The articles in the present Review are based on lectures given during the fifth University of Joensuu – UNEP Course on International Environmental Law-making and Diplomacy, which was held from 29 June to 11 July 2008 at the University of KwaZulu-Natal, Pietermartizburg campus, South Africa. The special theme of the course was oceans. The aim of the Course was to convey key tools and experiences in the area of international environmental law-making to present and future negotiators of multilateral environmental agreements. In addition, the Course served as a forum for fostering North-South co-operation and for taking stock of recent developments in the negotiation and implementation of multilateral environmental agreements and diplomatic practices in the field.

The lectures were delivered by experienced hands-on diplomats, government officials and members of academia. The Course is an annual event designed for experienced government officials engaged in international environmental negotiations. In addition, other stakeholders such as representatives of non-governmental organizations and the private sector may apply and be selected to attend the Course. Researchers and academics in the field are also eligible.

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Ed Couzens and Tuula Honkonen (editors)

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Foreword

The papers in the present *Review* are based on lectures given during the fifth University of Joensuu – UNEP Course on International Environmental Law-making and Diplomacy, which was held from 29 June to 11 July 2008 at the University of KwaZulu-Natal, South Africa. The first two University of Joensuu – UNEP Courses were held in Joensuu in 2004 and 2005; the third was hosted at the Pietermaritzburg campus of the University of KwaZulu-Natal, South Africa; while the fourth returned to Joensuu in 2007. The proceedings of those courses have been published in the previous Course *Reviews*.[1]

The aim of the Course is to convey key tools and experiences in the area of international environmental law-making to present and future negotiators of multilateral environmental agreements. In addition, the Course serves as a forum for fostering cooperation between developed and developing country negotiators; and for taking stock of recent developments in the negotiation and implementation of multilateral environmental agreements and diplomatic practices in the field. The ultimate aim of the Course is to improve environmental negotiation capacity and governance worldwide.

The Course is an annual event designed to enhance the negotiation skills of government officials who are, or will be, engaged in international environmental negotiations. In addition, other stakeholders such as representatives of non-governmental organizations and the private sector may apply and be selected to attend the Course. Researchers and academics in the field are also eligible. Altogether 32 participants from 25 countries, with an equal distribution between the North and South, as well as between genders, participated in the fifth Course.

We would like to express our gratitude to all of those who contributed to the successful outcome of the fifth Course. It gives us great pleasure to recognize that the lectures and presentations given during the Course are now recorded in this *Review*. We are grateful that the authors were willing to take on an extra burden after the Course by transferring their presentations into paper form; thereby making the *Review* such a useful resource. In addition, we would like to thank Ed Couzens and Tuula Honkonen for skilful and dedicated editing of the *Review*, and the members of the Editorial Board for providing guidance in the editing process.

Professor Perttu Vartiainen
Rector of the University of Joensuu

Achim Steiner
Executive Director of UNEP

[1] For electronic versions of the 2004, 2005, 2006 and 2007 *Reviews* please see the University of Joensuu – UNEP Course on International Law-making and Diplomacy website, <http://www.joensuu.fi/unep/envlaw>.

Preface

The lectures of the fifth University of Joensuu – UNEP Course on International Environmental Law-making and Diplomacy, from which most of the papers in the present *Review* emanate, were delivered by experienced diplomats, government officials and members of academia.[1] One of the main purposes of the Course is to take advantage of the practical experiences of experts working in the field of international environmental law-making and diplomacy. Consequently, the papers in this *Review* and the different approaches taken by the authors reflect the diverse professional backgrounds of the lecturers and resource persons. Overall, the papers in the *Review* represent various aspects of the broad and complex field of international environmental law-making and diplomacy.

The current *Review* seeks to provide practical guidance, professional perspective and historical background to practitioners, stakeholders and researchers working in the area of international environmental law-making and diplomacy. The *Review* highlights dominating doctrines, approaches and techniques in the field, including international environmental governance, sustainable development, international environmental law-making, environmental education and empowerment, and compliance and enforcement. Additionally, the fifth volume focuses on 'Oceans' as a special theme. The first, second and fourth Courses were hosted by the University of Joensuu, in Joensuu, Finland – an area in which forests and water provide abiding and dominant images. The special themes of the first two Courses were, therefore, 'Water' and 'Forests'. The third Course was hosted by the University of KwaZulu-Natal, on its Pietermaritzburg campus in KwaZulu-Natal, South Africa. KwaZulu-Natal is an extremely biodiversity-rich area, both in natural and cultural terms, and the chosen special theme was therefore 'Biodiversity'. The fourth Course, which returned to Finland, had 'Chemicals' as its special theme. The chosen focus was very appropriate considering the role of Finland in international chemicals management: its active participation in the SAICM (Strategic Approach to International Chemicals Management) policy framework and in the process of enhancing synergies between the three key international chemicals agreements, the Basel, Rotterdam and Stockholm Conventions.

The editorial board and the editors believe that the ultimate value of the *Review* lies in its making a permanent contribution to knowledge and learning in the field of international environmental negotiation and diplomacy. The papers contained in the *Review* are in many cases based on lectures or presentations given during the Course, but often go further as the authors explore their ideas. In particular, the *Review* has

[1] General information on the University of Joensuu – UNEP Course on International Environmental Law-making and Diplomacy is available at <http://www.joensuu.fi/unep/envlaw>.

been proud to receive ongoing contributions – through the various editions – of persons who have been involved in some of the most important environmental negotiations in the past several decades. Publication of these contributions means that the experiences, insights and reflections of these environmental leaders are now recorded and disseminated, where they might not otherwise have been committed to print. The value of these contributions cannot be understated.

As in the previous four editions, the editorial board and the editors of the *Review* wished also to give the opportunity for and encouraged Course participants to submit papers. This has become a regular feature of the *Review* and is, we hope, a tradition that will continue. Three such papers are published in this 2008 *Review*.

It is the editors' belief that many of the papers complement each other in significant ways, and that the scholar who takes the time to read all of them will come away from the *Review* with substantial understanding of the current state of oceans governance. The year of publication, 2009, marks the 400th anniversary of a pamphlet entitled *Mare Liberum* by Dutch jurist Huig de Groot ('Grotius'). Written on behalf of the Dutch East India Company, to defend the idea that the oceans were open to free trade and free use, the pamphlet set the tone for four centuries of such access. It is only in relatively recent years that it has become obvious that this concept is extremely problematic – and that much damage has been done to the world's oceans through the lack of governance over them.

The present *Review* is divided into five Parts. Part I addresses general issues relating to international environmental law-making and governance, with attention being paid to oceans or high seas-related issues.

Professor Tuomas Kuokkanen discusses interlinked approaches to determining legitimacy in international environmental law. He considers particularly the difficulties that arise when national and international interests and duties overlap in international negotiations; and methods for dealing with such clashes.

Professor Louis Kotzé describes the issue of fragmentation, in its different manifestations, in international oceans governance. Professor Michael Kidd considers the effectiveness, or lack thereof, of international fisheries management in light of various regulatory measures adopted worldwide.

Parts II and III consider governance issues on the high seas and in regional seas. Part II contains papers which relate to special governance issues on the high seas.

Professor and Judge Albert Hoffmann considers the role of the United Nations Convention on the Law of the Sea (UNCLOS) in respect of resources (largely, mineral) in the sea-bed in areas beyond national jurisdiction. This lecture by a Judge of the International Tribunal for the Law of the Sea provided the Keynote Address at the

commencement of the Course. In the paper, Judge Hoffmann explains the legal framework of the UNCLOS; explains what resources have become contentious in areas beyond national jurisdiction; and then identifies possible ways in which the environment might be protected if these resources are exploited.

Also in this Part are two further papers on the resources of the sea-bed in areas beyond national jurisdiction. Marko Berglund discusses the protection of marine biodiversity; makes sense of the sometimes confusing plethora of international instruments which regulate this; identifies governance gaps; and then suggests ways to foster future cooperation. Dire Tladi then investigates the use, equitable access to, and the protection of marine genetic resources with a particular focus on current movements with and around the UNCLOS.

One of the most arguably dysfunctional, although extremely important, multilateral environmental agreements the world has is the International Convention for the Regulation of Whaling. Ed Couzens considers the problematic nature of this Convention and suggests possible reasons for the intensity of the disputes within the International Whaling Commission.

Part III considers governance issues in regional seas, with Professor Rudy van der Elst describing the role played in fisheries research and management by non-governmental research organizations; with specific focus on the work of the Oceanographic Research Institute of Durban, South Africa, in the seas to the south and east of South Africa. Professor van der Elst looks also more generally at the state of fisheries worldwide; and touches on the surprising origins of the rise of piracy off the east coast of Africa.

Also in Part III are papers by three Course participants: Cathrin Zengerling, Ewan McIvor and Jarrah AlZu'bi. Zengerling balances with Professor van der Elst's paper, by considering overfishing issues off the west coast of Africa. She explains the problematic nature of Fisheries Agreements entered into between West African countries and countries or private companies within the developed world. She argues that there might well be a role which the International Tribunal for the Law of the Sea could play in solving these problems.

Ewan McIvor, who rather uniquely combined the roles of Course participant and lecturer, presents a paper explaining the oceans governance situation in the Antarctic – and some of the problems which the region faces. Jarrah AlZu'bi then presents a case study of a particular country – that of Jordan. Intriguingly, he shows how an environmental programme may be making a contribution to the process of bringing peace to a politically troubled area.

Finally in Part III, Matti Nummelin contributes a paper explaining the role of the Global Environment Facility (GEF), with particular focus on its work in interna-

tional waters. As this work inevitably becomes regional, rather than global, in nature, the paper is included in this Part of the *Review*.

Moving towards inland, Part IV contains papers which deal with the interface between the sea and the land, and protection of the sensitive coastal zone. Professor Warren Freedman considers the implications worldwide of the concept of Integrated Coastal Zone Management; and then explains legislation recently promulgated in South Africa which might offer lessons for other countries. A more general paper is then provided by Robert Wabunoha, discussing considerations that might be taken into account when a country drafts legislation to protect the coastal zone; including consideration of the important principles of Integrated Coastal Management. Tandi Breetzke and her colleagues then provide a regional example, in KwaZulu-Natal, South Africa, of policies and strategies that might help countries to prevent or mitigate damage caused to coastlines as weather patterns change and storms at sea affect the littoral zone in new ways. Finally in this Part, Robert Mortassagne offers the international negotiator a reminder of how important it is that the drafting of international environmental agreements not be undertaken without an informed awareness of their possible implications for national positions. His paper, written with a practical perspective with a focus on South Africa but surely relevant to all countries, considers particularly the challenges involved in policing international ports and harbours.

Part V of the *Review* reflects the interactive nature of the Course. During the Course negotiation simulation exercises were organized to introduce the participants to the real-life challenges facing negotiators of international environmental agreements. In the two simulation exercises, participants were given individual instructions and a hypothetical, sometimes country-specific negotiating mandate and were guided by international environmental negotiators. Excerpts from, and explanations of, the exercises are included in Part V.

While the majority of the papers in the present *Review* deal with specific environmental issues, or aspects of specific multilateral environmental agreements, and thereby provide a written memorial for the future; the negotiation exercises provide, in a sense, the core of each Course. This is because each Course is structured around the practical negotiation exercises which the participants undertake; and it is suggested that the papers explaining the exercises provide insights into the international law-making process.

Cam Carruthers and Marko Berglund jointly developed and facilitated a simulation exercise for negotiating rules of compliance procedure; the exercise being based on the real example of Compliance Procedure under the 1996 Protocol to the London Convention on the Prevention of Marine Pollution. This was the third simulation exercise with which Carruthers had been involved, after exercises on the Cartagena

Protocol in 2006 and the Strategic Approach to International Chemicals Management in 2007.

Finally, the second simulation exercise of the 2008 Course was provided by Ed Couzens, who devised a multilateral simulation exercise based on the International Whaling Commission. The nature, process and results of the exercise are explained. Although placed at the end of the *Review*, this paper might usefully be read together with the paper by the same author in Part II.

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[3] LL.M, London School of Economics and Political Science; D.Sc.(Environmental Law), University of Joensuu. Email: tuula.honkonen@joensuu.fi. The editors would particularly like to thank Marko Berglund for his close reading of the text and comments thereon.

Part I

General Issues of International Environmental Law-making and Governance in Respect of Oceans

Legitimacy in International Environmental Law

Tuomas Kuokkanen[1]

1 Introduction

Anyone observing environmental negotiations soon identifies that actors participating in them have different roles. For example, some country representatives refer implicitly, or even explicitly, to national interests. Then, there are chairmen, members of the secretariat, rapporteurs, and other officials, who play, according to their functions, a neutral role. There are also a number of non-governmental observers, both environmental and business-oriented, who influence negotiations (both in public and 'in the corridors'). Moreover, there are experts from different fields who give their expert advice to policy-makers. All these actors and the roles they play represent different aspects of the legitimacy of international environmental law. Indeed, one may argue that pursuing national interests, supporting fair process or democracy and seeking to solve problems by relying on expert advice are legitimate in environmental negotiations.

This paper will discuss the role of legitimacy in international environmental law by using the above mentioned approaches: national interests, democracy and problem solving. Rather than focusing on political or philosophical issues,[2] the paper deals with the subject more from practical and legal points of view.[3] The paper analyzes

[1] Professor of International Environmental Law, University of Joensuu; Counsellor, Ministry of the Environment of Finland; email: Tuomas.Kuokkanen@joensuu.fi. The author participated in the Legitimacy of Environmental Governance project of the Environment and Law Research Programme financed by the Academy of Finland; see <http://www.aka.fi/envlaw>.

[2] For theoretical discussion, see, for instance, Max Weber, *Economy and Society* (I–II), edited by Guenther Ross and Claus Wittich (University of California Press, 1978).

[3] For discussion on legitimacy in international law or international environmental law, see, for instance, Daniel Bodansky, 'Legitimacy' in Daniel Bodansky, Jutta Brunnée and Ellen Hay (eds), *The Oxford Handbook of International Environmental Law* (Oxford University Press, 2007), 704–723; Jean-Marc Coicaud and Veijo Heiskanen (eds), *The Legitimacy of International Organizations* (United Nations University Press, 2001); Thomas M. Franck, *The Power of Legitimacy among Nations* (Oxford University Press, 1990);

different approaches by using 'input' and 'output' evaluation. While 'input legitimacy' refers to the process, 'output legitimacy' means the substantive outcome.[4]

2 Pursuing national interests

States can refer to national interests in different contexts. For example, a state that is allowing certain activity within its territory may explain that the possible environmental impacts of that activity result from legitimate activities. In contrast, a neighbouring state that is suffering from such impacts may argue that it has legitimate concerns in respect of its neighbour's activities. In both cases, legitimate interests and concerns are involved.

From a historical point of view, the so-called Harmon doctrine[5] propounded by Judson Harmon, Attorney-General of the United States, in his *Opinion* of 1895, represents an extreme example. The *Opinion* related to a controversy between the United States and Mexico over the use of the waters of the Rio Grande river. In his *Opinion*, Judson Harmon relied on absolute sovereignty of the United States as an upstream country. Interestingly enough, in the 1950s in connection with the controversy between the United States and Canada on the Canadian Columbia-Kootenay diversion project[6] the position of the United States as a downstream country was diametrically opposed. As Canada's potential application of the Harmon doctrine began to jeopardize the United States' interests; the U.S. Department of State officially discarded the Harmon doctrine.[7] This development shows that even though the Harmon doctrine initially seemed to be attractive, ultimately it turned out to be even against the interests of the state which originally relied on it.

At the beginning of the 20th century, environmental disputes were sporadic and predominantly bilateral in nature. If such conflicts occurred, it was sufficient to deal with them retrospectively through dispute settlement techniques. The existence of national interests, or more specifically of national legal interests, is an essential condition for applying dispute settlement. Once the number of environmental problems began to grow, it became evident that bilateral dispute settlement was not sufficient.

Veijo Heiskanen, 'Death of the Layman: The Legacy of Deconsturction and the Philosophy of International Law', 2 *Journal of the Philosophy of International Law* (2007) 39– 91; and Martti Koskenniemi, 'Legitimacy, Rights and Ideology. Notes Towards a Critique of the New Moral Internationalism', 7 *Associations: Journal for Legal and Social Theory* (2003) 349–373.

4 See, for instance, Claire R. Kelly, 'Institutional Alliances and Derivative Legitimacy', 29 *Michigan Journal of International Law* (2008), 605–664, at 614–626; and Karin Bäckstrand, 'Multi-Stakeholder Partnership for Sustainable Development: Rethinking Legitimacy, Accountability and Effectiveness', 16 *European Environment* (2006) 290–360, at 5–7.

5 See Tuomas Kuokkanen, *International Law and the Environment: Variations on a Theme* (Kluwer Law International, 2002) at 9–24.

6 See Ralph W. Johnson, 'The Columbia Basin' in A. H. Garretson, R. D. Hayton and C. J. Olmstead (eds), *The Law of International Drainage Basins* (Oceana Publications, 1967), 167–255 at 271–275.

7 See Johan G. Lammers, *Pollution of International Watercourses: a Search for Substantive Rules and Principles of Law* (Kluwer Law International, 1984) at 271.

Instead, third states had an interest in exercising diplomacy in order to solve environmental problems. As a result, states concluded in the 1970s and 1980s several regional agreements to prevent transboundary pollution. While it was possible, to a certain extent, to identify national interests on the basis of source and victim states; the issue became more complex through the emergence of the so-called 'second generation of environmental problems' like climate change and ozone depletion. Even though it is possible to identify many national interests, the management of the new global problems came to be in all states' interests. New environmental regimes were therefore concluded in the 1980s and 1990s to manage these problems.

States' roles in environmental negotiations mostly depend on their national interests and domestic priorities.[8] National interests are, however, not necessarily always limited to purely domestic considerations. In certain instances, pursuing general interests can be in a country's national interests. There are various strategic ways in which states may pursue their national interests in international negotiations. For example, national negotiation mandates may include various options, draft suggestions, fallbacks and 'ultimate bottom-lines'. The purpose of such 'strategic flexibility'[9] is to achieve a negotiation position in a constructive way.

It is common that states operate in negotiation blocks which can be either general or ad hoc, i.e. established for particular negotiations.[10] The United Nations regional groups, the European Union and the Group of 77 (G-77) are examples of general negotiation groups. Various 'like-minded' groups, such as the 'mega-diversity' group in the negotiations of the international regime on access and benefit-sharing of genetic resources,[11] are examples of ad hoc groups. It is common that states first coordinate strategies within these groups in order to form a common position; and thereafter approach other groups. Moreover, there are various ways to conduct outreach activities; and to hold informal consultations outside plenary discussions.

In light of the above, it appears that input legitimacy includes different techniques through which countries might pursue their national interests in international negotiations. Output legitimacy, i.e. the substantive outcome, depends on the context and specific interests involved. In certain cases, it may be in a state's interests to seek to prevent, for various reasons, the substantive outcome. If that was the original negotiating strategy, the failed outcome of the overall negotiations is legitimate from

[8] See Cam Carruthers (ed.), *Multilateral Environmental Agreement Negotiator's Handbook,* University of Joensuu – UNEP Course Series 5 (2nd ed., University of Joensuu, 2007), available at <http://www.joensuu.fi/unep/envlaw/Julkaisut/Handbook/handbook2007.pdf> in both English and French, at 3.3.1 and 3.6.1.

[9] *Ibid*. at 3.4.1.2.

[10] See, for instance, Donald Kaniaru, 'International Environmental Negotiation Blocks', in Ed Couzens and Tuula Kolari (eds), *International Environmental Lawmaking and Diplomacy Review 2006*, University of Joensuu – UNEP Course Series 4 (University of Joensuu, 2007) 3–15; and Carruthers (ed.), *Negotiator's Handbook*, *supra* note 8, at 3.2.2.

[11] See <http://www.cbd.int/abs/>.

that country's point of view. In other instances, a compromise package, even a modest one, might be a legitimate outcome for that country.

3 Supporting fair process and environmental democracy

Even though national interests dominate – or at least provide the basis for – negotiations, there are various rules of procedure on the basis of which negotiations are conducted. These rules contain provisions on, inter alia, the agenda, decision-making, the chair, the secretariat, the bureau, subsidiary bodies, quorum, points of order and so on.[12] The purpose of these rules is to provide a fair and organized procedure. Furthermore, there is a well-established institutional practice of creating various groups to facilitate particular negotiations. As it is not possible to deal with all issues in plenary sessions, different issues, depending on their nature, can be referred to working groups, contact groups, informal groups, 'Friends of the Chair' groups, committees of the whole, drafting groups or legal drafting groups.[13]

Despite the presence of rules of procedure and institutional practice, environmental negotiations have occasionally been criticized for not being legitimate; on the ground that state representatives conduct negotiations behind closed doors without sufficient input from relevant stakeholders and the public. As a response to such critiques, environmental negotiation processes have become more transparent and they have been opened for limited participation by non-governmental organizations (NGOs) and other non-state actors. Even though such non-state actors do not usually exercise formal decision-making powers, they still have an important role.[14] This increased engagement and influence by multi-stakeholders has been characterized as the New Diplomacy Model.[15]

According to Jonas Ebbesson, public involvement is needed to enhance the legitimacy of decision-making.[16] He states that:

> [a] common feature of the public participation arrangements in international environmental regimes is that NGOs – whether international, national, techni-

[12] See Carruthers (ed.), *Negotiator's Handbook*, *supra* note 8, at 3.1.1. For example, secretariats provide administrative, logistical, process management and procedural support to meetings. See *ibid*. at 3.2.1.3 and 3.3.5. The Chair of a meeting is responsible for the orderly and efficient conduct of a meeting. See *ibid*. at 3-46 to 3-48.

[13] See *ibid*. at 3.2.1.6.

[14] See, for example, Cam Carruthers, 'Negotiating Rules of Procedure: A Multilateral Simulation Exercise Based on the Strategic Approach to International Chemicals Management (SAICM)', Tuula Kolari and Ed Couzens (eds), *International Environmental Law-making and Diplomacy 2007*, University of Joensuu – UNEP Course Series 7 (University of Joensuu, 2008) 293 at 300–303.

[15] *Ibid*. at 4-15–4-16.

[16] Jonas Ebbesson, 'Public Participation' in Bodansky et al. (eds), *The Oxford Handbook of International Environmental Law*, *supra* note 3, 681–703, at 687.

> cal, scientific, or policy-oriented – are given an almost exclusive mandate to represent civil society.[17]

The importance of public participation was emphasized in the Rio Declaration.[18] The declaration was given a regional application in the context of the United Nation Economic Commission for Europe as the Aarhus Convention[19] on Access to Information, Public Participation and Access to Justice was adopted in 1998. In 2003, the Protocol on pollutant release and transfer registers relating to the Aarhus Convention was adopted.[20] In order to promote the application of the Aarhus Convention in international forums, the meeting of the parties of the Aarhus Convention adopted, at its second meeting in 2005, the so-called 'Almaty Guidelines'.[21]

In light of the above, the process itself is important for the procedurally oriented approach which seeks to safeguard a fair, transparent and democratic process. From the legitimacy point of view, the input legitimacy is of particular interest. To put it differently, input and output legitimacy are in fact the same as the purpose of the process-oriented approach is to ensure an acceptable outcome.

