it is noteworthy that specific Protocols on land-based marine pollution are concluded in the following regions: the Baltic Sea, the Black Sea, the Mediterranean Sea, the North-East Atlantic, Kuwait Region, the South-East Pa-

cific, and Wider Caribbean Sea.⁷⁷ It is to be noted, though, that no specific protocol in this field has been developed in the East Asian Seas, Red Sea and Gulf of Aden, South Pacific, West and Central Africa, East Africa, the North-East Pacific, the North-West Pacific, the South Asian Seas, the South-West Atlantic, and Arctic.

For the purpose of this study, the following documents are, among regional conventions on this issue, of particular importance:

(i) the 1980 Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources (hereafter the Athens Protocol),⁷⁸

(ii) the 1983 Protocol for the Protection of the South-East Pacific Against Pollution from Land-Based Sources (hereafter the 1983 Quito Protocol),⁷⁹

(iii) the 1990 Protocol to the Kuwait Regional Convention for the Protection of the Marine Environment Against Pollution from Land-Based Sources (hereafter the 1990 Kuwait Protocol),⁸⁰

(iv) the 1992 Protocol on Protection of the Black Sea Marine Environment Against Pollution from Land Based Sources (hereafter the 1992 Bucharest Protocol),⁸¹

(v) the 1992 Convention on the Protection of the Marine Environment of the Baltic Sea (hereafter the 1992 Helsinki Convention),⁸²

(vi) the 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic (hereafter the 1992 OSPAR Convention),⁸³

(vii) the 1996 Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources and Activities (hereafter the 1996 Syracuse Protocol),⁸⁴

⁷⁷ With respect to an overview on regional conventions, protocols, as well as regional seas programme concerning land-based marine pollution, see GESAMP, Protecting the Oceans from Land-Based Activities: Land-Based Sources and Activities Affecting the Quality and Uses of the Marine, Coastal and Associated Freshwater Environment, Rep. Stud. GESAMP No. 71, 2001, 56-74. This document is available at <<http://gesamp.imo.org/no71/report.pdf>>. See also Birnie/Boyle (note 18), 411-415.

⁷⁸ Entered into force on 17 June 1983. This protocol was amended and recorded as the Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources and Activities. Amendments are accepted by Albania, Cyprus, EC, France, Greece, Italy, Malta, Monaco, Slovenia, Spain, Tunisia and Turkey. Awaiting Ratification from Algeria, Bosnia and Herzegovina, Croatia, Egypt, Israel, Lebanon, Libya, Serbia and Montenegro, and Syria. For the text of the 1980 Athens Protocol, <<http://sedac.ciesin.org/entri/texts/mediterranean.pollution.1976.html>>.

⁷⁹ Entered into force in 1986. The text of the Protocol is available at ECOLEX: A Gateway to Environmental Law <<http://www.ecolex.org/ecolex/index.php>>.

⁸⁰ Entered into force on 2 January 1993. For the text of the Protocol, <<http://sedac.ciesin.columbia.edu/entri/texts/acrc/kuwaitprot.txt.html>>.

⁸¹ Entered into force on 15 January 1994. For the text of the Protocol, 32 ILM 1122-1127 (1993).

⁸² Entered into force on 17 January 2000. The text of the agreement is available at the homepage of HELCOM <<http://www.helcom.fi/>>.

⁸³ Entered into force on 25 March 1998. The text of the Convention is available at the homepage of OSPAR Commission <<http://www.ospar.org/eng/html/welcome.html>>.

⁸⁴ Not yet in force. For the text of the Protocol, Yearbook of International Environmental Law, vol. 7, 1996, 678-696.

(viii) the 1999 Protocol Concerning Pollution from Land-Based Sources and Activities to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (hereafter the 1999 Aruba Protocol).⁸⁵

With respect to those legal documents, it is important to note that internal waters are covered in the conventional application.⁸⁶ Without regulating pollution in internal waters, measures to regulate land-based marine pollution could not be fully effective.⁸⁷ Considering that earlier marine environment-related conventions did not always cover internal waters,⁸⁸ the regulation of pollution in those waters is arguably an important development ensuring the effectiveness of regulatory measures in this matter. Concerning the sources of land based pollution, all documents listed above regard pollution through the atmosphere as land-based marine pollution,⁸⁹ although the 1982 LOSC distinguishes airborne pollution from land-based pollution under Article 212.

B. Identification of Harmful Substances: From Black/Grey Lists Approach to Uniform Approach

1. Black/Grey Lists Approach and Its Problems

Identification of harmful substances is the starting point in the regulation of the land-based marine pollution. On this issue, traditionally treaties regulating land-based pollution adopted the black/grey lists approach. In accordance with this approach, harmful substances are divided into two categories. With respect to the substances listed in a black list, usually States Parties are obliged to eliminate pollution by such substances. Concerning materials enumerated in the grey list, the ob-

⁸⁵ Not yet in force. The text of the Protocol is available at <http://www.cep.unep.org/pubs/legislation/lbsmp/final%20protocol/lbsmp_protocol_eng.html>.

⁸⁶ Article 3 of the 1980 Athens Protocol; Article 1 of the 1983 Quito Protocol; Article 2 of the 1990 Kuwait Protocol; Article 1 (a) of the OSPAR Convention; Article 1 of the Helsinki Convention; Article 3 of the 1992 Bucharest Protocol; Article 3 (c) of the 1996 Syracuse Protocol.

⁸⁷ E.M. Magrone, *The Protection of the Mediterranean Sea Against Pollution Caused by Land-Based Sources and Activities*, in: S. Marchision/G. Tamburelli/L. Pecoraro (eds.), *Sustainable Development and Management of Water Resources: A Legal Framework for the Mediterranean*, Institute for Legal Studies on the International Community, Rome 1999 (electronic version), 81.

⁸⁸ For instance, 1974 Convention on the Protection of the Marine Environment of the Baltic Sea Area excluded international waters from its Convention Area (Article 1). The same was true of the 1983 Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Article 1 (2)), the 1986 Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (Article 1 (2)), and the 1985 Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Article 1 (2)).

⁸⁹ Article 4 (1) (b) of the 1980 Athens Protocol; Article 2 (c) of the 1983 Quito Protocol; Article 3 (d) of the 1990 Kuwait Protocol; Article 1 of the 1992 Bucharest Protocol; Article 2 of the 1992 Helsinki Convention; Article 1 (e) of the 1992 OSPAR Convention; Article 4 (1) (b) of the 1996 Syracuse Protocol and Article 1 (4) of the 1999 Aruba Protocol.

ligation of States is relaxed, and States are merely required to limit pollution by these materials. The black/grey lists approach was adopted by the 1974 Convention for the Prevention of Marine Pollution from Land-Based Sources (hereafter the 1974 Paris Convention), the 1974 Convention on the Protection of the Marine Environment of the Baltic Sea Area (hereafter the 1974 Helsinki Convention),⁹⁰ the 1980 Athens Protocol,⁹¹ the 1983 Quito Protocol,⁹² and the 1992 Bucharest Protocol.⁹³

The 1974 Paris Convention may be taken as an example of this. This convention differentiates obligations for the Contracting Parties depending on the nature of harmful substances. With respect to substances listed in Part I of Annex A, the Contracting Parties are obliged to undertake to eliminate, “if necessary by stages”, pollution of the maritime area from land-based sources of these substances since pollution by them necessitated urgent action.⁹⁴ In so doing, the Contracting Parties are required to implement programmes and measures “for the elimination, as a matter of urgency, of pollution of the maritime area from land-based sources by substances listed in Part I of Annex A”.⁹⁵ Concerning substances listed in Part II of Annex A, the Contracting Parties are required only to “limit strictly” pollution of the marine area from these pollutants.⁹⁶ In this respect Article 4 (2) (b) stipulates that the Contracting Parties shall implement programmes and measures “for the reduction or, as appropriate, elimination of pollution of the maritime area” by substances listed in Part II of Annex A. Yet the same provision further adds that: “[t]hese substances shall be discharged *only after approval has been granted* by the appropriate Authorities within each contracting State” (emphasis added). It would seem to follow that the discharge of substances listed in Part II would be possible after approval of the relevant Authorities has been obtained.

