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**Land Based Sources of Marine Pollution Control  
in the South China Sea: A Regional Overview**

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## Land Based Sources of Marine Pollution Control in the South China Sea: A Regional Overview

Daud Hassan\*

### Abstract

Land based sources of marine pollution is a dominant threat to the marine environment of the South China Sea region (hereinafter the region). Although a number legal and policy initiatives have been undertaken to control LBSMP in the region questions remain as to how effective the present arrangements are. This paper evaluates the strengths, weaknesses and opportunities for LBSMP control in the region. It identifies the sources of LBSMP in the region and reviews various institutional arrangements and mechanisms. It takes into account the various activities, measures and obstacles in controlling LBSMP in the region. All these examined with a view to assessing what progress has been made to achieve the goal of LBSMP control in the region.

### Intorduction

In order to ensure the protection of the marine environment and to improve the health of oceans, conservation and management of marine resources, in conjunction with the prevention and control of marine pollution are significantly interlinked and important. However, 'protection of the marine environment' is generally considered to refer to 'protection from pollution'.<sup>1</sup> As one of the most significant threats to marine life,<sup>2</sup> pollution affects the health of the living resources in the oceans. Therefore, control and prevention of marine pollution is a prerequisite for the conservation of marine species and

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<sup>1</sup> Rose G, 'Protection and Conservation of the Marine Environment', in Tsamenyi M (et al), *The United Nations Convention on the Law of the Sea: What it Means to Australia and Australian Marine Industries*, Centre for Maritime Policy, University of Wollongong, Australia, 1996 at 152.

<sup>2</sup> Stevenson JR and Oxman BH, 'The Future of the UNCLOS', 88(3) *American Journal Of International Law*, 1994 at 479.

ecosystems.<sup>3</sup> Control of marine pollution can, therefore, also be a safeguard for the sustainable protection of the marine environment.<sup>4</sup>

Although a variety of sources of pollution, including vessel based, sea dumping and sea bed activities affect the marine environment, a number of studies have indicated that land-based sources of marine pollution (LBSMP) is the dominant threat.<sup>5</sup> Like other parts of the world oceans, the South China Sea in the East Asian region is being significantly polluted by land based sources and requires effective control.<sup>6</sup>

The objective of this paper is to identify the strengths, weaknesses and opportunities for LBSMP control in the South China Sea region (hereinafter the region). With this view, it identifies the sources of LBSMP in this region and reviews various institutional arrangements and mechanisms. It takes into account the various activities, measures and obstacles in controlling LBSMP in the region. All these examined with a view to

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<sup>3</sup> Gouilloud MR, 'Prevention and Control of Marine Pollution', in Johnston DM (ed) *The Environmental Law of the Sea* (Erich Schmidt Verlag, Berlin 1981) at 193.

<sup>4</sup> Sustainable development is: ... development that meets the needs of the present without compromising the ability of future generations to meet their own needs World Commission on Environment and Development, *Our Common Future*, (NY: OUP, 1987) (the 'Brundtland Report') at 8. Sustainable protection relates to improved control of wastes and the development of contingency plans for dealing with accidents harmful to the marine environment.

<sup>5</sup> According to a 1990 global assessment on the state of marine environment, LBSMP constitutes 77 percent of marine pollution. (United Nations Joint Group of Experts of Scientific Aspects of Marine Pollution (GESAMP), *The State of the Marine Environment, GESAMP Report and Studies No 39*, 1990, UNEP, Nairobi). See also Kimball L, 'The United Nations Convention on the Law of the Sea and Marine Environmental Protection', 7 *Georgetown International Environmental Law Review*, 1995 at 745. Consistent with statistics compiled by the GESAMP in 1993, major sources of marine pollution consisted of 44 percent land-based discharge, 33 percent atmospheric inputs from land, 12 percent marine transport, 10 percent dumping and one percent from oil exploration and production. (Gold E, *Gard Handbook on Marine Pollution*, (Gard, 1997) at 288). The 1985 *Montreal Guidelines for the Protection of the Marine Environment from Land Based Sources of Pollution* defines LBSMP as follows:

Land-based sources means:

Municipal, industrial or agricultural sources, both fixed and mobile, on land, discharges from which reach the marine environment, in particular: From the coast, including from outfalls discharging directly into the marine environment and through run-off; and through rivers, canals or other water-courses, including underground water courses; and via the atmosphere.

Sources of marine pollution from activities conducted on offshore fixed or mobile facilities within the limits of national jurisdiction save to the extent that these sources are governed by appropriate international agreements. (The 1985 Montreal Guidelines for the Protection of the Marine Environment from Land Based Sources of Marine Pollution (UNEP, 'Protection of the Marine Environment against Pollution from Land-based Sources' 14(2-3) *Environmental Policy and Law* 1985 at 77, UNEP/WG 120/3 part IV.)

<sup>6</sup> Effectiveness refers firstly, to the mechanisms set forth in the treaty to ensure its implementation and compliance and whether, and to what extent, these measures ensure the achievement of the treaty objectives, and secondly, it refers to whether the obligations are written in such concrete terms that they actually can be put into effect domestically. (Nordic Council of Ministers, *The Effectiveness of Multimedia Environmental Agreements-A Report from a Nordic Project*, Tema Nord 1996:513 at 5-6).

assessing what progress has been made to achieve the goal of LBSMP control in the region.

This paper commences with a discussion on marine environmental conditions of this region and highlights the various types of pollutants from various sources discharged in the marine environment of the region. International instruments on LBSMP are presented next. The paper then focuses on regional initiatives to LBSMP. In this regard the Action Plan for East Asian Seas region, the report of the Preparatory Workshop on Partnership Opportunities for Enhanced GPA Implementation in the East Asian Seas Region,<sup>7</sup> Strategic Action Programme for the South China Sea and the Report of the Technical Workshop for the Implementation of the Strategic Action Programme in the South China Sea are analysed and evaluated. Obstacles to the control of LBSMP in the region are studied next. In the light of these obstacles, proposal for a comprehensive legal regime based on an effective cooperative arrangement is mooted in the end of this paper.

### **Environmental Conditions of the South China Sea**

The South China Sea is a semi-enclosed sea that supports a number of unique habitats and ecosystems.<sup>8</sup> This sea is a part of Pacific Ocean as it encompasses a portion of the Pacific Ocean stretching roughly from Singapore and the Strait of Malacca in the southwest to the Strait of Taiwan in the northeast.<sup>9</sup> This sea is strategically positioned within East Asian Seas (EAS) waters and has always been central to issues of economical and political stability in the region.<sup>10</sup>

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<sup>7</sup> East Asian Seas region includes South China Sea.

<sup>8</sup> UNEP, Strategic Action Programme for the South China Sea, UNEP/GEF/SCS Technical Publication no 16 (2008) at 1. Article 122 of the 1982 *United Nations Convention on the Law of the Sea* (21 ILM (1982) 1261) defines enclosed or semi enclosed sea as ‘a gulf, basin or sea surrounded by two or more States and connected to another Sea or the ocean by a narrow outlet or consisting entirely or primarily of the territorial seas and exclusive economic zones of two or more coastal states’.

<sup>9</sup> Country Analysis Briefs, South China Sea Region (<http://www.eia.doe.gov/emeu/cabs/schina.html>) at 1.

<sup>10</sup> Lin Sien C and Krikman H, ‘Overview on Land Based Sources and Activities Affecting the Marine Environment in the East Asian Sea’, *UNEP Regional Seas Reports and Studies* No 173, 2000 at 3



Source: [http://apps.americanbar.org/intlaw/committees/industries/energy\\_natural\\_resources/schina.pdf](http://apps.americanbar.org/intlaw/committees/industries/energy_natural_resources/schina.pdf)

The countries of the South China Sea region are Brunei Darussalam, China, Cambodia, Malaysia, Philippines, Singapore and Vietnam. Countries of this region are socially and culturally interconnected due to population movement and commerce that started centuries ago.<sup>11</sup> They share the same pattern of economic problems and trends typical of East Asia.<sup>12</sup> The region is strongly influenced by monsoons and its ecosystem is diverse.<sup>13</sup> For example Philippines supports a very large area of coral reef in the region and well developed reefs are also found in Thailand, on the offshore islands of Vietnam and on the east coast of peninsula Malaysia.<sup>14</sup> About one third of worlds' mangrove occurs in Malaysia, Thailand, Singapore, Cambodia and Vietnam.<sup>15</sup>

<sup>11</sup> Thia-Eng C, 'Coastal and Ocean Governance of the Seas of East Asia: Towards an Era of New Regional Cooperation and Partnership, *Tropical Coasts*, 2002 at 46

<sup>12</sup> Tolentino Jr AS, Legislative response to Marine Threats, 17 (3) *Ambio*, 1988 at 238

<sup>13</sup> Strategic Action Programme, *supra* note 8 at 2

<sup>14</sup> Bleakley C and Wells S, Marine Region 13: East Asian Seas, A Global Representative System of the Marine Protected Areas. Great Barrier Reef Marine Mark Authority, The World Bank/ The World Conservation Union (IUCN), *A report to the World Bank Environment Department* 1995. Cited in Strategic Action Programme, *ibid* at 6.