4 Focusing on problem solving

In order to comprehend environmental negotiations, it is important to add still one layer to the system: problem solving. Indeed, it is not only national interests and orderly conduct of business that are at stake in negotiations. The core of negotiations is the specific problem that negotiators seek to solve or manage. What is a particular problem *is* of course a relative question and depends on each particular context.[22] In

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[17] *Ibid*. at 689.

[18] See UN Declaration on Environment and Development, Rio de Janeiro, 14 June 1992, A/CONF.151/5/Rev.1 (1992), 31 *International Legal Materials* (1992) p. 876, Principle 10:

> Environment issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

[19] Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, Aarhus, 25 June 1998, in force 30 October 2001, 38 *International Legal Materials* (1999) 517, <http://www.unece.org/env/pp/>.

[20] Protocol on Pollutant Release and Transfer Registers, Kiev, 21 May 2003, not yet in force, available at <http://www.unece.org/env/pp/prtr/docs/PRTR_Protocol_e.pdf> (visited 3 April 2009).

[21] 'Promoting the Application of the Principles of the Aarhus Convention in International Forums', Decision II/4, UN Doc. ECE/MP.PP/2005/2/Add.5 (2005). See also 'Promoting the Application of the Principles of the Convention in International Forums', Decision III/4, UN Doc. ECE/MP.PP/2008/2/Add.6 (2008).

[22] See Tuomas Kuokkanen, 'The Problem-solving Role of International Environmental Law', in Tuula Kolari

relation to the marine environment, one can list various environmental issues as problems: eutrophication[23] and loss of marine biodiversity are examples.

Problem-identification forms the first pre-negotiation phase of environmental negotiations. Usually, the scientific community and environmental non-governmental organizations play important roles in bringing a particular issue to the attention of political leaders and the public in general.[24] After the problem-identification phase, negotiations move to the formal phase and finally to the adoption of an agreement. Once the agreement has entered into force, the next step is to move to a post-agreement phase.

In many instances, environmental regimes contain a specific provision on the objectives of the agreement,[25] or a long-term goal; as well as interim objectives that are often added subsequently through separate Protocols or Annexes. The regulatory idea of many environmental agreements is to prevent or mitigate harm to human health and environment. In relation to natural issues, like marine living resources, the purpose is to manage these resources in a sustainable or optimal way. Moreover, there are mixed agreements which seek both to solve environmental problems and to manage natural resources.

Usually, the institutional arrangements for a multilaterall environmental agreement include a meeting of parties as a main decision-making body, a secretariat and one or more specialized subsidiary bodies. These arrangements have been characterized by referring to them as regimes.[26] They are, as Oran R. Young has put it, responses to the pervasive collective-action problems.[27]

Through this process of problem-solving and regime-building, the role of expertise has increased. A number of individuals therefore attend various expert meetings in environmental regimes in their personal capacities, rather than as country representatives.[28] In describing this development, Peter M. Haas has characterized the incorporation of scientific and technical knowledge into policy-making as a 'process of professionalization'.[29]

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and Ed Couzens (eds), *International Environmental Lawmaking and Diplomacy Review 2007*, University of Joensuu – UNEP Course Series 7 (University of Joensuu, 2008), 3–19.

[23] 'Eutrophication' means the over-concentration of nutrients in water, with consequent negative consequences such as the stimulation of algal growth.

[24] See Carruthers (ed.), *Negotiator's Handbook*, *supra* note 8, at 5.2.1.1.

[25] *Ibid*. at 3.4.2.3: 'A clear objective is useful in that it should drive all of the treaty activity and constitute the key basis upon which the evaluation of the effectiveness of the treaty is to be measured'.

[26] For discussion, see Kuokkanen, *International Law and the Environment, supra* note 5, at 271–278.

[27] Oran R. Young, *International Cooperation. Building Regimes for Natural Resources and Environment* (Cornell University Press, 1989) at 5.

[28] See Carruthers (ed.), *Negotiator's Handbook*, *supra* note 8, at 3.6.4: 'Individuals attending expert meetings are not expected to represent national positions, but rather to provide expert advice (nonetheless, representatives are generally expected to avoid openly criticizing their party's own position').

[29] Peter M. Haas, 'Introduction: Epistemic Communities and International Policy Coordination', 46 *International Organization* (1992) at 1–35.

In addition to scientists, the role of non-governmental organizations has increased. Whilst they can be seen to reflect the views of the civil societies they represent, they also represent epistemic[30] communities. For example, the admittance of non-governmental organizations to the meetings of environmental regimes may be linked to their competence or expertise.[31] Moreover, in a number of bodies established under environmental regimes, such as technical panels and compliance committees, members are serving in their professional capacities. From this point of view, the operation of environmental regimes is based on 'expertise democracy' rather than on 'formal representative democracy'.[32]

Thus, parties to MEAs have incorporated expertise in environmental regimes. They have considered that it is in their interests that particular tasks be carried out by experts, and that it is sufficient for them to exercise supervisory or political control. Thereby, national interests do not dominate the work of environmental regimes in a traditional manner. Consequently, it appears that input legitimacy in the problem solving approach is assessed on the basis of how a specific negotiation process or environmental regime is designed so that it can contribute to actual problem-solving. The outcome of the process and the way in which it addresses the problem represent output legitimacy. An arrangement that is merely symbolic, and which does not have any added value, can be regarded as illegitimate even though it has been achieved through a diplomatic compromise giving a 'something for everybody'[33] compromise, or has been agreed through an orderly process. In contrast, if a regime adequately and effectively addresses the specific problem that it was designed to solve it can be regarded as legitimate.

5 Conclusions

Three themes to legitimacy of environmental negotiations have been illustrated above. In the classical approach, national interests have traditionally been the driving

[30] 'Epistemic' means 'relating to knowledge'.

[31] Multinational environmental agreements contain similar clauses to this effect. See, for instance, Article 23(4) of the 1992 Convention on Biological Diversity (Convention on Biological Diversity, Rio de Janeiro, 5 June 1992, in force 29 December 1993, 31 *International Legal Materials* (1992) 822, <http://www.biodiv.org>):

> Any other body or agency, whether governmental or non-governmental, qualified in fields relating to conservation and sustainable use of biological diversity, which has informed the Secretariat of its wish to be represented as an observer at a meeting of the Conference of the Parties, may be admitted unless at least one third of the Parties present objects.

See also Carruthers (ed.), *Negotiator's Handbook*, *supra* note 8, at 3.1.1.2 and 3.3.2.

[32] See Heiskanen, 'Death of the Layman', *supra* note 3, at 272.

[33] Carruthers (ed.), *Negotiator's Handbook*, *supra* note 8, at 3.6.7.1: 'Particularly at the higher official and political levels, overall outcomes need to be seen to have 'something for everybody'…'. See also *ibid.* at 3.4.1.3: 'Recognizing that 'constructive ambiguity' is often used to produce agreement in the waning hours of negotiation, this should nevertheless be avoided if possible'.

force in international negotiations. The modern approach democratic approach represents progress and institutionalism. The problem-solving approach represents a more technical and management oriented 'post-modern' world in which the role of epistemic communities has become increasingly important.

Although this paper has discussed three approaches of legitimacy separately, this does not mean that the approaches also function separately. On the contrary, they are in many instances interlinked. Indeed, one can often observe how these separate approaches and layers function in mixed ways during the negotiations toward, or the work of, environmental regimes.

One person may even act in different roles during a meeting. For example, at an early stage of international negotiations a person might be a national delegate. Thereafter, he or she might be elected as the chair of a particular working group. In addition, the person could attend, in a personal capacity, a particular expert meeting which is held in connection with the negotiations. As a national delegate, it is legitimate for that person to pursue national interests. However, as a chair the person should conduct the meeting in a neutral and impartial manner; it would be illegitimate for the person to favour his or her own delegation, or allies of his or her own delegation.[34] Thus, it is important for a person attending international meetings to understand in which capacity he or she is working. Depending on the context, it may or may not be legitimate that he or she is acting in different roles.

Input and output legitimacy appear to be different depending on the approach taken. While within the national interests approach the input focuses on various techniques as to how a state can pursue its national interests; within the democratic approach it refers to an orderly process. In the problem-solving approach, input refers to regulatory and management design to tackle a particular problem. With regard to output legitimacy, within the national interests approach output refers to a negotiated outcome from the point of view of domestic priorities. Within the democratic approach, the outcome is actually the same as the input (in other words, the process itself) process itself. Finally, with regard to the problem-solving method, output refers to the result and effectiveness of the negotiated arrangement.

[34] See *ibid*. at 3.6.6.

Fragmentation of International Environmental Law: An Oceans Governance Case Study[1]

Louis J. Kotzé[2]

1 Introduction

International environmental law (IEL) is one of the fastest-developing sub-disciplines of international law. As a specialized sub-discipline which focuses only on environmental issues, IEL is a particularly effective tool for addressing global environmental challenges which, by their very nature, cannot be confined to geographical boundaries. IEL is perhaps the only viable instrument at the disposal of the international community to address effectively issues such as climate change, transboundary natural resource conservation, and illegal dumping of waste, to name but a few.

When one considers the foregoing, it is evident that one of the most important issues requiring international cooperation, on a truly global scale, is that of international oceans governance (IOG). It is therefore also not surprising that IOG is considered one of the oldest and most traditional sectors of international law; and, more specifically, of IEL. Dugard correctly opines in this respect that 'the evolution of the law of the sea is the history of international law itself, for since its earliest days international law has been deeply involved in the regulation of navigation and fishing'.[3] The past decade has seen numerous consistent developments which gradually shifted the focus of IOG from purely regulating navigation and fisheries, to an 'environmental'

[1] My sincere thanks go to the United Nations Environmental Programme (UNEP), the Government of Finland, and the Universities of Joensuu and KwaZulu-Natal for their invitation to contribute to this publication and for their financial assistance. This contribution is an abbreviated version of research which was conducted at the Max Planck Institut für Ausländisches Öffentliches Recht und Völkerrecht (MPI), Heidelberg, Germany. My sincere thanks go to the Institute and its personnel for their professional assistance.

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[3] John Dugard, *International Law: A South African Perspective* (3rd ed., Juta, 2005) at 354.

approach which seeks comprehensively to address the harmful effects of human activities on the marine environment. Many IEL instruments in the form of treaties, treaty institutions, Protocols and soft law instruments have been adopted and created with a view to ensuring comprehensive and effective protection of the global marine environment. It is specifically these mechanisms which form the principal focus of the present enquiry. There seem to be so many instruments, institutions, procedures and rules which focus on IOG that the effective governance of this regime may very well be hampered. If one should postulate this phenomenon as a hypothesis: the more primary normative mechanisms including conventions and Protocols, and subsequent treaty institutions, competent authorities, rules, procedures and governance instruments in terms of these primary normative rules; the more cumbersome, duplicative, conflict-ridden, and confusing the international environmental governance effort relating to IOG.[4] These, in short, may be referred to as 'governance inefficiencies',[5] which, in the environmental context, may not be conducive to sustainability.

Wolfrum and Matz, in an insightful work on conflicts in general IEL, pointedly explain this potential legal conundrum as follows:

> [i]n the absence of a universal legislature or an administration with a comprehensive mandate, most international treaties exist parallel to one another and are further developed without the benefit of consideration being given to potential conflicts with other agreements either during their negotiation or at a later stage of their existence. Insofar as these agreements overlap, this overlap can either take the form of a doubling of efforts concerning a particular problem or as a contradiction or conflict between the objectives, programmes or means of the respective agreements. The phenomenon of a multitude of parallel, substantially or partial overlapping and colliding agreements in international environmental law, exacerbated by the practice of negotiating ever more binding instruments, has been labelled 'treaty congestion'.
>
> …

[4] This hypothesis is based on the assumption that fragmentation at the international level is not conducive, generally, to sustainable environmental governance efforts, and specifically, IOG. Conversely, an integrated and more streamlined approach would therefore be preferable to more efficiently realize sustainable IOG. This is explored further below.

[5] 'Governance inefficiencies' is used here in the context of the broader concept of 'environmental governance', which may be explained as:

> A management process executed by institutions and individuals in the public and private sector to holistically regulate human activities and the effects of human activities on the total environment (including all environmental media, and biological, chemical, aesthetic and socio-economic processes and conditions) at international, regional, national and local levels; by means of formal and informal institutions, processes and mechanisms embedded in and mandated by law, so as to promote the common present and future interests human-beings hold in the environment.

Louis Kotzé, 'Environmental Governance' in Alexander Paterson and Louis Kotzé (eds), *Environmental Compliance and Enforcement in South Africa: Legal Perspectives* (Juta, 2009) 103 at 107–108.

> The doubling of efforts can diminish the effectiveness of international environmental law because scarce financial, administrative or technical resources may be wasted… The effectiveness of international environmental agreements can be significantly curtailed if conflicts between agreements lead to uncertainty concerning their interpretation and, consequently, their implementation and overall application… Generally, both the doubling of efforts and conflicts between environmental agreements require a systematic approach to harmonization and coordination in order to provide for greater coherence and, accordingly, enhanced efficiency of international environmental law.[6]

This description essentially refers to what is commonly known as 'fragmentation', which is not a phenomenon entirely foreign to the international legal order.[7] There seems to be general agreement that the international legal order is fragmented, and, given its relative infancy and remarkable development over the past 40 years, even more so the IEL sub-discipline.[8] IOG is a sub-category of IEL.[9] Fragmentation is omnipresent in this regime – so much so that there are currently conscious efforts underway to ameliorate governance inefficiencies (such as conflict, overlap, doubling of efforts, confusion, inefficient resource application, bureaucracy, and lack of legal certainty) caused by fragmentation.[10]

In light of the foregoing, this contribution is an attempt to illustrate fragmentation of the IOG regime, briefly listing some of the primary international and regional oceans governance instruments and institutions. Furthermore, it investigates the phenomenon of 'fragmentation' as it appears in the more general IEL order by specifically focussing on the different manifestations of fragmentation, its benefits and shortcomings. Finally, it makes recommendations regarding approaches to address fragmentation.

2 The international oceans governance regime: a case study

IOG is a vast, complex and highly technical sub-discipline of international law. Its framework covers issues such as: jurisdictional zones, navigation, dispute resolution,

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6 Rüdiger Wolfrum and Nele Matz, *Conflicts in International Environmental Law* (Springer, 2003) at 2–3.

7 For a comprehensive discussion, see what is arguably regarded as the most authoritative text on this issue: Martti Koskenniemi, *Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law: Report of the Study Group of the International Law Commission*, Erik Castrén Institute Research Report 21/2007 (2007).

8 For a succinct discussion on the development and evolution of IEL, see Alexandre Kiss and Dinah Shelton, *Guide to International Environmental Law* (Martinus Nijhoff, 2007) at 31–46, and Peter H. Sand, 'The Evolution of International Environmental Law' in Daniel Bodansky, Jutta Brunnée and Ellen Hey (eds), *The Oxford Handbook of International Environmental Law* (Oxford University Press, 2007) at 29–43.

9 This paper accepts that regional oceans governance regimes form part of the international regime, albeit that these instruments may only be applicable to certain states in certain regions. Henceforth, any reference to the international regime, by necessary implication, also includes regional instruments.

10 See generally, Koskenniemi, *Fragmentation of International* Law, *supra* note 7, and the discussion below.

regional seas, and, important for the present discussion, environmental standards and duties. The main marine environmental issues are traditionally delineated to include: conservation of marine living resources (fisheries management); pollution control (oil, shipping, nuclear, hazardous substances etc.); off-shore mining; and land-based marine pollution (LBMP). The IOG environmental regime consists of overarching or framework measures, issue-specific measures, regional measures; and various institutions, mechanisms and procedures; all aimed at regulating deleterious effects of human activities on the marine environment. It would be impossible to canvas the entire IOG including all the international agreements, their procedures and institutions within the limited space and focus of this enquiry. For the sake of brevity, Table 1 below provides a cursory listing of international and regional treaties and agreements which are directly or indirectly related to govern various environmental aspects of the global oceans.[11]

Various institutions have been created under the above legal framework. These, again by way of summary, include, inter alia: the United Nations Food and Agricultural Organization (FAO),[12] the United Nations Environment Programme (UNEP),[13] regional bodies (such as the South East Atlantic Fisheries Organisation[14] and the Northwest Atlantic Fisheries Organisation),[15] the International Maritime Organisation (IMO),[16] the International Court of Justice (ICJ),[17] the International Tribunal for the Law of the Sea (ITLOS),[18] various agencies set up under issue-specific agreements, the International Commission for the Conservation of Atlantic Tunas,[19] the International Seabed Authority,[20] the International Union for Conservation of Nature (IUCN),[21] and trade and development-related institutions such as the World Bank[22] and the World Trade Organisation.[23]

[11] It should be noted that this is not an exhaustive list and other instruments may, in addition to these set out here, also be relevant to IOG.
[12] See <http://www.fao.org/>.
[13] See <http://www.unep.org>.
[14] See <http://www.seafo.org>.
[15] See <http://www.nafo.int/>.
[16] See <http://www.imo.org>.
[17] See <http://www.icj-cij.org/>.
[18] See <http://www.itlos.org/>.
[19] See <http://www.iccat.int>.
[20] See <http://www.isa.org.jm/>.
[21] See <http://www.iucn.org/>.
[22] See <http://www.worldbank.org/>.
[23] See <http://www.wto.org/>.

Table 1: The IOG at a glance

Framework/Overarching Measures	Issue-specific Measures	Regional Measures
	Marine living resources	
UN Convention on the Law of the Sea (UNCLOS), 1982, specifically Parts XI, and XII; Arts 207, 211 and 213	Straddling Stocks Convention, 1995 Convention for the Conservation of Southern Bluefin Tuna, 1993	Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, 1972 Paris Convention for the Prevention of Marine Pollution from Land-based Sources, 1974 Convention for the Protection of the Marine Environment in the North East Atlantic (OSPAR), 1992 (merges the above two) Convention on the Protection of the Marine Environment of the Baltic Sea Area Protocol for the Protection of the Mediterranean Sea against Pollution from Land-based Sources Protocol for the Protection of the South-East Pacific against Pollution from Land-based Sources Cartagena Agreement, 1983 (UNEP Regional Seas Agreement) International Convention for the Conservation of Atlantic Tunas, 1966 Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific, 1991 Convention Concerning Fishing in the Black Sea, 1960 Convention for Future Multilateral Cooperation in the North-East Atlantic Fisheries, 1982 Mediterranean Sea Regime (over 12 individual agreements) Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region

Framework/Overarching Measures	Issue-specific Measures	Regional Measures
	Underwater cultural heritage resources and wrecks	
	UNESCO Convention on the Protection of Underwater Cultural Heritage, 2001	
	Nairobi Convention on the Removal of Wrecks, 2007	
	Climate change issues affecting oceans	
	UN Framework Convention on Climate Change, 1992	
	Kyoto Protocol, 1997	
	Hazardous substances	
	Basel Convention (and Protocol-1999) on Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989	
	Convention on Ban of the Import of Hazardous Waste into Africa, 1991	
	Hazardous and Noxious Substances Convention, 1996	
	Nuclear issues	
	Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water, 1963	
	Comprehensive Test Ban Treaty, 1996	
	Treaty on the Prohibition of Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil thereof, 1971	
	Convention Relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material, 1971	
	IAEA Regulations for the Safe Transport of Radioactive Material, 1973	

Framework/Overarching Measures	Issue-specific Measures	Regional Measures
	Oil, vessel and other pollution	
	International Convention for the Prevention of Pollution from Ships (MARPOL), 1973 (operational and unintentional pollution)	
	1978 Protocol to MARPOL	
	International Convention for the Prevention of Pollution of the Sea by Oil (OILPOL), 1958 (as amended)	
	Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention), 1972 (intentional pollution) and its Protocols	
	International Convention on Civil Liability for Oil Pollution Damage, 1992 and accompanying Fund Convention	
	International Convention on Control of Harmful Anti-fouling Systems on Ships, 2001	
	International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990	
	Protocol on Preparedness, Response and Cooperation to Pollution Incidents by Hazardous and Noxious Substances, 2000	
	International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969	
	International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (read with Convention on Biodiversity)	
	International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001	

Framework/Overarching Measures	Issue-specific Measures	Regional Measures
	Land-based marine pollution	
	Montreal Guidelines for the Protection of the Marine Environment against Pollution from Land-based Sources	
	Global Programme of Action for the Protection of the Marine Environment from Land-based Activities	
	Washington Declaration on Protection of Marine Resources from Land-based Activities	
	Pollution from deep seabed mining	
	A 24 of the Geneva Convention on the High Seas, 1958	
	UN General Assembly Declaration of Principles Governing the Seabed and the Ocean Floor and the Subsoil thereof, 1970	
	Part XI of UNCLOS	

3 Fragmentation

3.1 Introduction

The IOG regime is in fact vast, consisting of numerous hard law agreements and institutions. While it would prima facie appear that this regime is fragmented, the following sections explore the theoretical underpinnings of fragmentation with the view to establishing whether IOG is in fact fragmented.

Much of the literature dealing with fragmentation of general international law focuses primarily on the effect of fragmentation on international judicial institutions and dispute settlement bodies, and the contribution, as a result of multiplication of these institutions, to fragmentation.[24] Some of the literature is, however, dedicated

[24] The reason for this seems to be that, as one author eloquently puts it:

> The substantive fragmentation of international law… seems less problematic than the institutional proliferation that has accompanied it. The institutionalization of substantive norm-setting raises the risks of unresolved normative conflicts… As institutional fragmentation is followed and strengthened by a vast increase in the number of judicial bodies, this further delineates existing boundaries and creates potential conflict between the different regimes, which are then reinforced by judicial decisions.

to analyses of the various other manifestations of fragmentation. This section briefly reflects on these, and attempts to provide first a generic and, then, an issue-specific analysis of fragmentation; the object being to determine which is best-suited to describe the current IOG regime.

3.2 Manifestations of fragmentation

3.2.1 Inter-disciplinary fragmentation

It is conceptually convenient and illustratively more accommodating to distinguish two general or 'umbrella' forms of fragmentation; with more specific subsequent manifestations of fragmentation under each of these two more 'general' forms. There are, of course, other classifications and descriptions of fragmentation.[25] This contribution prefers to describe it as follows.

First, one may speak of inter-disciplinary fragmentation; which refers to the 'compartmentalization' of international law into distinctive (but, in most instances, related and sometimes even overlapping)[26] sub-disciplines. These sub-disciplines include, inter alia, the law of the sea, human rights law, international trade and economic law, international development law, and international humanitarian law, to name but a few. IEL is another example of such a sub-discipline; and has predominantly been developed as an answer to the inadequacies of other sub-disciplines to address, comprehensively, effectively and more holistically, global environmental challenges.[27] The division or classification of international law into various distinct sub-disciplines, constitutes fragmentation of international law in its most general form.

Lindroos[28] observes in this respect that:

> [e]ach such system or regime… functions in its own normative environment, with distinct particularities and often on the basis of differing institutional and

Anja Lindroos, 'Addressing Norm Conflicts in a Fragmented Legal System: The Doctrine of *Lex Specialis*", 74 *Nordic Journal of International Law* (2005) 27–66 at 32–33 and further.