It is further problem that, in some cases, the discharge of harmful substances which are enumerated in black list are not completely prohibited. For instance, the Parties to the 1980 Athens Protocol are under an obligation to undertake to “eliminate” pollution of the Protocol Area from land-based sources by substances listed in Annex I, while they are required to “strictly limit” pollution from substances or sources listed in Annex II.⁹⁷ Nevertheless, in accordance with Annex I, section B of this Protocol, “[t]he present annex does not apply to discharges which contain substances listed in section A that are below the limits defined jointly by

⁹⁰ Articles 5 and 6.

⁹¹ Articles 5 and 6. With respect to the analysis of these articles, see K u w a h a r a (note 2), 55-58.

⁹² Articles 4 and 5.

⁹³ Article 4.

⁹⁴ Article 4 (1) (a). It should be noted that this obligation is mitigated by the qualification, “if necessary by stages”. In addition, the Contracting Parties undertake to adopt measures to forestall and, as appropriate, eliminate pollution of the maritime area from radioactive substances, including wastes, listed in Part III of Annex A.

⁹⁵ Article 4 (2) (a).

⁹⁶ Ibid., (1) (b).

⁹⁷ Articles 5 and 6.

the Parties". Furthermore, curiously Annex III of the Athens Protocol listed factors which will be considered "[w]ith a view to the issue of an authorisation for the discharge of wastes containing substances referred to in annex II or in section B of annex I of this Protocol". In so doing, it would seem that even substances listed in Annex I may be subject to the authorisation for discharge, should such substances be below the limits defined jointly by the Parties. If this is the case, the distinction between Annex I (the black list) and Annex II (the grey list) becomes obscure. A similar question arises with respect to the 1983 Quito Protocol. Article IV of this Protocol places an obligation upon Parties to endeavour to eliminate pollution caused by the substances listed in Annex I, while Article V requires Parties to endeavour progressively to reduce pollution caused by substances or sources listed in Annex II. Nonetheless, Annex III enumerates factors which should be taken into account "[w]ith a view to the issue of an authorisation for the discharge of wastes containing substances referred to in annexes I and II of this Protocol." Unlike the 1980 Athens Protocol, Annex III of the 1983 Quito Protocol does not specify whether or not discharges which contain harmful substances are beyond or below limits defined by the Parties. It would seem to follow that in spite of Article IV, even substances listed in Annex I may be discharged with an authorisation.⁹⁸ It appears that the same problem arises with respect to the 1992 Bucharest Protocol. In fact, Annex I which concerns hazardous substances (the black list) does not apply to discharges which contain substances and matter that are below the concentration limits defined jointly by the Contracting Parties. Furthermore, paragraph 3 of Annex III stated that "[w]hen issuing a permit for the discharge of wastes containing substances and matter referred to in Annexes I and II to this protocol [...]". Thus it may be assumed that the discharge of hazardous substances listed in Annex I is not completely prohibited.

In addition to this loophole, the black/grey lists approach is not free from controversy. A question relates to the categorisation of harmful substances.⁹⁹ For instance, mercury and cadmium were in Annex II (the grey list) in the 1974 Helsinki Convention, although these materials were categorised in the black list in the 1974 Paris Convention, the 1980 Athens Protocol, the 1983 Quito Protocol, as well as the 1992 Bucharest Protocol. Furthermore, while radioactive substances were in Annex I (the black list) in the 1980 Athens Protocol as well as the 1983 Quito Protocol, such substances were listed in Annex II (the grey list) in the 1974 Helsinki Convention. Hence, regulatory measures applicable to the same substances may vary depending on agreements. A more important criticism is that the black/grey list approach is contrary to the fundamental goal of preventing all marine pollution

⁹⁸ Birnie/Boyle (note 18), 411; Tsukikawa (note 48), 64.

⁹⁹ Ibid., 63.

since, in accordance with this approach, States are merely under a relaxed obligation with respect to “grey list” substances.¹⁰⁰

2. Development of the “Uniform Approach”

In response to these problems, some recent conventions tend to replace the black/grey lists approach by the uniform approach, which seeks to regulate harmful substances of land-based pollution without any differentiation of obligations in accordance with the category of harmful substances. For instance, the 1992 OSPAR Convention, which replaced the 1974 Paris Convention, places an explicit obligation upon the Contracting Parties to take, individually and jointly, all possible steps to prevent and eliminate pollution from land-based sources in accordance with the provisions of the Convention, in particular as provided for in Annex I.¹⁰¹ To this end, the OSPAR Convention provides a single list of priority pollutants. The criteria setting priorities, and in assessing the nature and extent of the programmes and measures and their time scales, are given in Appendix 2 of the OSPAR Convention.¹⁰² This list is in essence a combination of the “black and grey lists” laid down in the annexes of the 1974 Paris Convention.¹⁰³ It follows that the “grey list” substances under the 1972 Paris Convention are also covered by the same obligation of preventing and eliminating these pollutants embodied in the OSPAR Convention.¹⁰⁴ On the other hand, Article 2 (1) of Annex I stipulates that: “Point source discharges to the maritime area, and release into water or air which reach and may affect the maritime area, shall be strictly subject to authorisation or regulation by the competent authorities of the Contracting Parties.” It would seem to follow that point source discharges would be possible with the authorization or regulation by relevant authorities. At the same time, Article 2 (1) of Annex I makes it clear that “[s]uch authorisation or regulation shall, in particular, implement relevant decisions of the Commission which bind the relevant Contracting Party”. Furthermore, as will be seen, the OSPAR Commission, made up of representatives of each of the Contracting Parties, is under an obligation to draw up plans for the reduction and phasing out of hazardous substances in accordance with Article 3 (a) of Annex I. Thus, importantly the authorisation or regulation by the Contracting Parties with respect to emissions of such substances is subject to the control of the OSPAR Commission. Overall the replacement of the black/grey lists approach by

¹⁰⁰ Such a concern was voiced with respect to the 1974 Paris Convention. E. Hey/T. IJlstra/A. Nollkaemper, *The 1992 Paris Convention for the Protection of the Marine Environment of the North-East Atlantic: A Critical Analysis*, 8 *IJMCL* 19 (1993). See also Tsukikawa (note 48), 62.

¹⁰¹ Article 3.

¹⁰² Article 1 (2) of Annex I and Appendix 2 (1) of the OSPAR Convention.

¹⁰³ M. Pallemaerts, *The North Sea and Baltic Sea Land-Based Sources Regimes: Reducing Toxics or Rehashing Rhetoric?*, 13 *IJMCL* 438 (1998). It should also be noted that radioactive substances are included in the category of land-based pollution by virtue of Article 1 (4) of Annex I.

¹⁰⁴ *Ibid.*, 438-439. Hey/IJlstra/Nollkaemper (note 100), 19-20. Tsukikawa (note 48), 65.

the uniform approach, without any differentiation of obligations in accordance with the category of harmful substances, represent an important development in the legal framework for the environmental protection of the North-East Atlantic region.¹⁰⁵

Similarly, the 1992 Helsinki Convention, which replaced the 1974 Helsinki Convention, also seeks to regulate pollution from land-based sources without distinguishing black and grey lists. In this respect, Article 2 (2) defines land-based pollution as:

pollution of the sea by point or diffuse inputs from *all sources* on land reaching the sea waterborne, airborne or directly from the coast. It includes pollution from any deliberate disposal under the seabed with access from land by tunnel, pipeline or other means (emphasis added).