<sup>15</sup> Strategic Action Programme, *ibid* at 6

Several countries of the region are with a lot of low lying land and swamps and are subject to frequent floods and storms.<sup>16</sup> The physical, chemical and biological characteristics of the region are strongly influenced by major ocean currents that affect ocean temperature, tides, waves, salinity and sediment transport, and influence the distribution of oxygen, nutrients and other chemicals of the sea.<sup>17</sup> These mean that the region is subject to large amounts of water movement through river run-off, rivers, floods, storm surges, mobilizing sediments and other pollutants and moving them into the sea waters, even from hundreds of miles inland.<sup>18</sup> Various reports by the Economic and Social Commission for Asia and the Pacific, United Nations Environment Programme (UNEP) and the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP) have indicated that the state of the marine environment of the region is deteriorating and putting marine support system at risk.<sup>19</sup>

The coastal cities of the region are large and growing. They include Guang Zhou, Hong Kong in China; Ho Chi Minh City in Vietnam, Bangkok in Thailand, Manila in Philippines and Singapore. Over the past couple of decades the countries of the region have undergone rapid economic development and population growth. Density of coastal population has increased and coastal activities have extended to industrial and commercial development, energy generation, food production and waste dumps.<sup>20</sup> These human activities as well as the forces of nature are significant threats to the marine and coastal environment in the region including loss of coastal habitats, cutting and conversion of mangroves, erosion and siltation from land development, logging and mining, overfishing and untreated waste.<sup>21</sup> For example, the causes of mangrove destruction identified in the region include conversion of pond aquaculture for shrimp

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<sup>16</sup> Kaly UL, *Review of Land Based Sources of Pollution to the Coastal and Marine Environments in the Bay of Bengal Large Marine Ecosystem (BOBLME) Region*, GCP/RAS/179/WBG.10 FAO-BOBLME Programme, 2004 at 30

<sup>17</sup> Thia-Eng C, *supra* note 11 at 47

<sup>18</sup> Kaly UL, *supra* note 16 at 30

<sup>19</sup> Thia-Eng C, *supra* note 11 at 48

<sup>20</sup> About more than 70 percent of the total population in the region lives in the coastal areas (Lin Sien C and Krikman H, *supra* note 10 at 4; Burke et al, *Pilot Analysis of Global Ecosystems, Coastal Ecosystem* (World Resources Institute, 2001) at 77.

<sup>21</sup> UNEP, East Asian Seas Region

([http://www.unep.org/regionalseas/programmes/unpro/eastasian/instruments/r\\_profile\\_eas.pdf](http://www.unep.org/regionalseas/programmes/unpro/eastasian/instruments/r_profile_eas.pdf)) at 3

firming in particular, land clearance for urban and port development and harvest of timber for domestic use.<sup>22</sup>

No doubt marine and coastal resources are contributing the regional economy. However, unsustainable utilisation and exploitation of these resources are causing the marine environment of the region to deteriorate. It is an utmost important to undertake adequate conservation and pollution prevention measures to protect this regional marine environment.

### **Land Based Sources of Marine Pollution in the South China Sea Region**

A huge amount wastes from domestic, industrial, agricultural, mining and port and harbour sources are discharged in various sites of the South China Sea and pollute the waters of the region. According to National Action Plans the principal pollutants of land based sources include nutrients, suspended solids, heavy metals in sediments and biota, agricultural runoff, untreated sewage and industrial activities.<sup>23</sup> A few industries have sewage treatment facilities. Untreated effluents discharged directly or indirectly into the water and finally find their way into the South China Sea.<sup>24</sup> It has been identified coastal erosion which is one of the major causes of sedimentation is also severe in the region.<sup>25</sup>

**Major Sources of LBSMP in the South China Sea**

Source	Country					
	Cambodia	China	Malaysia	Philippine	Thailand	Vietnam
<b>Domestic waste</b>	H	H	M	H	H	H
<b>Agricultural waste</b>	M	H	M	H	H	H
<b>Industrial waste</b>	M	H	H	H	H	H
<b>Sediments</b>	M	H	H	H	H	H

<sup>22</sup> Strategic Action Programme, *supra* note 8 at 3

<sup>23</sup> Strategic Action Programme *ibid* at 45

<sup>24</sup> UNEP, East Asian Seas, *supra* note 21 at 28

<sup>25</sup> UNEP, *ibid* at 29

<b>Solid waste</b>	H	H	M	H	H	H
<b>Ship based sources</b>	M	M	M	M	M	M
<b>Atmospheric</b>	M	M	M	M	M	M

Contribution to pollution of national aquatic environments (L=low, M=moderate, H=high)

Source: Lin Sien C and Krikman H, 'Overview on Land Based Sources and Activities Affecting the Marine Environment in the East Asian Sea', *UNEP Regional Seas Reports and Studies* No 173, 2000 at 34.

### **Major Land Based Activities and their Impact on the Marine Environment in the Region**

<b>Coastal urban development</b>	Sedimentation due to run-off
<b>Land reclamation, dredging of waterways</b>	Sedimentation due to run-off
<b>Removal of mangrove belts</b>	Sedimentation and freshwater run-off
<b>Uncontrolled aquaculture practices</b>	Eutrophication and sedimentation
<b>Untreated domestic sewage run offs</b>	Eutrophication
<b>Industrial waste run off</b>	Eutrophication, poisoning
<b>Watershed/catchment areas modification</b>	Sedimentation, eutrophication
<b>Agriculture development</b>	Sedimentation, eutrophication
<b>Tourist resort development</b>	Sedimentation, eutrophication

**Source:** Lin Sien C and Krikman H, 'Overview on Land Based Sources and Activities Affecting the Marine Environment in the East Asian Sea', *UNEP Regional Seas Reports and Studies* No 173, 2000 at 21.

LBSMP in highly enclosed sea areas is one of the serious issues. They originate locally and their impacts are mostly domestic. However, in many cases they have trans-boundary as well as cumulative impacts in sea waters. For example radioactive wastes and certain persistent organic pollutants have trans-boundary and cumulative effects respectively and require collective (national, regional as well as international) and cooperative measures and actions.

### **International Instruments on LBSMP Control**

LBSMP was not an important issue of international, regional and national concern until the 2<sup>nd</sup> half of 20<sup>th</sup> century. Awareness about the impact of LBSMP started to increase in this period. From this time onwards control mechanisms of LBSMP did begin

to emerge as an issue of environmental concern. This concern led to the creation of some broad general and well recognized interrelated principles under customary international law (CIL) which formed a basis for the control of LBSMP.<sup>26</sup> These principles are one of the origins from which international law of marine pollution is derived, relating only to cross-jurisdictional pollution. In this context the principle of good neighbourliness and the principle of reasonableness use are notable.

The principle of good neighbourliness has been defined as:

*No State may conduct, promote or sustain in its territory activities which cause other than inconsiderable and usual damage in the territory of a neighbouring State.*<sup>27</sup>  
*The basis of this rule is found in the Roman law maxim sic utere tuo ut alienum non laedas, which means that 'states cannot use or permit the use of their territories to the detriment of the rights and legitimate interests of other states'.<sup>28</sup> This is recognised as a general principle of international law,<sup>29</sup> having been confirmed in international legal tribunal decisions, which include, the Trail Smelter Arbitration.<sup>30</sup> It was decided here that Canada was responsible for extraterritorial environmental damage from copper smelter fumes that transgressed the border into the USA.<sup>31</sup>*

The good neighbourliness principle also accords with the doctrine of equitable utilization of water resources. In the *Lake Lanoux Arbitration* between Spain and France

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<sup>26</sup> The CIL comprises two interrelated elements: A consistent and general international practice amongst states and acceptance of this practice as law by the international community of states. State practice includes, physical acts, claims, declarations abstract (such as General Assembly resolutions), national laws, national judgements and omissions (Akehurst M, 'Custom as a Source of International Law', 47 *British Yearbook of International Law* (1974-75) at 53. Non-State activities, such as decisions of the International Court of Justice (ICJ) and international tribunals and writing of publicists, may also lead to a customary rule, or at least be useful, legal documents through which one can see how customary international law has emerged (Hickey JE, 'Custom and Land-based Pollution of the High Seas', 15 *San Diego Law Review*, (1978) at 413-414.