[25] See, generally, Obiora Okafor, 'Viewing International Legal Fragmentation from a Third World Plane: a TWAIL Perspective' in John McManus (ed), *Fragmentation: Diversification and Expansion of International Law* (Canadian Council on International Law, 2006) 117–120.

[26] Inter-related or overlapping disciplines include, for example, international human rights, humanitarian and environmental law. It is not inconceivable that all these three regimes would be applicable to a situation where people/refugees, for example, need to be relocated to foreign countries because of severe draught or flooding as a consequence of global warming.

[27] See, amongst the myriad of writings on the rationale behind the development of IEL as a distinct sub-discipline of international law, Arévalo Luis Barrionuevo, 'The Work of the International Law Commission in the Field of International Environmental Law', 32 *Boston College Environmental Affairs Law Review* (2005) 493–508 at 506. Globalization has also played its part in the development of IEL. Specifically it led, and continues to instigate development of international environmental agreements. See, amongst others, Ben Boer, 'The Rise of Environmental Law in the Asian Region" 32 *University of Richmond Law Review* (1999) 1503–1553 at 1508–1511.

[28] Lindroos, 'Addressing Norm Conflicts', *supra* note 24, at 31.

> legal rationales. There is no one goal, logic, or system to govern all possible situations. To some extent, therefore these legal orders appear to exist in a normative jungle, where each system may create solutions entirely opposite to the solutions of another system, and where general international law may be interpreted and applied in different ways.[29]

The general body of international law is, therefore, silo-based and fragmented along sub-disciplinary lines or regimes with each, in part, containing a set of norms, institutions and procedures, organized according to the specific challenges they aim to address.

There seems very little one can, or would want, to do about inter-disciplinary fragmentation; simply because it would be absurd to expect the current globalized world to be regulated by one set of generalized international law principles and norms. This form of fragmentation is, therefore, quite natural in the sense that '…specialized fields [or disciplines] have developed within the international law context because issues have become so complex that it is virtually impossible to keep up to date with all the developments'.[30] The current international law regime has been designed, and continues to evolve, according to the specific needs and interests of states and state subjects. Needs and interests differ and what may be appropriate to solve environmental challenges, may be inappropriate to address refugee and war issues; hence the specific disciplines, each tailor-made to specific needs, interests and challenges.

3.2.2 Intra-disciplinary fragmentation

Second, intra-disciplinary (or inter-sectoral fragmentation) is a 'sub-species' and result of inter-disciplinary fragmentation. Intra-disciplinary fragmentation entails that each of the broader sub-disciplines of international law consists of various sectors. This manifestation of fragmentation is disciplinary-specific and essentially relates to fragmentation *between* the various sectors which form part of the IEL sub-discipline. IEL consists, inter alia, of the following sectors: natural resource management, pollution control, chemicals and waste management, oceans governance, and energy regulation. Each sector aims to address specific global environmental challenges, even though some overlap may occur as a result of cross-cutting environmental issues.[31] The sectors are arranged according to their rationale, aims and objectives, making up the total corpus of IEL. It is generally acknowledged that this body of law '…is already

[29] Already here one observes the potential for conflict between the various rules in the proverbial 'normative jungle'.

[30] Sumudu Atapattu, 'Sustainable Development, Environmental Protection, and Human Rights: A Necessary Linkage?' in John McManus (ed), *Fragmentation: Diversification and Expansion of International Law* (Canadian Council on International Law, 2006).

[31] It is trite that the sub-sectors are in most instances inter-related and can not be considered in complete isolation. The pollution control regime would typically address pollution at a global level but may also overlap with the chemicals and waste management regime where chemicals and waste cause pollution. Where marine biodiversity is affected by pollution caused by waste and chemicals, there may even be overlap of all these three regimes.

complex and vast, comprising hundreds of international norms the purpose of which is to protect the earth's living and non-living elements and ecological processes'.[32]

Fragmentation in this sense, therefore, manifests along independent but inter-related sectoral lines, within the broader sub-discipline of IEL. Again, this form of fragmentation would be difficult and possibly even undesirable to address, for very much the same reasons that it would be undesirable to address inter-disciplinary fragmentation. One clearly requires specific sub-sectors within the more general realm of IEL to address specific environmental challenges – simply because there are so many issues and challenges which are so very diverse. Moreover, given the nature of the object that IEL aims to address, namely the 'environment', it would be impossible for one set of generalized IEL rules to address adequately the range of diverse environmental issues (including, amongst others, legal, scientific, biological, social, human, economic and environmental media specific considerations).[33] It may, however, as far as is reasonably practicable, be possible to streamline and avoid contradiction and overlap, so as at least to have a more integrated approach within each of the sub-sectors – an issue which is returned to further below.

3.2.3 Intra-sectoral fragmentation

Third, intra-disciplinary (inter-sectoral) fragmentation may further be divided into intra-sectoral fragmentation, meaning that each of the sectors of the sub-discipline of IEL is fragmented within themselves. It is this form of fragmentation with which the present enquiry is specifically concerned, because this is arguably the only form of fragmentation that could be addressed with a reasonable expectation of success.

Intra-sectoral fragmentation is a result of various substantive primary legal rules (mainly stemming from environmental agreements);[34] fragmentation of secondary rules designed to give effect to the objectives of the primary rules; institutional frag-

[32] Philippe Sand, 'The Evolution of International Environmental Law' in Daniel Bodansky Jutta Brunnée and Ellen Hey (eds), *The Oxford Handbook of International Environmental Law* (Oxford University Press, Oxford, 2007) 29–43 at 35.

[33] 'Environment' is an extremely extensive concept and can include almost all considerations affecting human life (especially from an anthropocentric point of view). One example of such a wide legal description of 'environment' can be found in South African environmental framework legislation. Section 1 of the National Environmental Management Act 107 of 1998, defines environment' as:

> …the surroundings within which humans exist and that are made up of-
> (i) the land, water and atmosphere of the earth;
> (ii) micro-organisms, plant and animal life;
> (iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and
> (iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

[34] For a detailed discussion, see Gerhard Hafner, 'Pros and Cons Ensuing from Fragmentation of International Law', 25 *Michigan Journal of International Law* (2004) 849–863 at 856–857. See also Martin D. Gelfland, 'Practical Application of International Environmental Law: Does it Work At All?', 29 *Case Western Reserve Journal of International Law* (1997) 73–107 for a discussion on treaty proliferation and how proliferation affects the effectiveness of the international regime dealing with regulation of nuclear activities.

mentation; and procedural fragmentation in each of the sectors of IEL. This manifestation of fragmentation is, therefore, sector-specific and essentially relates to fragmentation *within* each of the sectors, in this case, the sub-sector of IOG. Stephens summarises the main concern here when stating that:

> [t]here are now over a thousand treaties, conventions and other international legal instruments incorporating provisions concerned with some aspects of environmental protection. While some early texts often do no more than espouse broad principles, the discernible trend in recent practice has been towards *highly detailed and technical regimes* that include procedures and institutions for monitoring implementation and for setting detailed regulatory standards.[35]

The IOG regime is a typical example of a 'highly detailed and technical' regime consisting of various normative rules, institutions and procedures, aiming to regulate more general or very specific aspects of oceans governance. The plethora of legal rules, institutions and procedures therefore creates a matrix framework of fragmentation within the sub-sector of IOG.

3.2.4 Fragmentation of primary substantive rules, secondary procedural rules and institutional fragmentation

Inter-sectoral fragmentation, in turn, consists of various other forms of fragmentation; i.e. one observes specific manifestations of fragmentation within each of the specific sub-sectors. First, fragmentation of primary normative rules, in its simplest form, describes the various international and regional legal regimes which all aim, as comprehensively as possible, to regulate specific matters requiring the attention of the international community. Sectionalism and regionalism gave rise, and are still contributing, to the creation of new regional and specialized legal regimes that aim to deal with specific issues. Many international and regional legal rules are created to provide legal certainty regarding specific issues and, inter alia, possible remedies for conflict resolution and means to ensure compliance and enforcement of these instruments. These new legal rules ironically increase opportunities for friction and conflict to thrive, where choices have to be made regarding the most appropriate legal rule to apply where there is more than one. As Hafner puts it:

> …multiple sets of international regulations [presumably stemming from primarily treaties and protocols] may apply to a given situation. The diversity of applicable regulations necessitates complex arguments about which regulation to

[35] Tim Stephens, 'Multiple International Courts and the 'Fragmentation' of International Environmental Law', 25 *Australian Yearbook of International Law* (2006) 227–271 at 241 (emphasis added). These sectoral regimes mainly consist of a multitude of international treaties, customary international law rules, and soft law instruments. See further, Ulrich Beyerlin and Thilo Marauhn, *Law Making and Law-Enforcement in International Environmental Law after the 1992 Rio Conference* (Schmidt, 1997) 4–10 and further for a discussion of the relationship between these sources of IEL.

> apply, and may give rise to more conflicts than were solved by the creation of each individual regime.[36]

The IOG regime is a useful example to illustrate the complexities arising as a result of the 'normative jungle' of legal rules. Depending on which issues one considers as falling within the ambit of IOG, one can safely conclude that currently there are numerous primary international agreements directly or indirectly relating to IOG at the international level – each providing for distinct primary normative rules (see Table 1 above).[37]

Second, one can speak of procedural fragmentation of secondary rules as a result of fragmentation of primary normative rules. Secondary rules are those rules formulated and based on the primary normative rules encapsulated in environmental agreements, and refer to the procedural rules which are used to ensure observance and enforcement of the primary rules of international law. Secondary rules, therefore, primarily relate to procedural issues, and may include, for example, reporting and monitoring obligations, and dispute settlement arrangements. Recent trends in international law-making suggest that, currently, the emphasis is on the creation of increasingly more secondary procedural rules to strengthen the primary rules.[38] Laudable as may be the aim of strengthening primary rules, the consequence of this is also increased procedural fragmentation as more procedural mechanisms are formulated generally to support and strengthen primary normative rules.

Third, institutional fragmentation is mainly a result of fragmentation of primary normative and secondary procedural rules.[39] There are many actors involved in international environmental governance, including, but not limited to: states, treaty secretariats, specialized treaty bodies, dispute settlement institutions, non-governmental organizations and community-based organizations. The proliferation of environmental treaties results in proliferation of institutions to administer and en-

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[36] Hafner, 'Pros and Cons', *supra* note 34, at 856. Beyerlin and Marauhn add in this respect that:

> [i]n international environmental treaty practice there has not just been an overlap between the provisions of individual treaties, but also contradictions. It can also be observed that single elements of a treaty, which appear to have proved themselves, are sometimes copied into subsequent treaties without further reflection.
> ...
> Every unnecessary diversification of the law detracts from the primary aim of the most effective global environmental protection possible.

Beyerlin and Marauhn, *Law Making and Law-Enforcement*, *supra* note 35, at 19.

[37] See Table 1 above.

[38] Hafner, 'Pros and Cons', *supra* note 34, at 857.

[39] Abi-Saab Georges explains institutional fragmentation by applying his 'law of legal physics' argument which holds that: 'To each level of normative density, there corresponds a level of institutional density necessary to sustain the norms.' Abi-Saab Georges, 'Fragmentation or Unification: Some Concluding Remarks', 31 *New York University Journal of International Law and Politics* (1999) 919–933 at 925. In other words, the more complex, comprehensive or 'dense' a normative framework becomes, the more the institutions increase in order to govern them.

force these international legal rules, with a multitude of secretariats established for each agreement; or, sometimes, various secretariats for various aspects of a single agreement.[40] There currently are, for example, an increasing number of dispute settlement institutions to attend to the procedural enforcement and conflict resolution matters of international law. This may give rise to the undesirably tendency by states to 'forum-shop'[41] and might lead to conflicting interpretations and application of primary rules – neither scenario being deemed conducive to legal certainty and uniformity.

3.3 Consequences of fragmentation

3.3.1 Benefits[42]

Even though the present enquiry is based on the assumption that fragmentation is not conducive to a sustainable IOG regime, it would be irresponsible not to point out some of the purported benefits that stem from fragmentation.

Stephens argues that '…some degree of fragmentation is a natural and constructive process that allows the elaboration of specific rules to address needs inadequately served by general international law'.[43] Some authors, in a similar vein, point to the fact that fragmentation ('expansion' is the term more often used in this context) contributes to 'mature' international law and to the development of international law into an autonomous legal system in its own right.[44] Diversification and pluralism may also lead to further development of the international law regime. Some proponents of fragmentation (or, in this instance, pluralism) propose, for example, that:

> …the pluralist conception of the international legal system recognizes-and possibly thrives on-the diversity of the system. A wide range of courts will interpret, apply, and develop the corpus of international law. States will face differing sets of obligations that may even be interpreted differently by various tribunals and may at times conflict. Possibly most significantly, national and international legal processes will interact and influence one another, resulting in new hybrid procedures, rules and courts. Yet, these developments will occur within a common system of international law engaged in a constructive and self-referential dialogue that consciously seeks to maintain the coherence of the overall system.[45]

[40] See further, David Driesen, 'Thirty Years of International Environmental Law: A Retrospective and Plea for Reinvigoration' 30 *Syracuse Journal of International Law and Commerce* (2003) 353–368 at 356.

[41] Which, in turn, may have a negative effect on the effectiveness of international law.

[42] For a more elaborate discussion on the purported benefits of fragmentation see, generally, William W. Burke-White, 'International Legal Pluralism', 25 *Michigan Journal of International Law* (2004) 963–979 who suggests that '…the phenomenon of fragmentation and its dangers have been overstated and… international legal pluralism can be highly beneficial.' *Ibid*. at 965.

[43] Stephens, 'Multiple International Courts', *supra* note 35, at 227.

[44] See, for example, *ibid*. at 230–231, and Pemmaraju Sreenivasa Rao, 'Multiple International Judicial Forums: A Reflection of the Growing Strength of International Law or its Fragmentation?', 25 *Michigan Journal of International Law* (2004) 929–961 at 930.

[45] Burke-White, 'International Legal Pluralism', *supra* note 42, at 978.

This may very well be true as regards the more general international law regime and even the IEL sub-discipline. In fact, it has also been explained above that fragmentation in this sense is unavoidable and is only a natural and logical consequence of the development and growth of international law. It is questionable, however, whether specific sub-sectors of IEL could benefit from further expansion. The different subject matters these sub-sectors aim to regulate usually are very specific, for example, marine and oceans issues, as opposed to the more general subject matter of IEL. Whereas it would be appropriate to argue that one possibly requires various norms, principles and institutions holistically to regulate the diverse 'environment' in its entirety (as IEL currently does); it is doubtful whether the same argument could be applied to more issue-specific sub-sectors. In other words, and from a purely theoretical and logical deduction, a smaller number of subject-matters requiring regulation should lead to less regulatory norms, principles and institutions being required. 'Less', in this instance, would presumably be 'more' in the sense that it would also avoid or ameliorate current governance inefficiencies caused by having more rules, principles and institutions.

Fragmentation may, of course, entail greater specialization. Apart from the obvious benefit, namely that greater specialization of regimes may result in more specialized substantive and procedural regulations at international level, it may also more adequately accommodate the various (especially political) needs and concerns of states.[46] The hypothesis seems to be that the more comprehensive a regime, the more adequately issues, interests and challenges may be addressed in a regime which is more 'accommodative' of these interest, challenges and needs. States may also, as a result, be more willing to comply with international obligations in specialized and 'accommodative' regimes.

Fragmentation, as a result of institutional proliferation, may lead to healthy competition between institutions and, as such, may increase efficiency and build a comprehensive body of legal precedents to be used in future by other institutions, thereby enriching the law of precedent at international level.[47] This is especially true for conflict resolution and adjudication bodies. Moreover, some authorities opine that it has not been sufficiently proved that institutional integration by way of a single integrated global environmental governance organization is necessarily better than the current matrix framework of fragmented institutions.[48] Some of the advantages of a fragmented decentralized institutional structure include, inter alia, that it may have less general bureaucratic inefficiencies than a single organization; and also that duplication, as a result of institutional fragmentation, may lead to better policies

[46] Hafner, 'Pros and Cons', *supra* note 34, at 859.
[47] Joost Pauwelyn, 'Bridging Fragmentation and Unity: International Law as a Universe of Inter-connected Islands', 25 *Michigan Journal of International Law* (2004) 903–916 at 904.
[48] American Bar Association, *Trends in International Environmental Law* (American Bar Association Section of International Law and Practice, 1992) at 127.

because of 'healthy competition' and 'safety-net redundancy'.[49] This is also true for the various instruments that exist at international, regional and sub-regional (bi-lateral) levels. Whereas one can argue (as the present writer does) that these various instruments only further fragment the IOG regime, one must also recognize that these instruments can complement and supplement each other very well, thereby also reinforcing the idea of 'safety-net redundancy'.[50]

3.3.2 Shortcomings

There are various negative effects or shortcomings resulting from fragmentation. Fragmentation may lead to a contradiction of laws, and subsequently also possible contradiction of judicial decisions relating to these laws.[51] Contradictory laws and interpretations are not conducive to an environment which purports to promote legal certainty as one of the main elements of the rule of law.

Closely related to contradiction, is the problem of conflict between regulatory instruments.[52] This is one of the most obvious negative consequences attributable to fragmentation. Conflict occurs where one treaty obligation can only be fulfilled by necessarily violating the other. Legal conflict should, preferably, always be avoided rather than solved. The best ways to avoid conflicting treaty provisions is, arguably, by first not creating a multitude of provisions which pertain to a similar subject-matter; and, second, by synchronizing, harmonizing or integrating the instruments which already exist. Treaty congestion is a phenomenon closely associated with, and frequently used in the context of treaty conflict. It denotes '…the problems of actual substantive treaty conflict, treaty obligation and objective conflicts, and procedural conflicts which arise as a result of the proliferation of international treaties…'.[53] This description clearly indicates that treaty congestion can be sub-divided into two further manifestations, namely substantive and procedural congestion. Substantive congestion refers to those instances where treaty provisions conflict, where treaty obligations are inconsistent, or where the goals and responsibilities of treaties con-

[49] *Ibid*.

[50] As Beyerlin and Marauhn put it:

> The choice of the best possible law-making level therefore is not necessarily one of alternatives. It may rather be that in individual cases a particular problem may best be solved in that norms are set on two or all three levels, which together combine to an effective set of rules; this presupposes that the specific advantages which one level offers are used optimally to compensate for possible deficits in effectiveness on [sic] another level.

Beyerlin and Marauhn, *Law Making and Law-Enforcement*, *supra* note 35, at 15.

[51] Pierre-Marie Dupuy, 'Fragmentation' in John McManus (ed), *Fragmentation: Diversification and Expansion of International Law* (Canadian Council on International Law, 2006) at 8.

[52] See for a thorough discussion on conflicts between environmental agreements, generally, Wolfrum and Matz, *Conflicts in International Environmental Law, supra* note 7. The authors indicate possible treaty conflict categories as including: conceptual conflict between different approaches or programmes; conflicting objectives; conflicting treaty obligations; conflicts in the implementation phase; and political conflicts. See *ibid*. at 6–13.

[53] Bethany Lukitsch Hicks, 'Treaty Congestion in International Environmental Law: The Need for Greater International Coordination', 32 *University of Richmond Law Review* (1999) 1643–1674 at 1646.

flict. Procedural congestion refers to those instances where states find it difficult adequately and effectively to deal with procedural obligations arising from an increasing array of treaties; including, for example, reporting and monitoring obligations.[54]

Fragmentation may lead to the creation of self-contained regimes (some cite the World Trade Organisation and World Bank as examples) where states are not aware of some of their additional obligations under a myriad of regime-specific treaties.[55] These states may then contradict some of the obligations they are in fact not aware of; which, in turn, could have serious consequences as far as state compliance and liability is concerned.

From an institutional and procedural point of view, fragmentation may lead to overlapping provisions, duplication and doubling of efforts. This may negatively affect the efficiency of specific regimes as red-tape and bureaucracy will only be exacerbated as a result. It seems only logical that the more comprehensive the legal regime, the bigger the administrative infrastructure and procedural machinery that are required to administer the regime. Already scarce financial, technical and administrative resources may further be wasted and may negatively impact on the effectiveness of, in this instance, oceans governance at international and national levels. Ultimately, compliance with IEL provisions may be hindered and the broader rationales and objectives of the IOG regime will not be realized.

In addition, fragmentation may have a proverbial 'snowball effect' as it may act as a stimulus for further fragmentation along fragmented sectoral lines. Arguably, international legislatures may attempt to address deficiencies and inefficiencies (caused by fragmentation in the first place), by enacting more issue-specific laws to fill 'gaps' as a result of fragmentary development. This would only further fragment the legal, institutional and procedural regimes.

Concerns about the effectiveness of general international law are almost as old as the legal discipline itself. State liability and compliance (or lack of it), especially with IEL instrument obligations, seem to be at the periphery of the debate. Few means exist to improve the effectiveness of the general corpus of international law. Arguably, even fewer remedies are available to ensure the effectiveness of IEL. Gillespie confirms that: '[t]here are two stages for effective international environmental law. The first pertains to the formation of international agreements. The second relates to their implementation'.[56] It is argued that fragmented formation of primary and secondary

[54] *Ibid*. at 1646–1647.

[55] C. Whitman and A. B. M. Lavoie, *Rapporteur Report on Paper by Dupuy Pierre-Marie Entitled "Fragmentation"*, Keynote address presented at the Canadian Council on International Law 34th Annual Conference, 26–28 October 2005, Ottawa, Canada (Canadian Council on International Law, 2006) at 8.

[56] Alexander Gillespie, 'Implementation and Compliance Concerns in International Environmental Law: The State of the Art within Three International Regimes', 7 *New Zealand Journal of Environmental Law* (2003) 53–84 at 53.

rules and institutions and procedures, necessarily leads to fragmented implementation; by way of, inter alia, compliance and enforcement mechanisms in terms of the fragmented regime. Although fragmentation may mean that there are more mechanisms to ensure compliance and enforcement; these are arguably piecemeal in nature, and developed to address issue-specific considerations, rather than having a holistic and integrated approach. A fragmented approach may, therefore, negatively impact on the effectiveness of compliance and enforcement and ultimately on the effectiveness of IEL.

4 Conclusion

The previous sections have illustrated that fragmentation is very much apparent in international law and IEL. A cursory analysis of the IOG regime suggests that this regime is also fragmented. Fragmentation manifests as follows: inter-disciplinary fragmentation insofar as international law relating to oceans can primarily be found in the sub-disciplines of the law of the sea, IEL and trade law; intra-disciplinary fragmentation insofar as IOG is fragmented within the sub-disciplines above, namely marine living resources, pollution control, LBMP, cultural heritage issues, and mining and exploration; and intra-disciplinary fragmentation insofar as various substantive primary legal rules (mainly stemming from environmental agreements) are fragmented, various secondary rules designed to give effect to the objectives of the primary rules exist in terms of these rules,[57] and various institutions exist to implement both the secondary and primary rules of IOG.

It has also been illustrated that fragmentation leads to governance inefficiencies. As a consequence, there is an increased realization that the interaction between the different international law regimes '…require[s] the development of a unitary framework of international law, one where law-making and law-enforcement by different, specialized agents can somehow be harmonised into a coherent set of disciplines…'.[58]

Okafor[59] describes the 'allure of unity, unification and homogenization', or 'integration' as the present writer prefers to describe it, as follows:

> [i]t is thus argued, explicitly or impliedly, that given the significant risks that are eventually posed to the authority and legitimacy of the international legal order by this diversification and expansion of international legal norms and institutions, international legal unity should be our disciplinary aspiration and increasing homogeneity the beacon that guides us to that place.