Article 6 then imposes the Contracting Parties to “undertake to prevent and eliminate pollution of the Baltic Sea Area from land-based sources by using, *inter alia*, Best Environmental Practice for all sources and Best Available Technology for point sources.” Furthermore, Article 5 places an obligation upon the Contracting Parties to “undertake to prevent and eliminate pollution of the marine environment of the Baltic Sea Area caused by harmful substances from all sources, according to the provisions of this Convention, and, to this end, to implement the Procedures and measures of Annex I”. Annex I of the 1992 Helsinki Convention contains many harmful substances which were listed in Annex II (grey list) of the 1974 Helsinki Convention. It follows that substances listed in the “grey list” of the 1972 Helsinki Convention also become objects to be prevented and eliminated in the 1992 Helsinki Convention. On the other hand, Article 6 (3) stipulates that: “Harmful substances from point sources shall not, except in negligible quantities, be introduced directly or indirectly into the marine environment of the Baltic Sea Area, *without a prior special permit*, which may be periodically reviewed, issued by the appropriate national authority in accordance with the principles contained in Annex III, Regulation 3” (emphasis added). Accordingly, it would seem that the discharge of harmful substances would be possible with a prior special permit in the 1992 Helsinki Convention. Even so, procedures for issuing permits for industrial plants are provided in some detail in Regulation 3 of Annex III. Moreover, on the request of a Contracting Party or of the Helsinki Commission, the Contracting Parties shall provide information on discharge permits, emission data or data on environmental quality, as far as available by virtue of Article 16 (2). Thus, it would seem that discretion of the Contracting Parties is more limited than before in this matter. In addition, the 1996 Syracuse Protocol, which replaced the 1980 Athens Protocol, and the 1999 Aruba Protocol also adopted the uniformed approach.

Overall it may be arguable that the uniform approach is in line with the development of the international law relating to the marine environment.¹⁰⁶ Tradition-

¹⁰⁵ Pallemarts (note 103), 438-439.

¹⁰⁶ In connection with this, one may note with interest that the validity of the “black/grey” lists approach is also in reconsideration in relation to dumping. The 1972 International Convention on the

ally States have enjoyed a large degree of discretion to determine whether, and to what extent, they must regulate marine pollution; and only the law of State responsibility has afforded some general protection in the traditional law of the sea. Yet the 1982 LOSC created a legal framework the primary focus of which was not on obligations of responsibility for damage, but on general and comprehensive regulation to prevent marine pollution.¹⁰⁷ Indeed, the framework embodied in the LOSC is general in its nature because the Convention established the obligation of all States preventing marine pollution. In this respect, Article 192 explicitly states that: “States have the obligation to protect and preserve the marine environment.” This obligation is not qualified. Nor does this provision say that the marine environment must be protected only if failure to do so may harm other States. At the same time, the obligation to protect the marine environment under the 1982 LOSC is a comprehensive one in the sense that it covers all sources of marine pollution.¹⁰⁸ One may speak here of a paradigm shift of the law from the principle of freedom of pollution to an obligation to prevent pollution.¹⁰⁹ Thus, it may be said that the controlling principle of the legal regime for the protection of the marine environment was changed from the discretion of States to the duty of the protection by States.¹¹⁰ The paradigm shift in the law is of central importance in the protection of the marine environment. It appears that the uniform approach reflects this paradigm shift in the marine environmental protection. In this sense, it could be said that the replacement of the black/grey lists approach by the uniform approach is an important development in this field.

C. Precautionary Approach

1. Precautionary Approach Embodied in Regional Treaties

Another new approach in this field relates to the precautionary approach or principle.¹¹¹ The precautionary approach/principle is becoming an important ele-

Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention) adopted the “black/grey” lists approach. Nevertheless, the 1996 Protocol to the London Convention replaced the “black/grey” approach by so called “reverse listing” approach. In accordance with this approach, the dumping of any wastes or other matter is prohibited with the exception of those listed in Annex 1. Consequently, the dumping of wastes is in principle prohibited, and exceptions must be clearly listed in paragraph 1 of Annex 1.

¹⁰⁷ Boyle (note 39, AJIL), 350; Charney (note 33), 882.

¹⁰⁸ Boyle (note 39, AJIL), 350.

¹⁰⁹ Ibid. See also Birnie/Boyle (note 18), 348-349.

¹¹⁰ Boyle (note 39, AJIL), 350. See also M. Tomioka, History of the Protection of the Marine Environment (in Japanese), in: T. Kuribayashi/T. Sugihara (eds.), Historical Development of the Law of the Sea, Tokyo 2004, 254.

¹¹¹ While the terminology of this concept is not uniform, this study uses the term “precautionary approach”. There are many studies on this issue. For a recent study including bibliography in detail,

ment in the context of the environmental protection, and the marine environment is no exception.¹¹² Although the definition of the precautionary approach varies depending on the instruments, it may be understood that the essence of this approach is that once a serious or irreversible risk has been identified, the lack of scientific proof of cause and effect shall not be used as a reason for not taking action to protect the environment.¹¹³ The precautionary approach is currently enshrined as a legal obligation in some regional agreements with respect to the regulation of pollution from land-based sources. For instance, Article 2 (2) (a) of the OSPAR Convention stipulates that the Contracting Parties shall apply:

(a) the precautionary principle, by virtue of which preventive measures are to be taken when there are reasonable grounds for concern that substances or energy introduced, directly or indirectly, into the marine environment may bring about hazards to human health, harm living resources and marine ecosystems, damage amenities or interfere with other legitimate uses of the sea, even when there is no conclusive evidence of a causal relationship between the inputs and the effects.¹¹⁴

With respect to this formulation, it may be noted that, unlike a negative formulation which merely states that scientific uncertainty should not delay the taking of preventive measures, the formulation of the OSPAR Convention positively requires that States take preventive measures when there is a reasonable concern of a hazard.¹¹⁵ As the “precautionary principle” is considered a general obligation, it is also to be applicable to land-based pollution.

Similarly, Article 3 (2) of the 1992 Helsinki Convention explicitly obliges the Contracting Parties to apply the “precautionary principle.” As this principle is set out as one of the fundamental principles and obligations of the 1992 Helsinki Convention, the Contracting Parties are under a duty to apply this principle to the regulation of land-based pollution. In relation with this, it is notable that the Helsinki Convention refers to a lack of conclusive evidence of a causal relationship between the inputs and “alleged effects,” while the 1992 OSPAR Convention refers to a lack of such evidence with respect to the inputs and “the effects”. Accordingly, it may be possible to argue that the Helsinki Convention provides a broader appli-

see A. Trouwborst, *Evolution and Status of the Precautionary Principle in International Law*, The Hague 2002.

¹¹² With respect to the precautionary principle in the law of the sea, see S. Marr, *The Precautionary Principle in the Law of the Sea*, The Hague 2003 (in particular, 46-99.); P.-M. Dupuy, *Le principe de précaution et le droit international de la mer*, in: *La mer et son droit*, Mélanges offerts à Laurent Lucchini et Jean Pierre Quéneudec, Paris 2003, 205-220.

¹¹³ D. Freestone/E. Hey, *Origin and Development of the Precautionary Principle*, in: *ibid.* (eds.), *The Precautionary Principle and International Law: The Challenge of Implementation*, The Hague et al. 1996, 13.

¹¹⁴ It is suggested that the OSPAR Convention is the first treaty which explicitly adopted the precautionary principle. J. Hilf, *The Convention for the Protection of the Marine Environment of the North-East Atlantic – New Approaches to an Old Problem?*, 55 *ZaöRV* 586 (1995).

¹¹⁵ Louise de la Fayette, *The OSPAR Convention Comes into Force: Continuity and Progress*, 14 *IJMCL* 254 (1999).

cation of the precautionary principle than the OSPAR Convention.¹¹⁶ In addition, the 1996 Syracuse Protocol refers to the “precautionary principle” in its Preamble.