<sup>27</sup> Hakappa K, *Marine Pollution in International Law-Material Obligations and Jurisdiction*, (Helsinki, 1981) at 141. In a broader sense this principle refers to State relations in general. For example, in the preamble to the United Nations Charter 'the peoples of the United Nations' have expressed their determination to 'live together in peace with one another as good neighbours'. (United Nations Organisation, *Charter of the United Nations*, Signed at the United Nations Conference on International Organisation, San Francisco, California, June, 1945 (Washington D.C., US Government Printing Office, 1945)

<sup>28</sup> Black's Law Dictionary defines the sic utere tuo ut alienum non-laedas as, 'use your own property so as not to injure that of another'. Black HC, *Law Dictionary*, (West Publishing Co, 5<sup>th</sup> ed 1979) at 1238.

<sup>29</sup> Lauterpacht H, *Oppenheim's International Law* (8th ed, London, Longmans, 1955) at 346; Hickey JE, 'Custom and Land-based Pollution of the High Sea', 15 *San Diego Law Review*, 1978 at 422; Boyle AE, 'Land-based Marine Pollution: Legal Aspects' 16 (1) *Marine Policy*, 1992 at 24).

<sup>30</sup> United States v Canada, *American Journal of International Law* (1941), Vol 35 at 648, et seq. For details see Hassan D, *Protecting the Marine Environment from Land-Based Sources of Pollution Towards Effective International Cooperation*, (Ashgate, 2006) at 71-72.

<sup>31</sup> Linsley G, et al, 'An Expanding International Legal Regime Environmental Protection and Radioactive Waste Management', *IAEA Bulletin*, 2000 at 24.

the international tribunal affirmed that the exercise of State rights is acceptable as long as that it does not ignore another State's rights. In this respect, the Tribunal acknowledged:

*France is entitled to exercise her rights; she cannot ignore the Spanish interests. Spain is entitled to demand that her rights be respected and that her interests be taken into consideration.*<sup>32</sup>

This principle of reasonableness use denotes a positive obligation on nations in terms of the utilisation of the high seas for the sake of the interest of others.<sup>33</sup> As far as LBSMP is concerned it may be inferred that the principle comes with an obligation not to pollute<sup>34</sup> the marine and coastal environment unreasonably.

As mentioned earlier these principles only address cross-jurisdictional impacts, not domestic. They left the national marine pollution control to the will of sovereign States. This shortcoming in CIL has resulted in the call for positive international law on this issue.<sup>35</sup>

New beginnings of LBSMP control were emerged from the 1970s. Many hard law and soft law instruments at global as well as regional levels were concluded with relevant to LBSMP control.<sup>36</sup> These include the 1972 *Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matters*, the 1982 *United Nations Convention on the Law of the Sea*; the 1972 *United Nations Conference on the Human Environment*, the 1985 *Montreal Guidelines for the Protection of the Marine Environment from Land Based Sources*, *Agenda 21 of the 1992 United Nations Conference on Environment and Development* and the 1995 *Global Programme of Action for the Protection of the Marine Environment from Land Based Sources* are notable to address.

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<sup>32</sup> (*Spain v France*) RIAA, (United Nations Reports on International Arbitral Awards), Vol XII, p 285. For details see Hassan D, *supra* note 30 at 72-73.

<sup>33</sup> Article 2 of 1958 Convention on High Seas, 450 UNTS 11. The same principle was reiterated in Article 87(2) of The 1982 *United Nations Convention on the Law of the Sea*. In the *Icelandic Fisheries Case* (1974) ICJ Reports at 4, the ICJ considered this provision and required the Parties to duly take into account the interest of other states in the conservation and equitable exploitation of high seas fishing resources.

<sup>34</sup> Boyle AE, *supra* note 29 at 20-21.

<sup>35</sup> Goering KW, 'Mediterranean Protocol on Land-based Sources: Regional Response to a Pressing Transnational Problem', 13 *Cornell International Law Journal*, 1980 at 331-332.

<sup>36</sup> Hard law is Treaty. Soft laws are non-binding declarations and guidelines, which may serve as 'quasi legal guide post', (Brubaker D, *Marine Pollution and International Law*, Belhaven Press: London and Florida, 1993) at 287. Soft law instruments are a relatively recent phenomenon in respect of the growing body of international agreements between states. They offer strategies, impose obligations in an imprecise and flexible way and are shaped by normative guidelines rather than constrained by precise rules (Abbott KW and Snidal D, 'Hard and Soft Law in International Governance', 53(3) *International Organization*, 2000 at 443).

At global level the 1982 United Nations Convention on the Law of the Sea (hereinafter LOSC) is the most important hard law to deal with LBSMP.<sup>37</sup> At present the LOSC is the only global treaty with specific provisions on LBSMP. Article 207 of the LOSC provides:

- 1. States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources, including rivers, estuaries, pipelines and outfall structures, taking into account internationally agreed rules, standards and recommended practices and procedures.*
- 2. States shall take other measures as may be necessary to prevent, reduce and control such pollution.*
- 3. States shall endeavour to harmonize their policies in this connection at the appropriate regional level.*
- 4. States, acting especially through competent international organizations, or diplomatic conference, shall endeavour to establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control pollution of the marine environment from land-based sources, taking into account characteristic regional features, the economic capacity of the developing states and their need for economic development. Such rules, standards and recommended practices and procedures shall be re examined from time to time as necessary.*
- 5. Laws, regulations, measures, rules, standards and recommended practices and procedures referred to in paragraphs 1, 2 and 4 shall include those designed to minimize, to the fullest extent possible, the release of toxic, harmful or noxious substances, especially those which are persistent, into the marine environment.*

Through this article the LOSC obliges States to do the following: take into account internationally agreed rules, standards and recommended practices and procedures; endeavor to harmonise their policies at the appropriate regional level; and, act through the competent international organisations or diplomatic conferences to establish rules to control LBSMP.<sup>38</sup> LOSC emphasises cooperation on a global and regional basis.<sup>39</sup> It also

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<sup>37</sup> *United Nations Convention on the Law of the Sea*, adopted by the Third United Nations Conference on the Law of the Sea (UNCLOS III). Montago Bay, 10 December 1982. 21 ILM 1261, 1833 UNTS 3 and 1835 UNTS 261 (Final Act) (in force 16 November 1994).

The *Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters* (11 ILM (1972) 1291) is also relevant as most marine dumping is of land generated industrial waste or land dredged silt (UNEP, *Marine Pollution from Land Based Sources*, UNEP Industry and Environment, June 1992 at 3). The *1996 Protocol to the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters* (36 ILM 1997) can also be noted in this respect as this Protocol broadens the definition of dumping to include any storage of wastes or other matter in the seabed and subsoils, from vessels, aircraft, platform or other man-made structures at sea...(article 4 of the 1996 Protocol).

<sup>38</sup> Hassan D, *supra* note 30 at 82

<sup>39</sup> Article 197 of LOSC

emphasises cooperation with respect to the protection of enclosed and semi-enclosed seas.<sup>40</sup>

The following soft laws are important as far as LBSMP control is concerned: the 1972 *United Nations Conference on the Human Environment* (Stockholm Conference 1972), the *Montreal Guidelines on the Protection of the Marine Environment from Land Based Sources* (Montreal Guidelines 1985), *Agenda 21 of the United Nations Conference on Environment and Development* (Agenda 21 1992) and the *Global Programme of Action for the Protection of the Marine Environment from Land Based Activities* (GPA 1995).

