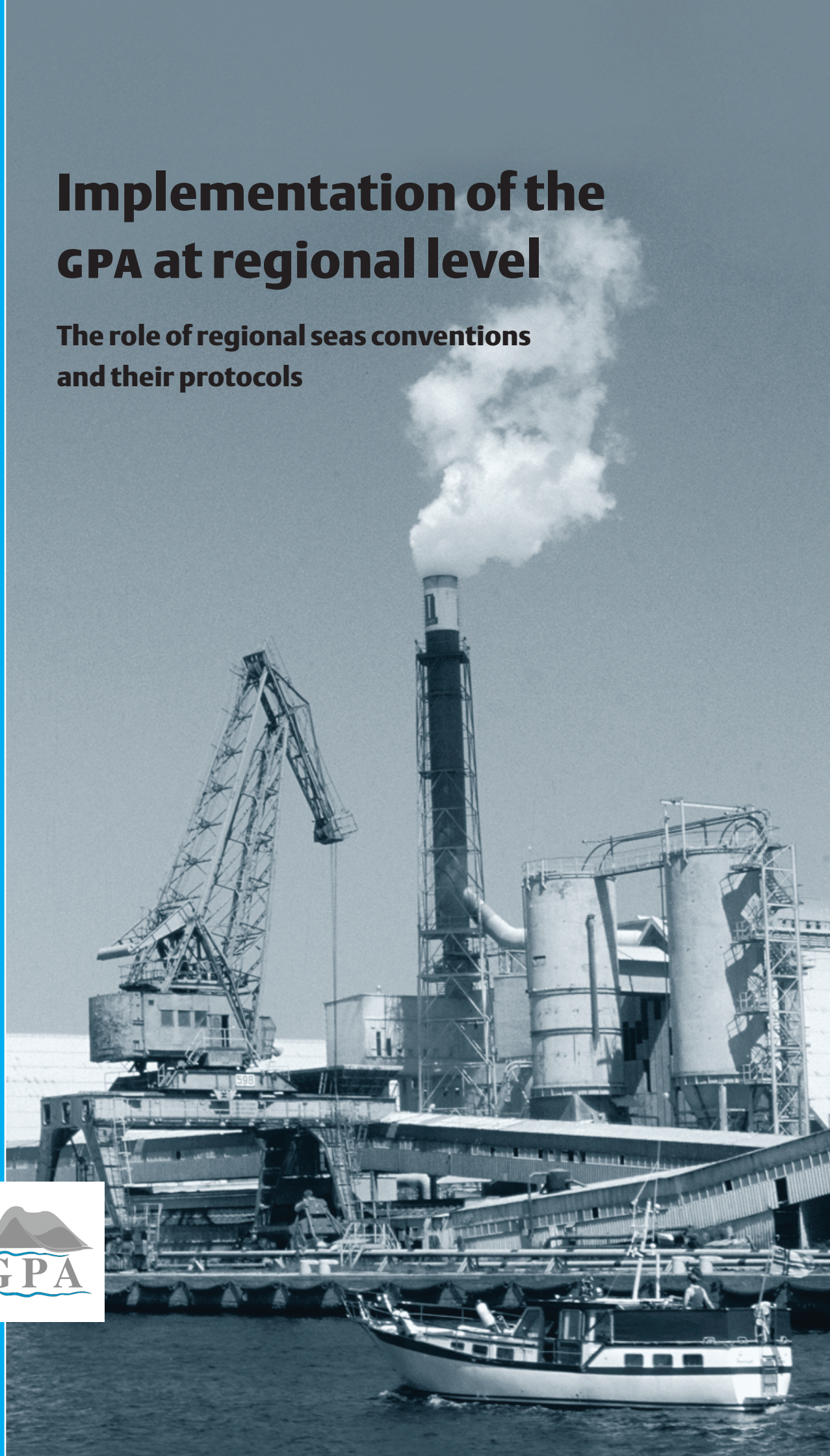


# Implementation of the GPA at regional level

The role of regional seas conventions  
and their protocols



# **Implementation of the GPA at regional level**

**The role of regional seas conventions  
and their protocols**

## Foreword

Pollution of the sea from land-based sources and activities has been addressed at the regional level through Protocols for the Protection of the Marine Environment from Land-based Sources and Activities (LBSA Protocols). In 1995, when the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) was adopted, Chapter III on Regional Cooperation, recommended that States should strengthen existing regional conventions and programmes and where appropriate negotiate anew. In addition, most regional seas conventions call upon countries to take all appropriate measures to prevent, reduce and control pollution caused by land-based activities, including coastal disposal or discharges emanating from rivers, estuaries, coastal establishments, outfall structures, or any other sources on their territories.

Agenda 21, the GPA and the Johannesburg Plan of Implementation are central to new approaches in more recent LBSA Protocols. While the first generation of regional LBSA agreements, developed before 1995, apply typically to a marine area that coincides with the jurisdictional sea area under relevant conventions and a land area up to the freshwater limit, the more recent 'second generation' agreements are more comprehensive both in terms of the area of application and the sources of pollution under regulation.

The UNEP/GPA Coordination Office has commissioned this review of existing binding and non-binding instruments that address the protection of the marine environment from land-based activities to show the opportunities and challenges of both legally binding instruments and non-binding mechanisms. The aim of the review is to provide a guide to more effective implementation of the GPA, primarily at the regional level, through existing, new or amended binding and non-binding legal mechanisms.

The review highlights the role of international law in supporting sustainable ocean development and prevention of marine pollution from activities on land. It demonstrates increasingly close interaction between binding and non-binding instruments and differences in implementation in various regions. LBSA Protocols are covered as a way of translating the GPA in the framework of regional seas conventions. The GPA recommendations are compared to key features of LBSA Protocols. The report describes how the GPA source categories – sewage, persistent organic pollutants, radioactive substances, heavy metals, oils, nutrients, sediment mobilization, litter and physical alteration and destruction of habitats – are addressed. It looks also at how elements such as funding mechanisms, capacity building, monitoring and assessment and international and regional cooperation are taken into consideration in LBSA Protocols.

This report is addressed not only to legal professionals, but also to international institutions, government agencies and individuals involved in marine environment and resources. The UNEP/GPA Coordination Office and its partners are pleased to provide this analysis and hope that it is a useful guide to further regional implementation of the GPA.

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## Acronyms and agreements

Agenda 21	Programme of Action for Sustainable Development. Adopted at UNCED (or 'Earth Summit')
BAT	Best available technique
BEP	Best environmental practice
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities. Adopted in Washington DC, November 1995
ICZM	Integrated Coastal Zone Management
IUCN	The World Conservation Union
JPOI	Johannesburg Plan of Implementation. Adopted at the WSSD.
LBSA	Land-based sources and activities
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic 1992
PARCOM	Paris Commission under the Paris Convention for the prevention of marine pollution from land-based sources. Adopted in Paris 4 June 1974
PERSGA	Regional Organization for the Conservation of the Environment of the Red Sea and the Gulf of Aden
POP	Persistent Organic Pollutant
SAP	Strategic Action Plan/Programme
TDA	Transboundary Diagnostic Analysis
UNCED	United Nations Conference on Environment and Development, held in Rio de Janeiro, June 1992
UNEP	United Nations Environment Programme
UNCLOS	United Nations Convention on the Law of the Sea. Adopted in Montego Bay, 10 December 1982. In force since 16 November 1994
Washington Declaration	Washington Declaration on Protection of the Marine Environment from Land-Based Activities. Adopted in Washington DC, November 1995
WSSD	World Summit on Sustainable Development, held in Johannesburg, September 2002

# Introduction

## 1

Measures aimed at curbing pollution of the sea resulting from land-based sources and activities (LBSA) are seen as the principal means of achieving a healthy status of the marine environment and contributing to the sustainable use of coastal and ocean resources. At present, cooperation exists in various forms, using different tools that help to define the scope, direction and extent of national and local actions to prevent, control, reduce and eliminate marine pollution from land-based sources and activities.

**LBSA related instruments operate at two levels: global and regional**

The existing international regimes operate on two levels, global and regional, through a combination of legally binding (conventions and protocols) and non-binding (action plans – general and LBSA-specific) instruments. These are supplemented and implemented by national action plans that employ internationally tested and accepted measures and mechanisms at the level of individual States.

**Before 1995 ‘hard law’ dominated LBSA regimes through regional seas conventions and protocols**

The broad array of instruments employed by States at the global, regional and sub-regional levels can be divided into two principal groups that govern inter-state cooperation and individual actions of the various actors in their efforts to control and reduce pollution from land-based sources and activities. The first group includes global and regional treaties that apply to a specific jurisdictional area of the marine environment and a land area determined by the Contracting Parties (such as the freshwater limit, inter-tidal zones and salt-water marshes). This category contains predominantly compulsory requirements or legal obligations for the participating States and is commonly known as ‘hard law’. Examples include the 1982 United Nations Convention on the Law of the Sea (UNCLOS) and regional conventions and protocols such as for the Northeast Atlantic, the Southeast Pacific, the Baltic Sea, the Mediterranean Sea, the Black Sea and the ROPME Sea Area.

**The GPA charter shapes new LBSA protocols**

A second group concerns non-binding, but still very influential instruments such as the 1995 Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities (GPA) itself, as well as a broad family of regional strategic action plans and programmes. This second category is often called ‘soft law’ and usually encompasses a significant number of non-binding declarations, resolutions, and recommendations adopted by global and regional conferences, intergovernmental organizations and other international institutions. These instruments are more comprehensive and usually more specific in terms of the activities and polluting substances included. They typically contain provisions for national plans and programmes as well as regional or sub-regional cooperation, guidelines, recommended practices and procedures. The recommendations of the 1995 GPA, among others resulted in revisions of various agreements, or adoption of new ones, including for the Mediterranean Sea, the Wider Caribbean, the Red Sea and the Gulf of Aden, and many more revisions and/or new agreements are in progress.