2. Limits with the Precautionary Approach

On the other hand, it appears that at the present stage at least, the legal impact of applying the precautionary approach in the environmental protection is a modest one. This view is supported by the fact that international courts and tribunals have been prudent to apply this approach in disputes relating to the environmental protection.¹¹⁷ For instance, in the Request for an Examination of the Situation in Accordance with Paragraph 63 of the Court’s Judgment of 20 December 1974 in the *Nuclear Tests* case of 1995, New Zealand contended that France was under an obligation to provide evidence that its new underground nuclear tests would not result in the introduction of such material to that environment in accordance with the “precautionary principle”.¹¹⁸ New Zealand further claimed that by virtue of the adoption into environmental law of the “precautionary principle”, the burden of proof fell on a State wishing to engage in potentially damaging environmental conduct to show in advance that its activities would not cause contamination.¹¹⁹ Nonetheless, the ICJ discarded the New Zealand’s request on the ground that its Judgment of 1974 dealt exclusively with atmospheric nuclear tests; and that it was impossible for the Court to take into consideration questions relating to underground nuclear tests.¹²⁰ In so deciding, the Court did not touch on the applicability of the “precautionary principle” in this case.¹²¹

Similarly, in the *Gabčíkovo-Nagymaros Project* case of 1997, Hungary argued that the previously existing obligation not to cause substantive damage to the territory of another State had evolved into an *erga omnes* obligation of prevention of damage pursuant to the “precautionary principle”. Furthermore, Hungary justified its conduct of suspending or abandoning certain works required in the 1977 Treaty on the basis of a “state of ecological necessity”.¹²² In this respect, the ICJ held that the Hungarian argument on the state of necessity could not convince the Court unless it was at least proven that a real, “grave” and “imminent” “peril” existed in 1989 and that the measures taken by Hungary were the only possible response to it.¹²³ In relation with this, the ICJ stated that “a state of necessity could not exist

¹¹⁶ J. Ebbesson, A Critical Assessment of the 1992 Baltic Sea Convention, 43 GYIL 45 (2000).

¹¹⁷ Dupuy (note 112), 215-220.

¹¹⁸ ICJ Reports (1995), 290, para. 5.

¹¹⁹ ICJ Reports (1995), 298, para. 34. See also Written Pleadings by New Zealand, 53-57, paras. 105-110.

¹²⁰ ICJ Reports (1995), 306, para. 63.

¹²¹ On the other hand, Judge *ad hoc* Palmer stated that: “the norm involved in the precautionary principle has developed rapidly and may now be a principle of customary international law relating to the environment.” Dissenting Opinion of Judge *ad hoc* Palmer, ICJ Reports (1995), 412, para. 91.

¹²² ICJ Reports (1997), 35-37, paras. 40-42.

¹²³ *Ibid.*, 42, para. 54.

without a 'peril' duly established at the relevant point in time; the mere apprehension of a possible 'peril' could not suffice in that respect".¹²⁴ Moreover, in the Court's view, the concept of "imminence" goes far beyond the concept of "possibility".¹²⁵ In conclusion, the ICJ held that the peril alleged by Hungary was not sufficiently certain and imminent; and that Hungary could have resorted to other means in order to respond to the dangers that it apprehended.¹²⁶ In so deciding, the ICJ did not touch on the precautionary principle at all. It is unclear whether the Court in this case considered that the environmental risks were sufficiently certain to require no reliance on the precautionary principle, or whether the Court did not regard the principle as having any legal status.¹²⁷ Considering that the Court interpreted the notion of risk in a restrictive manner, however, it may not be absurd to resume that the ICJ was still prudent to apply the precautionary approach.¹²⁸

The judicial hesitation was echoed by the International Tribunal for the Law of the Sea (hereafter the ITLOS). In the *MOX Plant* case between Ireland and the UK of 2001, Ireland argued that the manufacture of MOX fuel at Sellafield involved significant risks for the Irish Sea, since such manufacture would inevitably lead to some discharges of radioactive substances into the marine environment, via direct discharges and through the atmosphere;¹²⁹ and that the precautionary principle was to be applicable as a rule of customary international law. Nonetheless, the ITLOS did not prescribe the provisional measures requested by Ireland, on the ground that there was no urgency of the situation in the short period before the constitution of the Annex VII arbitral tribunal.¹³⁰ It is true that the ITLOS considered that prudence and caution required that Ireland and the United Kingdom co-operate in exchanging information concerning risks or effects of the operation of the MOX Plant and in devising ways to deal with them.¹³¹ Nonetheless, no explicit mention was made with respect to the precautionary approach in this case.¹³²

¹²⁴ Ibid.

¹²⁵ Ibid.

¹²⁶ Ibid., 44-45, para. 56.

¹²⁷ A.E. Boyle, *The Gabčíkovo-Nagymaros case: New Law in Old Bottles*, 8 Yearbook of Environmental Law 17 (1997).

¹²⁸ J. Sohnle, *Irruption du droit de l'environnement dans la jurisprudence de la C.I.J.: l'affaire Gabčíkovo-Nagymaros*, 102 RGDIP 110-111 (1998).

¹²⁹ Request for Provisional Measures and Statement of case of Ireland, 9 November 2001, 15, para. 28; 49, paras. 109-110.

¹³⁰ Order by ITLOS, 41 ILM 415 (2002), para. 81.

¹³¹ Ibid., 415, para. 84.

¹³² In this respect, Judge Wolfrum stated that: "[i]t is still a matter of discussion whether the precautionary principle or the precautionary approach in international environmental law has become part of international customary law." Separate Opinion of Judge Wolfrum, *ibid.*, 428-429. See also Separate Opinion of Judge Treves, *ibid.*, 431. Furthermore, in the context of the conservation of marine living resources, it will be recalled that the ITLOS, in the *Southern Bluefin Tuna* cases, did not explicitly refer to the precautionary principle. Order of the ITLOS, 1999, 38 ILM 1624 et seq. (1999).

It is arguable that there are good reasons for this judicial hesitation.¹³³ Indeed, it is foreseeable that the application of the precautionary approach will face difficulties in some respects.

First, a question arising is how it is possible to determine the existence of serious or irreversible risks which may trigger the application of the precautionary approach. Due to its nature, a need for the application of the precautionary approach is to be determined on the basis of potential risks. Yet the assessment of serious risk is often difficult to make since such risk may not be well known or it may be not possible to discover through present-day science.¹³⁴ This is so since the scientific knowledge of the oceans as well as marine ecosystems is still inadequate.¹³⁵ Furthermore, it must be noted that the results of the assessment of possible serious harms may change in accordance with the development of scientific technology.¹³⁶ Accordingly, as typically shown in the *MOX Plant* case, these uncertainties may produce differences in opinions between scientists or between States. In relation with this, one should note that in international community, there is no compulsory dispute settlement mechanism to authoritatively determine the existence of potential risks. Given the vagueness of the concept of potential risks, the lack of a compulsory mechanism of dispute settlement would introduce a factor of instability in international law.

Secondly, it must be noted that the application of the precautionary approach may restrict economic and industrial activities by States. This is particularly true of the regulation of land-based activities. Thus it is essential to reconcile the environmental protection with economic interests. To this end, there is a need to consider not only scientific factors but also economic, social and political factors into account in the application of the precautionary approach. In particular, the cost-effectiveness in the implementation of the precautionary approach is of particular importance.¹³⁷ Yet the evaluation of those factors concerns in essence a policy of relevant States which can be best answered by politicians, rather than jurists or scientists.¹³⁸ Here arguably there is an inherent limit of judicial body in the application of the precautionary approach. Hence, it will be desirable that the application of the precautionary approach should be decided by an international forum, in-

¹³³ Birnie/Boyle (note 18), 119.

¹³⁴ P. Martin-Bidou, Le principe de précaution en droit international de l'environnement, 13 RGDIP 647 (1999).

¹³⁵ Cf. D.M. Dzidzornu, Four Principles in Marine Environment Protection: A Comparative Analysis, 29 ODIL 99 (1998).

¹³⁶ Martin-Bidou (note 134), 651.

¹³⁷ The importance of the cost-effectiveness is highlighted, for instance, by Lucchini. L. Lucchini, Le principe de précaution en droit international de l'environnement: ombres plus que lumières, 45 AFDI 727-729 (1999).

¹³⁸ On this point, Kiss argues that: "One of the main characteristics of the precautionary principle is that in those cases where there is scientific uncertainty it moves the real burden of taking decisions from scientists to policy makers – to those whose task it is to govern." A. Kiss, The Rights and Interests of Future Generations and the Precautionary Principle, in: Freestone/Hey (note 113), 27. See also Birnie/Boyle (note 18), 119.

cluding the Conference of the Parties. In this sense, importance will be underscored for the institutionalization of decision making process concerning the application of the precautionary approach.