[57] The secondary procedural rules have, admittedly, not been canvassed due to space constraints. One can, however, safely conclude that many procedural rules and obligations exist which are necessary to give effect to primary normative rules.
[58] Pauwelyn, 'Bridging Fragmentation and Unity', *supra* note 47, at 904.
[59] Okafor, 'Viewing International Legal Fragmentation', *supra* note 25, at 121.

'Integration' may be defined as '[t]he process of making whole or combining into one'.[60] There may be different forms of integration or 'degrees of comprehensiveness' as far as the achievement of integration is concerned. Integration may be very drastic in the sense that it would require repealing all existing primary and secondary rules and accompanying institutions and procedures, and then establishing a single set of primary and secondary rules and a single institution with integrated uniform procedures (the so-called 'one-stop shop'). Integration could also be less comprehensive or drastic in that greater unity and uniformity could be achieved by less intrusive (and perhaps more viable) measures. The remainder of this section reflects on some of these strategies.

To retain the *status quo* would probably be the most realistic or viable option. It would be difficult, perhaps even impossible, completely to overhaul the current system because IOG is well-established and entrenched considering its historic path of development and evolution; and state (political) interests and economic consequences would not be unduly tampered with. If the current fragmented regime is, however, maintained then environmental performance should at least be optimized to better achieve the objectives of sustainability.

More intrusive measures would move from the *status quo* to achieve at least some form of integration. These measures include, for example, common housing of treaty secretariats; frequent joint meetings of secretariats; conclusion of memoranda of understanding between interested and affected parties; procedures for information exchange between treaty organs, partnerships and joint activities;[61] and using informal means, such as the internet, to achieve greater coordination and communication and requirements and procedures for more informed decision-making.[62] These options are to a greater or lesser extent based on 'cooperation',[63] where the latter is a means at least to achieve some positive effects associated with integration.

A third strategy entails taking measures to avoid conflict resulting from treaty congestion. These measures might include: avoiding or resolving conflict between the normative instruments of IOG law; incorporating and using conflict clauses in treaties to clarify and regulate the relationship between treaties; utilizing the law of treaties

[60] Bryan A. Garner et al. (eds), *Black's Law Dictionary* (8th ed.,Thomson West, 2004) at 824.

[61] An example is Joint Programmes of the Convention on Biological Diversity (Convention on Biological Diversity, Rio de Janeiro, 5 June 1992, in force 29 December 1993, 31 *International Legal Materials* (1992) 822, <http://www.biodiv.org>) and the Ramsar Convention on Wetlands (Convention on Wetlands of International Importance especially as Waterfowl Habitat, Ramsar, 2 February 1971, in force 21 December 1975, 11 *International Legal Materials* (1972), 963, <http://www.ramsar.org>). See further Wolfrum and Matz, *Conflicts in International Environmental Law, supra* note 7, at 174–175.

[62] Hicks, 'Treaty Congestion', *supra* note 53, at 1667–1673.

[63] There generally are two forms of cooperation in IEL, namely, cooperation between states; and cooperation between international organizations, organs of treaties and non-governmental organizations. See further Wolfrum and Matz, *Conflicts in International Environmental Law, supra* note 7, at 161–181. This enquiry concerns itself with the latter form of cooperation.

as codified by the 1969 Vienna Convention on the Law of Treaties[64] (specifically Article 30); and utilizing and improving framework laws such as UNCLOS[65] to provide a more coordinated and integrated IOG effort.

The final strategy is the most intrusive and, therefore, also the most improbable option. It describes what is commonly known as the 'one-stop shop'. This would entail reinventing and reconstituting the current IEL institutional structure; possibly by establishing a single international environmental organization which would replace all existing global environmental institutions (specifically UNEP) and treaty-specific secretariats.[66] Accordingly, one would seek to create one organization with specific sub-sectors to include, amongst others, IOG. This organization must enhance communication and coordination between secretariats and treaties and would arguably also have decision-making, law-making and law-enforcement powers. A single international organization would also automatically lead to greater procedural integration; since administrative functions would be mandated by integrated and harmonized primary normative rules and implemented by one organ, instead of by a multitude of separate treaty-specific secretariats. This organization would also be responsible for conflict resolution generally and between treaties.

The most suitable strategy chosen to address fragmentation will depend on the circumstances of a specific situation, the objectives for which integration is sought and the special needs of all parties concerned. It has taken many years for international law, IEL and also IOG law to develop. Based merely on the foregoing consideration, it is therefore unlikely that these historically well-embedded bodies of law will dramatically be overhauled in the near future to become fully integrated. It is suggested that a phased approach be implemented which should seek, gradually and carefully, to achieve integration over a period of time. Such an approach should be extremely sensitive to state interests; but should be primarily aimed at fully realizing the lofty sustainability goals envisaged by the current IOG regime.

[64] Vienna Convention on the Law of Treaties, Vienna, 22 May 1969, in force 27 January 1980, 1155 *United Nations Treaty Series* 331.

[65] United Nations Convention on the Law of the Sea (UNCLOS), Montego Bay, 10 December 1982, in force 16 November 1994, 21 *International Legal Materials* (1982) 1261.

[66] See for a range of options in this respect, inter alia: Wolfrum and Matz, *Conflicts in International Environmental Law, supra* note 6, at 176–191; and Ellen Hey 'International Institutions' in Daniel Bodansky, Jutta Brunnée and Ellen Hey (eds), *The Oxford Handbook of International Environmental Law* (Oxford University Press, 2007) at 750–769.

International Fisheries: An Overview of the International Legal Response[1]

Michael Kidd[2]

1 Introduction

Every two years, the Food and Agricultural Organization of the United Nations (FAO)[3] produces a report entitled 'The State of World Fisheries and Aquaculture'. The most recent, at time of writing, is the 2006 report.[4] According to this report, 2005 estimates suggest that about one-quarter of the stock groups monitored by FAO 'were underexploited or moderately exploited and could perhaps produce more'.[5] About half of the stocks were fully exploited – meaning that these stocks were producing catches that were at a level approximating their maximum sustainable limits, leaving no room for further expansion.[6] The remaining stocks (the last quarter) were 'either overexploited, depleted or recovering from depletion and thus were yielding less than their maximum potential owing to excess fishing pressure'.[7] The FAO observed that certain fishery resources that are exploited solely or partially in the high seas, and especially straddling stocks and highly migratory oceanic sharks, are more seriously affected.[8] These findings suggest that 'the maximum wild capture fishery potential from the world's oceans has probably been reached'.[9] The need is

[1] I am grateful for suggestions from Albert Hoffman and Ewan McIvor. Responsibility for the final version of the paper is the author's.
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[3] See <http://www.fao.org> generally.
[4] Food and Agriculture Organization (FAO), *The State of World Fisheries and Aquaculture 2006* (FAO, 2007).
[5] *Ibid* at 7.
[6] *Ibid*.
[7] *Ibid*.
[8] *Ibid*.
[9] *Ibid*.

thus essential for there to be more effective fisheries management; with a view at least to preventing further exploitation of and, preferably, replenishing of threatened fish stocks.

How does international law relating to fisheries seek to achieve this? It is possible to provide the beginnings of an answer to this question by setting out the list of fisheries treaties, both multilateral and bilateral, and discussing their provisions, but that would take up more space than is available here. Instead, what this paper will do is highlight some of the devices that are used in many treaties and conventions, drawing on specific examples, with the primary focus being on the United Nations Fish Stocks Agreement (UNFSA).[10] In the course of this discussion, where possible, some comment will be provided on the effectiveness of the measures; as well as on some of the controversies that they raise.

2 Measures adopted in international fisheries conventions

Before examining the various measures used in fisheries conventions, it will be useful to provide a very broad overview of what fisheries conventions there are and how they relate to each other. A 2001 FAO study showed that there were more than 2000 international fisheries instruments, most of these bilateral agreements.[11] Probably the most important multilateral fisheries convention is the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks,[12] more commonly known as the Fish Stocks Agreement or the UNFSA. The effectiveness of this Convention depends on the creation and effective operation of regional fisheries management organizations and arrangements (RFMOs). There are numerous such bodies, many of them created prior to the UNFSA, but some established in response to the UNFSA. These include organisations such as the International Commission for the Conservation of Atlantic Tunas (ICCAT).[13] Another example is the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)[14] which has the attributes of a regional fisheries management organization, but it plays a far wider role than merely regulating fisheries in the Antarctic region, being primarily a conservation organization.

[10] See note 12 below.

[11] FAO, 'Indicators to assess the performance of regional fishery bodies', in Report of the Second Meeting of FAO and Non-FAO Regional Fishery Bodies or Arrangement. Fisheries Report No. 645, Doc. FIPL/R645 (2001).

[12] Agreement for the Implementation of the Provisions of the UN Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, New York, 4 August 1995, in force 11 December 2001, 34 *International Legal Materials* (1995) 1542, <http://www.un.org/Depts/los/convention_agreements/texts/fish_stocks_agreement/CONF164_37.htm> (visited 2 February 2009).

[13] See <http://www.iccat.int>.

[14] See <http://www.ccamlr.org>.

The issue of fisheries management measures may be considered under three overarching 'cluster areas', corresponding to the parts of the UNFSA:[15]

(1) Conservation and management of stocks.
(2) Mechanisms for international cooperation: monitoring, control and surveillance, compliance and enforcement.
(3) Developing states parties and non-parties.

2.1 Conservation and management of stocks

The general principles relating to conservation and management of fish stocks are set out in Article 5 of the UNFSA, including the duty to adopt measures to ensure the long-term sustainability of straddling fish stocks and highly migratory fish stocks; and the duty to promote the objective of optimum utilization of these stocks, based on the best scientific evidence. Moreover, the UNFSA advocates the precautionary approach, which requires that 'the absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures'.[16]

The ecosystem approach to fisheries management is recommended by various other instruments, including the FAO Code of Conduct for Responsible Fisheries[17] and the United Nations Sustainable Fisheries Resolution of 2006.[18] A recommendation of the 2006 UNFSA Review Conference[19] was a commitment to integrate ecosystem considerations into fisheries management. This would entail focusing more on multiple species and their interdependence as well as on their habitats.[20] This clearly is not an easy task and the extra burden of pursuing this approach would be particularly difficult for developing countries. The difficulty is exacerbated by lack of clarity as to what exactly the 'ecosystem approach' means.[21] A local (i.e. Southern African) example of such an approach is the Benguela Current Large Marine Ecosystem Programme, which is a joint initiative of the governments of Angola, Namibia and South

[15] See David A. Balton and Holly R. Koehler, 'Reviewing the United Nations Fish Stocks Treaty', 7 *Sustainable Development Law and Policy* (2006) 5–9 at 6.
[16] Article 6(2).
[17] FAO (1995), available at <ftp://ftp.fao.org/docrep/fao/005/v9878e/V9878E00.pdf> (visited 27 February 2009); Articles 6(2); 7(2)(3); 9(1)(2) and 12(5).
[18] UNGA Res. A/RES/63/112 (2008). See Joji Morishita, 'What Is the Ecosystem Approach for Fisheries Management?', 32 *Marine Policy* (2008) 19–26 at 19.
[19] Article 36 of the UNFSA requires that within four years of the entry into force of the Agreement a conference must be convened to review and assess the adequacy of the Agreement in securing the conservation and management of straddling fish stocks and highly migratory fish stocks, and to propose means of strengthening its implementation. This Review Conference took place at the United Nations Headquarters in May 2006. See Balton and Koehler, 'Reviewing the United Nations', *supra* note 11.
[20] Report of the Review Conference on the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, May 22–26 2006, UN Doc. A/CONF.210/2006/15 (2006) at para. 18(d).
[21] See Morishita, 'What Is the Ecosystem Approach', *supra* note 14.

Africa to manage and utilize the resources of the Benguela Current Large Marine Ecosystem in a sustainable and integrated manner.[22]

A marine protected area can be defined as 'any area of the ocean set aside by law and protected from at least some uses'.[23]

2.2 Mechanisms for international co-operation: Monitoring, control and surveillance, compliance and enforcement

2.2.1 Introduction

That mechanisms for monitoring, control and surveillance, compliance and enforcement are a prerequisite for effectiveness in fisheries management almost goes without saying; these are required by, in particular, Art. 8 of the UNFSA, but are also a central theme of the Agreement generally. Such mechanisms are effected primarily by regional fisheries management organizations and arrangements. One of the aspects relating to RFMOs that is currently under discussion on the international plane is the issue of performance review,[24] and there have been some preliminary recommendations put forward in respect of tuna RFMOs.[25] Another recent recommendation is that RFMOs should adopt more modern approaches to fisheries management, which appears to mean following the requirements of the UNFSA in respect of the general principles of conservation and management outlined above.[26]

2.2.2 Recommendations for dealing with IUU fishing

A major problem in international fisheries management is so-called IUU fishing – 'illegal, unreported and unregulated' fishing. This is a recurring topic at international meetings on fisheries management, particularly at the informal consultations of states parties to the UNFSA. It is also the subject of the FAO's International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing.[27] A number of mechanisms have been mooted for addressing problems of IUU fishing, which mechanisms will be discussed briefly below.

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[22] See the Benguela Current Large Marine Ecosystem Programme website, available at <http://www.bclme.org/> (visited 12 February 2009).

[23] Robin Kundis Craig, 'Protecting International Marine Biodiversity: International Treaties and National Systems of Marine Protected Areas', 20 *Journal of Land Use and Environmental* Law (2005) 333–370 at 360.

[24] The 2006 Review recommends that performance reviews of RFMOs based on transparent criteria be undertaken. These would include some element of independent evaluation, and the reviews ought to be publicly available. See UN Doc. A/CONF.210/2006/15 (2006) at para. 32(j).

[25] See Sixth Informal Consultations of States Parties to the UNFSA, UN Doc. ICSP6/UNFSA/REP/INF.1 (2007).

[26] UN Doc. A/CONF.210/2006/15 (2006) at para. 32(a).

[27] FAO (2001), available at <http://www.fao.org/DOCREP/003/y1224e/y1224e00.HTM> (visited 27 February 2009).

2.2.2.1 Boarding and inspection of vessels

Art. 21 of the UNFSA allows, in any high seas area covered by a RFMO, a state party which is a member of such an organization or a participant in such an arrangement, through its duly authorized inspectors, to board and inspect fishing vessels flying the flag of another state party, whether or not that party is also a member of the RFMO. This is allowed for the purpose of ensuring compliance with conservation and management measures for straddling fish stocks and highly migratory fish stocks established by that RFMO. This is a particularly controversial aspect of the UNFSA and is seen as being a major reason why several countries have not ratified the Agreement.[28]

2.2.2.2 Positive and negative vessel lists/register

This is a measure that is required under the International Commission for Atlantic Tunas (ICCAT). In terms of the Recommendation by ICCAT to Establish a Multi-Annual Recovery Plan for Bluefin Tuna in the Eastern Atlantic and Mediterranean,[29] which entered into force on 13 June 2007, there is provision for an ICCAT record of all fishing vessels authorized to fish actively for bluefin tuna in the eastern Atlantic and Mediterranean Sea. For the purposes of this recommendation, fishing vessels not entered into the record are deemed not to be authorized to fish for tuna in those areas. Parties are required to submit a list for these purposes.[30] Listing was one of the recommendations of the Review Conference of the UNFSA of May 2006.[31]

A negative list under ICCAT is provided for in terms of the Recommendation by ICCAT to Establish a List of Vessels Presumed to Have Carried out Illegal, Unreported and Unregulated Fishing Activities in the ICCAT Convention Area.[32]

2.2.2.3 Catch documentation schemes

An example of a Catch Documentation Scheme can be found under the Commission for the Conservation of Antarctic Marine Living Resources. The scheme requires catch documents for all toothfish[33] imported into the territory of a contracting party irrespective of where they were caught. Both parties and non-parties to CCAMLR are included in the scheme. The relevant authorities (e.g. customs) of contracting

[28] See Seventh Informal Consultations of States Parties to the UNFSA, UN Doc. ICSP7/UNFSA/REP/INF.2 (2008).

[29] Rec. 06-05 (2006), available at <http://www.iccat.int/Documents%5CRecs%5Ccompendiopdf-e%5C2006-05-e.pdf> (visited 27 February 2009).

[30] Articles 30 and 31. Other listing requirements are set out in other recommendations under the ICCAT.

[31] See UN Doc. A/CONF.210/2006/15 (2006).

[32] Rec. 02-23 (2002), available at <http://www.ofdc.org.tw/fishserv/File/Rule/02_23.pdf> (visited 27 February 2009).

[33] *Dissostichus eleginoides* (Patagonian toothfish) is a long-lived, slow-growing fish, which matures typically at ages greater than 10 years old, and may reach 2 m in length. Due to its slow growth, it is particularly susceptible to overfishing. See David J. Agnew, 'The Illegal and Unregulated Fishery for Toothfish in the Southern Ocean, and the CCAMLR Catch Documentation Scheme' (2000) 24 *Marine Policy* 361–374 at 361.

parties will require a catch document to accompany the landing or import of all toothfish. If such authorities receive a shipment of toothfish without a valid catch document, the shipment will be detained. Moreover, if checks carried out with the flag state by the authorities fail to verify the legitimacy of a catch document, importation of the shipment will not be authorized.[34] The ultimate goal of the scheme is to make 'trade in toothfish caught in the Convention Area [by means of IUU fishing] extremely difficult and uneconomic, and ultimately to eliminate all IUU fishing'.[35] It has been observed that trade restrictions in particular are proving to be one of the most effective measures for reducing IUU fishing.[36]

2.2.2.4 Port control measures

Art. 23(2) of the UNFSA provides that 'a port State may, inter alia, inspect documents, fishing gear and catch on board fishing vessels, when such vessels are voluntarily in its ports or at its offshore terminals'. In the 2006 Review of the UNFSA, one of the recommendations was a commitment to develop a legally binding instrument on minimum standards for port state measures,[37] and this was again highlighted at the Seventh Informal Consultations of States Parties to the UNFSA in March 2008.[38]

2.2.2.5 Satellite vessel monitoring systems

The installation of vessel monitoring systems will be a significant contributing factor to improved monitoring, control and surveillance,[39] as it enables monitoring of the location of vessels. The Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean[40] provides that all states shall require their flagged vessels to use a near real-time satellite position-fixing transmitter while in the high seas portion of the Convention Area, apparently a first for a RFMO.[41]

2.2.2.6 Regulations for transshipment

Transshipment is the shipment of goods to an intermediate destination, and then from there to yet another destination. It is often perfectly acceptable, but can also be

[34] CCAMLR, Report of the eighteenth meeting of the Commission (1999), available at <http://www.ccamlr.org/pu/E/e_pubs/cr/99/all.pdf> (visited 27 February 2009). See also Agnew, 'The Illegal and Unregulated Fishery', *supra* note 26.

[35] *Ibid*. at 370.

[36] Alastair Cameron, 'Is There Hope for the Fish?: The Post-arbitration Effectiveness of the Convention for the Conservation of Southern Bluefin Tuna' 15 *New York University Environmental Law Journal* (2007) 247–284 at 264.

[37] See UN Doc. A/CONF.210/2006/15 (2006). For a consideration of the importance of control over ports, inter alia in respect of fisheries, see the paper by Robert Mortassagne in Part IV of the present *Review*.

[38] See UN Doc. ICSP7/UNFSA/REP/INF.2 (2008).

[39] See UN Doc. A/CONF.210/2006/15 (2006) at para. 104.

[40] Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, Honolulu, 5 September 2000, in force 19 June 2004, available at <http://www.wcpfc.int/pdf/text.pdf> (visited 27 February 2009).

[41] Article 24. See Violanda Botet, 'Filling in One of the Last Pieces of the Ocean: Regulating Tuna in the Western and Central Pacific Ocean' 41 *Virginia Journal of International Law* (2001) 787– 813 at 809.

used to mask illegal activities. As an example in the fisheries sector, transshipment of fish from non-contracting parties is prohibited (subject to certain exceptions) by contracting parties to the Northwest Atlantic Fisheries Organization.[42]

2.2.8 Responsible flag state performance

A common problem is that fishing vessels carrying out IUU fishing fly 'flags of convenience' or conceal the flag altogether. In the Sixth Informal Consultations of States Parties to the UNFSA in April 2007, several states highlighted the need for responsible actions by flag states, including the need for a set of criteria which flag states would need to satisfy in order to qualify as responsible.[43] The FAO Committee on Fisheries (COFI) has recommended that attention be given to the issue of measures that can be taken against vessels that do not have responsible flag states.[44]

2.3 Developing state parties and non-parties

Many non-parties to the UNFSA are concerned about perceived threats to their sovereignty brought about by requirements of compatibility of management measures[45] and the vessel boarding and inspection measures. Despite the non-membership of several fishing states, some of these states are going further than what is required by the Agreement. Clearly it would be beneficial if these countries became parties. It was recommended at the 2006 Review Conference that dialogue be pursued in order to meet the concerns of non-parties.[46]

As far as developing countries are concerned, several areas of concern are apparent. One evident problem is that developing states are often unable to implement the Agreement due to lack of capacity, and, consequently, their enforcement of the provisions of the Agreement are frequently deficient. On the other hand, at the March 2008 meeting, developing states indicated that there was a seeming lack of interest in addressing the concerns of coastal developing countries, in particular building their capacity to exploit their fish stocks, whereas emphasis is given to the provisions on enforcement.[47] While it is important that the needs of developing states be taken

[42] NAFO Conservation and Enforcement Measures, Serial No. N5480, NAFO FC Doc. 08/1 (2008); see <http://www.nafo.int/>.

[43] UN Doc. ICSP6/UNFSA/REP/INF.1 (2007).

[44] International Institute for Sustainable Development, *Earth Negotiations Bulletin*, Vol. 7(62), 27 April 2007.

[45] A controversial aspect of the UNFSA is the requirement in Article 7(2):

> Conservation and management measures established for the high seas and those adopted for areas under national jurisdiction shall be compatible in order to ensure conservation and management of the straddling fish stocks and highly migratory fish stocks in their entirety. To this end, coastal States and States fishing on the high seas have a duty to cooperate for the purpose of achieving compatible measures in respect of such stocks.

[46] See UN Doc. A/CONF.210/2006/15 (2006).

[47] International Institute for Sustainable Development, *Earth Negotiations Bulletin*, Vol. 7(63), 15 March 2008.

seriously, efforts in this regard must balance equity considerations and assistance to the developing states against the increased pressure on fisheries that increased capacity of the developing states will bring about. It must also be borne in mind that the Assistance Fund under Part VII of the UNFSA was established in 2003 to assist developing states parties to implement the Agreement.