The division of international instruments into ‘hard law’ and ‘soft law’ is particularly common in the field of environmental protection, be it protection of the atmosphere, from the effects of climate change, or prevention and control of land-based pollution of the marine environment.

**Boundaries between 'hard law' and 'soft law' are often undefined**

Although these two types of instruments are different from the point of view of their legal validity and effect (binding and non-binding), the boundary between them in terms of their substantive content is rather hazy and porous. As is usually the case, many principles, rules, norms and standards that first appear as recommendations later acquire the status of 'legal obligations' through their incorporation into global and regional agreements and national legal regimes. Often particularly important non-binding acts, such as the 1992 Rio Declaration on Environment and Development, serve as restatements of already existing or just emerging legal principles and rules, thus providing them with additional authority and value in the eyes of the international community.

**All instruments together form a complex web of regulations and guidelines**

All the instruments together create an increasingly tight web of rules, regulations, standards, recommended practices and procedures that affect the behaviour of both sovereign governments and national entities, companies and individuals. This legal framework for combating marine pollution from land-based sources and activities has expanded quite significantly over the last ten years and is becoming ever more complex and sophisticated. In addition to the numerous existing regional conventions and six regional instruments dealing specifically with land-based pollution, which will be discussed further in this document, there are more than a dozen action plans and programmes covering the most affected and over-utilized regional seas regions. All these require closer examination, especially with a view to identifying their interlinkages with the GPA and other global policy documents, as well as determining their comparative advantages and weaknesses as the most popular tools of regional cooperation to tackle marine pollution that originates from land.

**Report objectives: show advantages and disadvantages of different instruments...**

The main objective of this document is to review existing binding and non-binding instruments that address the protection of the marine environment from land-based sources and activities (LBSA protocols and action plans and programmes), and to show the advantages and disadvantages of both legally-binding and non-binding instruments in order to further support the regional implementation of the GPA.

**...and demonstrate interlinkages...**

The role of international law in supporting sustainable ocean development and prevention of marine pollution from activities on land will be highlighted in particular. The document also attempts to demonstrate the increasingly close interlinkages between international binding and non-binding instruments adopted at different levels and for different regional seas regions.

**...while addressing a wide audience**

This document addresses not only those professionals who deal with law (the law of the sea and environmental regulation in particular), but also other individuals, international institutions, and government agencies involved in issues and problems of marine environment and resources.



# Global policy and regulatory frameworks for combating marine pollution from LBSA

## 2

This chapter will look at those ‘hard law’ and ‘soft law’ documents that have been developed globally and apply to all States regardless of their geographic position, level of development, contribution to the problem of marine pollution or any other particular aspects and circumstances.

### 1982 UNCLOS

Until the 1970s, there was no specific regulation of marine pollution resulting from LBSA at the international level beyond the general duty of States not to cause serious pollution to other States from actions such as oil pollution or dumping of radioactive materials. A principal legally binding global instrument, often called a ‘constitution’ for the oceans, was adopted in 1982 and entered into force in 1994: the United Nations Convention on the Law of the Sea (UNCLOS 1982, [www.un.org/depts/los](http://www.un.org/depts/los)).

**UNCLOS sets out objectives and principles that are to govern the use of oceans**

UNCLOS provides a comprehensive legal framework for use and development of the oceans and their resources. The UNCLOS establishes the basic criteria of lawful behaviour of nations by determining their rights and responsibilities generally and in different seas. It also sets out the common objectives and principles that are to govern their ocean use. As far as the marine environment is concerned, the 1982 UNCLOS was intended to be an ‘umbrella’ instrument, which sets up some essential principles and norms constituting a basis for concrete rules, regulations and standards to be incorporated into more specific agreements and national legislation. These basic parameters often determine the substance and guide the application of other international instruments, both global and regional, insofar as they concern ocean areas, resources and related interests.

The 1982 UNCLOS therefore provides the first comprehensive international legal framework governing the rights and obligations of States with respect to the use, protection and sustainable development of the marine and coastal environment and their resources. It is also the only global treaty that specifically addresses land-based sources of marine pollution along with other sources. It recognizes that action has to be taken at global, regional and national levels to tackle the problem of marine pollution. Of particular relevance to pollution from land-based sources and activities is Part XII on protection and preservation of the marine environment, especially Articles 207 and 213. Also significant are the general provisions in Parts XIII and XIV dealing with marine scientific research and development and transfer of marine technology, especially the need for international cooperation, and assisting developing countries in the development of their marine scientific and technological capacity. Articles 122 and 123 deal with enclosed and semi-enclosed seas and reaffirm the need for cooperation in measures of environmental protection.

**For different pollution sources it establishes different thresholds for national action...**

The UNCLOS provisions on land-based pollution are very broad. They provide minimum standards and a platform for States to take measures, including adoption of laws and regulations, either at the national, regional or global level, to ‘prevent, reduce and control’ pollution from land-based sources. Depending on the category of marine pollution, the UNCLOS establishes a different threshold for national action giving effect to international

...so presenting clear opportunities for strengthening national action

instruments. It is important to note that the precise way in which these obligations are structured differs markedly from other international environmental conventions and presents clear opportunities for strengthening national action. For pollution that derives from activities within national land territory (land-based and airborne sources), national laws need only *take into account* international rules and standards (Article 207). As a general matter, the measures each state employs must rely on the ‘best practicable means at [its] disposal and be ‘in accordance with [its] capabilities.’ (Article 194(1)) The latter qualifications recognize that not all countries will be in a position to modify their domestic development activities immediately. Article 213 deals with enforcement with respect to pollution from land-based sources.

UNCLOS particularly refers to persistent toxic, harmful or noxious substances...

In imposing a general obligation on States to take all measures necessary to prevent, reduce and control pollution of the marine environment, the UNCLOS particularly refers to the release of toxic, harmful or noxious substances, especially those which are persistent, from land-based sources (Article 194(3)(a)). Along with adopting laws and regulations States are also required to take other measures, endeavour to harmonize policies at regional level and establish global and regional rules, standards and recommended practices and procedures. All of these actions shall include those designed to minimize to the fullest extent possible, the release of toxic, harmful or noxious substances, especially those that are persistent, into the marine environment (Articles 194(3) and 207(5)). Under the UNCLOS, land-based sources are stated to include rivers, estuaries, pipelines and outfall structures (Article 207(1)).

...and incorporates general principles

The UNCLOS incorporates certain general principles that also appear in various regional conventions and LBSA protocols. These include the requirement to use best practicable means (Article 194(1)), that a state act in accordance with its capabilities (Articles 194(1) and 207(4)), regional and global harmonization (Articles 194(1) and 207), the taking into account of regional features (Article 207(4)). The latter is particularly relevant as States have traditionally preferred the regional approach to regulation of pollution from land-based sources as it enables regional priorities and peculiarities to be more effectively addressed.

Various ‘soft law’ instruments influenced its development

Although the 1982 UNCLOS is the framework international law instrument, various international ‘soft law’ instruments have played important roles in its development, refinement and implementation. First is the influence in the development of its provisions of the 1972 Stockholm Conference on the Human Environment, and the various international and regional treaties developed as a result of Stockholm. Although international law recognized the general duty of States not to cause serious pollution to other States, there was no specific reference to marine pollution from land-based activities until the 1970s. However, in 1972, the Stockholm Conference (Principle 7 of the Stockholm Declaration and Recommendation 86 of the Action Plan) laid down general principles for the control of marine pollution from all sources and specifically provided for strengthening of ‘national controls over land-based sources of marine pollution, in particular in enclosed and semi enclosed seas...’ The Conference also endorsed a regional approach to control of marine pollution. The impact of the Conference was evidenced in the adoption of the 1972

London and Oslo Dumping Conventions and the 1973/1978 MARPOL Convention, as well as the first regional treaty, the Convention on the Protection of the Marine Environment (Helsinki Convention-reviewed in 1992) by the Baltic Sea States in 1974. In the same year, UNEP established the Regional Seas programme, with its first agreement being the Barcelona Convention for the Protection of the Mediterranean Sea against Pollution adopted in 1976.

Also the Montreal Guidelines for the Protection of the Marine Environment from Land-Based Sources, which were prepared by an expert group under the auspices of UNEP and adopted by its Governing Council in April 1984, should be noted. These Guidelines represented the very first attempt to address the problem of land-based pollution in a comprehensive manner on a global level.

### **1992 Agenda 21, Rio Conference on Environment and Development**

Agenda 21, adopted as a general policy document by the Rio Conference on Environment and Development in 1992 ([www.un.org/esa/sustdev/documents](http://www.un.org/esa/sustdev/documents)), has also played an important role in the development of provisions on land-based pollution in regional seas conventions and their protocols. Chapter 17, while endorsing the 1982 UNCLOS as the ‘international basis upon which to pursue the protection and sustainable development of the marine and coastal environment and its resources,’ introduced several new key elements into the protection and preservation of the marine environment. These include, for instance, the focus on sustainable development and an integrated approach to protection of the marine environment. Other examples are the development of economic incentives, and the adoption of the ‘polluter pays’ principle and the precautionary approach to the prevention of degradation of the marine environment rather than merely controlling sources of pollution. Although Agenda 21 is not a ‘hard law’ instrument, its provisions have been incorporated into subsequent global and regional conventions and have been invoked on numerous occasions in the process of amendment or revision of existing ones (such as the 1996 London Dumping Protocol, and the Baltic, Mediterranean, Northeast Atlantic and Wider Caribbean regional seas conventions). Even in the absence of direct incorporation into legally binding documents, Agenda 21 has without doubt influenced the evolution of international law in the field of environmental protection.