The Stockholm Conference 1972 could be regarded as the start of international marine environmental law of pollution as it represents a strong sense of dedication by States to establish basic rules of international marine environmental law.<sup>41</sup> The Conference addressed all aspects of human environment through the adoption of a Declaration of the United Nations Conference on the Human Environment (the Stockholm Declaration)<sup>42</sup> and an Action Plan<sup>43</sup>. For the first time the urgent necessity for control of LBSMP was explicitly recognized in this soft law.<sup>44</sup> Following the Stockholm Conference 1972 international attention became focused on more prescriptive standards for LBSMP control.<sup>45</sup> As an initiative of the Governing Council of the United Nations Environment Programme (UNEP), the Montreal Guidelines were adopted in 1985 with a view to assist governments in the process of developing appropriate bilateral, regional and multilateral agreements and in particular, national legislation for the protection of the marine environment from land based pollutants. These Guidelines provide a checklist of provisions which governments may select, adopt or elaborate, as appropriate, to meet the needs of specific regions to control LBSMP.<sup>46</sup> As the first global instrument directed exclusively at LBSMP the Montreal Guidelines set out responsibilities to protect and

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<sup>40</sup> Articles 122 and 123 of LOSC, see *supra* note 8.

<sup>41</sup> Birnie PW and Boyle AE, *Basic Documents on International Law and the Environment* (Clarendon Press, Oxford, 1995) at 1

<sup>42</sup> 11 ILM (1972) 1416

<sup>43</sup> 11 ILM (1972) 1421

<sup>44</sup> Principle 7 of the Stockholm Declaration

<sup>45</sup> Hassan D, *supra* note 30 at 89

<sup>46</sup> UNEP, 'Protection of the Marine Environment from Land Based Sources' (Montreal Guidelines) 14 *Environmental Policy and Law*, 1985 at 77.

preserve the marine environment; prevent trans-boundary pollution; adopt measures against pollution from LBS; cooperate on a global, regional and bilateral basis; prevent transfer or transformation of pollution from LBS; establish marine sanctuaries and reserves, engage in scientific and technological cooperation; and assist developing countries for the purpose of improving their capacities to prevent, reduce and control LBSMP.<sup>47</sup>

On the 20<sup>th</sup> anniversary of the Stockholm Conference 1972 an Earth summit<sup>48</sup> was held in Rio de Janeiro in 1992 which gave the opportunity of the international community to establish new environmental priorities. Although a number of soft law instruments such as the Rio Declaration, Agenda 21 and the Forest Principles were adopted in this summit the Agenda 21 is the most relevant one to LBSMP. Chapter 17 of Agenda 21 titled 'Protection of the Oceans, all Kinds of Seas, Including Enclosed and Semi-enclosed Seas and Coastal Areas, and the Protection, Rational Use and Development of their Living Resources' is devoted to the protection and preservation of world's marine environment. Chapter 17 of Agenda 21 makes a number of useful recommendations to prevent, reduce, and control LBSMP. These include: the application of preventive, precautionary and anticipatory approaches to avoid degradation of the marine environment; prior assessment of activities which have significant impacts upon marine environment; the integrated protection of the marine environment; and the development of economic incentives to apply clean technologies; and application of the polluter pays principle.<sup>49</sup> Chapter 17 of Agenda 21 also prescribes the specific actions that are needed

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<sup>47</sup> Montreal Guidelines 2-9; UNEP/WG 120/3 (Part IV). These guidelines are almost identical to the provisions of LOSC Articles 192-203.

<sup>48</sup>31 ILM (1992) at 876

<sup>49</sup> Hassan D, *supra* note 30 at 93. All these advocate strategies and programs for the protection of the marine environment from pollution. For example, environmental impact assessment (EIA) is an important tool to ensure proper environmental development activities and an evaluation of environmental effects (EIA, *UNEP Regional Seas Reports and Studies No. 130*, UNEP, 1990, at 1). Briefly stated, the precautionary principle ensures that a substance or activity posing a threat to the environment is prevented from adversely affecting the environment, even if there is no scientific proof linking that particular substance or activity to environmental damage. (Cameron J, 'The Precautionary Principle : A Fundamental Principle of Law and Policy for the Protection of the Global Environment', *Boston College International and Comparative Law Review*, Vol. XIV, No. 1, 1991 at 2). As a tool of minimising international competitive distortions arising from LBSMP, the polluter pays principle advocates that the costs of environmental pollution should be internalised. In the international context, it is an attempt to shift the burden of pollution prevention and clean up costs to states or other groups or bodies involved in polluting activities, rather than permitting that burden to continue to be imposed on international society as a whole. As a management tool, the cleaner production principle offers an effective solution for tackling LBSMP problems by providing the

to prevent, reduce and control LBSMP. In this context, the document prescribes that States should: take action at the national levels to control LBSMP and take into account Montreal Guidelines in this respect;<sup>50</sup> consider updating, strengthening and extending the Montreal Guidelines, as appropriate; assess the effectiveness of existing regional agreements and action plans, where appropriate; develop policy guidance for relevant global funding mechanisms;<sup>51</sup> convene, as soon as practicable, an inter-governmental meeting on the protection of the marine environment from LBS;<sup>52</sup> give priority to sewage discharge and establish regulatory and monitoring programs to control effluents' discharges;<sup>53</sup> eliminate the discharge of organohalogen compounds, reduce use of synthetic organic compounds, control inputs of nitrogen and phosphorus into the sea water, promote the use of less harmful pesticides and fertilizers and undertake new initiatives at national, subregional and regional levels for controlling the input of non point source pollutants<sup>54</sup> control; and prevent coastal erosion and siltation due to anthropogenic factors related to, *inter alia*, land use and construction techniques and practices.<sup>55</sup>

In direct response to the recommendations made in Chapter 17 of Agenda 21 the Conference on the Protection of the Marine Environment from LBSMP was held in Washington in 1995 (Washington Conference 1995). The Washington Conference was convened and coordinated by UNEP, in close cooperation with intergovernmental and

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opportunity to conserve and clean up coastal waters, and ensuring environmentally sustainable use of resources by firms and industries in marine and coastal areas (efficient resource utilisation). It also provides an effective solution for protecting the marine and coastal environment from the negative impacts of human activities (reducing waste disposal charges). Integrated management relates to the management of the coastal zone as a whole in relation to local, regional, national and international environmental goals. It imposes a particular focus on the interaction between the various activities that occur in the coastal zone and between coastal zone activities and activities in other regions (OECD Environmental Directorate, Environment Committee (1991), *Report on Coastal Zone Management: Integrated Policies and Draft Recommendation of the Council on Integrated Coastal Zone Management*, Paris, drafted 16 October, 1991 at 37). This integration in coastal management may embrace a number of dimensions: intergovernmental, geographical (land-water interface), intersectional and interdisciplinary.

<sup>50</sup> Chapter 17.24.

<sup>51</sup> Chapter 17.25.

<sup>52</sup> Chapter 17.26. Agenda 21 requested the governing council of the UNEP to make more concrete measures, and to implement its recommendations and directives related to LBSMP.

<sup>53</sup> Chapter 17.27.

<sup>54</sup> Chapter 17.28.

<sup>55</sup> Chapter 17.29.

non-governmental organisations (NGOs).<sup>56</sup> The aim of this Conference was to develop a Global Programme of Action to Prevent, Reduce and Control LBSMP which was unanimously adopted by the participants of the Conference. The GPA provides valuable insights as to what is needed to deal more effectively with the LBSMP problem and how states might be persuaded, encouraged or assisted.<sup>57</sup> It provides certain criteria to ensure successful implementations of its program, such as, establishing and strengthening regional and global networks; encouraging and facilitating interregional cooperation and establishing and supporting the necessary Secretariat services for regional cooperative arrangements.<sup>58</sup> The GPA has initiated and proposed a coherent strategy and methodology to develop programmes of action at national, regional and international levels and has established the programmatic links between various GPA activities and integrated legal, economic and technological policies.<sup>59</sup> To promote the implementation of the GPA at regional levels, a UNEP coordinating office for the GPA was established in November 1997, becoming fully operational in 1999, in *The Hague*.