D. Regulatory Measures

1. The Best Available Techniques and the Best Environmental Practice

The next issue that should be addressed concerns specific measures to prevent marine pollution from land-based sources. Regional agreements often place a general obligation upon the Contracting Parties to take “all appropriate measures” to prevent pollution from land-based sources.¹³⁹ Yet those measures need further specification. In this respect, it is important to note that the use of the “Best Available Techniques (‘BAT’)” and the “Best Environmental Practice (‘BEP’)” is reflected in some conventions. For instance, Article 2 (3) (b) of the 1992 OSPAR Convention requires the Contracting Parties to take into account BAT as well as BEP. In accordance with paragraph 2 of Appendix 1 of the 1992 OSPAR Convention, the term “best available techniques” means “the latest stage of development (state of the art) of processes, of facilities or of methods of operation which indicate the practical suitability of a particular measure for limiting discharges, emissions and waste”.¹⁴⁰ In relation to this, paragraph 2 of Appendix 1 enunciates technological and economic elements to be taken into account in determining BAT. In accordance with paragraph 6 of Appendix I of the OSPAR Convention, the term “best environmental practice” is defined as “the application of the most appropriate combination of environmental control measures and strategies”. The same paragraph then lists the graduated range of measures to be considered in making a selection for individual cases in some detail. Thus, Article 1 (1) of Annex I of the OSPAR Convention calls upon the Parties to use BAT as well as BEP when adopting programmes and measures for the purpose of this Annex, *i.e.*, the prevention and elimination of pollution from land-based sources.

The use of the BAT as well as BEP is also provided in Article 6 (1) of the 1992 Helsinki Convention. In this regard, the 1992 Helsinki Convention provides similar definitions of BAT as well as BEP with those of the OSPAR Convention.¹⁴¹ With respect to factors which should be considered in the implementation of BAT as well as BEP, the 1992 Helsinki Convention enumerates essentially similar factors listed in the OSPAR Convention.¹⁴² On the other hand, unlike the OSPAR

¹³⁹ See for instance Article 1 of the 1980 Athens Protocol, Article 3 of the 1983 Quito Protocol, Article 1 of the 1992 Bucharest Protocol, and Article 1 of the 1996 Syracuse Protocol.

¹⁴⁰ In accordance with paragraph 5 of Appendix 1, “techniques” include both the technology used and the way in which the installation is designed, built, maintained, operated and dismantled under paragraph 5.

¹⁴¹ Regulation 2 (1) and Regulation 3 (1) of Annex II of the 1992 Helsinki Convention.

¹⁴² Regulation 2 (1) and Regulation 3 (2) of Annex II of the 1992 Helsinki Convention.

Convention, the 1992 Helsinki Convention makes it clear that the precautionary principle should be considered in determining the contents of BAT as well as BEP.¹⁴³ Moreover, the 1996 Syracuse Protocol also obliges the Parties to take into account the BAT as well as the BEP when adopting action plans, programmes and measures in accordance with Article 5 (4).

It is conceivable that to some extent the use of the BAT as well as the BEP may limit the margin of discretion of States Parties concerning their implementation of the obligations limiting discharges, emissions and wastes.¹⁴⁴ Furthermore, arguably the obligation to use the BAT as well as the BEP may be a useful tool to specify a standard of “due diligence”.¹⁴⁵ To this extent, this obligation could strengthen the regulation of pollution from land-based sources. On the other hand, the use of BAT and BEP contains some issues that require further consideration.

First, the identification of the BAT and BEP might not always be a clear-cut one since such factors will change with time in the light of technological advances, economic and social factors, as well as changes in scientific knowledge and understanding.¹⁴⁶ Contracting Parties have in such cases a wide margin of discretion, and BAT as well as BEP cannot be objectively determined.¹⁴⁷ Furthermore, it is arguable that a standard that represents the BAT in one region may not be the BAT in another since political, economic, ecological and technical backgrounds differ between States and regions.¹⁴⁸

Secondly, an important question arising is how it is possible to balance the implementation of BAT as well as BEP and economic interests. On this point, it is arguable that a decisive factor may be the “economic feasibility” of the technology.¹⁴⁹ While this factor may allow States to balance the use of BAT and BEP and economic interests, a caveat here, however, is that the consideration of short-term economic interests may result in the avoidance of expensive but effective measures to prevent marine pollution.¹⁵⁰ Accordingly, there is scope to argue that the implementation of BAT as well as BEP may be qualified by economic elements.

¹⁴³ Regulation 2 (2) and Regulation 3 (2) of Annex II of the 1992 Helsinki Convention. Tsukikawa (note 48), 112.

¹⁴⁴ R. Wolfrum, Precautionary Principle, in: J-P. Beurier/A. Kiss/S. Mahmoudi (eds.), *New Technologies and Law of the Marine Environment*, The Hague et al. 2000, 209.

¹⁴⁵ Birnie/Boyle (note 18), 113.

¹⁴⁶ Paragraphs 3 and 8 of Appendix 1 of the OSPAR Convention; Regulation 4 of Annex II of the 1992 Helsinki Convention.

¹⁴⁷ Hey/IJlstra/Nollkaemper (note 100), 16.

¹⁴⁸ Nollkaemper (note 2), 159.

¹⁴⁹ Ebbesson (note 116), 47. This factor is listed in Regulation 3 (1) of Annex II of the 1992 Helsinki Convention, Appendix 1 (2) (c) of the 1992 OSPAR Convention, and Annex IV A (2) (c) of the 1996 Syracuse Protocol.

¹⁵⁰ de la Fayette (note 115), 256-257. In relation with this, Nollkaemper indicates that even on the national level, developing nationwide BAT and BEP standards remains problematic, given local economic and regional peculiarities; (note 2), 157, see also 161.

Thirdly, the use of BAT does not always result in pollution being entirely avoided, and the environment can be adversely affected despite the use of BAT.¹⁵¹ In this respect, it may be noted that Article 3 (3) of the 1992 Helsinki Convention provides that if the use of the BAT or the BEP does not lead to environmentally acceptable results, additional measures shall be applied.¹⁵² The similar provision is set out in Annex IV (B) (4) of the 1996 Syracuse Protocol.

Finally, special attention should be drawn to technological gaps between developed and developing States. Considering that technological capacity in developing States remain inadequate, it is difficult for those States to use the BAT and the BEP. Thus, it is arguable that technical and financial assistance to developing States is particularly important with a view to promoting the use of BAT as well as BEP in the regulation of the land-based marine pollution. In fact, it must be remembered that the 1995 Washington Declaration highlighted a need to build capacities and mobilise resources for the development and implementation of national action programmes, “in particular for developing countries, especially the least developed countries, countries with economies in transition and small island developing States” (“countries in need of assistance”).¹⁵³ At the same time, the 1995 Washington Declaration requires States and European Commission to promote access to cleaner technologies, and to knowledge and expertise, so as to address land-based activities that degrade the marine environment, in particular for countries in need of assistance.¹⁵⁴ Furthermore, Article 202 of the 1982 LOSC places a clear obligation upon States to promote programmes of scientific, educational, technical and other assistance to developing States for the protection and preservation of the marine environment and the prevention of marine pollution. The similar obligation is provided in Article 266 (2) of the 1982 LOSC. Annex VI of the LOSC also urged the industrialised countries to assist the developing countries in the preparation and implementation of their marine science, technology and ocean service development programmes.¹⁵⁵ At the regional level, it is noteworthy that Article 10 of the 1996 Syracuse Protocol explicitly provides an obligation concerning technical assistance to developing countries.¹⁵⁶ On the basis of these precedents, further consideration should be required with respect to institutional mechanisms ensuring assistance to those States.

¹⁵¹ Ebbesson (note 116), 48.

¹⁵² The similar obligation is provided in Appendix 1 (4) (9) of the 1992 OSPAR Convention.

¹⁵³ Paragraph 4.

¹⁵⁴ Paragraph 6.