### **1995 Global Programme of Action**

The intergovernmental conference on land-based pollution envisaged in Agenda 21, was held in Washington in 23 October-3 November 1995 as a follow-up to UNCLOS. 108 States and the European Commission adopted two main documents: the Washington Declaration on the Protection of the Marine Environment from Land-Based Activities and the Global Programme of Action ([www.gpa.unep.org](http://www.gpa.unep.org)). The GPA, as a non-binding global agreement, reflects the resolve of States to address the serious impacts of land-based sources of pollution and physical degradation of the coastal and marine environments. The GPA aims at preventing the degradation of the marine environment from land-based activities by facilitating the realization of the duty of States to preserve and protect the marine environment. It is an action-oriented programme with an overarching goal to address

**Agenda 21 introduced new elements for protection of the marine environment...**

**...and has influenced the evolution of international environmental protection law**

**GPA is an action-oriented programme addressing impacts of LBSA on coastal and marine environments and human well-being**

the negative effects of land-based activities upon the coastal and marine environment that cause or exacerbate poor human health, poverty, economic losses and food insecurity. The GPA assists States in taking concrete actions that give tangible results within their respective policies, priorities and resources. The implementation of the GPA is primarily the task of governments, in close partnership with all stakeholders including local communities, public organizations, non-governmental organizations and the private sector.

The GPA objectives for regional cooperation as per Chapter II (paragraphs 29 to 35) are to strengthen existing regional cooperative arrangements and, where necessary, create new ones to support effective action, strategies and programmes. Regional cooperation and arrangements are crucial for successful actions to protect the marine environment from land-based activities. The regional programmes of action are important implementation tools, supporting the countries' compliance towards the fulfilment of their regional agreements or protocols relevant to land-based activities.

### **2002 Johannesburg Plan of Implementation, World Summit on Sustainable Development**

The World Summit on Sustainable Development (WSSD) held in Johannesburg in 2002 adopted a Plan of Implementation (JPOI). Recommendations 30-36, which deal with oceans, coasts and islands, have further endorsed the provisions of Agenda 21 and reiterated the importance of sustainable use and management of the marine environment in reducing poverty and achieving the goal of sustainable development ([www.un.org/esa/sustdev/documents/wssd](http://www.un.org/esa/sustdev/documents/wssd)). Furthermore, the WSSD Plan of Implementation specifically endorsed the Global Programme of Action (GPA) adopted through the Washington Declaration of 1995 (Recommendation 33).

**The Johannesburg Plan of Implementation encouraged the GPA to...**

The Plan of Implementation also makes specific reference to the Global Programme of Action in its paragraphs 32 and 52 (e). The Plan encourages the advanced implementation of the GPA and the Montreal Declaration on the Protection of the Marine Environment from Land-based Activities, with particular emphasis in the period 2002-2006 on municipal wastewater, the physical alteration and destruction of habitats, and nutrients. JPOI formulates actions at all levels to achieve advanced GPA implementation:

**...mainstream, strengthen national capacity, ensure interlinkages...**

- Facilitate partnerships, scientific research and diffusion of technical knowledge; mobilize domestic, regional and international resources; and promote human and institutional capacity-building, paying particular attention to the needs of developing countries;
- Strengthen the capacity of developing countries in the development of their national and regional programmes and mechanisms to mainstream the objectives of the Global Programme of Action and to manage the risks and impacts of ocean pollution;
- Elaborate regional programmes of action and improve the links with strategic plans for the sustainable development of coastal and marine resources, noting in particular areas which are subject to accelerated environmental changes and development pressures;

- Make every effort to achieve substantial progress by the next Global Programme of Action conference in 2006 to protect the marine environment from land-based activities.

**...and implement the  
GPA in small island  
developing States**

In addition, the WSSD Plan of Implementation calls to 'effectively reduce, prevent and control waste and pollution and their health-related impacts by undertaking by 2004 initiatives aimed at implementing the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities in small island developing States'.



## Regional seas policy and regulatory frameworks for combating marine pollution from LBSA

# 3

### 3.1 Current status of regional seas conventions and LBSA protocols

There are currently 18 regional seas conventions ([www.unep.org/regionalseas](http://www.unep.org/regionalseas)) and a larger number of protocols dealing with specific sources of marine pollution and ecosystem management. There are about 140 countries participating in the various regional seas programme alone. Considering that the use of regional seas conventions in the regulation of marine pollution, and in particular, pollution from land-based sources is of relatively recent origin, this alone can be viewed as a great achievement. More importantly, the number of these conventions and their scope evidence a substantial body of State practice in the protection of the marine environment under international law.

**Regional conventions may provide for action through protocols**

The regional conventions on the protection of the marine environment are traditionally ‘framework’-type instruments, i.e. they contain a set of general provisions dealing with different activities and sources of pollution that affect the marine environment in their respective geographical areas of application. Provisions on land-based pollution are formulated in terms very similar to the broad provisions under the UNCLOS, stating generally the nations’ commitment to adopt measures aimed at prevention, reduction, and control of such pollution. A convention may expressly provide that action will be taken in accordance with a protocol (Black Sea Convention) or that a protocol will be developed. In this regard, the more recent Framework Convention for the Protection of the Marine Environment of the Caspian Sea is much more specific regarding the issues that may be addressed in the future protocol. These include the use of a licensing system and provision of stricter requirements. The obligations of States to cooperate both in the development of the protocol and in the event of pollution affecting the territory of two or more States is also more emphatic.

**It is the protocols that evidence implementation of the GPA**

There is a general tendency in the pollution-related provisions of the existing conventions to refer to separate protocols to provide detailed standards. Of the 18 regional seas, two (the Baltic and Northeast Atlantic) have specific provisions dealing with sources of land-based pollution within the Convention (in the form of annexes). There are at present six protocols that specifically deal with pollution from land-based sources and activities: for the Black Sea, Mediterranean Sea, ROMEO Sea Area, Southeast Pacific, the Wider Caribbean, and the Red Sea and Gulf of Aden (of these, only two are post-GPA instruments: Wider Caribbean and the Red Sea and Gulf of Aden. Three other instruments are currently in the process of being developed: the Caspian Sea, Eastern Africa, and West and Central Africa). Consequently it is the protocols, and not the conventions, which will evidence the implementation of the GPA on the protection of the marine environment from land-based sources at the regional level.

Table 1 on the next page lists the existing protocols in chronological order, with dates of adoption, entry into force and revisions.

**TABLE 1 Status of LBSA Protocols**

<b>LBSA Protocol</b>	<b>Adopted</b>	<b>Status</b>	<b>Revised</b>
<b>Mediterranean</b> Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources	In Athens 17 May 1980	In force since 17 June 1983	In Syracuse, 7 March 1996 Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources and Activities Not yet into force
<b>Southeast Pacific</b> Protocol for the Protection of the Southeast Pacific against Pollution from Land-based Sources	In Quito 23 July 1983	In force since 23 Sept. 1986	–
<b>Black Sea</b> Protocol on Protection of the Black Sea Marine Environment against Pollution from Land-based Sources	In Bucharest 21 April 1992	In force since 15 January 1994	Under revision
<b>ROPME Sea Area</b> Protocol to the Kuwait Regional Convention for the Protection of the Marine Environment against Pollution from Land-based Sources	In Kuwait 21 Febr. 1990	In force since 11 Dec. 1993	–
<b>Wider Caribbean</b> Protocol on the Prevention, Reduction and Control of Land-based Sources and Activities	In Oranjestad 6 October 1999	Not yet in force	–
<b>PERSGA</b> Red Sea and Gulf of Aden Protocol Concerning the Protection of the Marine Environment from Land-based Activities in the Red Sea and Gulf of Aden	In Jeddah 25 Sept. 2005	Not yet in force	–

Source: UNEP 2006, FAO/IUCN/UNEP 2006

### 3.2 General approaches of regional seas conventions and LBSA protocols

Some of the common issues covered under the protocols include the geographical area of application, scope of application, general obligation of Parties, measures of control, institutional arrangements, compliance and reporting, technical assistance and cooperation, and annexes. Some of the protocols deal with specific issues of pollution in the main text (Red Sea), others do so in the annexes (Wider Caribbean), while yet others deal with land-based pollution generally without addressing any particular pollution issue (Black Sea, Southeast Pacific, ROPME Sea Area, and Mediterranean). Some of the main issues and themes addressed in the protocols are discussed below in more detail in the context of their implementation of the GPA. Common elements are highlighted, while at the same time drawing attention to important differences.

#### Linkages with global instruments

There is an obvious influence, in varying degrees, of Agenda 21, the GPA and the WSSD Johannesburg Plan of Implementation on the more recent protocols. For example, whether or not expressly stated, the concept of sustainable development is always embedded in the approaches of the protocols, be it in the context of balancing the competing environmental, social and economic needs, or, as in the draft Caspian Sea Protocol, by reference to 'sustainable use' of natural resources. Also the adoption of integrated coastal management, and control of activities and sources of pollution rather than pollutants through use of environmental management techniques, is advocated by Agenda 21, the GPA and JPOI. In fact, some of the protocols specifically refer to UNCED and the GPA (Wider Caribbean), to the GPA alone (Mediterranean, Red Sea) or to the GPA and the Johannesburg Plan of Implementation (draft Eastern African Protocol) in their preambles. Provisions on some of the issues mentioned above are dealt with in a more comprehensive manner in these protocols. The Southeast Pacific Protocol, and to a lesser extent the ROPME Sea Area and the Black Sea protocols, have more general provisions than those of the Mediterranean, Wider Caribbean, and the Red Sea.

#### Regional specificity

The latter protocols also refer specifically to challenges or pollution issues or sources that are characteristic for their regional sea areas. For instance, the Mediterranean refers to 'industrialization and urbanization, [and] ... seasonal increase in coastal population due to tourism.' The Caribbean refers to the 'inequalities in economic and social development among countries of the Wider Caribbean Region'. The Red Sea Protocol recognizes the problems associated with 'dredging and land filling ... [and] seasonal increase of population in certain areas of tourist significance.' The draft Caspian Sea Protocol acknowledges 'the unique ecological and hydrological nature of the Caspian Sea as the largest inland body of water on earth, [and]... the environmental problems caused by the sea-level fluctuations'. Clearly the detailed measures or priority areas of focus in each of these protocols are influenced by these considerations. For instance, one of the general obligations of the Parties under the draft Caspian Sea Protocol is to '[Take] special measures of protection against land-based pollution [and activities] potentially harmful for natural spawning grounds of sturgeon, Caspian salmon and other valuable species'.

