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Baastrup, Andreas

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Comparative analysis of legal frameworks for land-based marine pollution and vessel-based marine pollution

by Andreas Baastrup
Introduction

Despite the vastness of the oceans, "the introduction by man, directly or indirectly, of substances or energy into the marine environment", result in significant change in the harmful concentrations already present there, and even the most remote parts of the world can be changed by the discharge of domestic and industrial wastes of various types into the oceans. In addition, further problems related to pollution results from the interactions of the oceans and atmosphere, since many atmospheric gases are taken up by the oceans, thereby changing the ocean chemistry due to alterations in the composition of the atmosphere. The sources from which pollution stems vary tremendously. Where land-based marine pollution stem from e.g. sewage, industrial discharges, and agriculture - some of which are toxic to the marine life, others directly harmful to humans - vessel-source marine pollution, on the other hand, has a more narrow scope from which it stems; this varies between operational sources of pollution from e.g. bilge water, ballast water and fumes, or accidental sourced marine pollution from major accidents. In the realisation of such variety in nature and with regards to the transboundary nature of marine pollution, whether it come from land or from a vessel, the protection of the marine environment cannot be achieved if only one State participate. Accordingly, the international co-operation between States becomes a prerequisite in order to prevent marine pollution, which includes the establishment of international rules. Hence, it becomes relevant to study how, if at all, the States mitigate problems associated with pollution waters through international and regional regulatory measures, and whether the States in fact adhere to the provisions of the accord and to implementing measures that they have instituted. Through legal analysis, this paper identifies, analyses, and interprets the core concepts of the specific areas of law that relate to this problem. The following essay will take its foundation in a comparative analysis of the legal frameworks regulating vessel based marine pollution and land based marine pollution. Outlining the above, the principal issue to be addressed in this paper concerns the question on whether the differences between the regulation of land-based marine pollution and vessel based marine pollution have a negative influence on the protection of the environment. This is examined through; firstly, an analysis of the reach of international legal frameworks concerning regulation of both sources of marine pollution. Secondly, the reasoning behind the potential differences in frameworks are investigated. Finally, an assessment is made of both legal frameworks in unison with regards to possible implications of the regulatory measures, including suggestions for resolving these on a long-term basis.

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1 From the definition of marine pollution from Article 1(1)(4) of United Nations Convention on Law of the Sea (hereafter referred to as LOSC).
4 Seen from incidents as Exxon Valdez (1989) and Prestige (2002)
Differences in the international legal frameworks
As intimated in the introduction, in order to allow comparison, an analysis of the primary sources of law concerning the regulation of both land- and vessel-based pollution must be conducted. This involves treaties, jurisprudence, documents of international organisations, state practice, etc. The analysis begins with outlining the global legal framework governing each area.

With regards to prevention of land-based pollution, the LOSC is the only treaty which provides general obligations marine environment on the global community as a whole, specifically Article 194 imposes duties upon the states to take all necessary measures to ensure that activities or incidents under their jurisdiction are not to cause and/or spread pollution damage to the environment beyond areas where they exercise sovereign rights in accordance with the LOSC. The LOSC continues to specify further the prescriptive jurisdiction of this area in Article 207(1), where the states are to adopt regulatory measures 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”. Enforcement of this article is provided in Article 213, calling upon states to take measures necessary to prevent, reduce and control such pollution under Article 207. In continuation of the above argument concerning land-based marine pollution, it seems the subject is not so successfully agreed upon on a global scale. The attempts of developing global instruments to address land-based marine pollution has only lead to the application of a number of non-binding documents, the most important being the Montreal Guidelines for the Protection of the Marine Environment against Pollution from Land-based Sources in 1985. Whilst the Montreal Guidelines are of a voluntary nature, they specify various measures which should be taken by each State. Contrary to the results on a global scale however, treaties regulating pollution from land-based sources have increasingly been concluded at the regional level.