¹⁵⁵ Annex VI, Resolution on Development of National Marine Science, Technology and Ocean Service Infrastructures, para. 3.

¹⁵⁶ On this point, Magrone (note 87), 84-85.

2. Environmental Impact Assessment and Monitoring

In the implementation of relevant rules regulating harmful substances discharged from land-based sources, there is a need to examine the impact of planned activities upon the marine environment as well as the effectiveness of regulatory measures. Here environmental impact assessment (EIA) and monitoring are of particular importance.¹⁵⁷ In accordance with “Goals and Principles of Environmental Impact Assessment” adopted by UNEP in 1987, environmental impact assessment means “an examination, analysis and assessment of planned activities with a view to ensuring environmentally sound and sustainable development”.¹⁵⁸ With respect to the protection of the marine environment, Article 206 of the 1982 LOSC provides an obligation to undertake EIA:

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 in the manner provided in article 205.

This formulation is basically reflected in Article VII (2) of the 1999 Aruba Protocol. A similar obligation is also provided in Article VIII (1) of the 1990 Kuwait Protocol.

Furthermore, in light of the transboundary nature of marine pollution, international co-operation in the EIA becomes particularly important. In this respect, one will note that the 1992 Helsinki Convention sets out a dual obligation relating to the EIA: the obligation to undertake the EIA as well as the obligation to cooperate in this matter. Article 7 (1) of the 1992 Helsinki Convention calls upon the Contracting Parties to undertake EIA in the Baltic Sea Area. Article 7 (3) then requires that: “Where two or more Contracting Parties share transboundary waters within the catchment area of the Baltic Sea, these Parties shall cooperate to ensure that potential impacts on the marine environment of the Baltic Sea Area are fully investigated within the environmental impact assessment referred to in paragraph 1 of this article.”

On the other hand, the 1992 OSPAR Convention directly obliges the Contracting Parties to “undertake and publish at regular intervals joint assessments of the quality status of the marine environment and of its development, for the maritime

¹⁵⁷ Thus, Judge Weeramantry observed that EIA “is gathering strength and international acceptance, and has reached the level of general recognition at which this Court [ICJ] should take notice of it”. Dissenting Opinion of Judge Weeramantry in the *Nuclear Tests* case of 1995, ICJ Reports (1995), 344. With respect to the State practice on the EIA, see N.A. Robinson, International Trends in Environmental Impact Assessment, 19 Boston College Environmental Affairs Law Review 591-621 (1992); K.R. Gray, International Environmental Impact Assessment: Potential for a Multilateral Environmental Agreement, 11 Colorado Journal of International Environmental Law and Policy 83-128 (2000); Fitzmaurice (note 19), 280-285; P. Sands, Principles of International Environmental Law, 2nd ed., Cambridge 2003, 799-825.

¹⁵⁸ Preamble. For the text, P. Birnie/A. Boyle, Basic Documents on International Law and Environment, Oxford 1995, 27-30.

area or for regions or sub-regions thereof” in accordance with Article 6 (a). Such assessments include both an evaluation of the effectiveness of the measures taken and planned for the protection of the marine environment and the identification of priorities for action under Article 6 (b). The OSPAR Commission is also required to co-operate with competent regional organisations, and other competent international organisations, in carrying out quality status assessment under Article 3 (d) of Annex IV. Such a collective assessment will be useful in order to enhance the quality of the EIA.

The environmental impact assessment is not merely an assessment prior to the commencement of the project, but a continuing assessment as long as the project is in operation.¹⁵⁹ In so doing, there is a need to establish a monitoring system for the marine environment. Thus Article 204 of the 1982 LOSC provides obligations relating to monitoring of the risks or effects of pollution of the marine environment in a general manner. These obligations are also reflected in some regional agreements governing the land-based marine pollution. Those treaties may be divided into two rubrics.

(i) Some regional agreements provide an obligation to carry out monitoring activities merely in a restrictive manner. For instance, Article 8 of the 1980 Athens Protocol imposes the Parties to carry out monitoring activities in order to “assess, as far as possible, the levels of pollution *along their coasts*, in particular with regard to *the substances or sources listed in Annexes I and II*, and periodically to provide information in this respect”. It would seem to follow that this obligation is limited solely to the coastal area as well as substances or sources listed in annexes.¹⁶⁰ Yet the geographical scope of the coastal area is unclear. Considering that the monitoring activities also seek to “evaluate the effects of measures taken under this Protocol to reduce pollution of the marine environment” pursuant to Article 8 (b), it may be debatable whether the monitoring activities should cover the whole Protocol area. The same question arises with respect to Article 8 (a) of the 1996 Syracuse Protocol as well as Article 5 of the 1992 Bucharest Protocol.

(ii) On the other hand, other agreements place a broader obligation upon the Contracting Parties to carry out monitoring activities. For instance, Article VI of the Aruba Protocol places an obligation upon each Contracting Party to formulate and implement monitoring programmes. Such programmes may, *inter alia*:

- a. systematically identify and assess patterns and trends in the environmental quality of the Convention area; and
- b. assess the effectiveness of measures taken to implement the Protocol.

It would seem to follow that the obligation to implement monitoring programmes is not limited to the coastal area or pre-listed harmful substances. Such a

¹⁵⁹ Separate Opinion of Judge Weeramantry in the *Gabčíkovo-Nagymaros Project* case, ICJ Reports (1997), 111. In fact, the ICJ in this case required the parties to “look afresh” at the environmental effects of the project. In so doing, it is argued that the Court treats prior EIA and subsequent monitoring of the ongoing environmental risks as a continuum which will operate throughout the life of a project. *Birnie/Boyle* (note 18), 133.

¹⁶⁰ *Tsukikawa* (note 48), 88.

broad obligation to implement monitoring is also provided in Article VIII of the 1983 Quito Protocol as well as Article 7 of the 1990 Kuwait Protocol.

This cursory survey shows that the EIA as well as monitoring are increasingly reflected in regional conventions regulating the land-based marine pollution. In accordance with those treaties, arguably a State whose activities cause serious land-based marine pollution could not deny responsibility on grounds of non-foreseeability if it has not conducted such an assessment.¹⁶¹ In this sense, it may be said that the EIA can limit the margin of discretion of the States Parties in their environmental policy making, and thus enhances the obligation to prevent and eliminate pollution from land-based sources. Furthermore, the interrelationship between the precautionary approach and the EIA should be noted. As pointed to earlier, one of the difficulties in the application of the precautionary approach concerns the identification of potential risks. In this regard, it appears that the EIA, coupled with monitoring activities, can be a tool to assess the existence of risks which may trigger the application of this principle. To this extent, it may be arguable that the EIA as well as monitoring mechanisms may stimulate the application of the precautionary approach.¹⁶²

E. International Control Ensuring the Compliance of Relevant Rules

1. Reporting System

It is notable that international control through international institutions is increasingly important in order to secure the compliance of treaties.¹⁶³ While interna-

¹⁶¹ Boyle (note 27), 23.

¹⁶² K. Ishibashi, Environmental Impact Assessment (in Japanese), in: C. Mizukami et al. (eds.), *International Environmental Law*, Tokyo 2001, 212-213.