Many protocols are guided by Agenda 21, the GPA and/or the JPOI

Protocols cover issues specific to their particular regional seas

### Geographical area of application

The geographical area of application depends on the time of the drafting and adoption of a protocol. Those belonging to the first generation of LBSA instruments (conventions or additional protocols) typically cover the shoreline, or in other words, focus on coastal waters and territorial seas of the coastal States, or even the internal waters, and on a narrow strip of land along the coasts. Such agreements usually do not regulate the inland activities within the drainage area discharging into the sea protected by these instruments. In the more recent second generation treaties there is evidence of efforts to integrate marine and coastal zone management, an approach advocated by UNCED and the GPA.

Newer protocols have a more comprehensive geographical coverage, linking sea, coast and inland areas...

The Mediterranean and the current drafts of the Caspian and Revised Black Sea protocols appear to have the most comprehensive geographical coverage. For instance, in addition to the Mediterranean Sea Area, the Mediterranean Protocol applies to the hydrological basin of the Sea, which includes the 'entire watershed area within the territories of the Contracting Parties.' It also covers 'brackish waters, salt waters, including marshes and coastal lagoons, and ground waters communicating with the Mediterranean Sea'. The draft Eastern African Protocol follows a similar approach, covering 'the riparian, marine and coastal environment including the watershed of that part of the Indian Ocean situated within the Eastern African Region and falling within the jurisdiction of the Contracting Parties'. This is a different approach to that of earlier instruments, as exemplified by the Southeast Pacific Protocol, which covers the 'area of the South Pacific within the 200-mile maritime area ...and landward side up to the freshwater limit'.

...but the coverage is still unclear in many of the existing protocols

This move from a limited 'shoreline' to a much broader 'hydrologic basin' model is a relatively recent trend which reflects the fact that many sources and activities causing land-based pollution are located further inland from the immediate coastal area affected by such pollution. It also reflects the importance of the linkage between freshwater and coastal areas. However, it is not clear whether other regions are also ready to adopt this approach. The Caribbean Protocol, for example, merely refers to the Convention area. This is defined under the Caribbean Convention to include the 'marine environment' of the area, but specifically excludes the internal waters of the Contracting Parties. Although most of the treaties refer to the fresh water limit, it is not clear what this limit is. Some, like the ROPME Sea Area Protocol, provide a definition. Other protocols are either just do not mention it or, like the Southeast Pacific, leave this to be determined by each Party in accordance with relevant technical scientific criteria.

### Scope of application

The sources of pollution and activities to which the protocols apply are more extensive in some than in others. The earlier instruments (Southeast Pacific, Black Sea, ROPME Sea Area) refer only to 'sources' of pollution and these include discharges from rivers, canals and other watercourses, coastal establishments, outfall structures and atmospheric sources. The provisions of the Mediterranean, Wider Caribbean and Red Sea protocols are substantially wider as they include 'activities' as well as sources and therefore more in line with the GPA which deals with point and non-point sources of pollution as well as activities.

Older protocols mainly apply to sources of pollution; newer ones add activities

The Red Sea Protocol defines land based activities as ‘any human land activity which results, directly or indirectly, in pollution of the marine environment ...’ Similarly, the Mediterranean Protocol and the draft Caspian Sea Protocol apply to ‘all kinds of point and diffuse sources based on land reaching the marine environment, whether water-borne, air-borne or directly from the coast’. Such wider provisions, which include point and diffuse sources of pollution were already contained in the 1992 Northeast Atlantic OSPAR Convention and the 1992 Baltic Sea Helsinki Convention.

Stronger measures are emerging

### General obligations of States

The general obligations of States to address the sources of land-based pollution in all of the protocols are broadly drafted. In the earlier protocols States are required to ‘endeavour to take appropriate measures’ (Southeast Pacific), in later ones (Black Sea, Mediterranean), States ‘undertake’ to reduce or eliminate the sources of pollution. However, this obligation is subject to their being appropriate in light of local conditions and economic considerations. For instance, although under the Caribbean Protocol, Parties are required to adopt the minimum prescribed measures of control under its annexes, Parties may not subscribe to all of the annexes. On the face of it, this reflects the dual nature of sustainable development and the principle of common but differentiated responsibilities that are recognized under the relevant conventions, UNCED, the Johannesburg Plan of Implementation and the GPA. It nevertheless means that stronger binding measures, similar to those applied to other sources of pollution such as dumping, are much more difficult to adopt to redress land-based pollution. Despite this, the more specific programmes and timetables included in some of the later protocols provide an indication of an emerging trend towards stronger measures.

Almost all protocols require environmental impact assessments for development projects

### Basic principles

Some LBSA protocols incorporate certain general principles widely accepted as guiding norms in the area of environmental protection. The Mediterranean Protocol specifically recognizes the application of the precautionary and polluter pays principles in its Preamble (these are also provided for under the Rio Declaration and the GPA). The draft Caspian and the draft revised Black Sea protocols also embrace the precautionary and polluter pays principles. Apart from the Southeast Pacific and the Black Sea protocols, the others all provide for the use of Environmental Impact Assessment as a ‘priority during the planning and implementation phases of development projects within their boundaries.’ This can be seen as a form of implementation of the precautionary principle.

### Use of annexes

Another common feature of all the protocols is the use of annexes. As stated in the draft Caspian Sea Protocol, annexes are used to provide more detail on ‘procedural, scientific, technical and administrative matters.’ Generally, annexes of the earlier protocols (Southeast Pacific, Black Sea, ROPME Sea Area) are very basic. They contain the lists of pollutants (Southeast Pacific and Black Sea) or sources (ROPME Sea Area) to be controlled, and factors or characteristics of wastes to be taken into consideration when issuing permits, or other discharge authorization schemes. The annexes in the post-GPA protocols have been used



to provide criteria for assessing and establishing priority pollution concerns, management objectives, policies and strategies for action plans, and the condition of application of the protocol to particular sources of pollution. The influence of the GPA on these provisions is evident, with some making specific references to it or reproducing aspects of the GPA.

All protocols have annexes, but their contents differ significantly

Annexes to more recent protocols share these common elements, yet there are notable distinctions. Of these, the Caribbean appears to have adopted a quite unique approach. Here, the first annex sets out the priority source categories and activities affecting the convention area, before establishing characteristics or factors for identifying additional pollutants of concern. In addition, two annexes actually deal with the specific issues of domestic wastewater and agricultural non-point sources, including establishing precise effluent limitations for domestic wastewater discharges.

### Measures adopted

The measures to be adopted by the Parties are specified in the protocols and their annexes. Although there are some common themes, there are also noticeable differences either in substance or in the approach.

### Environmental management techniques

The Red Sea, Mediterranean and the draft Caspian Sea protocols provide for the adoption of the best available techniques (BAT) and best environmental practices (BEP) as recommended by the GPA. The Caribbean Protocol provides for most appropriate technology (MAT) and best practicable means (BPM), perhaps as a compromise between adopting higher environmental standards and economic expediencies. The other earlier protocols do not refer to any specific techniques that should be employed by the Contracting Parties. Also, in line with the source control approach, the use of clean technologies is a recurrent theme in all but the very earliest protocols.

Almost all protocols provide for adoption of best available techniques, best environmental practices and clean technologies

### Common guidelines, standards and criteria

Generally, the protocols provide that Parties shall formulate and adopt common guidelines and standards, as appropriate, to deal with specific sources and activities, on matters pertaining to water quality, and discharge concentrations taking into consideration local physical, biological and economic peculiarities as well as the absorptive capacity of the specific marine environment. This is an imprecise commitment and is mostly orientated towards future action. The Caribbean Protocol departs from this pattern by actually providing for common standards on wastewater discharges in its annex. The Mediterranean, Red Sea and draft Caspian protocols also provide some common criteria or characteristics for preparation of action plans and measures in their annexes. In addition, there is a requirement for setting and reviewing timetables and programmes of actions although even this lacks any specificity.

### Control approach – source or pollutant

Two of the older protocols (Black Sea and Southeast Pacific) apply to a limited number of specified substances and matter, which are included in two annexes, based on their toxicity,

**Control approaches vary considerably per protocol**

persistence and bioaccumulation. The first annex contains a list that Parties would endeavour to prevent and eliminate if possible, while the other includes substances to be reduced and eliminated if possible. The ropme Sea Area Protocol adopts a different approach, which is to control source pollution, by addressing the ‘products, installations and industrial ...processes’ rather than pollutants. The Mediterranean, Caribbean, and Red Sea protocols adopt a dual approach. The main focus is to address the sources of pollution from land-based activities through the various industry sectors. The second is the phasing out of inputs of substances based on the same standards as the Black Sea and Southeast Pacific Protocols. While the Mediterranean Protocol gives a list of these pollutants, the Red Sea Protocol refers to those listed in the GPA. However, they are substantially the same. The Caribbean Protocol rather than stating that these pollutants are to be phased out provides that they are to be taken into consideration when formulating emission limitations and management practices for the sources.

**Second generation agreements are more inclined to assess and verify compliance**

### **Compliance and reporting**

Assessment and verification of compliance with commitments undertaken by the Parties to environmental treaties is becoming an increasingly effective tool of ensuring their implementation. The first generation of LBSA instruments is virtually silent on this matter. The later agreements are more inclined to incorporate compliance verification procedures. One exception is the Southeast Pacific Protocol, which calls for its Contracting Parties to ensure compliance by adopting pertinent ‘punitive measures’ to be applied by them in order to prevent and penalize any act that infringes the Protocol’s provisions. It is clear from the text that by ‘punitive measures’ the Protocol means domestic legislative measures and regulations.