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8 LOSC, Article 194(1), 194(2), and 194(3) and 194(3)(a)
9 Y. Tanaka, Op cit., note 6, p. 279
10 Ibid, p. 279
11 Ibid, p. 281
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The principle regional treaties regulating land-based marine pollution being:

<table>
<thead>
<tr>
<th>Year</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources (the Athens Protocol).</td>
</tr>
<tr>
<td>1983</td>
<td>Protocol for the Protection of the South-East Pacific Against Pollution from Land-Based Sources (the 1983 Quito Protocol).</td>
</tr>
<tr>
<td>1990</td>
<td>Protocol to the Kuwait Regional Convention for the Protection of the Marine Environment Against Pollution from Land-Based Sources (the 1990 Kuwait Protocol).</td>
</tr>
<tr>
<td>1996</td>
<td>Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources and Activities (the 1996 Syracuse Protocol).</td>
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<tr>
<td>1999</td>
<td>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 (the 1999 Aruba Protocol).</td>
</tr>
</tbody>
</table>

Table 1

A number of elements from regional treaties are important to mention in this relation. The OSPAR Convention for example, incorporated the precautionary principle, the application of best available techniques (BAT) and best environmental practice (BEP), thereby giving them a firm legal basis. Furthermore included in the convention was provisions relating to reporting and compliance, access to information for the general public, the possibility of permitting non-governmental organisations to participate in subsidiary bodies, and the competence of the Commission to adopt legally binding decisions, thereby bringing the regime up to date by the inclusion of provisions on then recently accepted environmental principles and practices and the participation of civil society. It would seem to follow that regional agreement which contains more specific rules assumes considerable importance to combat land-based pollution. Contrary to this, vessel-source pollution is not covered by e.g. the OSPAR Convention, because states parties considered it to be already governed by effective measures adopted under the aegis of the International Maritime Organization (IMO). Where

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14 Y. Tanaka, Op cit., note 12, p. 281
action with respect to shipping is considered necessary, the OSPAR Commission will make proposals to IMO.\(^\text{15}\)

Therefore, the importance of regionally binding treaties for land-based marine pollution is contrasting the agreements on the area of vessel-based marine pollution, which is regulated primarily by global legal instruments; the key instruments for the prevention of vessel-based marine pollution being the *International Convention for the Prevention of Pollution from Ships* (MARPOL) and the LOSC.\(^\text{16}\) It is beyond the scope of this essay to describe the content or history in MARPOL in extensive detail at this point, however, in short, MARPOL consists of six annexes,\(^\text{17}\) each containing detailed and highly technical provisions regulating specific categories of vessel-sources pollution.\(^\text{18}\) The regulations covers the various sources of ship-generated pollution, contained in the six Annexes of the MARPOL, and are updated regularly.\(^\text{19}\) Annex I and II, governing oil and chemicals, are compulsory, but Annexes III, IV, V and VI, on packaged materials, sewage, garbage and air pollution, are optional.\(^\text{20}\) The MARPOL primarily granted prescriptive and enforcement jurisdiction to the flag States. However, any violation of the requirements of the MARPOL within the jurisdiction of a coastal State can be prohibited and sanctions can be established under the law of that State.\(^\text{21}\) The meaning of the term "within the jurisdiction" has to be determined in the light of the international law in force at the time MARPOL is applied or interpreted.\(^\text{22}\) This provision was incorporated in MARPOL because while negotiating this Convention, States failed to reach an agreement about the coastal States' jurisdiction; therefore they kept the room open until the adoption of the LOSC.\(^\text{23}\) With regard to vessel-sourced marine pollution the LOSC issues similar obligations of the states as with land-based marine pollution concerning the jurisdiction of States to take action against marine pollution; respectively, prescriptive jurisdiction and enforcement jurisdiction. Article 211 of the LOSC particularly deals with vessel-source pollution, and imposes a general obligation on States to establish international rules and standards for prevention, reduction and control of vessel-source marine pollution, and for the State parties to adopt laws and regulations for the prevention, reduction and control of pollution of the marine environment from vessels flying their flag or of their registry.\(^\text{24}\) Thereby, the LOSC does not prescribe a large set of new standards for the prevention of vessel-source pollution.\(^\text{25}\) Instead, it mainly incorporated within its

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\(^\text{19}\) S. Karim, ‘Implementation of the MARPOL Convention in Developing Countries’, (2010), Nordic journal of International Law 79 pp. 303-337, p. 312

\(^\text{20}\) *Ibid*, p. 313

\(^\text{21}\) MARPOL 73/78, Article 4.