3 Towards some conclusions

Another significant problem that needs to be addressed and that is not covered by international agreements is the matter of fishing subsidies. It can be argued strongly that fishing subsidies lead almost inevitably to overfishing.[48] Ultimately, this problem can only be addressed and the measures that are outlined above can only be really successful if there is political will coupled with public awareness of the parlous state of the world's fisheries. When international concern grew about the threat to elephants from the ivory trade, and the CITES[49] ban on international trade in ivory was implemented in 1989, public awareness in North America and Europe was such that the demand for ivory from these parts of the world dried up almost overnight. In a similar vein, Ellis observes that:

> the salience of fisheries conservation and management, and marine ecosystem protection more generally, must be significantly increased within the machinery of governments and in the public imagination. It is striking that government representatives and citizens reacted quickly and strongly to dolphin mortality in tuna fisheries, and equally striking that the fate of tuna themselves is simply not showing up on political and public radar. If citizens and politicians cannot be made to care about this issue, all the monitoring technology, port inspections and trade measures in the world will not make a significant difference. Law cannot bear the burden of fisheries conservation and management alone.[50]

This chapter has highlighted many of the international legal devices that are contained in international instruments in order to promote sustainable fisheries. It is clear, however, that the efficacy of these measures is dependant on political will, which is not especially strong in the arena of fisheries.

[48] FAO, *The State of World Fisheries and Aquaculture 2006*, (FAO, 2007) at 60–61.

[49] Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington DC, 3 March 1973, in force 1 July 1975, 993 *United Nations Treaty Series* 243, <http://www.cites.org>.

[50] Jaye Ellis, 'Fisheries Conservation in an Anarchical System: A Comparison of Rational Choice and Constructivist Perspectives' 3 *Journal of International Law and International Relations* (2007) 1–40 at 40.

Part II

Specific Governance Issues on the High Seas

UNCLOS and the Resources of the Seabed in Areas beyond National Jurisdiction

Albert Hoffmann[1]

1 Introduction

Much has been said and written about the resources of the oceans and in particular those pertaining to the seabed and subsoil. It was the discovery of these resources and their potential wealth that attracted the attention of the international community and led to attempts to gain control over them. In fact, it was to a large extent the demand for marine living and non-living resources that led to the gradual expansion of maritime claims by coastal states (so-called 'creeping jurisdictions').[2] This continues even today if one thinks of all the extended continental shelf claims. Such claims became one of the compelling factors behind the support given by coastal states to the convening of the United Nations Conference on the Law of the Sea.

The non-living resources of the seabed and the subsoil are increasingly being viewed as an alternative to land-based resources. Offshore oil and gas reserves now constitute a major portion of overall energy resources and provide by far the world's biggest marine industry.[3] As the availability of land-based resources, such as metals and minerals, diminishes, and as offshore exploration and exploitation become more feasible as a result of technological advances, so mineral resource activities in the seabed and ocean floor and subsoil thereof are increasing and can be expected to grow in the future. Many of these resources are usually found in the seabed and subsoil of the submarine area known as the continental shelf and therefore give to the adjacent coastal state potential for control over their exploitation. However, similar metals,

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[2] A process which continues even today, currently through extended continental shelf claims.

[3] Paul L. Kelly, 'Deepwater Oil Resources: the Expanding Frontier' in M. H. Nordquist, J. Norton Moore and T. H. Heidar (eds), *Legal and Scientific Aspects of Continental Shelf Limits* (Martinus Nijhoff Publishers, 2004) 413–419 at 414.

minerals and other resources are found in what has become known as the areas beyond or outside the limits of national jurisdiction.

More recently, new discoveries in the deep seabed of mineral resources other than polymetallic nodules, such as polymetallic sulphides and cobalt-rich ferromanganese crusts and the biological resources associated with these minerals (most notably around hydrothermal vents but also on seamounts), and the resource potential of these discoveries have generated considerable interest among those industrialized countries capable of developing technologies for their recovery. It should be noted that these new resources occur in areas both within as well as outside national jurisdiction.

In response to the growing potential of seabed resources, basic questions arose about who has rights of access to such resources, how those rights should be exercised, and who should be the beneficiaries. The problems of conflicting uses and competing claims and demands, as well as the governance of the resources (or perhaps lack thereof), have not only posed a serious threat to the oceans and their resources but also to international peace and security, resulting in the race for the resources of the seabed. Therefore, it has become imperative to define, control and regulate all activities relating to the sea and its resources.

The development of the law of the sea, which is inseparable from the development of international law in general, was and continues to be a dynamic process that evolves through general state practice, customary international law and the codification of new and existing rules.

The Third United Nations Conference on the Law of the Sea represented a major codification of the law of the sea. Of the many difficult issues before the Conference, the regime for the administration of the deep seabed (also known as the 'Area') and the development of its resources proved to be the most difficult to resolve. Whilst it took nine years, from 1973 to 1982, to elaborate and finally adopt the United Nations Convention on the Law of the Sea (hereinafter 'the Convention' or 'UNCLOS'),[4] it was not until 1994 that the outstanding issues of the deep seabed and its resources were resolved through the adoption of the Agreement relating to the Implementation of Part XI of the Convention (hereinafter the 'Agreement').[5]

Together, the 1982 UNCLOS and the 1994 Agreement provide the legal framework within which all activities in the oceans and seas must be carried out. It recognizes the desirability of establishing through the UNCLOS, with due regard to the sovereignty of all states, a legal order for the seas and oceans with a view to facilitating international communication and promoting the peaceful uses of the seas and oceans,

[4] United Nations Convention on the Law of the Sea (UNCLOS), Montego Bay, 10 December 1982, in force 16 November 1994, 21 *International Legal Materials* (1982) 1261.

[5] The Agreement was adopted on 28 July 1994 and entered into force on 28 July 1996.

the equitable and efficient utilization of their resources, the conservation of their living resources, and the study, protection and preservation of the marine environment.[6]

For the purposes of the current discussion, it is important to consider how the zonal or sectoral approach, which was followed in the evolution and development of the law of the sea, has manifested itself in the way in which the resources of the seabed and subsoil are regulated by the respective legal regimes under the Convention in what are known as areas within national jurisdiction and areas beyond national jurisdiction.

2 Resources of the areas within national jurisdiction

The resources within a coastal state's national jurisdiction are well covered by the different regimes set out in the Convention namely the Territorial Sea,[7] Archipelagic Waters,[8] the Exclusive Economic Zone (EEZ),[9] and the Continental Shelf.[10]

A coastal state's sovereignty in its territorial sea or its archipelagic waters extends over all the resources in that area including its seabed and subsoil. Although there is no coastal state sovereignty in the EEZ, a coastal state enjoys sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil.[11]

A coastal state also exercises sovereign rights for the purpose of exploring the continental shelf and exploiting its natural resources.[12] These rights are exclusive to the coastal state in the sense that no one may explore the continental shelf or exploit its natural resources without the express consent of the coastal state.[13] The natural resources of the continental shelf consist of the mineral and other non-living resources of the seabed and subsoil together with living organisms belonging to sedentary species, i.e., organisms that, at the harvestable stage, are either immobile on or under the seabed or are unable to move except in constant physical contact with the seabed and subsoil.[14]

6 Preambular para. 4 of the UNCLOS.
7 Part II of UNCLOS.
8 Part IV.
9 Part V.
10 Part VI.
11 Article 56 of UNCLOS.
12 Article 77(1).
13 Article 77(2).
14 Article 77(4).

Whereas the EEZ regime extends to 200 nautical miles from a coastal state's baseline,[15] the continental shelf regime may extend beyond that limit to the outer edge of the continental margin.[16] Within the 200 nautical mile limit, a coastal state may exercise its sovereign rights over the resources either in terms of the EEZ provisions or in terms of the continental shelf provisions. Where the outer edge of the continental margin extends beyond 200 nautical miles, provided this claim can be successfully substantiated, the sovereign rights of the coastal state over the resources of the shelf continue up to the limits set out in Article 76 of the Convention.[17]

The coastal state enjoys no sovereign rights over the resources in the water column outside the 200 nautical miles and superjacent to the extended continental shelf as these resources are subject to the high seas regime.

3 Resources of the areas beyond national jurisdiction

There are two distinct legal regimes set out in UNCLOS to cover the resources of the areas beyond national jurisdiction, namely that of the high seas,[18] which refers to all parts of the sea (water column) that are not included in the EEZ, the territorial sea or the internal waters of a state, or in the archipelagic waters of an archipelagic state;[19] and the Area,[20] which is defined as the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction.[21]

The high seas are open to all states under the regime of 'the freedom of the high seas'. Any state may therefore exploit the resources of the high seas, but this freedom is not absolute and must be exercised under the conditions laid down by the UNCLOS and by other rules of international law.[22] For instance, freedom of fishing is subject to the conservation and management regime of the living resources of the high seas, as laid down in Section 2; and freedom of scientific research is subject to Part VI (continental shelf regime) and Part XIII (regime for marine scientific research) of the UNCLOS.

These freedoms must also be exercised by all states with due regard for the interests of other states in the exercise of their high seas freedoms, and also with due regard for

[15] Article 57.
[16] Article 76.
[17] It is possible though, that the application of the restraint provisions of Articles 76(5) and (6), i.e. the cut-off points of either 350 miles from the baselines or 100 nautical miles beyond the 2500 metre isobath, may result in parts of the continental margin falling outside the outer limits of the legal continental shelf.
[18] Part VII of UNCLOS.
[19] Article 86.
[20] Part XI of UNCLOS.
[21] Article 1, para. 1(1).
[22] Article 87.

the rights under UNCLOS with respect to activities in the Area.[23] In particular, the right to engage in fishing on the high seas is subject to a state's treaty obligations as well as the rights and interests of coastal states.[24]

Under UNCLOS, complemented by a number of global and regional agreements, states must cooperate in the conservation and management of the living resources of the high seas, including cooperation in the establishment of regional or sub-regional fisheries organizations.[25]

Jurisdiction in international law is vested in states. In high seas areas, although outside of any state's territorial control, jurisdiction is exercised on the basis of flag and nationality (so-called flag state jurisdiction).[26] Even the management authority that is vested in regional fisheries organizations derives its legitimacy from the consent of states through treaties and is generally enforced on a flag state basis.

Thus, although the high seas are beyond national jurisdiction, activities carried out on the high seas are subject to the laws and regulations of the state under whose flag the vessel is operating. In adopting regulations for activities on the high seas, flag states are bound by the provisions of a number of international agreements.

Part XI of UNCLOS provides the legal regime for the Area. The Area, which comprises about two-thirds of the earth's surface, is governed by a number of guiding principles. In accordance with these principles, the Area and its resources are the common heritage of mankind.[27] Resources for the purposes of Part XI are defined as 'all solid, liquid and gaseous mineral resources in situ in the Area at or beneath the seabed, including polymetallic nodules, and when recovered from the Area, are referred to as "minerals"'.[28] Activities in the Area mean 'all activities of exploration for, and exploitation of, the resources of the Area'.[29] Such activities shall be carried out for the benefit of mankind as a whole, irrespective of the geographic location of states and taking into particular consideration the interests and needs of developing states.[30]

The International Seabed Authority (hereinafter the 'Authority'),[31] established by UNCLOS,[32] is the organization through which state parties organize and control the activities in the Area, particularly with a view to administering the resources of the

[23] Article 87(2).
[24] Article 116.
[25] Articles 117 to 119.
[26] Articles 91 and 92.
[27] Article 136.
[28] Article 133.
[29] Article 1, para. 1(3).
[30] Article 140(1).
[31] See, generally, the website of the International Seabed Authority, available at <http://www.isa.org.jm/en/home>.
[32] Article 156 of UNCLOS.

Area.[33] The Authority must adopt rules, regulations and procedures to ensure effective protection of the environment from harmful effects, which may arise from such activities, and the protection and conservation of the natural resources of the Area.[34] The Authority must also provide for the equitable sharing of benefits derived from activities in the Area.[35]

No state shall claim or exercise sovereignty or sovereign rights over the Area or its resources, nor shall any state or natural or juridical person appropriate any part thereof. All rights in the resources are vested in mankind as whole, on whose behalf the Authority shall act. Rights with respect to the minerals recovered from the Area may only be acquired or exercised in accordance with the provisions of Part XI.[36]

It is clear from the above provisions of UNCLOS that the legal regime for the Area does not apply to all resources of the Area but only to mineral resources. Jurisdiction and control over the mineral resources of the Area and activities relating thereto are vested in the Authority which exercises such control on behalf of mankind as a whole.

It has been noted that when UNCLOS was negotiated, knowledge about the resources of the seabed beyond the limits of national jurisdiction was limited to mineral resources and that the only resources the international community was aware of were polymetallic nodules – from this stems the specific reference to this category of minerals in the abovementioned definition.[37] However, there should be no doubt that the provisions of Part XI are applicable to all mineral resources in the Area, whether known or yet to be discovered.

First properly collected during the 1873-76 voyage of the HMS Challenger,[38] polymetallic nodules, also called manganese nodules, are rock concretions formed of concentric layers of iron and manganese hydroxides around a core. Although largely made up of manganese and iron, other metals such as nickel, copper and cobalt are also contained. These nodules vary in size but most are between 5 and 10cm in diameter, about the size of a potato. They lie in sea-bottom sediment and, while varying greatly in abundance, may cover more than 70 percent of the bottom over huge areas. These nodules have been found in all the oceans and they occur at various depths, but the highest concentrations have been found between 4 000 and 6 000 metres in the north central Pacific Ocean, the Peru Basin of the south Pacific and the

[33] Article 157.
[34] Article 145.
[35] Article 140(2).
[36] Article 137.
[37] Fernanda Millicay, 'A Legal Regime for the Biodiversity of the Area', Unpublished dissertation as recipient of the 18th Hamilton Shirley Amerasinghe Fellowship, (New York, 2005) at 1.
[38] For a very brief account, see, for instance, Marine Geosciences/Ifremer, 'The History of the Discovery of Polymetallic Nodules', available at <http://www.ifremer.fr/drogm_uk/Realisation/Miner/Nod/texte/txt1_2.html> (visited 2 March 2009).

centre of the north Indian Ocean. The Clarion-Clipperton Zone in the north Pacific, where most of the exploration is currently undertaken, spans an area of 5 million km^2.[39]

In accordance with its mandate under UNCLOS,[40] the Authority is currently considering regulations to govern prospecting and exploration for two new mineral resources in the Area namely polymetallic sulphides and cobalt-rich ferromanganese crusts.[41]

Polymetallic sulphides (also known as massive sulphides, meaning that the deposits are made up of at least 60 percent metallic sulphides) are found at water depths up to 3 700 metres in a variety of tectonic settings primarily in association with extinct or active hydrothermal vents or springs that occur on the seafloor in volcanic areas, at spreading ridges, back-arc subduction zones and on seamounts and mid-oceanic ridges. They are rich in base metals such as copper, zinc, lead and precious metals such as gold and silver. Cobalt-rich ferromanganese crusts precipitate slowly over millions of years from metals dissolved in seawater derived from both chemical erosion of continents and discharge of seafloor hot springs. These metals accumulate in crusts that are fused on volcanic substrates of seamounts and oceanic ridges and contain mainly cobalt but also titanium, platinum, cerium, tungsten, zirconium and other metals.[42]

The discovery of these minerals in the late 1970s has led to some further fascinating discoveries of highly complex and diverse ecosystems which sustain biological communities previously unknown to science. These micro-organisms with their unique features and characteristics are found in extreme habitats (in terms of temperature, pressure, toxicity, acidity and salinity) and exist both in the sediments of the deep seabed and in association with active hydrothermal vents. They have become of particular interest to scientists conducting research to increase their knowledge and understanding of the biodiversity of the deep seabed, as well as to those engaging in activities such as bioprospecting, to explore the potential for adapting the genetic properties of those organisms for use in a wide range of industrial and chemical applications.[43] Such interest and the activities relating to the marine genetic resources have generated a debate over the legal status of these resources. Different views have been expressed, in the context of the work of the United Nations General Assembly, regarding the legal status of genetic resources found in the Area.[44]

[39] ISBA technical brochure on the nature, composition and distribution of these minerals. See, generally, <http://www.isa.org.jm/>.

[40] See Articles 156, 157 and 158 in Part IV of UNCLOS.

[41] Regulations on prospecting and exploration for polymetallic nodules in the Area were adopted by the Assembly of the International Seabed Authority on 13 July 2000 – see Doc. ISBA/6/A/18.

[42] See P. A. Rona, P. M. Herzig, J. R. Hein and S. K. Juniper, 'Summary presentations on polymetallic massive sulphide deposits and cobalt-rich ferromanganese crusts', Doc. ISBA/8/A/1 (2002). See also ISBA technical brochure on the nature, composition and distribution of these minerals, *supra* note 39.

[43] See S. N. Nandan 'The International Seabed Authority and the Governance of High Seas Biodiversity', Workshop on the Governance of High Seas Biodiversity, 16–20 June 2003, Cairns, Australia.

[44] These views are reflected in UN Doc. A/59/122 (2004) and UN Doc. A/61/65 (2006).

It has been said that the debate to a large extent is reminiscent of that when deep seabed mineral resources were discussed several decades ago. What is encouraging, however, is that the discussions on these new resources, and in particular on the marine genetic resources, have become more sophisticated, apparently reflecting greater appreciation and understanding of the complexity and diversity of these resources and the ecosystems associated with them as opposed to the resources known at the time when UNCLOS was negotiated.

4 Marine scientific research

One of the difficulties of developing new regulations for the prospecting and exploration of polymetallic sulphides and cobalt-rich ferromanganese crusts lies in the fact that our knowledge of these types of deposits and the environments in which they exist is currently inadequate. In fact, our knowledge of the ocean environment, and in particular these extreme ecosystems with their unique and rich biodiversity, is at a very rudimentary stage. Scientists agree that we need to improve the knowledge base in respect not only of both living and non-living resources of the deep seabed, but also of the symbiotic relationships between these resources and the environment. The uniqueness and fragility of these geographically fragmented ecosystems, and the value they hold for fundamental biological studies of metabolism, evolution and adaptation also need to be better understood, and must be taken into consideration in planning for future mineral resource activities.

Deep seabed ecosystems and their associated resources therefore offer great opportunities in terms of marine scientific research. UNCLOS provides the legal regime for the conducting of such marine scientific research. In the absence of a formal definition, it has been suggested that marine scientific research under UNCLOS encompasses both the study of the marine environment and its resources with a view to increasing humankind's knowledge (so-called 'pure' or 'fundamental' research), and research for the subsequent exploitation of resources (so-called 'applied' research).[45] Previous reports of the Secretary-General have highlighted the practical difficulty inherent in differentiating between the two types of research, in particular in the context of increasing partnerships between public research institutions and industry. It is worth noting that under UNCLOS and the Regulations on Prospecting and Exploration for Polymetallic Nodules adopted by the International Seabed Authority, a distinction is made between marine scientific research and prospecting in relation to mineral resources of the Area. The definition of 'prospecting' is broad and overlaps with marine scientific research. Thus, it is almost impossible to distinguish

[45] See, generally, UNGA Doc. A/62/66, 'Oceans and the Law of the Sea', Report of the Secretary-General, 12 March 2007, available at <http://www.icriforum.org/library/Oceans_law_sea_report_SG.pdf> (visited 9 June 2009).

between marine scientific research and prospecting for minerals, since both may encompass the identification of biological diversity and its components.[46]

UNCLOS makes it clear that marine scientific research in the Area shall be carried out exclusively for peaceful purposes and for the benefit of mankind as a whole.[47] The Authority has the competence to carry out marine scientific research concerning the Area and its resources and may enter into contracts for that purpose. It also has the mandate to promote and encourage the conduct of marine scientific research in the Area and to coordinate and disseminate the results of such research and analysis.[48] When conducting marine scientific research in the Area, states are required, inter alia, to promote international cooperation, develop programmes for the benefit of developing states and technologically less-developed states to strengthen their research capabilities (amongst other things), and effectively to disseminate the results of their research and analysis.[49] Marine scientific research is to benefit humankind as a whole, and Part XIII of UNCLOS therefore contains elaborate provisions regarding publication and dissemination of information and knowledge gathered from marine scientific research.[50] For this purpose, the flow of scientific data and information and the transfer of knowledge resulting from marine scientific research, especially to developing states, shall actively be promoted as well as the strengthening of the autonomous marine scientific research capabilities of developing states through, inter alia, programmes to provide adequate education and training of their technical and scientific personnel.[51] These provisions reflect the role of scientific knowledge in the economic and social advancement of societies.

It is worthwhile noting that the Authority has been taking steps to implement its responsibilities with respect to marine scientific research under Article 143 of the UNCLOS.[52] In its elaboration of a regulatory framework for exploration for polymetallic sulphides and cobalt crusts, provisions relating to the collection of baseline data and information on the biological characteristics of areas under exploration, including information on species composition and community structure and acquisition of information on the basic biology of species found in such areas, have been included.[53] Over the last few years, the Authority has organized a series of scientific and technical workshops and seminars on the resources of the deep seabed and the marine environments in which they are found. Specific attention was given to issues such as the assessment of environmental impacts from activities in the Area, standardization of techniques for data collection and analysis, distribution patterns of seamount fauna, and prospects for international collaboration in marine environ-

[46] Reg. 1, para. 3(f) of the Regulations, *supra* note 41.
[47] Article 143(1) of UNCLOS.
[48] Article 143(2).
[49] Article 143(3).
[50] Articles 242 and 244.
[51] Article 244.
[52] Article 143.
[53] Doc. ISBA/10/C/WP.1/Rev.1 (2004).

mental research to enhance understanding of the deep sea environment, including its biodiversity, with the participation of marine scientists, researchers and experts in these fields. The Authority is also currently collaborating in a major research project coordinated by the University of Hawaii to study the biodiversity, species range and gene flow in the abyssal Pacific nodule province with a view to predicting and managing the impacts of deep seabed mining. The results of this project are expected to be of immense benefit to the international scientific community.[54]

The role of the Authority in promoting such projects and by acting as a clearing-house for data are important ways in which it can implement its duty to disseminate results of marine scientific research undertaken in the Area. It is clear, however, that cooperation amongst researchers, states and international institutions is an essential requirement and needs to be improved. To be truly effective, international collaboration on a large scale is required, involving scientists, researchers, organizations and governments from around the world. The efforts of the Authority to develop a better understanding of the deep ocean environment are based on broad cooperative efforts amongst prospective miners, research institutions and individual scientists. On a more ambitious scale, the Census of Marine Life[55] is a programme of international research involving more than 60 institutions from 15 countries for assessing and explaining the diversity, distribution and abundance of marine organisms throughout the world's oceans. Many other cooperative programmes, of various levels of complexity and formality, are also taking place. In all cases, cooperation is likely to be the key to overcoming the numerous resource limitations on marine scientific research in the Area.