Under the OSPAR Convention, its Commission has a right to assess the Contracting Parties’ compliance with the Convention and its decisions and recommendations on the basis of the periodical reports and any other reports submitted by them to the Commission. When appropriate, the Commission can decide upon and call for steps to bring about full compliance with the Convention, and decisions adopted there under, and promote the implementation of recommendations, including measures to assist a Contracting Party to carry out its obligations.

**OSPAR and HELCOM have the most effective tools to ensure implementation**

HELCOM (the secretariat under the Helsinki Convention) is authorized to receive reports from the Contracting Parties at regular intervals on the legal, regulatory, or other measures taken for the implementation of the Convention, its annexes and recommendations adopted there under; on the effectiveness of such measures, and on problems encountered in the implementation of the Convention and its recommendations.

**The way the protocols address the nine GPA pollution categories varies**

### **Control of specific sources**

Chapter V of the GPA (paragraphs 91 to 148) identifies recommended approaches for nine types of source categories. The six protocols address the sources and land-based activities causing marine pollution to varying degrees. Some examples are:

**Wastewater**

- Wastewater is specifically identified as a priority issue to be addressed in the Black Sea, Caribbean, Mediterranean (original and revised), Red Sea and the Gulf of Aden and ROPME Sea Area protocols. Although it is not specifically mentioned in the Southeast Pacific, its Protocol does effectively regulate it through provisions focusing on types of pollutants. The Black Sea, Mediterranean and Red Sea and the Gulf of Aden contain an agreement on the need to adopt guidelines to regulate wastewater. Annex III of the Caribbean Protocol already contains detailed obligations with regard to the control of wastewater. These cover issues such as industrial pre-treatment of wastewater and household systems and reflect the importance of control of this source for water quality.

**POPs and radioactive substances**

- The Black Sea, Caribbean, Mediterranean and Southeast Pacific all identify POPs as substances for which use should be eliminated and the Black Sea, Mediterranean and Southeast Pacific similarly include radioactive substances in the priority category.

**Heavy metals**

- Heavy metals are on the whole split into two categories, those the use of which is to be eliminated and the use of which is to be reduced so far as possible. The Black Sea, Mediterranean and Southeast Pacific all take this approach. The Caribbean identifies heavy metals as substances the use of which is to be reduced.

**Oils and nutrients**

- Oils and nutrients are identified as substances to be controlled with the aim of reducing pollution by them in some of the protocols. The Caribbean, the new Mediterranean Protocol and ROPME Sea Area all tackle oils, the Caribbean, the new Mediterranean Protocol, ROPME Sea Area and the Southeast Pacific tackle nutrients. Pollution by nutrients and resulting eutrophication are also regarded as environmental problems of particular concern in the draft revised Black Sea Protocol.

**Sediment mobilization, litter, physical alteration and destruction of habitats**

- The Red Sea and the Gulf of Aden protocols are unusual in specifically tackling all three of these areas in the main text of the protocol. The other protocols do not mention them expressly.

## Regional seas action plans and programmes

# 4

Some regional seas areas have LBSA-specific action plans or programmes...

...and the specific role in implementing the GPA is highlighted in some of them

Sixteen regions have action plans or programmes that include LBSA and other activities

### 4.1 Current status of regional seas action plans or programmes on LBSA

#### Action plans or programmes that focus only on LBSA

Of the 18 regional seas areas covered by this report the following have action programmes or plans that focus purely on tackling marine pollution from land-based activities: the Arctic, the Mediterranean, the Red Sea and the Gulf of Aden, the East Asian Seas and the Southeast Pacific regions. Others, such as the Wider Caribbean have, or are associated to, specific sub-programmes or projects that tackle these issues more directly (for example, the Wider Caribbean sub-programme on Assessment and Management of Environmental Pollution is associated to a GEF project on Integrated Management of Watersheds and Coastal Area Management in Caribbean Small Island Developing States, [www.gefonline.org/projectDetails.cfm?projID=1254](http://www.gefonline.org/projectDetails.cfm?projID=1254))

The Mediterranean's LBSA strategic action programme was adopted in 1997, in response to the adoption of the GPA. It specifically notes that its objective is to implement the GPA. Similarly, the Arctic action programme was adopted in 1998 and specifically follows the GPA methodology. Although it provides reasonably detailed assessments of the impacts and threats from various pollutants it only sets relatively detailed targets in relation to POPs and heavy metals. The Northeast Pacific action programme specifically recognizes its role as one of the regional components of the GPA. The East Asian Seas regional programme of action for the protection of the marine environment of the East Asian Seas from the effects of land-based activities developed in 2000 has a section on the rationale that explicitly mentions the GPA.

#### Broader action plans or programmes that include LBSA

Sixteen regions have general action plans or programmes that include marine pollution from land-based activities as well as other activities: the Arctic, Black Sea, Caribbean, Caspian, East Africa, East Asia, Mediterranean, Northeast Atlantic, Northeast Pacific, Northwest Pacific, Red Sea and Gulf of Aden, ROPME Sea Area, South Asian Seas, Southeast Pacific, South Pacific and West and Central Africa. It is worth noting here that the 1992 Baltic Sea Joint Comprehensive Environmental Action Programme, together with other work programmes, also covers LBSA related issues such as monitoring of radioactive substances in the Baltic Sea.

Of these, eight action plans or programmes were adopted prior to the adoption of the GPA (the Baltic, Caribbean, East Africa, East Asia, Mediterranean, Northwest Pacific, ROPME Sea Area and West and Central Africa), while the remaining were adopted during (the South Asian Seas Action Programme) or after 1995 (the Arctic, Black Sea, Caspian, Northeast Pacific, Red Sea and Gulf of Aden, Southeast Pacific and South Pacific). Those adopted during or after 1995 would be most likely to reflect the aims, objectives and requirements of the GPA.

**TABLE 2 Status of regional seas action plans and programmes specific to LBSA**

<b>Regional seas</b>	<b>Action plans or programmes specific to LBSA</b>
Arctic	Regional Programme of Action for the Arctic Marine Environment from Land-based Activities, adopted in 1998
Baltic Sea	Land-based Pollution Group (part of the Baltic Marine Environmental Commission) Numerous 'recommendations' relating to specific land-based sources and activities
Black Sea	Draft work programme to Enhance the Implementation of the Black Sea LBS Protocol taking into Consideration the GPA Objectives, 2004
Wider Caribbean Sea	Sub-programme on Assessment and Management of Environmental Pollution (AMEP), currently implementing activities for the period 2006-2007
Caspian Sea	General action plan or programme; not specific to LBSA
East Africa	General action plan or programme; not specific to LBSA
East Asian Seas	Regional Programme of Action for the Protection of the Marine Environment of the East Asian Seas from the Effects of Land-based Activities, adopted in 2000
Mediterranean	The Programme for the Assessment and Control of Pollution in the Mediterranean Region (MEDPOL), initiated in 1975, amended in 1995 Strategic Action Programme to Address Pollution from Land-based Activities in the Mediterranean Region, adopted in 1997
Northeast Atlantic	Committees dealing with specific land-based sources and activities Numerous 'strategies, decisions and recommendations' relating to specific land-based sources and activities
Northeast Pacific	General action plan or programme; not specific to LBSA
Northwest Pacific	General action plan or programme; not specific to LBSA
Red Sea and Gulf of Aden	Regional Programme of Action for the Protection of the Marine Environment from the Land-based Activities, adopted in 2005
ROPME Sea Area	General action plan or programme; not specific to LBSA
South Asian Seas	General action plan or programme; not specific to LBSA
Southeast Pacific	Regional Programme for the Protection of the Southeast Pacific against Land-based Activities, adopted in 2000
South Pacific	General action plans or programmes; not specific to LBSA
West and Central Africa	General action plan or programme; not specific to LBSA



## 4.2 Common elements of regional seas action plans or programmes

### Aims and objectives

Broadly the common aims and objectives of the regional action plans or programmes match the aims and objectives of the GPA. They all tend towards the improvement and protection of the marine environment and aim to ensure sustainable development of their regional seas. This is evidenced in part through the reiteration of certain common principles in the action plans or programmes, such as the promotion of sustainable development, the polluter pays principle, the use of economic instruments to constrain pollution, the precautionary principle, the promotion of use of clean technologies, and the promotion of transparency and public participation. The OSPAR strategy appears relatively novel in that it is specifically rooted in the ecosystem approach (the proposed new Baltic Action Plan will also be based on ecosystem principles).

### Structure

The next most obvious common element is the broad structure of the action plans or programmes. Most regions have one action programme that tackles all sources of pollution, except for the Northeast Atlantic, which has taken a different approach. It has adopted separate strategies for each pollution problem and for some aspects of tackling marine pollution, though each is specifically tied back to the ecosystem approach indicating that the strategies should be read as an integrated whole. This approach has the advantage of added flexibility – it is relatively easier to add in new components or to modify existing ones when each issue is dealt with separately than where a broader more general approach is taken. The Black Sea takes another approach, it tackles pollution by medium i.e. air or rivers.

In addition to the single general plan or programme of action most also have subsidiary work programmes. Again these vary from work programmes designed to deal with broad areas, such as the proposed Work Programme to Enhance the Implementation of the Black Sea LBS Protocol Taking into Consideration the GPA Objectives, to more specific work programmes focusing on particular hot spots as seen in the Baltic.

### Linkages

In general the action plans and programmes do not seem to have explicit direct links to regional (or other) conventions. This means that it is not always possible to tell how the action programme fits within the overall aims and objectives of a regional seas convention (if there is one) or a protocol on land-based activities (where one exists). Exceptions do exist though:

- the Northeast Atlantic, links up not only to the OSPAR Convention itself but also to recommendations adopted by OSPAR (or PARCOM as appropriate) and to other relevant international instruments such as those adopted by the European Union.
- the Northeast Pacific action programme draws links with a variety of treaties such as the UNCLOS and the Basel Convention on Transboundary Movements of Hazardous Wastes and their Disposal. It also specifically draws links with other elements of the GPA, notably the Wider Caribbean action plan and the action plan for the Southeast Pacific.