UNEP's Hague Coordination Office for the GPA has put in place various mechanisms as part of the process of implementing the GPA. It has conducted a series of regional technical workshops, for the program of 'regional implementation'.<sup>60</sup> The main objectives of these workshops were to finalise regional overviews of land-based activities; agree on the development of regional components of the Clearing-House mechanism; and to develop regional programs of action to address impacts of land-based activities in the marine environment.<sup>61</sup>

The 2002 World Summit on Sustainable Development (WSSD) held in Johannesburg, South Africa put emphasis on the implementation of GPA. The WSSD urged for coordinated international action for LBSMP control. It calls on legislators and

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<sup>56</sup> The Conference was attended by over 100 states, 17 global and regional international organizations and 27 non-governmental organizations, UNEP Report, Rio Follow up Marine Environment 26 *Environmental Policy and Law*, (1996) at 11.

<sup>57</sup> Hassan D, *supra* note 30 at 96

<sup>58</sup> Basiron N, 'The Global Program of Action for the Protection of the Marine Environment from Land-based Activities' 3(3) *MIMA Bulletin*, 1996 at 3.

<sup>59</sup> Hassan D, *supra* note 30 at 98

<sup>60</sup> UNEP, *Institutional Arrangements for Implementation of the Global Program of Action for the Protection of the Marine Environment from Land-based Activities*, (UNEP/GC.19/INF.4, 8 November 1996) at 19.

<sup>61</sup> UNEP, Leaflet from UNEP/GPA Coordination Office of the Global Program of Action for the Protection of the Marine Environment from Land-based Activities, 1999 at 6.

governments to commit to the implementation of the GPA effectively. At present the GPA is generally being implemented under UNEP regional seas programme.

### **Regional Initiatives to LBSMP Control in the Region**

Although LBSMP can be transported globally, they are most intensely felt at regional levels. Schumacher notes that, ‘most land-based pollutants are not transported far from their sources of discharge’<sup>62</sup>. They are particularly critical in the coastal waters.<sup>63</sup>

LBSMP are highly specific for different regions. The nature and scope of land-based pollutants differ from one region to another according to ‘their special hydrographical and ecological characteristics, as well as the predominant patterns of industrial and economic development’.<sup>64</sup> This is particularly true in shallow, enclosed or semi enclosed seas, as they are especially sensitive and receive substantial contamination from land and the coasts.<sup>65</sup> In this context, the Gulf of Mexico, the Gulf of Thailand, the Baltic Sea and the South China Sea are examples.

It is due to this reason, the regional approach has proven to be enormously attractive and, to a certain extent, successful for LBSMP since the late 1960s.<sup>66</sup> The *Paris Convention on the Prevention of Marine Pollution from Land-based Sources*, 1974,<sup>67</sup> and the *Convention on the Protection of the Marine Environment of the Baltic Sea Area*,

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<sup>62</sup> Schumacher M (et al), ‘Land-based Sources of Marine Pollution in the Caribbean Region: Incentives and prospects for an Effective Regional Protocol’, 20 *Marine Policy*, 1996 at 102.

<sup>63</sup> Gouilloud MR, *supra* note 3 at 197. In general the coastal zone includes coastal waters and all areas to the landward side of the coastal waters [(Kay and Alder J, *Coastal Planning and Management*, (E and FN Spon, 1999) at 7]. However, the coastal zone can be more closely defined as ‘[t]he land and waters extending inland for one kilometre from the high water mark on the foreshore and extending seaward to the 30 metre depth contour line and also including the waters, beds, and banks of all rivers, estuaries, inlets, creeks, bays, or lakes subject to the ebb and flow of the tide’. [Beer T, *Environmental Oceanography*, (CRC Press, New York, London, Tokyo, 2nd ed, 1996) at 4].

<sup>64</sup> Kowabara S, *The Legal Regime of the Protection of the Mediterranean against Pollution from Land-based Sources*, (Tycooly International Publishing Limited Dublin, 1984) at 20.

<sup>65</sup> On this problem refer to UK Department of Environment, Quality status of the North Sea (1987); Kuwabara S, *The Legal Regime of the Protection of the Mediterranean against Land-based Sources*, (Tycooly International Publishing Ltd. 1984) Chapter 1; Clark (ed), *Marine Pollution* (Oxford 1986), Chapter 10; Sibthorp (ed), *The North Sea: Challenge and Opportunity* (London 1975), 22 ff; Helsinki Commission, First Periodic Assessment of the state of the Marine Environment of the Baltic Sea Area (Helsinki 1985) .

<sup>66</sup> In legal terms, the 1969 *Bonn Convention on the Prevention of Pollution of the North Sea* was the start of regional efforts for marine pollution control.

<sup>67</sup> 13 ILM 1974 at 352.

1974<sup>68</sup> are the pioneer legal instruments for regional control. Following these regional initiatives the UNEP regional seas program (RSP) was formulated in 1974 and since then the RSP has been playing a key role to control LBSMP.

The RSP is a global programme implemented through regional components.<sup>69</sup> Each RSP includes an action plan. These action plans are formulated according to the practical needs of the region, as perceived by governments concerned. They serve to coordinate the efforts of national institutions, identify their capabilities and needs,<sup>70</sup> and provide generic support to control LBSMP. The RSP aimed at enabling countries of a given region to meet and formulate common commitments under a Regional Action Plan (RAP) adopted by them. The adoption of the Action Plan for the East Asian Seas region and other regional initiatives and activities in the region are examples in this respect.

### **The Regional Programme of Action for the Protection of the Marine Environment of the East Asian (RPA)**

Under the auspices of the United Nations Environment Programme (UNEP) *the Action Plan for the Protection and Sustainable Development of the Marine Environment and Coastal Areas of the East Asian Region* was adopted in 1980, which was revised in 1994. The main objective of the RAP was to develop regional seas plan for the protection and preservation of the marine and coastal environment in East Asian Seas region. At its fourteenth session the RPA was approved by the Coordinating Body of the Seas of East Asia (COBSEA) 1999 and at present run by the COBSEA.

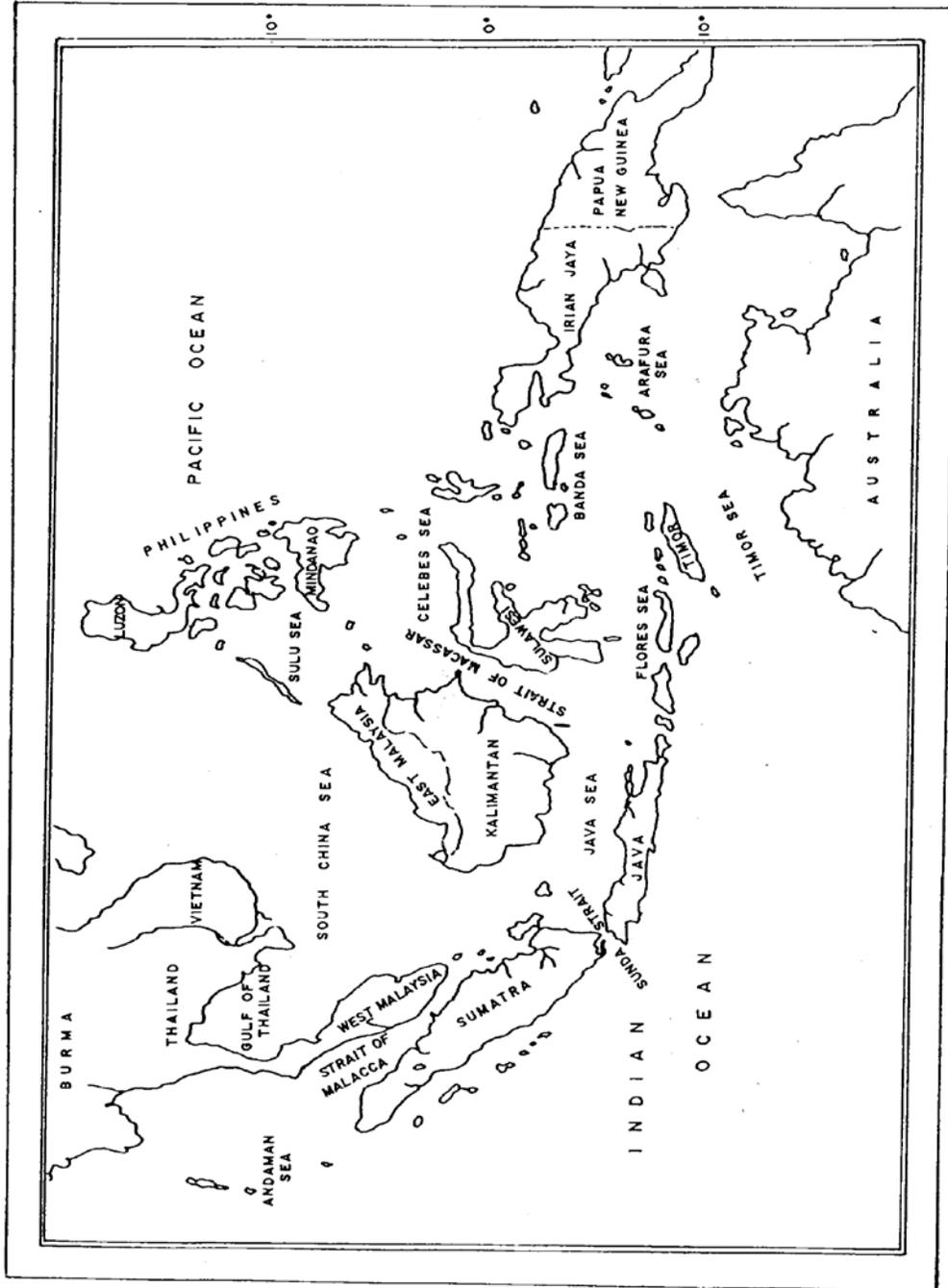
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<sup>68</sup> 13 ILM 1974 at 546.