5 Protection and preservation of the marine environment

In the light of the symbiosis between natural resources and their surrounding environments, there is an inextricable link between the protection and preservation of the marine environment and activities related to these resources. The protection and preservation of the marine environment is addressed by the comprehensive framework in the Law of the Sea Convention.[56] There is a general obligation for states to protect and preserve the marine environment,[57] including by taking all measures necessary to prevent, reduce and control pollution of the marine environment. States must protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.[58] States are also required to avoid the use of technologies, or

[54] See Nandan, *supra* note 43, at 5–6.
[55] See, for instance, Michael W. Lodge, Improving International Governance of Deep Sea Fisheries on the High Seas, OceanLaw On-Line Paper No. 29 (2004), available at <http://www.intfish.net/igifl/archive/ops/olp/papers/29.pdf> (visited 30 June 2009).
[56] Part XII of UNCLOS.
[57] Article 192.
[58] Article 194.

the intentional or accidental introduction of alien species to a particular part of the environment, which may cause harmful changes thereto.[59] They are also to cooperate on a global and, as appropriate, regional basis, in the formulation of international rules, standards and recommended practices for the protection and preservation of the marine environment.[60] They must also monitor the risks or effects of pollution on any activities conducted under their control, as well as assess the potential effects of planned activities on the marine environment.[61] Moreover, states are required to provide scientific and technical assistance to developing states to enhance their capabilities to protect and preserve the marine environment.[62]

Although the Authority's primary role, as provided for in UNCLOS, is to organize and control activities in the Area, particularly with a view to administering the mineral resources of the Area, the deep seabed biodiversity is so intimately associated with the environment in which these resources are located that none of these can be considered in isolation. The provisions of UNCLOS, the 1994 Agreement and the regulatory framework for prospecting and exploration for minerals in the Area, set forth the mandate of the Authority to protect the marine environment. In order to ensure effective protection of the marine environment from harmful effects which may arise from activities in the Area, the Authority must adopt appropriate rules, regulations and procedures for, inter alia, the prevention, reduction and control of pollution and other hazards to the marine environment and against interference with the ecological balance of the marine environment; and the protection and conservation of the natural resources of the Area and the prevention of damage to the fauna and flora of the marine environment.[63] States are also required to adopt laws and regulations to prevent, reduce and control pollution of the marine environment from activities undertaken by vessels, installations, structures and other devices flying their flag or of their registry or operating under their authority.[64]

It should be mentioned that the Council of the Authority, on the recommendation of the Legal and Technical Commission, is entitled to disapprove specific areas for exploitation in cases where substantial evidence indicates that there is a risk of serious harm to the marine environment. Furthermore, it is entitled to issue emergency orders including orders for the suspension or adjustment of operations, to prevent serious harm to the marine environment arising from activities in the Area.[65] The Legal and Technical Commission also has competence to prepare assessments of the environmental implications of activities in the Area and to make recommendations

[59] Article 196.
[60] Article 207 to 212.
[61] Articles 204 and 206.
[62] Articles 202 and 203.
[63] Article 145.
[64] Article 209.
[65] Article 162, paras 2(x) and (w).

to the Council on the protection of the marine environment, taking into account the views of recognized experts in that field.[66]

In its elaboration of regulations on prospecting and exploration for seabed minerals the Authority is required to incorporate applicable standards for the protection and preservation of the marine environment. It is particularly noteworthy that the Regulations on Prospecting and Exploration for Polymetallic Nodules provides that:

> '[i]f the contractor applies for exploitation rights, it shall propose areas to be set aside and used exclusively as impact reference zones and preservation reference zones. "Impact reference zones" means areas to be used for assessing the effect of each contractor's activities in the area on the marine environment and which are representative of the environmental characteristics of the area. "Preservation reference zones" means areas in which no mining shall occur to ensure representative and stable biota of the seabed in order to assess any changes in the flora and fauna of the marine environment'.[67]

Identical provisions are contained in the draft regulations for polymetallic sulphides and cobalt-rich ferromanganese crusts.[68]

It follows from these provisions that although the Authority has no mandate to establish marine protected areas for deep sea habitats, it could designate particular areas as sensitive no-mining areas in fulfilling its obligation to protect the marine environment from harmful effects arising from mining activities in the Area.

Inasmuch as it is the responsibility of the Authority to ensure that measures are taken to protect the flora and fauna of the marine environment from harmful effects that may arise from activities in the Area, it is equally obvious that evaluation of the ecology of the deep ocean, including biodiversity associated with hydrothermal vent systems and seamounts, is considered a very important aspect of the work of the Authority. Since polymetallic sulphides are found primarily in association with hydrothermal vent sites on mid-oceanic ridges and since it is known that extreme biological communities exist both in the sediments of the deep seabed and in association with active hydrothermal vents, it is clearly within the responsibility of the Authority, while regulating mining activities relating to polymetallic sulphides, to take measures to protect the biological communities associated with polymetallic sulphides in the Area. This supports the commitment of the Authority to include a strong environmental component and an integrated ecosystem approach to the management of risks to marine biodiversity of seamounts in its elaboration of regulations for pros-

[66] Article 165, paras 2(d) and (e).
[67] Regulation 31(7) of the Regulations, *supra* note 37.
[68] See, for instance, International Seabed Authority, Legal and Technical Commission, 'Status of the draft regulations on prospecting and exploration for cobalt-rich ferromanganese crusts in the Area', Note by the Secretariat, Doc. ISBA/15/LTC/3 (2009), available at <http://www.isa.org.jm/files/documents/EN/15Sess/LTC/ISBA-15LTC-3.pdf> (visited 30 June 2009).

pecting and exploration for polymetallic sulphides and cobalt-rich ferromanganese crusts in the Area. Thus, the Authority is currently acting as a well-established institutional mechanism for science-based decision-making on matters related to the protection and preservation of the marine environment from impacts arising out of mining resources in the Area.

6 Conclusion

It appears that integrated oceans management, ecosystem management, the precautionary approach and equity concerns should form a conceptual foundation for approaches to manage the resources of the deep seabed and the biodiversity associated with it. All relevant institutions and states should work together to collect further scientific and ecological information and to develop a plan for integrated management. The institutional and legal governance frameworks for the deep seabed and the high seas also need to be flexible enough to accommodate change arising from emerging technologies, increasing scientific knowledge and a greater understanding of the interactions between conservation, use, management and sustainability.

Finally, it should be stated that, notwithstanding some new challenges and various complex issues facing the international community in respect of the governance of the oceans and their resources, the comprehensive provisions of the United Nations Convention on the Law of the Sea provide the legal framework within which all ocean-related matters should be dealt with. Although it is to be expected that difficulties may arise in the context of some of these provisions, there are sufficient mechanisms in UNCLOS and within the bodies established under it to address such matters. These include the dispute settlement mechanisms contained in Part XV of UNCLOS which are available to states parties to deal with disputes concerning the interpretation and application of the provisions of UNCLOS.

Protection of Marine Biodiversity in Areas beyond National Jurisdiction

Marko Berglund[1]

1 Threats to marine biodiversity

Sixty-four percent of oceans – half of the Earth's surface – are located in areas beyond national jurisdiction. Forty percent of oceans are already strongly affected by human impacts. Seventy-seven percent of fish stocks are now fully exploited or overexploited;[2] with the majority of commercial species being expected to collapse by 2048.[3] A serious knowledge gap exists with regard to marine resources. While only 250 000 marine species have been identified, deep sea biodiversity is estimated at between 500 000 and 10 000 000 species.

In the fisheries context, threats to marine biodiversity include unsustainable fishing, overcapacity, by-catch, destructive fishing practices such as bottom trawling, illegal, unreported and unregulated fishing and non-participation and non-compliance with global and regional fisheries instruments. In the shipping sector, constant growth has led to further pressures and strains from maritime transport, oil pollution, marine debris and ocean noise. Pollution from land and sea-based activities, the introduction of alien invasive species, exploration and exploitation of non-living resources, pipelines and bioprospecting further affect marine biodiversity in areas beyond national jurisdiction. The impacts of climate change, including ocean acidification, aggravate the problem. New and emerging issues such as carbon sequestration through ocean iron fertilization may have as yet unidentified potential negative impacts on marine biodiversity.

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[2] Review of the State of World Marine Fishery Resources (FAO, 2005) available at <ftp://ftp.fao.org/docrep/fao/007/y5852e/y5852e00.pdf> (visited 26 May 2009).

[3] Boris Worm et al., 'Impacts of Biodiversity Loss on Ocean Ecosystem Services', 314 *Science* (2006) 787–790, at 790.

Despite these threats from a number of sources, there is currently no comprehensive international regime for the protection of marine biodiversity in areas beyond national jurisdiction. To date, protection of marine biodiversity has been addressed either through a sectoral approach or through a limited geographical approach. This has led to a piecemeal and ad hoc structure which does not adequately take into consideration ecosystems, the global nature of the challenge faced by the international community, or the interlinkages among sectors related to marine biodiversity.

Moreover, although a number of goals have been agreed related to the protection of marine biodiversity in areas beyond national jurisdiction; these have either not been implemented, or do not show signs of being achieved. For example, the international community had agreed to establish measures to protect vulnerable ecosystems against bottom trawling by the end of 2008.[4] States have agreed to encourage implementation of the ecosystem approach[5] by 2010[6] and to give due regard to establishing a representative network of marine protected areas (MPAs) by 2012.[7] In the context of fisheries, states have agreed to maintain fish stocks or to restore them to a level ensuring a maximum sustainable yield, on an urgent basis and, where possible, by not later than 2015.[8] Unfortunately, even the most modest of these numerous goals, set in diverse fora, risks not being met. This paper introduces the multitude of existing frameworks and regimes dealing with the protection of marine biodiversity in areas beyond national jurisdiction. It outlines options for cooperation and coordination between these processes and presents possible solutions, ultimately leading to a comprehensive international regime.

2 A multitude of frameworks and processes

2.1 UNCLOS

The principle of freedom of the high seas was first enunciated by Grotius in the 17th century;[9] and was eventually codified in international law in the United Nations Convention on the Law of the Sea,[10] which provides a comprehensive legal framework intended to codify all customary law relating to the sea. According to UNCLOS, areas beyond national jurisdiction include:

4 'Sustainable fisheries', UNGA Res. 61/105 (2006), para. 83.

5 The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. See further Convention on Biological Diversity, Decision V/6 'Ecosystem Approach'.

6 Plan of Implementation of the World Summit on Sustainable Development, A/CONF.199/20 (2002), para. 30(d).

7 *Ibid*. para. 32(c).

8 *Ibid*. para. 31(a).

9 Huig de Groot, *De Mare Liberum* (1609).

10 United Nations Convention on the Law of the Sea (UNCLOS), Montego Bay, 10 December 1982, in force 16 November 1994, 21 *International Legal Materials* (1982) 1261.

> the water column beyond the Exclusive Economic Zone (EEZ) or beyond the territorial sea where no EEZ has been declared, called the high seas;[11] and the seabed which lies beyond the limits of the continental shelf, established in conformity with Article 76.[12]

UNCLOS leaves the high seas open to all states. The high seas freedoms include those of navigation, overflight, laying of submarine cables and pipelines, construction of artificial islands and other installations, fishing, and scientific research.[13] The freedom of the high seas does not give licence for unrestrained use, however, as this must be exercised under conditions laid down by UNCLOS; including general obligations to protect and preserve the marine environment (Part XII) and to conserve and manage high seas living resources.[14] In addition, the freedom of the high seas has been somewhat eroded, especially in respect of fisheries and maritime navigation. In areas beyond national jurisdiction, separate agreements exist on international shipping,[15] fisheries,[16] deliberate disposal of wastes at sea (dumping)[17] and underwater cultural heritage.[18]

UNCLOS is a framework agreement and is open to supplementary agreements or Protocols. With regard to fisheries, for example, the international community has developed the UN Fish Stocks Agreement.[19] The objective of the Fish Stocks Agreement is to ensure the long-term conservation and sustainable use of straddling and highly migratory fish stocks[20] and it applies mostly to areas beyond national jurisdic-

[11] Article 86 of UNCLOS.
[12] Article 76.
[13] Article 87.
[14] Articles 116–120.
[15] International Convention for the Prevention of Pollution from Ships, 1973, first signed 2 November 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78), adopted 17 February 1978. The combined instrument entered into force on 2 October 1983, 12 *International Legal Materials* (1973) 1319, <http://www.imo.org>
[16] For example, Convention on the Conservation of Antarctic Marine Living Resources, Canberra, 20 May 1980, in force 7 April 1982, 19 *International Legal Materials* (1980) 841, <http://www.ccamlr.org>; Convention on the Conservation and Management of Fishery Resources in the South-East Atlantic Ocean, Windhoek, 20 April 2001, in force 13 April (2003), <www.seafo.org>; Convention for the Conservation of Southern Bluefin Tuna, Canberra, 10 May (1993), in force 20 May (1994), <www.ccsbt.org>.
[17] Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, London, 13 November 1972, in force 30 August 1975, 11 *International Legal Materials* (1972) 1294, <http://www.londonconvention.org/> and Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, London, 17 November 1996, in force 24 March 2006, 36 *International Legal Materials* (2006) 1
[18] UNESCO Convention on the Protection of the Underwater Cultural Heritage, Paris, 2 November 2001, in force 2 January 2009, available at <http://portal.unesco.org/en/ev.php-URL_ID=13520&URL_DO=DO_TOPIC&URL_SECTION=201.html> (visited 29 May 2009).
[19] Agreement for the Implementation of the Provisions of the UN Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, New York, 4 August 1995, in force 11 December 2001, 34 *International Legal Materials* (1995) 1542, available at <http://www.un.org/Depts/los/convention_agreements/texts/fish_stocks_agreement/CONF164_37.htm> (visited 2 February 2009).
[20] *Ibid*. Article 2.

tion. The UN Fish Stocks Agreement uses Regional Fisheries Management Organizations (RFMOs) as its primary mechanism[21] and fisheries management is based on the precautionary and ecosystem approaches.[22] Currently, 17 regional fisheries management organizations exist, most of which cover only areas beyond national jurisdiction. Despite their number, the effectiveness of regional fisheries management organizations from a conservation and sustainable use perspective has been questioned. Moreover, rules set by regional fisheries management organizations cannot be enforced against non-parties. RFMOs also vary to a large degree in scope and approach, some adopting an ecosystem approach with others relying on a species-specific approach.[23]

2.2 CBD, CMS and CITES

Outside of UNCLOS, under the UNEP 'family' of conventions, the Convention on Biological Diversity (CBD)[24] addresses the protection of marine biodiversity in areas beyond national jurisdiction. The CBD provides a comprehensive framework for conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.[25] In the context of the CBD, however, it is important to note that its provisions apply only to processes and activities carried out under a party's jurisdiction or control which may have an adverse impact on biodiversity. They do not apply to the components of biodiversity per se, as they do for marine and other biodiversity within national jurisdiction.

Still in the UNEP 'family' of conventions, the Convention on the Conservation of Migratory Species of Wild Animals (CMS)[26] and the Convention on International Trade in Wild Species of Fauna and Flora (CITES)[27] are also relevant to the international legal regime for the protection of marine areas beyond national jurisdiction. The importance of these Conventions stems primarily from parties' obligations to protect and conserve listed marine species found.

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[21] *Ibid*. Part III.

[22] *Ibid*. Articles 5–6. Under the precautionary approach, where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing const-effective measures to prevent environmental degradation. Principle 15 of the Rio Declaration (UN Declaration on Environment and Development, Rio de Janeiro, 14 June 1992, A/CONF.151/5/Rev.1 (1992), 31 *International Legal Materials* (1992) p. 876). This basic definition is elaborated in Article 6 of the Fish Stocks Agreement.

[23] For a more in-depth consideration of the role of regional fisheries management organizations, see the paper by Michael Kidd in Part I of the present *Review*.

[24] Convention on Biological Diversity, Rio de Janeiro, 5 June 1992, in force 29 December 1993, 31 *International Legal Materials* (1992) 822, <http://www.biodiv.org>.

[25] *Ibid*. Article 1.

[26] Convention on the Conservation of Migratory Species of Wild Animals, Bonn, 23 June 1979, in force 1 November 1983, 19 *International Legal Materials* (1980) 15, <http://www.cms.int>.

[27] Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington DC, 3 March 1973, in force 1 July 1975, 993 *United Nations Treaty Series* 243, <http://www.cites.org>.

2.3 UNEP Regional Seas Agreements

Regional Seas Agreements have been developed under the aegis of the United Nations Environment Programme (UNEP), some of which cover areas beyond national jurisdiction. For example, a Protocol to the Convention of the Protection of the Mediterranean Sea Against Pollution[28] covers specially protected Mediterranean areas. Over half of one such site, the Pelagos Sanctuary, lies in international waters. However, in areas beyond national jurisdiction, measures taken by coastal state parties under UNEP's Regional Seas Agreements must be consistent with high seas freedoms under UNCLOS.

2.4 IMO

The International Maritime Organization has a mandate to ensure secure and efficient shipping on clean oceans. IMO has the competence to establish special protective measures in defined areas where shipping presents a risk. Agreements under IMO auspices include the International Convention for the Prevention of Pollution by Ships (MARPOL 73/78)[29] and London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter[30] and its Protocol.[31]

In the IMO context, a resolution containing Revised Guidelines on Designating Particularly Sensitive Sea Areas (PSSAs)[32] was adopted in 2005. The resolution identifies a PSSA as an area that needs special protection through action by IMO because of its significance for recognized ecological, socio-economic, or scientific attributes, where such attributes may be vulnerable to damage caused by international shipping activities. Ecological, social, cultural, economic, scientific and educational criteria are identified with regard to PSSAs. Associated protective measures for PSSAs are approved or adopted by IMO, and include special discharge restrictions, adoption of ships' routeing and reporting systems as well as other measures aimed at protecting specific sea areas against environmental damage from ships.[33] There are currently

[28] Convention for the Protection of the Mediterranean Sea against Pollution, Barcelona, 16 February 1976, in force 12 February 1978, 15 *International Legal Materials* (1976) 290, amended to be the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, Barcelona, 10 June 1995, in force 9 July 2007, available at <http://www.unep.ch/regionalseas/regions/med/t_barcel.htm> (visited 13 February 2009).

[29] International Convention for the Prevention of Pollution from Ships, 1973, first signed 2 November 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78), adopted 17 February 1978. The combined instrument entered into force on 2 October 1983, 12 *International Legal Materials* (1973) 1319, <http://www.imo.org>.

[30] Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, London, 13 November 1972, in force 30 August 1975, 11 *International Legal Materials* (1972) 1294, <http://www.londonconvention.org/>.

[31] Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, London, 17 November 1996, in force 24 March 2006, 36 *International Legal Materials* (2006) 1.

[32] Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (PSSAs), IMO Res. A.982(24) (2005), available at <http://www.imo.org/includes/blastData.asp/doc_id=6285/982.pdf> (visited 6 April 2009).

[33] *Ibid*.

12 PSSAs, some of which include areas beyond national jurisdiction. Established PSSAs include the Great Barrier Reef, the seas around the Florida Keys, the Wadden Sea, the Canary Islands, the Galapagos Archipelago and the Baltic Sea.34

2.5 FAO and UN consultative processes

Other institutions and agreements also deal with the protection of marine biodiversity in areas beyond national jurisdiction from a sectoral or thematic perspective. The FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the high seas[35] has the main purpose of improving monitoring, control and enforcement by flag states of high seas fishing. FAO has also developed a Code of Conduct for Responsible Fisheries.[36]

Further processes addressing the protection of marine biodiversity beyond areas of national jurisdiction exist within the United Nations system. For example, the issue has been addressed in the Ad hoc Informal Working Group on Protection of Marine Biodiversity in Areas Beyond National Jurisdiction[37] as well as in the UN Informal Consultative Process on Oceans and Law of the Sea.

3 Governance and regulatory gaps?

Numerous processes and frameworks deal with the protection of marine biodiversity in areas beyond national jurisdiction but are there regulatory or governance gaps between them?

A regulatory gap may exist as a result of the geographical coverage of legally binding instruments in areas such as fisheries and biodiversity conservation, or gaps in addressing new and emerging activities, as well as threats that are currently unregulated or insufficiently regulated. Governance gaps may be the result of the absence of institutions or mechanisms at global, regional and sub-regional levels and inadequate mandates of existing organizations and mechanisms. Governance gaps may also be the result of specific gaps and insufficient development of modern management tools, lack of coherent application of international principles, rules or standards, and the need for further mechanisms to ensure cooperation and coordination within and across sectors.[38]

[34] For a full list of designated IMO PSSAs, see <http://www.imo.org/environment/mainframe.asp?topic_id=1357> (visited 6 April 2009).

[35] Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, Rome, 29 November 1993, in force 24 April 2003, available at <http://www.fao.org/DOCREP/MEETING/003/X3130m/X3130E00.HTM> (visited 6 April 2009).

[36] FAO, International Code of Conduct for Responsible Fisheries (1995), available at <ftp://ftp.fao.org/docrep/fao/005/v9878e/V9878E00.pdf> (visited 4 March 2009).

[37] Established by UNGA Res. 61/223 (2006), as reaffirmed by Res. 62/215 (2007).

[38] See Kristina M. Gjerde et al., *Regulatory and Governance Gaps in the International Regime for the Conservation and Sustainable Use of Marine Biodiversity in Areas beyond national Jurisdiction* (IUCN, 2008), avail-

A full and complete analysis of the current regimes is beyond the scope of this paper, but a comprehensive normative and legal analysis is needed. A performance review of the various regimes is also needed to assess whether the goals and aims of each instrument are being met or not. These analyses would provide a direction in which the current regimes could be amended, updated, complemented and, if deemed necessary, replaced. The analyses would show how effective the current sectoral approaches are. They would provide the justification for any work undertaken to fill the regulatory or governance gap. If a regulatory or governance gap is identified, coordination and cooperation between the existing regimes needs to be increased.

The most striking gaps seem to exist in high-seas fisheries regimes. Large parts of the oceans are not covered by existing regional fisheries management organizations; or the competence of such RFMOs is limited to specific species.[39] For example, the RFMOs of the Pacific and Indian Oceans and parts of South Atlantic do not have the competence to regulate either high seas bottom fisheries or the impact of bottom trawlers. Moreover, governance gaps exist as many existing regional fisheries management organizations do not apply the ecosystem approach. Additionally, there is often inadequate enforcement and compliance, and non-parties are not bound by the rules laid out by RFMOs. Effective global oversight of high-seas fisheries conservation and management is lacking.

It is also clear that there are implementation gaps at the international level. A framework approach would emphasize the need for full and effective implementation of existing instruments and enhanced cooperation and coordination. Problems exist with the exercise of effective jurisdiction of states over ships sailing under their flag and improved flag state performance is required. Port state control could also be developed.[40] Additionally, market measures, which ultimately are often the most effective way of dealing with conservation issues, could be used. Likewise, WTO could be used a forum to revise subsidies granted to fisheries activities in favour of the sustainable management of fishery resources.[41]

able at <http://cmsdata.iucn.org/downloads/iucn_marine_paper_1.pdf> (visited 26 May 2009) and Workshop on High Seas Governance for the 21st Century, Co-Chairs' Summary Report, (IUCN, 2008), available at <http://cmsdata.iucn.org/downloads/iucn_workshop_co_chairs_summary_new_iucn_format.pdf> (visited 29 May 2009).

39 See Gjerde et al, *Regulatory and Governance Gaps*, *supra* note 38, the Table at 9 and 10.

40 See Kristina M. Gjerde et al., *Options for Addressing Regulatory and Governance Gaps in the International Regime for the Conservation and Sustainable Use of Marine Biodiversity in Areas Beyond National Jurisdiction* (IUCN, 2008), available at <http://cmsdata.iucn.org/downloads/iucn_marine_paper_2.pdf> (visited 6 April 2009), at 16

41 Raphaël Billé and Julien Rochette, 'Gouvernance of Marine Biodiversity beyond National Jurisdictions: Issues and Perspectives', IDDRI, Idées pour le débat No. 04/2008 (English version), available at <http://www.iddri.org/Publications/Collections/Idees-pour-le-debat/Id_0804_gouv-marine_RochetteBille_EN.pdf> (visited 29 May 2009).