Many action plans address common principles in line with the GPA; some even follow an ecosystem approach

Most regions have one general plan with subsidiary work plans for specific aspects

Only a few regions explicitly recognize the ties with existing regional treaties...

- The Mediterranean Strategic Action Plan is linked closely to treaties; it for example draws specific links with the LBS Protocol to the Barcelona Convention.
- The Baltic also ties its action programme to various treaties.

Some regions do refer to regional treaties in a less direct way:

- Eastern Africa, for example, refers to a regional treaty, but it refers to the requirement to adopt one rather than to following the provisions of an existing Convention.
- Similarly, the Caspian action programme provides for the development of an agreement on the protection of the marine environment, suggesting that the legal arrangements would be subservient to the action programme rather than the action programme serving as an aid to fulfilling legal obligations under regional agreements.
- The Northeast Pacific provides a more concrete reference: 'The Governments, bearing in mind that international conventions constitute a fundamental and necessary basis for regional cooperation in the management of the marine and coastal environment and its protection and preservation against all types and forms of environmental deterioration, agree to accede to the Convention for the Protection and Sustainable Development of the Marine and Coastal Environment of the North-East Pacific. Supplementary or technical proposals related to this Convention will be made through the appropriate channels' (paragraph 25 Northeast Pacific Action Plan).

...while the Northeast Atlantic example illustrates the efficiency of interlinkages

The Northeast Atlantic example illustrates the benefits of drawing clear links across different instruments. Its strategic action programme does not specify standards. Instead, it directly draws on other recommendations and instruments that set out standards to be achieved in tackling marine pollution. The action programme itself is just one of many different instruments that, when combined, should lead to the protection of the marine environment from pollution, and in so doing the cluster of instruments ensures the full implementation of the GPA. The role of the action programme in implementation is clarified through these express links.

The GPA formulated several other common elements, covering both institutional matters (see below) and the control of individual sources of pollution (see section 4.2.2). The GPA, for example, encourages the establishment of a secretariat, the promotion of both capacity building (at local and regional levels) and education of the public, the establishment or strengthening of monitoring and assessment programmes and identification of funding needs and sources. The way regional plans or programmes deal with such more institutional aspects varies, depending on whether they are a) the first step in taking coordinated action at a regional level, or b) designed to implement an existing framework (whether treaty based or an existing action programme). Below institutional elements in individual regional seas plans or programmes are examined.

#### **Establishment of a secretariat**

Most action plans or programmes provide for the establishment of a secretariat of some sort, or detail its functions. Only the Mediterranean, Northeast Atlantic and Red Sea and Gulf of Aden do not contain secretariat requirements because in these regions a secretariat

Most programmes provide for a secretariat without clearly defining its functions

had already been established before the action programme were agreed. However, the majority of plans or programmes do not clearly define the functions of the secretariat. For example, both the Eastern Africa Region and Northwest Pacific refer to the establishment of 'a small central coordination unit'. Eastern Africa then indicates that the programme is to be implemented making use of national institutions and existing regional bodies, the Northwest Pacific notes that its establishment is an aim. It does not go further in defining the functions of the coordination unit. Similarly, the Caspian clearly delineates between the functions of the regional secretariat and national institutions, without further detail. Some regional plans or programmes do define the functions of their secretariat in some detail: the Arctic, the Baltic, the Black Sea, the Northeast Pacific and South Asian Seas. The Wider Caribbean Sea also defines the functions of its secretariat generally.

### Establishing or strengthening monitoring and assessment

For all action plans or programmes the establishment or strengthening of monitoring programmes is an essential element, either as a first step to developing fuller plans or programmes or as a means of monitoring or strengthening the implementation of existing plans or programmes. Some of the action plans or programmes have been established following assessments of the state of the environment (Black Sea, Caspian, Red Sea, Southeast Pacific) and some include reports of these assessments in the document establishing them (the Arctic, Baltic, the Red Sea and Gulf of Aden).

Some set up working- or advisory groups to deal with monitoring details...

The Southeast Pacific Arctic, Caspian, Eastern Africa and Red Sea and Gulf of Aden provide for the establishment of a monitoring programme in general terms. To do so the Arctic established a specific working group to oversee assessment and monitoring and to produce work plans to be approved on a two yearly basis. The working group itself has provided more detail on assessment and monitoring. Similarly, the Caspian has established a Sustainable Coastal Area Development Regional Advisory Group to act as a think tank in relation to monitoring and assessment. Eastern Africa has also implemented and reported on monitoring and assessment.

...others detail pollutants, activities or other pressures to be monitored directly...

The Baltic, Black Sea, Northeast Atlantic, ROPME Sea Area and South Asian Seas provide for monitoring in relation to particular activities or pressures. The South Asian Seas programme highlights monitoring of pollution from land based activities as a priority action, the Northeast Atlantic provides for monitoring in relation to particular pollution issues and according to a set monitoring strategy (the Joint Assessment and Monitoring Programme). The Northeast Pacific contains a very detailed monitoring and assessment programme that details pollutants to be monitored, the elements of a common monitoring and assessment approach, and the techniques to be used in each. It also provides that monitoring is to become an annual routine after the first, one-year, preparatory phase. The Northeast Pacific also specifically links monitoring and assessment back to the development of management approaches as follows: *'The findings of the assessments constitute the basis for the formulation of appropriate management measures, including the preparation of specific plans for categories and types of pollutants and for the design of monitoring and surveillance systems, the establishment of control measures, the development of standards and the determination of policies.'* (paragraph 23 Action Plan)

The Northwest Pacific does not contain detailed provisions with regard to the subjects of monitoring and assessment, but does identify the establishment of monitoring and assessment programmes as a priority and contains some guidance on the content of those programmes. This includes the creation of databases of information. The 2000 East Asian Seas regional programme of action is quite similar with respect to three of its four priorities (sewage and urban run-off; agricultural run-off; industrial waste).

...set specific dates for monitoring and reporting...

The Black Sea and Northeast Atlantic are unusual in that they specifically provide for monitoring and reporting at set dates. The Black Sea requires it to take place every 5 years beginning in 1996. The Northeast Atlantic provides for monitoring and reporting at a series of different dates depending on the issue to be addressed in monitoring. Other regional seas plans or programmes provide that monitoring should take place at regular intervals only but do not contain timetables for reporting in its action programme. The Black Sea also provides for the adoption of harmonized assessment criteria based on biological effect as required by the Bucharest Convention.

...or improve monitoring and assessment step-by-step

East Asia's approach to monitoring is also instructive in that it shows the way in which action plans or programmes can be used to gradually improve and develop monitoring and assessment. Its 1994 action plan provided for the standardization of analytical techniques used to measure the impact of pollutants and development of compatible methodology for handling, validating and evaluating regional data and for the introduction of quality control in laboratories and the training of scientists and technicians. Its 2000 Vision and Plan of Action specifically ties further monitoring to the database network to be established under that action plan. The proposed development of a database was not new to East Asia in 2000: it had previously been suggested in 1994. This shows the way in which successive action plans or programmes can be used to gradually address longstanding issues more and more fully.

Other regional seas such as the Wider Caribbean have taken a slightly different approach to the gradual improvement of assessment and monitoring through establishing sub-programmes to their action plans (for example the Wider Caribbean sub-programme for Assessment and Management of Environmental Pollution) which contain elements to improve assessment and monitoring. That programme has, for example, work projects aimed at developing information exchange or common methodologies for assessment.

### **Prioritizing capacity building**

All but the Northeast Atlantic and the Red Sea and Gulf of Aden prioritize capacity building. The level of detail in which capacity building is discussed is on the whole quite general. None of the regional seas specify the exact programmes to be developed to enhance capacities; at most they indicate the areas in which capacity building is required.

Eastern Africa, ROPME Sea Area and the Southeast Pacific refer to capacity building in quite general terms. Eastern Africa provides that training programmes should be established and provides for assessment of existing capability; the Southeast Pacific simply notes this as an

Almost all regions highlight capacity building, so far without being really specific

issue to be addressed. Other regions are more specific. The Wider Caribbean and Caspian, for example, identify a number of sectors in which capacity is to be developed. The Caspian also sets specific timetables for the development of capacity. The Wider Caribbean prioritizes the assessment of capacity rather than actually setting out programmes for capacity building, though it does prioritize strengthening of existing abilities in general terms and development of regional human capacity and institutions.

The Arctic, South Asian Seas, the Baltic and the Northeast Pacific adopt a combined approach highlighting the need for capacity building in relation to specific issues (for example for the development of pilot projects in relation to marine pollution from land-based activities and for training of individuals involved in controlling it) and at different levels. South Asia also provides for the assessment of existing capacity in order to develop capacity building programmes. The Baltic notes that: 'The focus of the Programme is on training people to use new concepts of management and new technology, and developing the organizational and administrative framework for them to work effectively and efficiently'. The Northwest Pacific deals with capacity building differently by identifying tasks to be undertaken, such as the development of databases for information sharing and providing advice and assistance on planning.

Educating the public receives varying degrees of attention

#### **Promoting public education on the marine environment**

Educating the public receives varying degrees of attention. The South Asian Seas provides for education campaigns to be launched at national and regional levels to increase public awareness of the problems. It also adopted a dedicated education action plan that contains an assessment of the state of education provision, and it agreed on action to address training needs to improve education within the region and sets time frames for the implementation of the various aspects of the action plan. Others follow the middle ground (for example the Arctic) providing that campaigns to educate the public should be run at national and regional level and that school children should be receive education on the issue, but providing no further detail (Eastern Africa). East Asia provides details in regard to education of the public, linking the establishment of a database to the provision of information to the public, and identifying particular topics as the initial focus of education programmes. It further provides a breakdown of the potential costs of such education programmes (2000 Vision and Action Plan).