\(^\text{22}\) MARPOL 73/78, Article 9(3).

\(^\text{23}\) S. Karim, *Op cit.*, note 19, p 312

\(^\text{24}\) *Ibid*, p. 309

\(^\text{25}\) *Ibid*, p. 308
ambit standards prescribed in sectoral international legal instruments. In doing so, the LOSC by reference incorporates existing as well as future instruments to be adopted under the auspices of the IMO. The IMO's official position is that "[w]hile United Nations Convention on Law of the Sea defines the features and extent of concepts of flag, coastal and port State jurisdiction, IMO instruments specify how State jurisdiction should be exercised to ensure compliance with safety and antipollution shipping regulations". The LOSC and MARPOL are intertwined in this regard in that the LOSC consists of rules of reference which vary depending on subject matter. The LOSC very frequently uses some rules of reference including: "generally accepted international regulations", "applicable international instruments", "generally accepted international regulations, procedures and practices", and "generally accepted international rules and standards". In the case of vessel-source pollution, the "generally accepted international regulations" mainly refer to the MARPOL Convention. The LOSC and MARPOL in this sense together provide the principal legal framework for the regulation of vessel-source pollution.

From the analysis of the two legal frameworks' interplay with internationally agreed criteria, it can be concluded that the LOSC steps forward to a comprehensive regulation of marine pollution in the oceans as a whole. The appliance of the LOSC for both areas remain, though, in itself it seems only to provide an obligation for the States to use 'due diligence' not to cause transfontier damage. In this aspect, it therefore appears that specific regulation of land-based marine pollution is somewhat lacking in terms of international formal instruments. 'Due diligence' is an undefined concept on its own, and thereby does not issue out a reasonable standard of how a State should adhere to such 'due diligence' principle. Furthermore, States are required only to 'take into account' internationally agreed rules etc. when adopting relevant laws and regulations concerning pollution from land-based sources (LOSC Article 207(1)). With regards to vessel-based pollution, the MARPOL is the most significant global legal instrument for pollution prevention, and covers all technical issues. Furthermore, MARPOL calls on the coastal States, in somewhat non-mandatory language, to provide reception facilities for the disposal of oily wastes, sewage, garbage and other hazardous substances.

In conclusion from above, land-based marine pollution is regulated through global treaty based obligations to co-operate internationally and through accepted environmental principles and practices, where vessel-based marine pollution is primarily regulated by global treaties, and additional measures

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26 LOSC, Article 237
30 Ibid, p. 278
31 Ibid, p. 273 footnote 24 and 25: The generally recognised principle of sic utere tuo ut alienum non leadas reflects customary international law..
32 Ibid, p. 279
33 S. Karim, 'Implementation of the MARPOL Convention in Developing Countries', (2010), Nordic journal of International Law 79 pp. 303-337, p. 312
must therefore be taken in a specific State to further enforce these treaties. Under the LOSC, the balance between national and international laws on land-based marine pollution is therefore in favour of national laws.\textsuperscript{34}

**Problems associated with development of the frameworks**

Owing to the factors above, and as mentioned in the introduction, the international co-operation between States becomes a prerequisite in order to prevent 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.\textsuperscript{35} Thus, it is arguable that there is a need for the international legal frameworks regulating marine pollution to be strong - whether they be regional or international, or governing land-based or vessel-based marine pollution. Hence, the following issue to be analysed and discussed in this essay concerns the question of why the legal regulation of marine pollution remains different at the global level, and what implications that are associated with each of these frameworks.