4 Possible solutions

Unresolved scientific, legal and institutional issues exist with regard to the protection of marine biodiversity beyond areas of national jurisdiction. Moreover, severe fragmentation exists with regard to measures taken to protect marine biodiversity in areas beyond national jurisdiction. The regimes dealing with this issue take a sectoral or species-specific approach, and not a comprehensive or integrated approach. This is partly due to the wide range of relevant global and regional instruments and international organizations and bodies with predominantly sectoral mandates. Current arrangements tend to focus on assessing and mitigating environmental impacts of specific activities; rather than on the marine environment as a whole.

As sectoral agreements exist, one key issue is to enhance the implementation of these existing instruments and to update the mandates of existing institutions to address new and emerging activities. This outlines a clear need for cooperation among states and international organizations. An intergovernmental or inter-agency coordination mechanism could be put in place to ensure consistent and coherent application of the ecosystem and precautionary approaches, environmental impact assessment and marine spatial planning. Cross-sectoral capacity-building and technology transfer should be primary aspects of such cooperation, especially in marine scientific research. Cooperation is needed between regional fisheries management organizations themselves; as well as between RFMOs and other non-fisheries organizations. For example, the various regional tuna management organizations should collaborate closely to exchange information and best practices and, for example, the Commission of the Convention for the Protection of the Marine Environment of the North-east Atlantic[42] should work in close cooperation with the North East Atlantic Fisheries Commission.[43]

Although there is some coordination between agreements or regimes,[44] much of this is done on an ad hoc basis. Moreover, the objectives and aims of the various regimes may not at first glance seem to coincide, i.e. sustainable fisheries versus protection of the marine environment. One avenue of building coordination between partners would be to combine agendas and issues to be discussed. Difficulties might arise, however, as states' positions may not be coordinated at the national level. This might happen when different line ministries are responsible for implementing different agreements.

[42] See <http://www.ospar.org/>.
[43] See <http://www.neafc.org/>.
[44] See Lee A. Kimball, *The International Legal Regime of the High Seas and the Seabed beyond the Limits of National Jurisdiction and Options for Cooperation for the Establishment of Marine Protected Areas (MPAs) in Marine Areas beyond National Jurisdiction* (Secretariat of the Convention on Biological Diversity, 2005), Technical Series No. 19, at 45–46.

Cooperation and coordination is also needed between UN agencies. For example, a joint FAO,[45] IMO[46] and UNEP[47] liaison group could be established to ensure harmonization of their work, or at least to ensure that work between these agencies is not duplicative or contradictory. Such a liaison group could develop a joint approach to guidance on application of criteria for the identification of ecologically or biologically significant marine areas. On the basis of this approach, a register of areas that meet these criteria could be developed.

Various tools and mechanisms exist which could be used to improve coordination and cooperation in the short, medium and long terms. In the short term, states should improve the implementation of the existing instruments, achieve full participation in relevant international instruments and ensure that instruments receive necessary ratifications. The capacities of developing states should be improved, including through technology transfer and scientific cooperation. Funding for research and assessments should be increased and scientific guidance and advice should be coordinated, perhaps through an IPCC[48]-like panel. Additionally, short term solutions could include undertaking environmental impact assessments with regard to activities which could have an adverse effect on marine biodiversity. Marine protected areas could be established in line with the goals set out at the World Summit on Sustainable Development and in Part IV of the Johannesburg Plan of Implementation.[49] Mechanisms for sharing information on marine scientific research should be established.

In the medium to long term, the International Union for Conservation of Nature (IUCN)[50] has proposed a package of measures to address priority issues while building political support for more comprehensive action. A possible 11-point strategy would be to:

i. adopt a UN General Assembly (UNGA) Declaration on Principles for Oceans Governance in areas beyond national jurisdiction;
ii. adopt an UNGA Resolution on Environmental Impact Assessment processes;
iii. develop a transparent UNGA-based review process,
iv. build a strong UN Food and Agriculture Organization (FAO) Port State Measures Agreement;
v. initiate pilot Marine Protected Area (MPA) projects;
vi. promote the expansion of regional capacity;
vii. establish an Intergovernmental Panel on Oceans;

[45] See <http://www.fao.org/>.
[46] See <http://www.imo.org/>.
[47] See <http://www.unep.org/>.
[48] Intergovernmental Panel for Climate Change, <http://www.ipcc.ch/>.
[49] See footnotes 4 to 6 above.
[50] See <http://www.iucn.org/>.

viii. explore the principles of intergenerational and intragenerational equity in the specific context of protection of the oceans;
ix. negotiate a global EIA and strategic environmental assessment (SEA) instrument;
x. promote a global agreement for marine spatial planning; and
xi. promote a new global comprehensive legally binding agreement.[51]

This comprehensive plan may seem ambitious considering the apparent low priority currently given to marine issues in the international governance debate. It remains to be seen when such a comprehensive integrated approach will be adopted. A starting point, however, would be to increase cooperation and coordination between the various intergovernmental agencies and to work together toward establishing common goals and agendas.

[51] Kristina M. Gjerde et al., *Options for Addressing*, *supra* note 40.

Marine Genetic Resources on the Deep Seabed: The Continuing Search for a Legally Sound Interpretation of UNCLOS*

Dire Tladi[1]

1 Statement of the issues

The 1982 United Nations Convention on the Law of the Sea (hereinafter 'UNCLOS' or 'the Convention')[2] is often said to provide 'the legal framework within which all activities in the oceans and seas' are to be carried out.[3] In this regard, the Convention

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2 United Nations Convention on the Law of the Sea (UNCLOS), Montego Bay, 10 December 1982, in force 16 November 1994, 21 *International Legal Materials* (1982) 1261.

3 See preambular para. 3 of UNGA Res. 59/24 on Oceans and the Law of the Sea (2004). See also para. 1 of the Report of the Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction, UN Doc. A/61/65 (2006). In a similar vein, see para. 5 of the Report of the work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its seventh meeting UN Doc. A/61/156 (2006). The Secretary-General's report has also said that the Convention 'establishes the legal framework for all activities in the oceans'. Report of the Secretary-General on Oceans and the Law of the Sea, UN Doc. A/60/63/Add.1 (2005). See also David Freestone, Richard Barnes and David Ong, 'The Law of the Sea: Progress and Prospects' in David Freestone, Richard Barnes and David Ong (eds), *The Law of the Sea: Progress and Prospects* (Oxford University Press, 2006), 1–27 at 3 where the authors state that the Convention 'purports to deal with all aspects oceans use and establishes a "legal order for the seas and oceans"'.

regulates all aspects of use of the oceans, including the rules relating to maritime zones, the marine environment and rules relating to slavery and piracy, amongst others. Further, the Convention is seen as a fundamental tool to drive the 'sustainable development of oceans and seas'.[4]

This comprehensive treaty, as with most modern multilateral conventions, represents a compromise between highly divergent views. In particular, many of the compromises in the Convention reflect a compromise between developing and developed countries. In fairness, the Convention reflects other compromises as well. Certainly, various compromises between coastal states and landlocked states are reflected in the Convention.[5] However, consistent with the current development in major multilateral negotiations, the principal fault-line is decidedly the 'North–South' divide.[6]

It is in the context of the North–South divide (or perhaps, to be more positive, the 'dialogue'), that the question of sharing of benefits from the use and exploitation of genetic resources in the deep seabed beyond areas of national jurisdiction arises.[7] On the one hand, developing countries are arguing that the benefits derived from the use and exploitation of genetic resources found in areas beyond national jurisdiction should be shared in accordance with the principle of the common heritage of mankind.[8] On the other hand, developed countries reject such notions and suggest that such resources are subject to the rules of freedom of the high seas. As the 'legal frame-

[4] UNGA Res. 59/24 (2004), preambular para. 2. See also 'Oceans and the Law of Sea', UNGA Res. 61/222 (2006).

[5] See in particular Article 61 (Conservation of the living resources) and Article 62 (Utilization of Living Resources) of the Convention. See also the provision of Part X of the Convention (Right of Access of Land-Locked States to and From the Sea and Freedom of Transit). Even the provisions relating to the outer limits of the continental shelf, which one would expect to be solely of concern to states which have a continental shelf, reflect a compromise between landlocked and coastal states in Article 82 which provides for contributions to 'be made through the Authority, which shall distribute them to States Parties…'.

[6] Examples which can be given in this respect include the WTO negotiations and the Doha process in particular, climate change, biodiversity and the reform of the Bretton Woods institutions.

[7] The potential benefits from the exploitation and utilization of genetic resources are immense and have been discussed in various publications and UN documents. See, for instance, Coenraad Visser, 'Biodiversity, Bioprospecting and Biopiracy: A Prior Informed Consent Requirement for Patents' 18 *South African Mercantile Law Journal* (2006) 497–507, who cites Eli Lilly as an example: 'Eli Lilly earns about [US$] 100 million annually' from the sales of drugs derived from genetic resources.' Similarly, the report of the UN Secretary-General on Oceans and the Law of the Sea states that:

> the global biotechnology industry (not limited to marine biotechnology)… generated revenues of up to [US$] 46.6 billion in 2003… In connection with marine biotechnology, a 1996 study estimated that the worldwide sales of products related to marine biotechnology were expected to reach [US$] 100 billion by the year 2000… Profits from a compound derived from a sea-sponge to treat herpes were estimated to be worth [US$] 50 million to [US$] 100 million annually and estimates of the value of anti-cancer agents from marine organisms are up to [US$] 1 billion a year.

See Report of the Secretary-General on Oceans and the Law of the Sea, UN Doc. A/60/63/Add.1 (2005) at para. 107.

[8] On the common heritage of mankind see Thomas Franck, *Fairness in International Law and International Institutions* (Oxford University Press, 1995) at 393 *et seq.* At 76 Franck draws a distinction between two other types of equity and equity as contained in the common heritage of mankind. He suggests that

work within which all activities in the oceans and seas' are intended to be governed, it is to UNCLOS that experts and states have looked to find answers. However, the answers have, at best, proved to be inconclusive and, at worst, unsatisfactory. It is for this reason that states have embarked on a process to discuss and clarify relevant rules to govern genetic resources found in the deep seabed in areas beyond national jurisdiction.

The purpose of this paper is to explore some of the issues surrounding benefit-sharing in the law of the sea and, in particular, to evaluate the legal arguments proposed by both sides of the divide. These issues are considered against the background of sustainable development and related principles as well as the current debates in the UN system.

2 UNCLOS and resources in areas beyond national jurisdiction

2.1 Introduction

Without a doubt the most important provision of UNCLOS in this respect is Article 136 in Part XI. Article 136 provides that the Area[9] 'and its resources are the common heritage of mankind'. The development of the law of the sea to this point is well documented and there is no reason to restate it here.[10] It suffices to recall that the story of the development of the law of the sea in this area invariably includes a nostalgic recollection of the 1969 speech by Dr Pardo, the Maltese Ambassador to the UN, the adoption by the General Assembly of the Declaration of Principles Governing the Sea-Bed and the Oceans Floor, and the Sub-Soil, Beyond the Limits of National Jurisdiction (hereinafter referred to as the 'Sea-bed declaration'),[11] the ad-hoc seabed committee and the permanent sea-bed committee, and, of course, the various sessions of UNCLOS III.[12]

the common heritage of mankind principle departs drastically from the accepted assumptions in that 'it assumes that certain resources are the patrimony of all humanity'.

9 The 'Area' is defined in Article 1 of UNCLOS as 'the sea-bed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction'.

10 See, for instance, Roderick C. Ogley, *Internationalizing the Sea-bed* (Aldershot, 1984) especially at 54 *et seq*.

11 'Reservation Exclusively for Peaceful Purposes of the Sea-bed and the Ocean Floor, and the Subsoil thereof, Underlying the High Seas beyond the Limits of Present National Jurisdiction and Use of Their Resources in the Interests of Mankind, and Convening of a Conference on the Law of the Sea', UNGA Res. 2750 (1970).

12 See, for instance, Ogley, *Internationalizing the Sea-bed, supra* note 10, at 2 and 54 *et. seq*. Nasila S. Rembe, *Africa and the International Law of the Sea: A Study of the Contribution of the African States to the Third United Nations Conference on the Law of the Sea* (Brill, 1980) at 36 points out that international interests in the sea-bed beyond areas of national jurisdiction had been the subject of discussion well before the Maltese proposal.

2.2 The regulation of genetic resources under UNCLOS

Article 137 excludes the possibility of any state claiming sovereignty over the Area.[13] Rather, according to Article 137(2) '[a]ll rights in resources of the Area are vested in mankind as a whole…'. The matter would be fairly straight forward if this was all that the Convention provides. If this were the case, then all resources of the seabed beyond areas of national jurisdiction would be subject to the common heritage of mankind regime. However, Article 137(2) continues to provide that the 'minerals recovered from the area, however, may only be alienated in accordance with this part'.[14] This may suggest that only 'minerals' and not all 'resources' are subject to the provisions of Part XI. More to the point, even though Article 137 refers to 'resources', the Convention defines 'resources' for the purposes of Part IX as 'all solid, liquid, or gaseous mineral resources *in situ,* in the Area at or beneath the sea-bed, including polymetallic nodules'.[15] Once recovered from the Area, such resources are then referred to as 'minerals'.[16]

The question is whether 'resources' would include genetic resources. Quite clearly, genetic resources are not mineral resources.[17] Thus, at least at face value, genetic resources are not regulated by Part XI. However, Article 140 provides that activities in the area are to 'be carried out for the benefit of mankind as a whole… and taking into particular consideration the interests and needs of developing states…'.[18] Article 140 provides that the Sea-Bed Authority should make provision for 'the equitable

[13] Article 137(1) of UNCLOS.

[14] See also Art. 137(3) which provides that no one may 'exercise rights with respect to minerals recovered from the Area except in accordance with this Part'.

[15] Article 133(a) of UNCLOS.

[16] Article 133(b) of UNCLOS.

[17] Article 31(1) of the Vienna Convention on the Law of Treaties (Vienna Convention on the Law of Treaties, Vienna, 22 May 1969, in force 27 January 1980, 1155 *United Nations Treaty Series* 331) provides that treaties are to be 'interpreted in good faith in accordance with ordinary meaning'. The ordinary meaning of genetic resources is resources that relate to 'genetics or genes'. The ordinary meaning of mineral resources, on the other hand, is resources that are 'naturally occurring, homogenous inorganic solid substances having definite chemical composition and character crystalline structure, colour and hardness' or, any of the various 'natural substances as a. an element such as gold or silver b. an organic derivative such as coal or petroleum c. a substance that is animal or vegetable'. See <http://www.yourdictionary.com> (visited 18 February 2006). Furthermore, Article 2 of the Biodiversity Convention (Convention on Biological Diversity, Rio de Janeiro, 5 June 1992, in force 29 December 1993, 31 *International Legal Materials* (1992) 822, <http://www.biodiv.org>) defines genetic material as 'any material of plant, animal, microbial or other origin containing functional units of heredity'. See also Article 2 of the International Treaty on Plant Genetic Resources for Food and Agriculture (International Treaty on Plant Genetic Resources for Food and Agriculture, Rome, 3 November 2001, FAO Res. 3/2001) which defines genetic material as 'any material of plant origin, including reproductive and vegetative propagating material, containing functional units of heredity'. The 2007 Report of the Secretary-General of the United Nations on Oceans and the Law of the Sea, UN Doc. A/62/66/Add.2 also confirms the view that mineral resources would not be covered by "genetic resources". See, e.g., paras 191 *et seq.* on the features of interest in the search for marine genetic resources.

[18] Article 140(1) of UNCLOS. To be fair, the provision includes the qualifier 'as specifically provided for in this Part', which may have the effect of subjecting the provision to the limitations imposed by Articles 137 and 133.

sharing of financial and other economic benefits derived from activities in the Area'.[19] There is nothing in Article 40 that suggests that only *some* activities in the Area are to be regulated in accordance with the common heritage of mankind. Furthermore, Article 160, concerning the powers and functions of the Assembly of the Sea-Bed Authority, provides the Assembly is to consider the procedures for 'equitable sharing of financial benefits and other economic benefits derived from the Area…'.[20] In addition, and more broadly, Article 148 of the Convention provides that the 'effective participation of developing States in activities in the Area shall be promoted, as specifically provided' in Part XI.

The text of Part XI, therefore, suggests uncertainty as to the question of how benefits from the exploitation and use of genetic resources recovered beyond areas of national jurisdiction are to be dealt with. It is this uncertainty that has fuelled the fires of disagreement in the UN debates on genetic resources. The plausibility of the various interpretations attached to the provisions is considered further below. However, an equally important question is what the situation is if the proper interpretation of Part XI excludes genetic resources from the scope of the Part XI.

2.3 Possible scenarios if Part XI does not apply to genetic resources

If Part XI does not apply to genetic resources then here would then exist a *lacuna* in the law of the sea. An implication of this conclusion would then, of course, be the need for urgent adoption of an implementing agreement on the issue. The suggestion that there is a *lacuna* is unattractive from the perspective of the integrity of international law.[21] The more probable conclusion, however, would be that if Part XI does not apply to genetic resources, then some other part of the Law of the Sea Convention or some other principle of international law would apply. One possibility would be that, assuming that Part XI is in fact not applicable, Part VII relating to the high seas would be applicable to genetic resources on seabed beyond areas of national jurisdiction. Under this Part, the 'high seas are open to all states' and are to be governed by the principle of freedom of the high seas.[22] If, indeed, genetic resources were to be governed by Part VII then the exploitation and utilization of genetic resources found in the seabed in areas beyond national jurisdiction would not be subject to any kind of benefit sharing requirements, whether under the authority of the International Sea-Bed Authority or not. It would imply that genetic resources found on

[19] Article 140(2) of UNCLOS. In contrast to Article 140(1), this provision does not contain any qualifiers that could be interpreted as limiting the scope of the provision to mineral resources.

[20] Article 160(1)(f)(i) of UNCLOS.

[21] The aversion to the idea that there could exist, under international law, a situation unregulated by law is evident from *The North Sea Continental Shelf Cases (Federal Republic of Germany v. Denmark; Federal Republic of Germany v. the Netherlands)*, ICJ Reports (1969) 3, where the Court found neither the equidistance rule nor 'some other equivalent rule' applied but still proceeded to resolve the dispute between the parties.

[22] Article 87(1) of UNCLOS. See, for general discussion on the freedom of the high seas, David Anderson, 'Freedom of the high seas in the modern law of the sea' in David Freestone, Richard Barnes and David Ong (eds), *The Law of the Sea: Progress and Prospects* (Oxford University Press, 2006), 327–346.

the sea-bed in areas beyond national jurisdiction would be treated as global commons 'open to all to graze on'.[23] Such a conclusion would further imply that the common heritage of mankind principle would not apply to genetic resources found on seabed in areas beyond national jurisdiction.

Article 86 provides that the provisions of Part VII apply to 'all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of the State, or in the archipelagic waters of an archipelagic State'. Under one reading of Article 86, any part of the seas not mentioned in the Article, including the seabed beyond areas of national jurisdiction, would be governed by Part VII. This would imply, then, that genetic resources found in the seabed in areas beyond national jurisdiction would be governed by freedom of the high seas, in other words would be 'open to all to graze on'. However, this interpretation is not without difficulty. For example, to accept this particular interpretation would require the acceptance of the notion that the continental shelf beyond two hundred nautical miles is also subject to the freedom of the high seas since it is not specifically mentioned in Article 86.[24] More to the point, such an interpretation would tend to ignore the fact that Article 86 refers to the waters, and not at the landmass beneath the waters.[25]

An interesting argument as to why Part XI cannot apply (and, therefore, why Part VII applies to marine genetic resources) was raised by the United States during the 2008 Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction (hereinafter the 'Ad Hoc Working Group'). The United States' representatives argued that, subsequent to the adoption of UNCLOS, the Parties to UNCLOS negotiated and adopted the Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea (hereinafter the '1994 Agreement').[26] At this time, the United States argued, much scientific advance-

[23] Ogley, *Internationalizing the Sea-bed, supra* note 10, at 31, evoking Hardin's 'Tragedy of the commons' metaphor. See Garrett Hardin, 'The Tragedy of the Commons' 162 *Science* (1968) 1243–1248. Hardin postulated that medieval commons grazing areas suffered from inevitable degradation as, so long as access was free, there would always be an incentive for each villager to add livestock to the common total – and that this model can be extended to explain degradation in other environmental areas. On the two approaches to the sea-bed, see also Katherine Dixon, 'Law of the Sea – Deep Seabed Mining – United States Position in Light of Recent Agreement and Exchange of Notes with Five Countries Involved in the Preparatory Commission of the United Nations Convention on the Law of the Sea, 18 *Georgia Journal of International and Comparative Law* (1988) 497–515. See also F. V. Garcia Amador, *The Exploitation and Conservation of the Resources of the Sea: A study of Contemporary International Law* (2nd ed., A. W. Sythoff, 1963) 19 *et seq*.

[24] Article 77(1) of UNCLOS provides that the coastal state exercises 'sovereign rights over the continental shelf'. This would, without more, exclude any possibility of applying the freedom of the seas to the continental shelf.

[25] In this connection, Rembe notes that 'the regime of the high seas mainly regulates the status of the superjacent (*sic)* waters.' Rembe, *Africa and the International Law of the Sea, supra* note 12, at 47. However, she further notes that the freedom to lay submarine cables and pipelines, a typical freedom of the high seas, applies to the seabed. *Ibid*.

[26] Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea, New York, 10 December 1994, in force 28 July 1996, 33 *International Legal Materials* (1994)

ment had been made and marine genetic resources appeared to fall squarely within the knowledge of the scientific community. The failure, in the light of the scientific knowledge already widely available about marine genetic resources, expressly to include these resources in the 1994 Agreement, indicates that the parties intended to exclude these resources from the scope of the law relating to the Area. This argument, interesting though it may be, is fundamentally flawed. While the provisions of Part XI have been significantly watered down by the 1994 Agreement, the question of whether genetic resources are to be governed by Part XI remains unaffected by the Agreement.[27] All that the Agreement does, in response to US concerns, is give greater weight to the input of stronger economies in decision-making,[28] thereby adopting a more market-oriented production policy.[29]

A further point that may be, and has been, used to advance the argument that Part VII applies to genetic resources, is that the whole process relating to the discovery and ultimate utilization of genetic resources for commercial purposes, referred to as 'bio-prospecting', is indistinguishable from marine scientific research. Article 87(1) provides that freedom of the high seas includes 'freedom of scientific research'.[30] Article 238 provides that all states 'have the right to conduct marine scientific research'. However, even this line of reasoning is not without difficulties. In the first place, Article 238 itself is made subject to the other provisions of the Convention.[31] More to the point, Article 241 provides that 'marine scientific research activities shall not constitute the legal basis for any claim to any part of the marine environment *or its resources*'. Furthermore, Article 256 of the Convention provides that the right to conduct marine scientific research in the Area is to be exercised 'in conformity with the provision of Part XI'. Whether or not Article 256 has the effect of bringing genetic resource within the benefit sharing regime created by Part XI is unclear. What is clear is that Article 256 makes it very difficult to sustain the argument that the marine scientific research provisions effectively imply that genetic resources in the Area are subject to freedom of the high seas.