Most action plans or programmes mention the need and options for funding, but the level of detail varies

#### **Identifying funding requirements**

Funding for implementation is mentioned in most of the action plans or programmes (though not in the Arctic), but again the level of detail varies. Some (for example the Black Sea's proposed plan of action for marine pollution from land-based activities) contain detailed breakdowns of costs for individual aspects of the programme (the Baltic even goes down to projects level to tackle individual hotspots); some also indicate the sources (the Baltic, Wider Caribbean, Eastern Africa) or potential sources (East Asia) of funding. Others identify the need for funding and identify potential sources of funding (the Black Sea, the Mediterranean, Northeast Pacific, South Asia and Southeast Pacific) and yet others note the need to provide or acquire funding (ROPME and Red Sea and Gulf of Aden, though

the latter covers this aspect in some depth) or set up the institutions for managing funds (Northwest Pacific). South Asia emphasizes the role of governments in funding the programme though noting that in the short to medium term assistance from international institutions would be beneficial to get the programme up and running. The Black Sea also takes a potentially instructive approach. It identifies the need for and potential sources of funding, and provides for further investigation and the holding of a donor conference as well as making immediate provision for funding to establish a secretariat. In so doing it provides a framework to ensure the proper financing of projects. The Northeast Atlantic does not mention funding in its action programmes, but covers this in some detail in its Rules of Procedure for the OSPAR Commission.

**One third of the regional plans or programmes identify development of national plans and programmes as a priority**

### **Promoting adoption of national action plans or programmes**

Several of the regional plans or programmes identify the development of coherent national plans and programmes as a priority: the Black Sea, Caspian, Mediterranean, Northeast Pacific, Red Sea and Gulf of Aden and South Pacific. The references vary from indicating that their establishment is an aim (for example, Red Sea and Gulf of Aden) to placing a significant emphasis on their use as a mechanism in the delivery of the programme (for example the Caspian notes that national action plans 'are the main foundation of the SAP'). Progress in this area has been made in a number of regional seas. For example, the Mediterranean saw endorsement of all national action plans in 2005 and the Southeast Pacific agreed to fund pilot projects in each of the member States, developing national action plans thereafter.

### **4.3 Addressing land-based GPA sources of marine pollution**

The GPA itself contains detailed guidance on the action to be taken to tackle different sources of pollution and activities and, in some cases, lists targets to be set to reduce their impacts. The majority of action plans or programmes scarcely reflect this though. This is the least developed area of the action plans or programmes. They tend to place greatest emphasis on the overarching framework to make implementation of projects possible. Most of the plans or programmes do pay some attention to the individual sources, but do so to varying degrees both between plans or programmes and between sources.

**Most action plans or programmes scarcely or just partly reflect per se on LBSA as listed in the GPA**

Some regional seas have action plans or programmes that specifically focus on marine pollution from land-based activities. The Mediterranean, for example, has quite detailed provisions on a range of sources. The Red Sea and Gulf of Aden focuses very much on oil from tanker spills and offshore development. The Northwest Pacific does not appear to address sources in its action programme per se, but indicates that agreed work programmes exist which may address them. To date a relevant plan has been adopted on marine litter. Similarly, the ROPME Sea Area identifies sources as areas of action and indicates that protocols and programmes of action ought to be adopted to address them, but the plan goes little further. In addition, some of the plans or programmes, such as the Northeast Pacific, specifically refer to tackling marine pollution from land-based activities as a goal; others, such as the South Asian Seas Action Programme, specifically refer to both monitoring of marine pollution from land based activities as a priority area for action and the development and refinement of specific strategies to deal with it.

Others, perhaps in recognition of limited existing capacity, chose a more general approach to the management of the marine environment, setting out the environmental management approach to be adopted rather than developing specific measures relating to specific sources. For example, the South Asian Seas Programme provides for the development of such an approach and emphasizes both education of the public and capacity building more broadly to enable full assessment of problems and effective implementation to tackle a problem. The Eastern Africa Action Plan similarly adopts a general approach to the management of the marine environment, identifying areas for cooperation, such as the ‘formulation of regionally and locally applicable guidelines and standards for management and control of domestic, agricultural and industrial wastes, including the development of principles governing treatment and discharge of such wastes’.

How the nine GPA source categories are reflected in the action plans and programmes is described below.

### **Wastewater**

**Wastewater receives the greatest attention in the action plans and programmes...**

Wastewater receives the greatest attention in the action plans and programmes, thus reflecting the attention it has received at the international level in, for example, the Millennium Declaration and the Johannesburg Plan of Implementation. The Baltic action programme, for example, contains detailed phased programmes of action to tackle pollution from wastewater highlighting within each phase where the most significant improvements can be made and indicating what those improvements should be in terms of specific reductions in pollutant loads. The Mediterranean includes targets and deadlines (e.g. to develop national plans for the environmentally sound management and disposal of sewage by 2025. This obligation is supplemented by more detailed requirements relating to, for example the location of coastal outfalls, connecting urban agglomerations above a certain size to sewage treatment systems and so on). It has also issued guidelines on sewage treatment and disposal. The Mediterranean also ties some of these to the LBS Protocol. For example, it provides that by the year 2025 all Parties are ‘to dispose of all waste water from industrial installations which are sources of BOD, nutrients and suspended solids, in conformity with the provisions of the LBS Protocol’.

This reference to more binding instruments is echoed in the Northeast Atlantic. It provides for the application of ‘an integrated target-oriented and source-oriented approach’ in areas identified as problem areas with regard to eutrophication with regular reporting on implementation required in addition. Although it goes on to provide some more guidance, it generally refers to national and international measures adopted by individual Contracting Parties and to various recommendations from relevant bodies, including the requirement to apply Best Available Techniques (BAT) and Best Environmental Practices (BEP). It links the action programme with relevant treaties and national legislation. For those Parties that are member of the European Union it ties the measures to be adapted to European Community laws. The Red Sea deals with this in general terms by, for example, noting ‘that institutional, financial and technical measures need to be taken by government and the private sector’



and by urging the use of planning measures such as ICZM and best planning practices in general. Some regional programmes, such as South Asia, deal with wastewater by reference to the establishment of research programmes to identify the scale of the pollution problem.

...ranging from setting time-tables for specific actions to limiting the role of a plan or programme to capacity building

Even in regions where the action programmes or plans generally lack specificity this is the one area that receives acknowledgement as requiring action. For example, Eastern Africa identifies the need to formulate regional and local guidelines and standards to tackle wastewater emissions. The Northeast Pacific tackles this issue in more detail and sets down issues on which action is to be taken and timetables for taking action. The East Asia Action Plan takes what appears to be the opposite approach to other regions. It notes that it cannot control engineering practices or the building of sewage works and that its role is limited to provision of education and training for capacity building. It suggests the development of a handbook on best practice and the issuing of guidance in some areas. Consequently, the 2000 East Asian Seas regional programme of action identified actions such as the following to address sewage: updating and adopting national regulations concerning sewage discharges into the sea and rivers, and develop national plans and programmes for the environmentally sound management of sewage.

#### **Persistent organic pollutants**

POPs are not often dealt with explicitly

POPs are not often dealt with explicitly. Only the Arctic, Mediterranean, Northeast Atlantic and Northeast Pacific directly address them in their action plans or programmes. Besides, the Caspian region is in the process of developing a regional POPs action programme and already has local initiatives in specific countries, and the Northwest Pacific is developing a project to assess the extent of the problem and institute clean up operations. The Mediterranean covers POPs to quite a high degree through provisions, which note that their use is banned throughout the Mediterranean, and through the adoption of strict timetables and targets for the reduction of emissions including a provision that all Polychlorinated Biphenyls (PCB) waste is to be collected and disposed of in an environmentally sound manner by 2005. The Northeast Atlantic addresses POPs through its Hazardous Substances Strategy that makes provision for the adoption of work programmes. Much of this strategy relates to the assessment of the problem, it also takes a relatively novel approach in emphasizing the role of private parties and in specifically inviting industry to be involved in exchanges of information and in developing alternatives to their use. It also refers to the need to tackle POPs that enter the marine environment through diffuse pollution pathways. The approach appears designed to encourage action by industry rather than the establishment of set standards. Besides, it refers to existing legal standards adopted in other instruments and suggests that these should be followed. The Northeast Pacific takes a combined approach to tackling POPs, nutrients and sedimentation in one aspect of its programme. As with its provisions in other issues, the approach basically sets out the priorities for action and ties these to a timetable for action, but does not contain the detail on how the measures are to be implemented.

**Radioactive substance aspects are rarely mentioned**

### **Radioactive substances**

Provisions relating to the reduction or elimination of radioactive substances are relatively sparse. The Mediterranean aims ‘to eliminate to the fullest possible extent inputs of radioactive substances’ but then provides only a list of further aims to be implemented such as the adoption of ‘measures, including BAT and BEP, for the reduction and/or elimination of discharges ...’ The Northeast Atlantic aims to reduce emissions and losses of radioactive substances ‘with the ultimate aim of concentrations in the environment near background values for naturally occurring radioactive substances and close to zero for artificial’ ones. It requires the assessment of the problems and pathways and provides that programmes and measures promoting BAT or BEP should be developed. It provides that once the assessment has been carried out the OSPAR Commission will adopt relevant measures to deal with the problems and adopt appropriate environmental quality criteria. OSPAR indicates that it will then adopt recommendations or other legal measures necessary to ensure the implementation of the programme. Again it ties this strategy to specific aspects of the OSPAR Convention and to legal standards more broadly.

**Heavy metals receive relatively little attention across the regions**

### **Heavy metals**

Heavy metals receive relatively little attention across the regions, though some do pay particular attention to them. The Mediterranean sets targets and contains provision for the formulation and adoption of policies, further targets and guidelines to ensure their elimination. It also refers to measures previously adopted at the regional level, which States Parties are to adopt at the national level. The Northeast Atlantic addresses heavy metals the same way as it covers POPs, namely through its Hazardous Substances Strategy that makes provision for the adoption of work programmes (assessment of the problem, inviting industry to be involved, referring to existing legal standards adopted in other instruments). The Northeast Pacific tackles these in its general provisions regarding the development of measures to tackle waste from industry, mines and domestic sources and activities.