Taking into perspective the regulation of other activities with interfaces between land and sea; offshore exploration, for example, comprises both marine and industrial elements, regulated through a complex web of national (coastal state) regulation and international conventions, the latter primarily directed towards the marine aspects of operations.\textsuperscript{36} Despite this predominantly industrial focus, the activity takes place at sea. The unique nature of this industrial-marine endeavour, together with the constant evolution of new technology, has presented a challenge to agencies established to set standards and govern the design and activities of more traditional craft. Despite the newness and diversity of the industry, one trend has become clear for both the participants and the regulators: offshore drilling has emerged as an industrial activity that takes place in the marine environment rather than as a marine activity undertaken for industrial purposes;\textsuperscript{37} this has major implications in taking appropriate regulatory measures. A similar situation with equally difficult interfaces can be identified in the regulation of land-based marine pollution. Here, the 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.\textsuperscript{38} And even though that land-based pollution and air pollution contribute approximately 80 per cent of marine pollution in total,\textsuperscript{39} thereby requiring a strong international effort to combat it, it would appear – derived from above comparative – that the global

\textsuperscript{37} Royal Commission on the Ocean Ranger Marine Disaster: ‘The Loss of the Semisubmersible Drill Rig Ocean Ranger and its Crew’, vol 1 (Ottawa: Minister of Supply and Services Canada, 1984) at viii [Ocean Ranger].
\textsuperscript{38} Y. Tanaka Op cit.,note 34, p. 270
\textsuperscript{39} UN General Assembly,note 34, p. 270
legal framework for this area is weak.\textsuperscript{40} Considering that States are seemingly unwilling to take strong measures to regulate land-based activities on a global scale, it is important to note, however, that legal techniques and approaches to enhance the regulation of land-based marine pollution are developing particularly in regional conventions.\textsuperscript{41} According to Tanaka, the reasons for this are that the development of global legal framework governing land-based marine pollution is limited by at least four factors: (i) strong need for economic development, (ii) complexity of substances, sources and actors to be regulated, (iii) geographical and ecological divergences in each region, (iv) economic and technological gaps between developed and developing countries.\textsuperscript{42} Ratification and implementation of international marine environmental conventions is largely dependent on the political decisions of governments. In many developing countries international conventions have to be approved for ratification by the central legislature. Moreover, in many States all the implementing legislation may have to be enacted by the parliament, which may cause a serious delay.\textsuperscript{43} This stresses the importance of regional and sub-regional cooperation and arrangements in combatting oil pollution, as it can be argued that it is inherently easier to take into account the above factors in a regional forum than globally, thereby also increasing the possibilities of reaching a binding agreement. Though this is the case, the global legal framework still has a role to play in this area. In fact, regional treaties often reflect and amplify rules and elements developed at the global level.\textsuperscript{44} Therefore, in order to compare the legal regimes, attention must be drawn to identify what factors that drives vessel-borne pollution to primarily be agreed on a different scale.

Overall, MARPOL continues to develop response to new needs concerning the regulation of vessel-based marine pollution. In this regard, Tanaka argues that there are three main reasons for this: Firstly, the relevant provisions are the result of bargaining between environmental interests and shipping industry interests.\textsuperscript{45} Secondly, revisions of MARPOL have often been made in response to intense pressure arising from marine environmental disasters, e.g. the \textit{Exxon Valdez} in March 1989, prompting States to introduce the double-hull requirement. Thirdly, all MARPOL annexes contain regulations to ensure proper reception facilities are available in the ports of the States. From the circumstances outlined in the above a paradox seems to appear: Although most of the pollution at sea is created from land based sources, tanker accidents always draw massive public attention. A whole spectrum of international conventions was developed in the last few decades addressing both the preventive measures as well as the remedial measures of ship-generated oil pollution, the periodic occurrences of major tanker disasters, such as the \textit{Prestige}, still make the public wonder whether the current legal