<sup>69</sup> The Regional Sea Programme (RSP) is the centerpiece of the oceans program. In 1985 the name of UNEP's Regional Seas Programme was changed to the Ocean and Coastal Areas Program (OCA) and its headquarters or the Program Activity Centre (PAC), moved from Geneva to Nairobi (Caldwell LK, *International Environmental Policy*, (2nd ed, Duke University Press, London, 1990) at 151-153). Nevertheless the program is still commonly called the Regional Seas Program as it was originally known. At present the RSP includes 16 regions. They are: Black Sea, Caribbean, East-Asian Seas, Eastern Africa, Kuwait region, Mediterranean, North-West Pacific, Red Sea and Gulf of Aden, South-Asian Seas, South-East Pacific, South Pacific, South-West Atlantic, West and Central Africa, Arctic, Baltic and North East Atlantic.

<sup>70</sup> Neuman LD 'The United Nations Regional Seas Program' *The United Nations Regional Seas Program*, 19 *Marine Technology Society Journal* at 49.

## East Asian Seas Region



Source: Lin Sien C and Krikman H, 'Overview on Land Based Sources and Activities Affecting the Marine Environment in the East Asian Sea', *UNEP Regional Seas Reports and Studies* No 173, 2000 at 21.

The RPA was designed to develop financial and institutional mechanisms for the protection of the marine and coastal environment from different activities, including LBSMP. The Action Plan identified four priority areas. These included integrated coastal

zone management and protection of the marine environment from land based activities identifying regional problems of pollution and establishing regional priorities<sup>71</sup> Resolutions were adopted for the smooth implementation of this Plan. The existing regional inter-governmental organisation, the COBSEA, located in Bangkok, Thailand, was made responsible for facilitating the implementation of the RAP by organising inter-governmental meetings of the member states. It was also given the responsibility to the COBSEA for administering the Plan. This RAP is now also supported by the Global Environment Facility (GEF), the Asian Development Bank (ADB), the United Nations Development Programme (UNDP) and various NGOs.

In addition to bottom-up regional approaches for LBSMP control, there are global programs with regional applications. The most noteworthy is the *Global Programme of Action for the Protection of the Marine Environment from Land Based Activities* (the GPA) 1995<sup>72</sup>. The GPA seeks to improve the marine environmental situation by assisting implementation of the relevant RAP within the regional seas programme. To facilitate the implementation of the GPA, a series of regional technical workshops have been convened in various regions under the auspices of UNEP. The GPA Coordination Office in The Hague, which was established in 1997, conducted a number of regional workshops, in cooperation with governments and relevant regional organisations, to consider information on land based activities. In particular these workshops were convened to: review the general objectives of the GPA and implications of the programme; identify possible elements of regional framework strategies with special reference to recommended approaches by source categories; consider the requirements for development and implementation of national action programmes and design general outlines for preparation of RPA to address LBSMP.<sup>73</sup> These workshops drafted priority action programs to reduce and control LBSMP, identified problems and barriers to LBSMP control and remedial measures to be undertaken by states and governments, and also considered ways to strengthen regional cooperation. The Workshop on Implementation of the Global Programme of Action for the Protection of the Marine

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<sup>71</sup> UNEP, *supra* note 21 at 29

<sup>72</sup> UNEP (OCA)/LBA/IG.2/7

<sup>73</sup> UNEP, *Report of the Workshop on Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land Based Activities in the East Asian Seas Region* (UNEP, (WATER)/GPA/EAS/RW.3/5, May 1997) at 1

Environment from Land Based Activities in the East Asian Seas Region, Cairns, Australia, 1997 (hereinafter Cairns Workshop) is an example in this respect.

To give effect to the GPA in the East Asian Seas regions, as well as to the existing RAP the Cairns Workshop deliberated on the following documents:

- *a Draft Overview on Land based Sources and Activities Affecting the Marine, Coastal and Associated Freshwater Environment in the East Asian Seas Region*<sup>74</sup>;
- *the regional components (EAS) of the Global Programme of Action Clearing House Structure and Function*<sup>75</sup>;
- *the Regional Program of Action for the Protection of the Marine Environment of the East Asian Sea from the Effects of from Land-based Activities*<sup>76</sup>; and
- *Institutional Arrangements, Activities, Financial Considerations and Timetable for Implementation of a Regional Strategic Program for the Protection of the Marine Environment and Associated Freshwater Environment from Land based Activities in the East Asian Seas*<sup>77</sup>.

The Cairns Workshop recommended that the Draft Overview on land base sources, and the Regional Program of Action, insufficiently reflected the root causes of the problems of LBSMP of the region. Moreover, these documents were incomplete and not based on reliable scientific data and information, and therefore questions remained in relation to the effective measures for LBSMP control. Given this situation, participants at the workshop agreed that the Draft Overview and the RPA would be revised by UNEP, as appropriate, on the basis of the necessary information, data and materials provided by the member countries of the EAS region to contribute to the formulation of an effective RPA for ESA region<sup>78</sup>.

LBSMP related problems have been identified as a major threat to the marine environment of the region by national overviews under the GPA. In order to effectively protect the marine environment from land based sources, the participants of the Cairns Workshop gave special attention to the needs for *inter alia* for: an integrated approach for the development of national action programs; placing national action programs in the framework of existing or evolving national environmental and development programs, strategies and policies; sub regional, regional and global cooperation in implementation

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<sup>74</sup> UNEP(WATER)/GPA/EAS/RW.3/5 at 7

<sup>75</sup> UNEP(WATER)/GPA/EAS/RW.3/5 at 7

<sup>76</sup> UNEP(WATER)/GPA/EAS/RW.3/5 at 9

<sup>77</sup> UNEP(WATER)/GPA/EAS/RW.3/5 at 8

<sup>78</sup> UNEP(WATER)/GPA/EAS/RW.3/5 at 7

of national action programs, including cooperation with regional economic groups, relevant regional and international organisations, development banks, and existing regional bodies, authorities and programs (eg., river basins authorities and commissions, programs operated under regional seas conventions and action plans); and development of options for representation of non governmental organisations and private sector from the region to contribute to the development and implementation of national and regional action programs<sup>79</sup>.

The Cairns Workshop contributed to stimulate land based sources action at the regional level. Needs for capacity building assistance were identified in the field of monitoring, environmental law and protocol development, institutional mechanisms, project funding, technical assistance and training and awareness in developing national strategies on LBSMP control and their implementation.<sup>80</sup> The Workshop also made recommendations to implement the GPA in the region.<sup>81</sup>

In line with the implementation process of the GPA at regional level a preparatory workshop titled Partnership opportunities for Enhanced GPA Implementation was held in Bangkok in September 2006.<sup>82</sup> One of the important sessions of this workshop was national GPA implementation 2002-2006. The representatives of all East Asian Countries were invited to present their national assessment report on GPA Implementation 2002-2006. Presentations were also made by key regional organizations and programmes such as Partnership in Environmental Management for the Seas of East Asia (PEMSEA) and COBSEA. It was noted here that LBSMP is a dominant source of pollution and there are commitments to reduce this pollution through various management measures and initiatives as well as strengthening legislative and policy schemes. High operation and management costs, lack of funding, lack of capacity and awareness, weak or inconsistent legislative scheme, lack of pollution discharge standards, difficulties in enforcing existing

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<sup>79</sup> The Cairns Workshop 1997. For details see the Report of the Workshop on Implementation of the Global Programme of Action for the Protection of the Marine Environment from land Based Activities in the East Asian Seas Region, *supra* note 73.