¹⁶³ It would seem that the definition of compliance in international law varies according to writers. Furthermore, it appears that international documents do not provide definite guidance in this matter. See R. Wolfrum, *Means of Ensuring Compliance with and Enforcement of International Environmental Law*, 272 RCADI 28-29 (1998). For the purpose of this study, compliance may broadly be defined as the behaviour of a State which conforms to international obligations. While some argue that those obligations may arise from both treaty and customary law, it is conceivable that basically obligations arising from multilateral treaties may be at issue. To ensure compliance, States are required to take legislative and administrative measures and procedures to fully effectuate those obligations. In this connection, distinction should be made between compliance and enforcement; it is understood that enforcement is an action to compel States to achieve compliance. Should compliance not be forthcoming, enforcement may come into play. On this point, see Wolfrum, *ibid.*, 28-30; R. Rayfuse, *To Our Children's Children's Children: From Promoting to Achieving Compliance in High Seas Fisheries*, 20 IJMCL 511-512 (2005); L.F. Damrosch, *Enforcing International Law Through Non-Forcible Measures*, 269 RCADI 22-24 (1997). On the other hand, one will note that international instruments often refer to "implementation" of measures and obligations. Although international documents do not provide a clear definition of implementation, it may be conceivable that implementation is an action to give practical effect to international obligations or the fulfilment of those obligations. In any case, there appears to be little doubt that compliance cannot be ensured without implementation of relevant obligations. In this sense, it may be arguable that the concept of compliance and implemen-

tional control is a concept with more than one meaning,¹⁶⁴ this concept may be defined as procedures through multilateral international institutions for supervising the compliance of objective obligations in a treaty.¹⁶⁵ The international control purports to supervise the compliance of treaties by a variety of procedures, such as reporting from States Parties, verification, and decisions as well as recommendations. Such an international control mechanism has been developed particularly in international human rights law, and currently many agreements concerning the environmental protection are adopting a similar mechanism.¹⁶⁶ It would seem that the international control is also useful in the regulation of land-based marine pollution.¹⁶⁷

In relation with this, it is arguable that the reporting system may provide an appropriate means to supervise the compliance of a convention by the Parties.¹⁶⁸ In fact, the reporting system has been introduced into several regional conventions regulating land-based marine pollution. For instance, Article 13 (1) of the 1996 Syracuse Protocol requires the Parties to submit reports every two years to the meetings of the Contracting Parties of measures taken, results achieved and, if the case arises, of difficulties encountered in the application of the Protocol. Such reports shall include, *inter alia*: (a) statistical data on the authorisations granted, (b) data resulting from monitoring, (c) quantities of pollutants discharged from their territories; and (d) action plans, programmes and measures implemented under Ar-

tation are closely inter-linked. On this issue, cf. Wolfrum, *ibid.*, 29. With respect to the concept of compliance or compliance control, see also P. Sands, Compliance with International Environmental Obligations: Existing International Legal Arrangements, in: J. Cameron/J. Werksman/P. Roderick (eds.), *Improving Compliance with International Environmental Law*, London 1996, 48-81; R.B. Mitchell, Compliance Theory: An Overview, in: Cameron/Werksman/Roderick, *ibid.*, 3-28; W. Lang, Compliance Control in International Environmental Law: Institutional Necessities, 56 *ZaöRV* 685-695 (1996); T. Marauhn, Towards a Procedural Law of Compliance Control in International Environmental Relations, *ibid.*, 696-731; B. Kingsbury, The Concept of Compliance as a Function of Competing Conceptions of International Law, 19 *Michigan Journal of International Law* 345-372 (1998).

¹⁶⁴ With respect to the comprehensive analysis on the concept of international control, see A. Morita, *Le contrôle international: théorie et pratique* (in Japanese), Tokyo 2000. See also P.-M. Dupuy, *Droit international public*, 6^{ème} ed., Paris 2002, 505-514.

¹⁶⁵ Concerning the definition of international control, see Morita (note 164), 12. According to Morita, an objective obligation concerns an obligation which is established by a multilateral treaty in order to provide multilateral services in a uniformed manner; and such an objective obligation should be distinguished from a bilateral obligation based on the reciprocity. In his view, the objective obligation corresponds essentially to “*service public international*” in French theory on international law. Typical examples may be the protection of human rights and the protection of the global environment.

¹⁶⁶ Birnie/Boyle (note 18), 200-220; T. Sato, International Supervision by International Organizations with Regard to States (in Japanese), 114 *The Hitotsubashi Review* 99-115 (1995).

¹⁶⁷ With respect to the importance of the international control in the context of the law of the sea, see Y. Tanaka, Zonal and Integrated Management Approaches to Ocean Governance: Reflections on a Dual Approach in International Law of the Sea, 19 *IJMCL* 506-512 (2004).

¹⁶⁸ On this issue, see D.M. Dzidzornu, Marine Environment Protection under Regional Conventions: Limits to the Contribution of Procedural Norms, 33 *ODIL* 291-298 (2002); Birnie/Boyle (note 18), 205-206.

ticles 5, 7 and 15 of this Protocol.¹⁶⁹ The Reports submitted by the Parties are to be considered by the meetings of the Parties in accordance with Article 14 (2) (f). Similarly, Article 12 (1) of the 1999 Aruba Protocol places an obligation upon the Contracting Parties to submit reports to the Organisation containing information on measures adopted, results obtained and any difficulties experienced in the implementation of this Protocol. In this regard, the nature of the information to be included, and the collection, presentation and timing of these reports are to be determined by the Meeting of the Contracting Parties by virtue of Article 12 (1). The similar reporting system or an obligation to exchange of information through the Organisation established by the regional treaty are provided in the 1980 Athens Protocol (Article 13), the 1983 Quito Protocol (Article 9), the 1992 Bucharest Protocol (Article 7), the 1990 Kuwait Protocol (Article 12).

On the other hand, a problem associated with the reporting system is that its effectiveness will depend on the diligence and accuracy of the reporting authorities.¹⁷⁰ In fact, it is said that many States, particularly developing States, fail to fulfil the reporting obligation, or report merely superficially to the relevant international institutions.¹⁷¹ In response to this problem, some treaties attempt to reinforce the reporting obligation by specifying the contents for such reports in some detail, or providing commitments of Contracting Parties or commissions to information. For example, Article 16 (1) of the 1992 Helsinki Convention requires that the Contracting Parties report not only the measures taken for the implementation of the provisions of this Convention but also assessments of the effectiveness of such measures and problems encountered in implementing them. Accordingly the measures to prevent and eliminate the land-based pollution are to be reported under this provision. Article 16 (2) of the Helsinki Convention further provides that, on the request of a Contracting Party or of the Commission, Contracting Parties shall provide information on discharge permits, emission data or data on environmental quality as far as available. Moreover, Annex III calls upon the operator of an industrial plant to submit data and information to the appropriate national authority using a form of application. At least the following data and information shall be included in the application form: general information, actual situation and/or planned activities, alternatives and their various impacts concerning ecological, economic and safety aspects.¹⁷² On the basis of the report from the Contracting Parties, the Baltic Marine Environment Protection Commission is to keep the implementation of the Convention under continuous observation.¹⁷³ In this

¹⁶⁹ Article 13 (2). Article 5 concerns general obligations to eliminate pollution from land-based sources and activities. Article 7 relates to the adoption of common guidelines. Article 15 concerns action plans adopted by the meeting of the Parties.

¹⁷⁰ Birnie/Boyle (note 18), 206.

¹⁷¹ With respect to this problem, see for instance, P. Sand, *Principles of International Environmental Law*, 2nd ed., Cambridge 2003, 181-182. Dzidzornu (note 168), 297.

¹⁷² Regulations 3 (1) of Annex III.

¹⁷³ Article 20 (1) (a). In this respect, HELCOM Ministerial declaration stressed the important role of the Helsinki Commission in supervising the implementation of the Convention and the Recom-

way, the implementation of such treaties is to be supervised by the relevant Commission. The 1992 OSPAR Convention also provides a similar obligation. In this respect, Article 22 of the OSPAR Convention imposes the Contracting Parties to report to the Commission at regular intervals on:

- (a) the legal, regulatory, or other measures taken by them for the implementation of the provisions of the Convention and of decisions and recommendations adopted thereunder, including in particular measures taken to prevent and punish conduct in contravention of those provisions;
- (b) the effectiveness of the measures referred to in subparagraph (a) of this Article;
- (c) problems encountered in the implementation of the provisions referred to in subparagraph (a) of this Article.

It is conceivable that these detailed reporting systems are useful in precluding States Parties from failing to fulfil the reporting obligation or from reporting superficially to the relevant international institutions.

2. Supervision by Treaty Commissions

In addition to the reporting system, of especial importance is the supervision through a commission established by a treaty. In the context of the regulation of land-based marine pollution, such a compliance procedure is reflected in the 1992 OSPAR Convention.¹⁷⁴ Here Article 3 of Annex I requires the OSPAR Commission to draw up:

- (a) plans for the reduction and phasing out of substances that are toxic, persistent and liable to bio accumulate arising from land-based sources;
- (b) when appropriate, programmes and measures for the reduction of inputs of nutrients from urban, municipal, industrial, agricultural and other sources.