\textsuperscript{40} As also intimated generally in Y. Tanaka, ‘Regulation of Land-Based Marine Pollution in International Law: A Comparative Analysis between Global and Regional Legal Frameworks’, (2006) 66 ZaöRV pp. 535-574, e.g. p. 536
\textsuperscript{42} Y. Tanaka, \textit{ibid}, p. 572-573
\textsuperscript{43} S. Karim, ‘Implementation of the MARPOL Convention in Developing Countries’, (2010), Nordic journal of International Law 79 pp. 303-337, p 330
\textsuperscript{44} Y. Tanaka, \textit{Op cit.},note 42, p. 550 (note 75)
regimes are adequate.\textsuperscript{46} Therefore, it can be argued that this reactive rule making is the result of bargaining by parties (industry and environmental) attempting to satisfy the same interests; interest, which are induced by external factors like oil price and public relation pressure created by high-profile incidents, thereby failing to address the root causes of pollution like negligence, fatigue, poor maintenance and inadequate training.\textsuperscript{47} Furthermore, though regulation is in place for one area of law, i.e. vessel-sourced marine pollution, in the absence of any comparable regulation of discharge of hazardous wastes on land, there is a risk of MARPOL merely shifting the discharge of such wastes from sea to land.\textsuperscript{48}

Taking the above into consideration, it can be questioned whether the mere presence of a binding global legal framework necessarily ensures the most appropriate and effective regulatory measures and enforcement are in place for the prevention of marine pollution. However, it is not inherently clear what criteria that should be applied to measure the law’s overall effectiveness. In addition, if the legal intervention is not optimal, how should the law be appropriately redesigned?\textsuperscript{49} For evaluating these intertwined areas of law, an integrated approach is required, where the actual implementation of both the prescriptive and enforcement jurisdiction for both areas are analysed together. Therefore, this essay will in the following section assess whether and to what extent those regulatory approaches enshrined in both global and regional treaties through their actual implementation have implications that reduces the effectiveness of international law on the prevention of marine pollution from vessel-based and land-based activities.

Implications of implementation and enforcement of the frameworks
Once an international convention is agreed upon, it is transmitted to the signatory States for ratification and implementation. In a sense, where the law-making competence of global forums ends, the national implementation of internationally agreed legal framework starts. Implementation means taking necessary steps to make the international treaty rule effective in the domestic legal system. However, this is not inherently easy; for example, over the years, a large set of international conventions have been adopted under the auspices of the IMO for prevention of vessel-source marine pollution, yet most of developing countries failed to effectively implement these conventions.\textsuperscript{50} In summation, the effectiveness of a global environmental regime is largely dependent on adequate implementation and enforcement, and a high level of compliance by the target actors.\textsuperscript{51}

Although the LOSC is a legal regime, implementation and development of its provisions requires action by lawyers, policy-makers, and technical experts from a range of disciplines, such as economics,

\textsuperscript{47} S. Karim, ‘Implementation of the MARPOL Convention in Developing Countries’, (2010), Nordic journal of International Law 79 pp. 303-337, p. 331
\textsuperscript{49} J. Xu, Op cit.,note 46, p 309
\textsuperscript{50} S. Karim, Op cit.,note 47, p. 303
\textsuperscript{51} S. Karim, Ibid, p. 321
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marine biology, and geology. 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. 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. This is a vicious circle. Hence, the regulation of marine 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 enforce regulatory measures for prevention of marine pollution. It also calls for further analysis of the extent of and root-causes for non-compliance with the international frameworks, and furthermore, a solution that addresses the issues.