<sup>80</sup> UNEP(WATER)/GPA/EAS/RW.3/5 at 10

<sup>81</sup> These include: the RPA should be considered as an evolving draft and member countries were asked to further refine it through the Regional Coordinating Unit (RCU) for presentation to COBSEA meeting and EAS/RCU be asked to coordinate regional implementation of the RPA including the GPA Clearing House and mobilization of financial resources where appropriate. (UNEP(WATER)/GPA/EAS/RW.3/5 at 11.

<sup>82</sup> UNEP, The East Asian Seas IGR-2 Preparatory Workshop-*Partnership opportunities for Enhanced GPA Implementation*, 2006 (UNEP (DOC)EAS.IGR2.WS.3).

legislation and poor coordination among national as well as national and regional institutions were identified as the main challenges to control LBSMP in the preparatory workshop.<sup>83</sup> How these challenges have been addressed by the nation States were pointed out in the workshop. These include successful adoption and collection of user fees for domestic waste water treatment together, establishment of national environment funds, the introduction of effluent standards for development activities in the coastal areas and the use of environmental impact assessment (EIA) to prevent and minimize land based pollution discharges.<sup>84</sup> It was also highlighted in the preparatory workshop that further works need to be done to enhance GPA implementation. They are: improve the capability of the local government official to implement GPA related legislation and regulations; effective measures to identify pollution hot spots, standards and guidelines for onsite waste water treatment and pollution and waste water discharge standards.<sup>85</sup>

With the support of UNEP/Global Environment Facility (GEF), governments, international organizations and NGO's a number of other initiatives have been undertaken to control LBSMP in the region. A new strategic direction has been undertaken by COBSEA to address the issues of land based pollution, coastal and marine habitat conservation and management and response to coastal disasters through various inter linked strategies such as, information management, national capacity building, strategic and emerging issues and regional cooperation.<sup>86</sup>

Specific targets by 2012 have been set out for LBSMP control that include: estimate total pollutant loading to the South China Sea; agree and adopt regional criteria for pollutants in sediment and biota; characterize and priorities all hot spots surrounding the China Sea; review and prepare recommendation for application in amending national legislation and regulations; and improved monitoring.<sup>87</sup> The countries of the region also intend to meet the specific targets as far as monitoring stations and pollution hot spots are concerned by the year of 2017.<sup>88</sup>

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<sup>83</sup> UNEP, The East Asian Seas IGR-2 Preparatory Workshop, *ibid* at 8.

<sup>84</sup> *Ibid* at 9.

<sup>85</sup> *Ibid* at 9

<sup>86</sup> COBSEA- Coordinating body on the Sea of East Asia [www.cobsea.org](http://www.cobsea.org), (accessed 28 October 2010).

<sup>87</sup> Strategic Action Programme, *supra* note 8 at 46.

<sup>88</sup> 17 hot spots have been identified in the region based on ASEAN and China pollutant criteria adopted to deal this pollution control. It is targeted that 90% of hot spots will meet water quality criteria and 80% of

With a view to promote sustainable management of LBSMP these SAP activities have been categorized in main three areas. They are: building capacity to ensure sustainable use of coastal waters that include improved mechanism for information exchange and improved regional public awareness and education; enhance pollution control and management that include quality guidelines and tools and common methodology and comparable data among the countries of the region; and institutional arrangements and coordination that include integration of regional science with policy making and enhance regional cooperation.<sup>89</sup> With a view to meet the targets of the regional SAP it has been estimated that the costs for workshops, seminars and consultancy over the five years may reach up to \$US 300 million.<sup>90</sup>

Under the auspices of UNEP/GEF a technical workshop for the implementation of the SAP was held in Cambodia in October 2008. Various presentations on national priorities and approaches to implement the SAP at regional as well as national levels were made in the workshop. It was concluded that the implementation of SAP require *inter alia* strong regional coordination, financing for regional actions and strong investment at the national level as far as national implementation is concerned. The need for a professional coordinating unit, SAP implementation project and development of partnership between public private, government and civil society and between government bodies at national and regional levels have been pointed out in this technical workshop.<sup>91</sup>

To achieve the implementation of the SAP for the South China Sea, the capacity building initiatives undertaken by PEMSEA are notable. These initiatives include: regional training on implementation and enforcement of land and sea use; zoning and regional training course on novel technology for marine environmental management under special skills and training programmes; internship programme, integrated coastal management (ICM) graduate programme. ICM learning centers; regional training of trainer workshop under model ICM training manual; establishment of technical support

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water monitoring stations will meet water quality criteria by 2017 (Strategic Action Programme, *supra* note 8 at 47)

<sup>89</sup> Strategic Action Programme, *supra* note 8 at 47

<sup>90</sup> Strategic Action Programme, *ibid* at 55

<sup>91</sup> UNEP, 'Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand', *Report of the Technical Workshop for the implementation of the Strategic Action Programme*, UNEP/GEF/SCS/TW.1/3 at 6.

network under regional task force; workshop on eutrophication and EIA under regional center of excellence programme and knowledge sharing scheme under communication programme.<sup>92</sup>

As the flagship of PEMSEA's knowledge sharing efforts the East Asian Sea Congress which is a Ministerial Forum, working to provide policy direction and providing commitments to improve and straighten implementation of SAP.<sup>93</sup> The 2009 *Manila Declaration on Strengthening the Implementation of Integrated Coastal zone management for sustainable Development and Climate Change Adaptation in the Seas of The East Asia-Region* is an important achievement of its commitments.<sup>94</sup> This Ministerial congress reviews the *Putrojoya Decalation* 2003 and evaluates towards priority targets for the implementation of development strategies. These include: Building Capacity to Ensure Sustainable Use of Coastal Waters by providing mechanisms for information exchange and development, improvement and dissemination of awareness materials; enhance pollution control and management by developing marine environmental quality guidelines and tools for dissemination and adoption in the region; and develop policy and institutional arrangements and coordination by integrating research programme with management and policy making.

All these regional endeavors indicate that progress have been made towards implementation of the GPA in the region. This progress has seen in problem identification, planning of programs on land-based activities and in development of policy frameworks. Land-based activities assessments relating to LBSMP have been prepared in the region.

Successful implementation of the GPA requires the adoption and wide application of sustainable financing, best available technologies, cleaner production practices and appropriate management approaches. Actual operational activities that could implement these initiatives effectively are still slow due to some obstacles and lack of high level commitment by the governments of the region. The region is facing the following obstacles to control LBSMP effectively : lack of sustainable financing, lack of awareness

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<sup>92</sup> UNEP, Capacity Development Initiatives in the East Asian Seas Region: A PEMSEA Report (www.un.org/Depts/los/general\_assembly/contributions.../PEMSEA.pdf ) p-1-4.

<sup>93</sup> Ibid at 5.

<sup>94</sup> [http://www.pemsea.org/eascongress/section-support-files/manila\\_declaration.pdf](http://www.pemsea.org/eascongress/section-support-files/manila_declaration.pdf) (accessed 30 October 2010).

among people who are causing environmental damages, poverty of coastal communities, weak law enforcement , lack of effective management systems and lack of long term regional and international cooperation.<sup>95</sup>

Low priority to control LBSMP; low GDP per capita; insufficient scientific information; lack of affordable and or appropriate technology; economic gradients and industry-more relaxed pollution standards; intrinsic characteristic of countries in the region are also significant barriers to successful implementation of the GPA.<sup>96</sup> Regional conflicts with respect to territorial claims over the South China Sea and its resources between various countries in the region pose obstacles to effective cooperative activities on LBSMP control.<sup>97</sup>

In response to the Cairns Workshop various regional organizations such as EAS/RCU, PEMSEA and COBSEA and UNEP have been working towards the preparation of the Regional Overview, the regional program of action and the national programs of action. However, prospects are not promising for effective control of LBSMP in the region due to lack of transnational channels and institutional mechanisms to control LBSMP. Regional marine environmental management and activity centers are not operating in an effective way because of weak regional coordination and cooperation. A strong regional institution which could strengthen regional scientific networks and regional civil society to improve the regional marine environmental condition from LBSMP is still weak.