It would seem to follow that the extent and specificity of the individual Parties' obligations concerning emissions of such substances will depend on the content of these plans and legal forms lay down by the Commission.¹⁷⁵ Furthermore, Article 10 of this Convention stipulates that the OSPAR Commission has duties (a) to supervise the implementation of the Convention and (b) generally to review the condition of the maritime area, the effectiveness of the measures being adopted, the priorities and the need for any additional or different measures. To this end, Article 23 provides for the compliance procedure that:

The Commission shall:

mendations with the aim to ensure that the same environmental measures were implemented in the whole Baltic Sea and its catchment area. HELCOM Ministerial Declaration (HELCOM Bremen Declaration), 25 June 2003, 7. The text is available at the homepage of HELCOM <<http://www.helcom.fi/helcom24/MinDec.pdf>>.

¹⁷⁴ With respect to the function of the OSPAR Commission, see in particular, R. L a g o n i, Monitoring Compliance and Enforcement of Compliance through the OSPAR Commission, in: P. Ehlers/E. Mann-Borgese/R. Wolfrum (eds.), *Marine Issues*, The Hague et al. 2002, 155-163.

¹⁷⁵ P a l l e m a e r t s (note 103), 440.

(a) on the basis of the periodical reports referred to in Article 22 and any other report submitted by the Contracting Parties, *assess* their compliance with the Convention and the decisions and recommendations adopted thereunder;

(b) when appropriate, *decide upon and call for steps to bring about full compliance with the Convention*, and decisions adopted thereunder, and promote the implementation of recommendations, including measures to assist a Contracting Party to carry out its obligations (emphasis added).

It may be arguable that this provision further reinforces the supervision and control power of the Commission. Furthermore, it should be noted that Article 23 refers to measures “to assist a Contracting Party”. Although the meaning of the “measures” remains obscure, it is conceivable that they could include administrative or technical or scientific help.¹⁷⁶ On the basis of those mechanisms, the compliance of the OSPAR Convention, including rules concerning land-based marine pollution, is to be supervised and controlled by the OSPAR Commission.

It is not suggested, however, that the OSPAR Commission possesses enforcement jurisdiction against a Contracting Party.¹⁷⁷ In this respect, Article 13 makes it clear that decisions and recommendations shall be adopted by unanimous vote of the Contracting Parties. In reality, it is inconceivable that the Contracting Party whose action was alleged to be contrary to the Convention would vote in favour of such a decision against its own interests. Furthermore, while the Commission may adopt decisions or recommendations by a three-quarters majority vote, the decisions become binding 200 days after their adoption for the Contracting Parties that have voted for it and not withdrawn their vote, provided that these constitute three-quarters of the Contracting Parties.¹⁷⁸ It would seem to follow that a Contracting Party which has voted against a decision is not bound by it. In spite of this limitation, it is worth noting that an international body possessing supervisory and control power has appeared in the field of marine environmental protection, including the regulation of pollution from land-based sources.

IV. Conclusions

The analysis of the preceding study yields the following conclusions:

1) The regulation of land-based marine pollution at the global level remains a weak one in the sense that attempts to address land-based marine pollution have been made solely in the form of non-binding documents. It is argued that the development of global legal framework governing land-based marine pollution may be limited by at least four factors:

- (i) strong need for economic development,
- (ii) complexity of substances, sources and actors to be regulated,

¹⁷⁶ L a g o n i (note 174), 161.

¹⁷⁷ Ibid., 161-162. See also H i l f (note 114), 593.

¹⁷⁸ Article 13 (2) of the 1992 OSPAR Convention.

- (iii) geographical and ecological divergences in each region,
- (iv) economic and technological gaps between developed and developing countries.

2) Consequently, marine pollution from land-based sources has been regulated mainly by regional agreements. In this respect, it is important to note that new approaches and legal techniques are increasingly enshrined in regional treaties with a view to enhancing the regulation of land-based marine pollution. Those elements contain:

- (i) the replacement of the black/grey lists approach by the uniformed approach,
- (ii) the adoption of precautionary approach,
- (iii) the use of BAT as well as BEP,
- (iv) the establishment of EIA and monitoring systems, and
- (v) international control for ensuring effective implementation of relevant rules.

Whereas the effectiveness of those approaches and techniques must be verified through State practice, it may at least be said that those legal techniques commonly seek to strengthen the regulation of the land-based marine pollution. Indeed, the uniform approach seeks to regulate marine pollution from land-based sources in a more comprehensive manner. Furthermore, the precautionary approach requires States to take measures necessary to prevent marine pollution from land-based activities before damage has been caused. Moreover, the use of BAT as well as BEP could to some extent specify regulatory measures which should be taken by each State in this field. Similarly, the obligation to undertake EIA as well as monitoring may serve to narrow States' discretion in environmental policy making. In addition, it is argued that international control mechanisms can be a useful tool to secure the compliance of treaty obligations.

3) On the other hand, it should be noted that the application of those approaches and legal techniques are qualified by economic, political and social elements. For instance, as discussed earlier, the application of the precautionary approach is qualified by economic, political and social factors. Furthermore, the use of the BAT as well as the BEP must be balanced with the "economic feasibility" of technology. Moreover, arguably the diligence and accuracy of reports submitted by the Contracting States may rely on technical and economic capabilities of States. Accordingly, it is conceivable that economic and political factors strongly influence the implementation of obligations concerning the regulation of the land-based marine pollution.

4) Furthermore, it is important to note that the development of regional agreements is not uniform. In fact, there is no specific protocol regulating land-based marine pollution in the East Asian Seas, Red Sea and Gulf of Aden, South Pacific, West and Central Africa, East Africa, the North-East Pacific, the North-West Pacific, the South Asian Seas, the South-West Atlantic, and Arctic. Furthermore, the normative strength of the regulation varies depending on conventions. For instance, while the 1992 OSPAR Convention, the 1992 Helsinki Convention and the 1996 Syracuse Protocol replace the black/grey lists approach by the uniform approach, the 1983 Quito Protocol and the 1992 Bucharest Protocol still maintain the

black/grey lists approach. The use of the BAT as well as the BEP is reflected only in the OSPAR Convention, the Helsinki Convention, and the 1996 Syracuse Protocol. Equally, the precautionary approach is enshrined only in the OSPAR Convention, the Helsinki Convention, and the Syracuse Protocol.

5) It would seem that the normative level on this subject relies essentially on economic, social and political environment in a region. It would for example be safe to argue that the 1992 OSPAR Convention contains relatively advanced rules and mechanisms to this matter. An explanation may be that Parties to this convention are essentially developed States, sharing common political and economic systems. Furthermore, apart from Switzerland, those Parties are, at the same time, member States of the European Community. In this regard, it should be remembered that Article 2 of the Treaty Establishing the European Community enunciates that one of the tasks of the Community is to promote “a high level of protection and improvement of the quality of the environment”.¹⁷⁹ Thus, the member States of the EC share the same goal concerning environmental protection. In addition, it should be remembered that there have been political commitments through the International North Sea Conference (INSC) to intensify the protection of the marine environment in all North Sea. It may be arguable that those political and economic commitments stimulate a relatively advanced legal framework for the protection of the marine environment and the regulation of the land-based pollution in the North-East Atlantic. At the present stage at least, however, it appears difficult to expect the same development in other regions.

6) The above conclusions reveal that the regulation of land-based marine pollution represents an acute tension between economic development and the environmental protection in the international law. On the one hand, regional conventions develop approaches and legal techniques limiting the margin of discretion of States in this field. On the other hand, the application of those approaches and legal techniques must be reconciled with economic, political and social factors of each State. Thus, the validity and effectiveness of legal framework in this field relay essentially on the sound balance between the requirement of the environmental protection and the need for economic, social and political development of each State.

¹⁷⁹ Consolidated version established after the Treaty of Nice.