Mitigating implications of non-compliance
There are just over 160 parties to the LOSC, at least one-third of which (and quite possibly more) are in breach of at least one significant provision of the LOSC. Such a degree of non-compliance undermines the integrity and legitimacy of the LOSC, partly due to the mechanisms set in place to induce or coerce States parties into complying with agreed international law of the sea also losing their efficiency. Furthermore, non-compliance provokes disputes, denies States parties some of their LOSC rights, threatens good order at sea, and harms the marine environment. Accordingly, non-compliance with the LOSC is of great significance for the prevention of both vessel- and land-based marine pollution. As indicated throughout the essay, the principle argument of the matter is that operational noncompliance arises through lack of capacity or through bona fide, but nonetheless flawed, efforts to implement and comply with a regime. With the purpose of strengthening the regulatory measures, the above points to the need for more capacity-building efforts to be addressed to the developing States rather than to the need for norm generation through binding global treaties. With non-compliance being a matter of serious concern for all the reasons suggested earlier, it could -and should- be addressed by States parties making more use of retorsion and counter-measures. However, as it is argued that failure to comply primarily highlights the need for the development of the regime to provide sufficient guidance or clarity of obligations to ensure that such noncompliance is unlikely to arise in future, the international and regional control measures must await further clarity in

53 Paragraph 5 of its Preamble.
55 R. Churchill, Op cit.,note 52, p. 815
56 R. Churchill, Ibid, p. 813
the globally agreed regulatory measures for the prevention of discharges which reach the marine environment. Though the cause of action suggested in this essay seems long-sighted indeed, it is important to note that the non-presence of binding global legislation does not inhibit the States to devise and implement legislation which is no less effective than international rules, standards and recommended practices and procedures, shown typically to be created through regional agreements. Therefore, it is argued that the land-based marine pollution regime, even though initially appearing so, does not lack legitimacy, but on the contrary; its legitimacy appears to be growing. Not only are the number of regional land-based marine pollution regimes increasing, but contracting parties actively engage in implementation, capacity building, reviews of implementation, and revision of recommendations, as appropriate. 58 This essay argues that the regime's growing strength is derived, at least in part, from the manner in which it responds to noncompliance as described above. In effect, noncompliance is embraced as part of an iterative process of developing understanding, knowledge, capacity, and standards to control, reduce, and eliminate land-based marine pollution. In conclusion, it is required to have stronger institutional support to put regulatory measures on marine pollution into practice, which is argued best to be addressed at the domestic or regional levels. In doing so, the international community will inherently trigger the growth of effective regimes combatting marine pollution as a whole. 59

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Conclusion

Owing to economic, technological and geographical divergences in the world, it appears difficult, if not impossible, to establish at the global level uniform and detailed rules regulating land-based pollution. For the same reasons, an increase in regional agreements can be seen, however, the development of regional agreements on the subject is not uniform. Contrary to the development in regulation of land-based marine pollution, vessel-based marine pollution is primarily regulated by global legal instruments, i.e. MARPOL. Although the MARPOL Convention is a vibrant international treaty and very often given credit for reduction of pollution of the marine environment from ships, the lack of worldwide enforcement, monitoring and control severely limit the effectiveness of the Convention. The LOSC is principally concerned with regulating inter-State relations, and to some extent, the LOSC acknowledges and distinguishes between classes of States (developing States, land-locked States, geographically disadvantaged States). However, the LOSC lacks the institutional capacity to accommodate a wider range of participants and to structure their input into the management of ocean space. This may give rise to noncompliance either as a result of well-intentioned, but ultimately flawed, efforts to comply or as a result of willful inaction that States may endeavour to justify by arguing that there is still time for action to be taken or that they believed their approach to be adequate. Such discretion and debate may be removed by generating norms through global endeavours (binding or non-binding) to compliment action-oriented obligations in regional agreements. However, a truly integrated approach would have been able to engage non-compliant States in the regulation of ocean space effectively from the beginning, thereby pro-actively addressing the issues all together. In any case, instances of noncompliance in this context highlight the need for continued attempts of regime development internationally. In conclusion, for proper implementation of international regulations the global community has to find a way to ensure equitable representation of developing countries in the decision making bodies of international organizations as well as in the decision making process. In most cases, assistance in capacity building would be appropriate, and could be used as a trigger for growth and acceptance of legal regimes for the prevention of marine pollution. Such a solution would thereby aid in developing effective compliance mechanisms for other treaties, subsequently resulting in a spill-over effect of promoting compliance with the LOSC as well, for the benefit of the marine environment as a whole.

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63 Y. Tanaka, Op cit., note 60, p. 287