This pace of the process does not encourage a belief that LBSMP is rapidly reducing from its present condition in the region. In pursuing a fertile ground for effective regional cooperation and thus effective involvement of States to control LBSMP it is important to seek to adopt a legally binding framework. Political and cultural environment of the region need to be changed as well.

There are regional conventions on the protection of the marine environment from pollution including LBSMP. They are: The *1976 Barcelona Convention for the*

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<sup>95</sup> Strategic Action Programme, *supra* note 8 at 21

<sup>96</sup> Kaly UL, *supra* note 16 at 29-30

<sup>97</sup> For details see Country Analysis Briefs, South China Sea Region (<http://www.eia.doe.gov/emeu/cabs/schina.html>) at 2-8

*Protection of the Mediterranean Sea against Pollution*;<sup>98</sup> the *Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution* 1978;<sup>99</sup> the *Convention for Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region* 1981;<sup>100</sup> the *Convention for the Protection of the Marine Environment and Coastal Area of the South East Pacific* 1981;<sup>101</sup> the *Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment* 1982;<sup>102</sup> the *Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region* 1983;<sup>103</sup> the *Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region* 1985;<sup>104</sup> the *Convention for the Protection of the Natural Resources and Environment of the South Pacific Region* 1986;<sup>105</sup> and the *Convention on the Protection of the Black Sea against Pollution* 1992.<sup>106</sup> Some of these conventions are accompanied by specific Protocol on LBSMP. They are: the Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-based Sources 1980<sup>107</sup>; the *Protocol for the Protection of the South-East Pacific against Pollution from Land-based Sources* (1983, 1986); the *Protocol for the Protection of the Marine Environment [of the Kuwait Region] against Pollution from Land-based Sources* 1990<sup>108</sup>; the *Protocol on Protection of the Black Sea Marine Environment against Pollution from Land-based*

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<sup>98</sup> Sand PH, *Marine Environment Law in the United Nations Environment Program*, (Tycooly Publishing, 1988), at ix. The Convention was concluded on February 16, 1976 and entered into force on February 12, 1978 (15 ILM 1976, at 290). This Convention contains a Preamble, 29 articles and an Annex on an arbitration procedure for dispute settlement. This Convention was amended in 1995, but has not yet come into force.

<sup>99</sup> Kuwait Convention, Sand PH, *ibid* at 48. This Convention was adopted in Kuwait on 24 April 1978, and came into force on 1 July 1979.

<sup>100</sup> Abidjan Convention, *ibid* at 70. Adopted in Abidjan on 23.03.1981 and came into force on 05.08.1984.

<sup>101</sup> Lima Convention *ibid*, at 86. Adopted in Lima on 12 November 1981, and came into force on 19 May 1986.

<sup>102</sup> Jeddah Convention, *ibid* at 118. Adopted in Jeddah on 12 February 1982, and came into force on 20 August 1985.

<sup>103</sup> Cartagena Convention, *ibid* at 137. Adopted in Cartagena de Indies on 24 March 1983, and came into force on 11 October 1986.

<sup>104</sup> Nairobi Convention, *ibid* at 159. Adopted in Nairobi on 21 June 1985, and came into force on 30 May 1996.

<sup>105</sup> Noumea Convention, *ibid* at 196. Adopted in Noumea on 25 November 1986, and came into force on 22 August 1990.

<sup>106</sup> Bucharest Convention, 32 ILM (1993). Adopted in Bucharest on 21 April 1992, and came into force on 15 January 1994.

<sup>107</sup> 19 ILM (1980) at 869.

<sup>108</sup> 32 ILM (1990, 1993).

*Sources* (1992,1994)<sup>109</sup>; and the *Protocol Concerning Pollution from Land-based Sources and Activities in the Wider Caribbean Region* 1999<sup>110</sup>.

These regulatory frameworks oblige States to take appropriate measures to prevent, reduce and control LBSMP. They also include provisions on cooperation, monitoring, EIA and other management principles, best environmental practice (BEP), exchange of information and settlement of disputes to control LBSMP. Although exchange of information about the marine environmental conditions among the littoral States of the South China Sea has been improved, intercourse at government and non-governmental levels in the region has been increased and various plans and initiatives have been adopted by the States of the region, institutional arrangements to control the LBSMP are still insufficient in the region. At present a general framework convention to protect the marine environment is absent in the region. This region is also lacking an LBSMP control Protocol. Because of the absence of regional conventions there is a little evidence of political will to cooperate in carrying out the action plans related to global program of action in the region. There is still a gap between commitment and cooperative action due to inadequate approaches and lack of capacities.

All these indicate a new and improved process and mechanism is required to control LBSMP in the region. These include greater efforts to ensure the implementation of existing programs. Harmonisation of national policies and legislation with international instruments are also important to solve the problem. It requires effective accountable and responsive cooperative mechanism<sup>111</sup> which is yet to be established in this region. Therefore a new model of cooperation is very important to consider to the effective control LBSMP in the region. This new cooperative approach will enable improve cooperation and coordination between governments, various institutions and organization related to coastal and marine ecosystem affairs, ensure a true dialogue between various actors involving scientists and policy makers to provide authoritative information on the state of the regional marine and coastal environment through regular assessment process,

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<sup>109</sup> 32 ILM (1993)at 1122.

<sup>110</sup> Adopted on 6 October, 1999, at Aruba (<http://www.cep.unep.org/repcar/lbs-protocol-en.pdf>).

<sup>111</sup> It has been stressed that the present cooperative mechanism for the protection of the marine environment need to be replaced by a new cooperative mechanism which would focus on collaborative efforts in an effective and accountable manner. (United Nations General Assembly, Report on the work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea, Fifty-eight session, Distr.: General 26 June 2003, paras 116- 117.

develop financial condition, improve laws and policies and strengthen national and regional actions to control LBSMP and their implementation at national level.

### **The Way Forward: Effective Cooperation and Partnership Building**

The countries of the region face common problems, such as lack of enforcement capabilities, institutional deficiencies and inadequate resource management practices and policies. Through a concerted, harmonised collaborative approach they may share experiences and expertise and enhance regional as well as local solutions on LBSMP issues. There is a growing realisation that an effective regional cooperation can bring many benefits including environmental in the region. These benefits include: knowledge spillovers and accelerated learning curves; economics of scale in data collection and information management, including storage and dissemination; economics of scale in scientific, managerial and administrative training; better and cheaper enforcement mechanisms; and the economics of agglomeration (the creation of one or more centres or fora for regional environmental management), including reduced transport costs, and cheaper inputs<sup>112</sup>.

Most regions of the RSP have established regional trust funds for major financial support of marine environmental programs. However, utilising such trust funds, regions are succeeding in implementing their marine environmental programs where regional convention and specific protocol on LBSMP control are concluded, such as such as Mediterranean Sea region, but not succeeding where such legal framework is yet to be adopted.<sup>113</sup>

Concrete and positive cooperation on LBSMP control can only be achieved when political commitment is present and is supported financially.<sup>114</sup> A Trust Fund is established in the region but the Fund is not sufficient to implement the major task of

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<sup>112</sup> Valencia M J, " Ocean Management Regimes in the Sea of Japan: Present and Future", Paper presented at the *ESENA Workshop: Energy Related Marine Issues in the Sea of Japan*, Tokyo, Japan, 11-12 July 1998 at 21.

<sup>113</sup> Regarding the success in the Mediterranean Boxer noted :

"The Mediterranean is one area where a comprehensive regional approach to environmental protection as envisioned by the Stockholm Conference has led to research and planning efforts that promise eventually to serve regional environmental protection needs" (Boxer B, 'Mediterranean Pollution: Problem and response', 10 *Ocean Development and international Law*, 1982 at 352.

<sup>114</sup> Hassan D, *supra* note 30 206.

LBSMP control. Further attention therefore, is needed to establish an adequate fund. Strengthened cooperation at regional level would reinforce that commitment and support.

All of these considerations point to the need for a comprehensive legally binding framework entailing detailed and appropriate support systems, including dynamic legal, administrative and financial inputs to support and, facilitate private sector participation and to promote compliance. This could enhance the possibility of bringing countries, donor agencies and NGOs together for greater cooperative action; oblige those states and actors to contribute in a trust fund to make it effective and adequate; and advance capacity building to control LBSMP in the South China Sea.