**Oils receive relatively much attention**

### **Oils**

Oils receive a relatively high level of attention in that they are included in almost all action plans or programmes. However, none of the plans or programmes contains detailed provisions on this pollutant in the context of land-based sources. The Northeast Pacific comes closest to providing detailed provisions, but it sets down issues on which action is to be taken, rather than actually setting a programme of action or providing detailed guidance on the measures to be taken.

### **Nutrients**

Nutrients, other than those covered by the general provisions on wastewater, receive moderate attention, though for the Caspian the level of detail is significantly higher than for other pollutants save oil from oil spills. A few other plans or programmes do address nutrients specifically. The Baltic action programme, for example, contains detailed phased programmes of action to tackle nutrients highlighting within each phase where the most significant improvements can be made and indicating what those improvements should be in terms of specific reductions in pollutant loads.

The Northeast Atlantic tackles them through its strategy on eutrophication. As noted above, this provides for the application of ‘an integrated target-oriented and source-oriented approach’ in areas identified as problem areas with regard to eutrophication, in addition requiring regular reporting on implementation. It goes on to provide some more guidance on this, but rather than specifying detailed measures to be adopted, it refers to national and international measures adopted by individual Contracting Parties, to various PARCOM Recommendations and future OSPAR instruments that update them, and to the requirement to apply BAT and BEP. In so doing it ties the action programme back to relevant treaties as well as to national legislation. It specifically ties the measures to be adopted to European Commission law for those Contracting Parties that are members of the European Union.

**Nutrients, other than wastewater, receive only moderate attention**

The Northeast Pacific tackles nutrients in some detail (as noted above these are dealt with in conjunction with POPs and sedimentation), and sets down issues on which action is to be taken and a timetable for taking action rather than actually setting down a programme of action or providing detailed guidance on the measures to be taken. As indicated under wastewater, the East Asia Action Plan notes that it cannot control farming practices and that its role is limited to provision of education and training to enhance capacity, for which a handbook on best practice and the guidance in some areas would be useful.

**Sediment mobilization receives the lowest priority of all sources**

#### **Sediment mobilization**

Sediment mobilization receives the lowest priority of any of the issues to be addressed and is only specifically addressed in three regions: the Wider Caribbean, Mediterranean and Northeast Pacific, though East Asia ties this to the development of guidance, but not to specific targets or projects.

**Also litter and physical alteration and habitat destruction do not receive much attention yet**

#### **Litter**

Litter also receives relatively little attention. The Mediterranean addresses it in some detail. The Wider Caribbean and Red Sea address it in a general fashion. The Wider Caribbean provides for assessment of the problem and the education of the public and the Red Sea indicates that measures to support properly located and developed disposal sites. This is an area that the Northwest Pacific focuses on: one of its two specific projects focuses on this area, with a focus on research to establish the nature and extent of the problem, facilitating co-operation and capacity building. The Caspian is in the process of developing a marine litter strategy.

#### **Physical alteration and destruction of habitats**

Physical alteration and destruction of habitats does not receive much coverage. Most of the action plans or programmes do not mention it and for those that do it does not appear to be a high priority.

## Concluding remarks

# 5

No common experiences or single best approach to tackle GPA sources can be distilled from the analysis of 18 regional seas action plans or programmes

Efforts are mainly region specific

Choice of instrument depends on cooperation and legal regimes in a region

### 5.1 How to approach GPA sources

No single conclusion can be drawn on a best approach to deal with GPA sources. Attempts vary drastically over the various regions. Some regional action plans or programmes tackle sources in unique ways. For example, the Northeast Pacific contains specific elements in its programme designed to tackle pollution from activities such as shrimp farming, which may cause a variety of marine pollution problems. The Northeast Atlantic takes a different path: it promotes the ecosystem approach but then tackles each type of pollution in an individual programme of action. The Arctic also promotes the ecosystem approach but then simply provides for the development of guidelines in rather general terms. The Baltic notes most of the pollutants discussed above as potentially problematic, however, at the time its action programme was drawn up it faced a fairly unique set of circumstances in that some of the Contracting Parties were economically developed whilst other, former Soviet States, were facing the process of transition. As a result, rather than identifying uniform approaches for the entire region, it tackles hot spots and provides broadly that assistance will be focused on those States in the region with the least capacity to tackle sources of pollution at present.

One would furthermore expect to be able to conclude this analysis with a statement that differences in attention paid to sources and adoption of measures to reduce their impact would reflect the time at which action plans or programmes were adopted: those adopted most recently providing better coverage and containing more detailed provisions for pollution reduction, control or elimination than those adopted earlier. However, this is not the case. On the contrary, it is not possible to draw any conclusions based on the date of adoption of plans or programmes. Nor is it possible to draw conclusions about approaches that apply across all or a majority of action plans or programmes. While many issues are tackled in similar ways across a range of plans and programmes, this range never tends to cover more than around a third of the plans and programmes on any given issue.

### 5.2 A comparison of LBSA protocols and action plans and programmes

The choice of most appropriate instrument or combination of instruments to implement the GPA at the regional level depends, amongst others, upon the level of cooperation and predominant legal regimes already found within the region. Those regions with a long history of cooperation could move quickly to the adoption of specific targets and standards, usually framed within a binding protocol to a convention. Those regions with a history of limited cooperation will generally find the initial use of an action plan or programme the most appropriate way forward.

The ability of action plans and programmes to promote cooperation lies in their relative flexibility compared to protocols. This advantage is due in part to the fact that plans and programmes are not binding per se. As such it is easier to encourage States to consent to the provisions of action plans and programmes than to protocols. Revisions can also take place comparatively frequently and without the need to go through a protracted legal procedure associated with the amendment of binding instruments.

**Non-binding action plans and programmes are flexible...**

In addition, action plans and programmes can and have been used to develop cooperation by prioritizing capacity building whether in terms of training and education or in the acquisition of data through the development and promotion of monitoring and assessment programmes. Such issues have traditionally not formed the basis of binding legal agreements. Action plans and programmes can and have focused on such aspects as the first step in developing a programme of action to tackle marine pollution. Further revisions to the relevant action plan can then be adopted once initial steps in capacity building have been taken and priority areas for action identified. Similarly, these findings may form the foundation upon which a binding protocol can be based.

**...facilitate prioritization and a step-by-step approach...**

Action plans and programmes also have the advantage of facilitating the prioritization of tasks. Again, their flexibility enables the addition and removal of items from agendas for action as they are tackled or as new information emerges on their relative importance whether as a result of a critical incident or through increasing awareness due to better monitoring and assessment.

**...and provide a vehicle for cooperation**

The above features make action plans and programmes appropriate vehicles for facilitating cooperation and for continuing action. On the other hand, however, the very fact that plans and programmes are so flexible and tend not to include binding targets makes them rather weak instruments for ensuring the implementation of the GPA. As the review of the action plans and programmes indicates, their flexibility and non-binding nature can mean that action plans and programmes are not actually implemented, in which case successive revisions may be required to tighten them up and motivate States to act. By contrast, protocols represent a more powerful tool for implementation of the GPA, by providing greater clarity in terms of obligations and targets and a clearer mechanism for holding States accountable. In so doing, they may more fully promote GPA implementation.

**Binding protocols are more likely to contain precise standards...**

Taking protocols as the predominant type of binding legal instruments used in this area, their strength lies in the fact that they are framed and worded as accurately as possible by the States concerned. This ‘finality’, and the relative rigidity of treaty provisions, is an important factor. This usually ensures that the States involved in negotiating agreements take this task very seriously. Thus, protocols are more likely to contain precise standards, which States are to meet. They are also more suitable vehicles for doing so than action plans and programmes. Protocols may contain obligations requiring Parties to pass legislation to address a particular polluting activity or to adopt new management approaches, such as the use of emissions controls and environmental quality standards and objectives in the control of particular sources of pollution.

**...set time-frames and hold States accountable...**

Similarly protocols are more suitable vehicles than action plans and programmes for the imposition of time frames for action. While these elements are also present in action plans and programmes, the fact that these documents are not binding means that accountability for failure to meet their timetables can be limited. By contrast, the binding nature of protocols combined with the greater clarity in the language used in them reinforce any timetables adopted and facilitate holding States to account when they fail to implement obligations within the agreed timetables.

**...and thus enhances actual implementation of the GPA**

Accountability need not necessarily entail serious ‘negative consequences’ for failure to meet compulsory commitments, as it is traditionally associated with State responsibility for the breach of international obligations. But the very inclusion in binding legal documents has a significant effect on the participating States’ behaviour. It usually makes States more resolute to undertake measures and activities expected from them than would often be the case with ‘soft law’ recommendations. At the same time, some treaties, such as the 1992 OSPAR Convention, go even further by envisaging full-fledged compliance review and verification procedures, the use of which can not only determine the failure to comply but also lead to assistance being given.

The relatively greater clarity found in protocols not only enhances their implementation but also simplifies comparison with the GPA. Thus, while action plans and programmes are flexible, adaptable and non-binding their very flexibility makes it difficult to assess their ability to and success in implementing the GPA. Protocols, by contrast, can be more readily measured against the GPA both in terms of specific content and regarding their actual implementation. Protocols might then be more suitable tools for implementing the GPA where certainty is required and where the imposition of measurable targets is appropriate.

**A combination of both is best: flexible action plans or programmes to create awareness and prioritize followed by protocols to ensure actual implementation**

However, no single mechanism can ensure the implementation of the GPA on its own. Each has its own attributes, and a combination of both is best to enable States the flexibility to adopt work programmes to address priority issues that arise and change over time. The combination is also beneficial to States in fulfilling the various obligations necessary for protection of the marine environment from land-based activities.

## Suggestions for further reading

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- WSSD [www.un.org/esa/sustdev/documents/wssd](http://www.un.org/esa/sustdev/documents/wssd)



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