Between the two extremes, i.e. that if Part XI does not apply then either Part VII applies or there is a lacuna, lies a third possibility. Under this alternative approach,

1309. Article 2(1) of the Agreement provides that in 'the event of any inconsistency between this Agreement and Part XI, the provisions of this Agreement shall prevail'.

27 In response to the comment from the United States, the South African representative noted that the mandate for the negotiations of the 1994 Agreement was to deal with specific concerns raised by a specific delegation; not to reopen negotiations on all aspects of Part XI (statement on file with author).

28 See, generally, Section 3 of the Annex to the Agreement.

29 See, generally, Section 6 of the Annex to the Agreement. For an in-depth analysis of the effect of the Agreement see Jonathan I Charney, 'Law of the Sea Forum: The 1994 Agreement on the Implementation of the Seabed Provisions of the Convention on the Law of Sea' 88 *American Journal of International Law* (1994) 687–714 who describes, point by point, what the US' concerns with Part XI were and how the Agreement attempts to remedy these concerns.

30 Article 87(1)(f) of UNCLOS.

31 Article 238 provides as follows: '[a]ll States, irrespective of their geographical location, and competent international organizations have the right to conduct marine scientific research *subject to the rights and duties of other States as provided for in this Convention*' (emphasis added).

while the non-applicability of Part XI to genetic resources would imply that the specific regime established in Part XI is inapplicable, the principle that the seabed in areas beyond national jurisdiction is part of the heritage of mankind nevertheless applies. The plausibility of this construction flows from the fact that the notion that the deep seabed is the common heritage of mankind predates UNCLOS.[32] In a sense the argument here would not be too dissimilar, although not exactly the same, as the approach taken by the International Court of Justice in the *Case Concerning Military and Paramilitary Activities,*[33] where the court confirmed that a pre-existing rule (in this case a principle) survives its inclusion in a treaty. The argument here would be slightly different to the approach taken by the Court in the *Nicaragua case* because while in that case the Court sought to emphasize the similarities between the treaty rule and the customary rule, with the common heritage of mankind the argument would be to emphasize aspects of the principle which were not included in the treaty. To make this argument successfully would, of course, require the acceptance of the view that the common heritage of mankind principle applicable to the deep seabed has attained the status of customary international law. Such an argument, while undoubtedly unacceptable to some, is not without merit.[34] Detractors will suggest that it is too early to proclaim the common heritage of mankind as a principle of international law.[35]

The objective, here, is not to make the argument that the common heritage of mankind is or is not a principle of international law. The point is merely to bring to light some of the many uncertainties surrounding the applicability of Part XI of the Convention to genetic resources found in the seabed in areas beyond national jurisdiction. These uncertainties open up possibilities for different interpretations of the Convention (and international law generally). This paper turns now to consider, in

[32] Franck, *Fairness in International Law*, *supra* note 8, at 76, notes that the principle was first promoted in the 1950s.

[33] *Case Concerning Military and Paramilitary Activities in and Against Nicaragua (Nicaragua v. United States)* ICJ Reports (1986) 14.

[34] The fact that the Sea-bed Declaration (see *supra* note 11) was adopted unopposed is in itself a suggestion of the potency of the principle. Furthermore, as Ogley notes, four years after the adoption of the declaration 'even those whose scepticism about the notion of the "common heritage of mankind" had led them to abstain on the Declaration were now ready to invoke that notion as the standard by which proposals were to be judged'. Ogley, *Internationalizing the Sea-bed*, *supra* note 10, at 2. Even the US statement repudiating Part XI of the Convention seems to accept the validity of the principle: According to the statement, the US was seeking to make the Convention 'work for the benefit of all nations.' Quoted in Charney, 'Law of the Sea Forum', *supra* note 29, at 688. On the other hand, Rembe notes that while no state has expressed views against the principle, the different interpretations of the principle that have been advanced 'have emptied it of its original meaning'. Rembe, *Africa and the International Law of the Sea*, *supra* note 12, at 50.

[35] See, for instance, Peter Malanczuk, *Akerhurst's Modern Introduction to International Law* (7th ed., Routledge, 1997) at 208 who says, inter alia, that 'the legal content of the common heritage of mankind principle remains obscure'. Further, and more definitively, he adds that 'the common heritage of mankind principle, as applied to the utilization of resources in areas beyond national jurisdiction, has certainly brought a new and useful dimension into the general development of international law, but in essence it is still a controversial and vague political principle'.

the light of the different interpretations, the various possibilities open to those involved in United Nations forums to find a solution.

3 Current development relating to genetic resources on the deep sea-bed

3.1 The current UN debate

The current debate relating to the sharing of benefits from the exploitation of genetic resources on the seabed beyond national jurisdiction is reflected in two UN forums; namely, the Ad Hoc Working Group and the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea. In addition, the annual report of the United Nations Secretary General on Oceans and the Law of the Sea also reflects the debate. What is evident from the various reports of these forums is that there is much disagreement about the regulation of genetic resources in marine areas beyond national jurisdiction. While some states, as suggested above, argue that the exploitation and utilization of genetic resources in areas beyond national jurisdiction is, or should be, governed by the freedom of the high seas; others argue that such regulation is, or should be, governed by the benefit-sharing regime established under Part XI.

The ambivalence relating to the legal status of genetic resources in areas beyond areas of national jurisdiction is reflected in the Report of the Secretary-General of the UN on Oceans and the Law of the Sea. First, the Report suggests that there is no *lacuna.* The report provides that the Convention apply to "*all* activities in the oceans'[36] and that its 'jurisdictional framework and general principles' applies to conservation and sustainable use of marine resources beyond areas of national jurisdiction.[37] The ambivalence of the Report is reflected in the Report's treatment of the principles which are to apply to genetic resources. The Report begins by stating outright that the genetic resources in the *high seas* 'are subject to the regime of Part VII of UNCLOS'. However, in the very same sentence, the Report states that genetic resources are subject to 'other relevant provisions' of UNCLOS.[38] The Report further provides that '[c]ommercial activities relating to genetic resources are not *specifically* addressed by Part XI of UNCLOS'.[39] Two points are worth mentioning here. First, while it is

[36] UN Doc. A/60/63/Add.1 (2005) para. 177 (emphasis added).

[37] As above. At para. 199 the report provides that the 'legal framework established by UNCLOS applies to all activities in the oceans and seas, including those relating to genetic resources'. While this is repeated in the 2007 report, the latter is more direct with regards the uncertainty and very non-committal: 'Different views have been expressed, in the context of the work of the United Nations General Assembly, regarding the legal status of genetic resources found in the Area'. UN Doc. A/62/66/Add.2 (2007) para. 233.

[38] UN Doc. A/60/63/Add.1 (2005) para. 199. To be true, the sentence makes a cross reference to para. 180 of the report. Para. 180 of the report does not include Part XI which may suggest that Part XI does not apply to genetic resources.

[39] *Ibid.* (emphasis added).

true that commercial activities are not 'specifically addressed' in Part XI, it is equally true that they are not 'specifically addressed' in Part VII. The second point worth mentioning is that the use of the word 'specifically' suggests the possibility that Part XI *may* be applicable; or, to put it more accurately, does not exclude the possibility that Part XI *may* be applicable to genetic resources on the seabed beyond areas of national jurisdiction.

The 2006 Report of the Ad Hoc Open-ended Informal Working Group on the conservation and sustainable use of marine biological resources beyond areas of national jurisdiction reflects, similarly, a divergence of views on the legal principles applicable to genetic resources in areas beyond national jurisdiction. During the proceedings of the Ad Hoc Working Group there were a number of developing states which expressed the view that genetic resources should be regulated under Part XI of the Convention. For these states,

> in accordance with their understanding of the principle of common heritage of mankind, access to genetic resources in the deep seabed beyond areas of national jurisdiction should be, in principle, like the mineral resources in the Area, subject to the sharing of benefits based on considerations of equity.[40]

In articulating their position, the developing countries not only pointed to the common heritage of mankind principle but also to the provisions of the Convention relating to marine scientific research.[41] More to the point, these countries have noted the 'symbiotic relationship that genetic resources have' with other resources on the deep seabed. For developing countries in this forum, any regime relating to genetic resources in marine areas beyond national jurisdiction should adequately cater for 'the question of access to those resources and legal options for benefit-sharing'.[42]

In the same forum, other states expressed the view that genetic resources in marine areas beyond national jurisdiction 'must be consistent with international law, including the freedom of navigation'.[43] As far as these states were concerned there is 'no legal gap with respect to living resources in areas beyond national jurisdiction and… the freedom of the high seas were applicable to activities relating to marine genetic resources'.[44]

The theme of the seventh meeting of the UN Informal Consultative Process on Oceans and the Law of the Sea in 2006 was 'ecosystem approaches and the oceans'.

[40] Report of the Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction, UN Doc. A/61/65 (2006), para. 29.
[41] See, for instance, *ibid*. para. 28 where these states note that Article 143 of the Convention provides that activities in the Area should be 'for the benefit of mankind as a whole'. See also *ibid*. para. 71.
[42] *Ibid*. para. 29.
[43] *Ibid*. para. 30.
[44] *Ibid*.

Even in the context of discussions of ecosystem approaches and oceans, the debate on genetic resources is reflected, albeit implicitly. The statement made by the representative of the Government of the Republic South Africa, speaking on behalf of the G-77 and China, at the UN Informal Consultative Process, captures salient points of the debate.[45] The statement sought to make the connection between sustainable development and benefit-sharing of genetic resources in marine areas beyond national jurisdiction.

For its part, the report of the UN Informal Consultative process, under the agreed consensual element, proposes the '[e]ffective and full implementation of the mandate of existing multilateral organizations, including those established under UNCLOS'.[46] Many hours were spent negotiating this sentence, the initial draft of which spoke of extending the mandate of the International Seabed Authority, the institution charged with the implementation of the benefit sharing regime under Part XI of UNCLOS.

In the light of the fierceness of the marine genetic resources debate within the United Nations, the Eighth Consultative Process on Oceans and the Law of the Sea under the theme marine genetic resources was awaited with both trepidation and excitement in June 2007. There was excitement because of the possibility that a full week of intense negotiations could lead to greater understanding between the two sides and perhaps some compromises. There was also trepidation because of the real possibility that the discussion on the legal framework could overshadow the many other issues related to marine genetic resources and derail the process. On the final day of the discussion, with the parties negotiating the agreed consensual elements to transmit to the UN General Assembly, the negotiations stalled on how to reflect the divergence of opinion regarding the legal framework. The US and certain other states, such as Canada, Iceland and Japan, did not want any reference to the debate on the legal framework. In their view, the consensual elements ought only to reflect those issues on which there is consensus. The countries of the G-77 and China, fearing that the failure to reflect their objections to the current practice (of unilateral exploitation of marine genetic resources on the deep seabed) might be construed as acquiescence leading up to the formation of customary international law, insisted on the reflection of the divergence of opinion relating to the legal framework. The parties were unable to bridge this gap, with the result being that consensual elements were not adopted.

All of these debates in the UN forums relating to benefit-sharing of genetic resources in marine areas beyond national jurisdiction reflect the ambiguities in the Convention described above.

[45] Statement by the representative of the Government of the Republic of South Africa to the United Nations Informal Consultative Process on Oceans and the Law of Sea (June 2006) (on file with the author).

[46] Report on the work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its seventh meeting, UN Doc. A/61/156 (2006), para. 7(g).

3.2 Relevant legal principles outside UNCLOS

Much has been written on the need for an integrated approach to be taken to the creation and implementation of international law.[47] Thus, while the mantra that UNCLOS is the legal framework within which all activities in the oceans and seas are to be carried out remains true; in understanding the implications of the UNCLOS, general principles of international law as well as of analogous regimes are relevant. This is particularly true in light of the patent ambiguities inherent in UNCLOS in respect of genetic resources in areas beyond national jurisdiction.

One of the most obvious issues requiring discussion is the concept of sustainable development and its potential contribution to the debate over use of genetic resources.[48] UNCLOS arguably has an important role to play in driving the concept of sustainable development.[49] A useful starting point for the relevance of sustainable development in this area would be the statement made in 2006 by South Africa on behalf of the G-77 and China to the United Nations Informal Consultative Process on Oceans and the Law of the Sea.[50] According to the statement, 'the norms emanating from sustainable development law, policy and discourse' must be taken into account. The principles referred to 'include the principle of intra-generational equity as embodied in the principle of common but differentiated responsibilities'. According to the South African representative:

> it is important to recall the issue that was under discussion in the Ad Hoc Open-Ended Informal Working Group meeting that took place in February [2006] and to emphasise that we strongly support the continuation of that process. In particular, co-chairs, we wish to recall the inputs made by the G-77 and China to that meeting on the need for the sharing of benefits arising from the exploitation and utilisation of genetic resources. In the context of the common but differentiated responsibilities and sustainable development in general, the issue of the sharing of benefits from the exploitation and utilisation of genetic resources is

[47] See, for instance, Philippe Sands, 'Sustainable Development: Treaty, Custom and the Cross-fertilization of International Law' in Alan Boyle and David Freestone (eds), *International law and sustainable development* (Oxford University press, 1999), 39–60.

[48] The author's views on sustainable development are reflected in several publications including Dire Tladi, S*ustainable Development in International Law: An Analysis of Key Enviro-economic Instruments* (PULP, 2007). The publications through which these ideas on sustainable development were developed include, amongst several others, Dire Tladi, 'Of Course for Humans: A Contextual Defense of Intergenerational Equity' 9 *South African Journal of Environmental Law and Policy* (2002) 177–186; Dire Tladi, 'Strong Sustainability, Weak Sustainability, Intergenerational Equity and International Law: Using the Earth Charter to Redirect the Environmental Ethics Debate' 28 *South African Yearbook of International Law* (2003) 200–209; Dire Tladi, 'International Monetary Fund, Debt and Poverty: Towards a "Strong" Anthropocentric Model of Sustainable Development' 16 *South African Mercantile Law Journal* (2004) 31–49; and Dire Tladi, 'International Law for Sustainable Development: Sombre Reflections on World Bank Efforts' 29 *South African Yearbook of International Law* (2004) 164–192.

[49] See, for instance, UNGA Res. 59/24 (2004), preambular para. 2. See also UNGA Res. 61/222 (2006).

[50] Statement by the representative of the Government of the Republic of South Africa on behalf of the G-77 and China to the United Nations Informal Consultative Process on Oceans and the Law of Sea (June 2006).

> thus critical to any attempts to implement ecosystem approaches to areas within and beyond national jurisdiction.[51]

The point being made in this statement is that if we accept that the Convention is to contribute to sustainable development, then the principles emanating from sustainable development have to inform our understanding of the Convention. In particular, the redistributive component of sustainable development, i.e. intragenerational equity as reflected in the common but differentiated responsibilities principle, would require, as an equitable solution, a regime that promotes the sharing of benefits arising from the exploitation of genetic resources found in the deep seabed beyond areas of national jurisdiction. This reasoning from the G-77 and China statement assumes the acceptance of the common but differentiated principle as a guiding principle in international law.[52]

The developments in the biodiversity regime – the Convention on Biological Diversity Biodiversity (hereafter the CBD), any Protocols adopted under it and decisions emanating from the various administrative mechanisms developed under the Convention and the Protocols[53] – could also contribute to the debate on genetic resources in marine resources beyond areas of national jurisdiction. The provisions of the CBD relating to genetic resources arguably strike a delicate balance between, on the one hand, the needs of developed states (and specifically entities from developed states) to gain access to biological resources found in developed countries; and, on the other hand, the developing countries claim for benefits derived from using biological resources accessed in their territories.[54] This balancing act is reflected also in the FAO Treaty on Plant Genetic Resources, wherein one party grants access to the resources and another party compensates the first, either through technology transfer or financial compensation or both.[55] Indeed, during the 2008 Ad Hoc Working Group meeting, the European Union suggested that the multilateral system under

[51] *Ibid*.

[52] An interesting critique of the common but differentiated responsibilities principle can be found in Christopher D. Stone, 'Common but Differentiated Responsibilities in International Law', 98 *American Journal of International Law* (2004) 276–301. I have, in Tladi, *Sustainable Development in International Law*, *supra* note 48, responded to this critique and will not repeat that here. It suffices here to say that, regardless of our persuasions, sustainable development and its constituent principles are firmly entrenched in the body of international law.

[53] At present the only Protocol adopted under the Convention is the Cartagena Protocol on Biosafety (Montreal, 29 January 2000, in force 11 September 2003, 39 *International Legal Materials* (2000) 1027).

[54] Article 15(1) of the CBD recognizes, in accordance with the principle of sovereignty over natural resources, that 'the authority to determine access to genetic resources rests with the' government of the state in which resources are found. On the other hand, Article 15(2) of the Convention then provides that the states (where genetic resources are found), are to 'endeavour to create conditions facilitate access to genetic resources'. Further, suggesting this delicate balance, Article 15(4) of the CBD provides that access and benefit-sharing is to be on 'mutually agreed terms'. On the relationship between the CBD and UNCLOS, see, generally, Alan Boyle, 'Further Developments of the 1982 Convention on the Law of the Sea: Mechanisms for Change' in Freestone, Barnes and Ong (eds), *The Law of the Sea*, *supra* note 3, at 40–62.

[55] The FAO Treaty essentially institutionalizes the access to genetic resources and benefit-sharing through the multilateral system of access and benefit sharing. See Part IV of the FAO Treaty.

the FAO Treaty could serve as a model for benefit sharing regime (to be negotiated) under an UNCLOS implementing agreement. The same kind of balance reflected in the CBD and in the FAO Treaty is evident in the work done thus far by the Ad Hoc Open-Ended Working Group on Access and Benefit-sharing established by the Conference of the Parties to the CBD.[56] The draft text provided at the eighth meeting of the Conference provided for access to genetic resources to be 'dependent upon' benefit-sharing arrangements.[57]

The lessons that can be learnt from the biodiversity regime (including the work of the Ad Hoc Working Group on Access and Benefit Sharing) and the FAO Treaty, although useful to reflect on, are limited by various factors. An important factor is that with these instruments the genetic resources are found in areas of national jurisdiction and therefore the basis for the sharing is fairly obvious. It seems only fair, by any standard, that any country or society from which genetic resources are sourced should be compensated for the use by another country, or individuals from that other country, of such genetic resources for commercial purposes. In any event, the principle applicable in such circumstances would be sovereignty over natural resources under the jurisdiction of a state.[58] Elsewhere, the present author has described the kind of balancing act implied by the Biodiversity regime and the FAO Treaty as 'a transaction based approach to equity'.[59] This approach, by suggesting a contractarian model, essentially commercializes genetic resources. In a sense, this approach may represent the kind of common but differentiated responsibilities approach referred to by Stone as '*rationale bargaining CDR*'.[60] According to Stone, this kind of common but differentiated responsibilities approach should be 'welcomed as natural outcomes of mutually beneficial negotiations'.[61] The first problem with trying to apply such a contractarian approach is that the approach would not be practical in cases where genetic resources are found in areas beyond national jurisdiction, given that the developing country would have nothing with which to bargain. Apart from the problem of practicality, such an approach is completely unrelated to equity concerns and should not be 'welcomed' in any way.

3.3 What are the options?

What is self-evident from the above analysis is that UNCLOS does not *specifically* cover genetic resources in areas beyond national jurisdiction. Although the genetic

[56] See Decision VII/19 of the Seventh Meeting of the Conference of the Parties to the Convention on Biological Diversity, UN Doc. UNEP/CBD/COP/7/21 (2004).

[57] See Annex to Decision VIII/4 of the Eighth Meeting of the Conference of the Parties to the Convention on Biological Diversity, UN DOc. UN/CBD/COP/8/31 (2006), Annex I. The phrase 'dependent upon' in the said draft text is bracketed with 'related to' being the alternative phrase.

[58] See, most notably, Principle 21 of the Stockholm Declaration on the Human Environment (Report of the United Nations Conference on the Human Environment, A/CONF/48/14/Rev.1 (1972), 11 ILM (1972) at 1416). For discussion, see Tladi, *Sustainable Development in International Law*, *supra* note 48.

[59] *Ibid*.

[60] See Stone, 'Common But Differentiated Responsibilities', *supra* note 52, at 283 *et seq*.

[61] *Ibid.*

resources could easily be accommodated under scientific research provisions, these provisions do not definitively resolve issues surrounding the distribution of benefits arising from the exploitation and use of genetic resources in the deep seabed beyond areas of national jurisdiction. It thus becomes problematic to argue that genetic resources are to be dealt with either under the principles relating to freedom of the high seas or Part XI of the Convention.

Another point that becomes clear when one considers the above analysis is that the non-regulation of access to genetic resources can be attributed to the fact that at the time of negotiating UNCLOS, in 1982, the scientific knowledge surrounding genetic resources was very limited.[62] The scientific knowledge and focus, at that time, was limited to mineral resources. This has important implications for the interpretation of UNCLOS. For one thing it becomes difficult to suggest that the non-inclusion of genetic resources under Part XI implies that the intention of the parties, in the sense of Article 31(1)(c) of the Vienna Convention on the Law of Treaties, was to exclude genetic resources from the benefit sharing regime of Part XI. However, by the very same token, it is unsustainable to argue that by not specifically including genetic resources in Part VII the parties impliedly intended to exclude exploitation of genetic resources from the freedom of the high seas regime.

It seems that this very important area of international law cannot be left up to such fluctuating (auto-)interpretations and understanding. There has to be a common understanding of the legal principles surrounding the sharing of benefits derived from the exploitation and use of genetic resources found in deep seabed in areas beyond national jurisdiction. The status quo simply cannot yield such a common understanding. Both sides of the divide can offer cogent arguments for their viewpoints. By the same token, the arguments from both sides of the divide suffer from similar deficiencies. This suggests a need to either to conclude an implementing agreement to clarify the legal framework that is to govern the sharing of benefits arising from genetic resources found on the seabed in areas beyond national jurisdiction or to find a judicial solution to the divergence of opinion. While both the International Court of Justice and the International Tribunal for the Law of the Sea would have the competence to interpret the Convention, it is unlikely, given the fierceness of the debate, that states would be willing to leave the resolution of such a highly contested issue to a process over which they would have significantly reduced influence. It seems, for the time being at least, that the solution can most likely be found in an implementing agreement.

[62] See, for instance, discussion of the resources in the deep seabed in Ogley, *Internationalizing the Sea-bed*, *supra* note 10, at 4–12 which does not include genetic resources. See also Rembe, *Africa and the International Law of the Sea, supra* note 12, at 43 *et seq.* See further L. Dolliver M. Nelson, 'Reflections on the 1982 Convention on the Law of the Sea' in Freestone, Barnes and Ong (eds), *The Law of the Sea*, *supra* note 3, 28–39, at 34 where the author notes that unique genetic characteristics of the biological diversity support in the deep seabed was discovered fairly recently.

Any implementing agreement should be informed by general principles of international law and policy. In particular, the principles emanating from sustainable development, including the discourse on intra-generational equity and the principle of the common heritage of mankind, should be significant in any such implementing agreements.[63] The need for reflecting sustainable development-related discourse in any implementing agreement on use of genetic resources does not presuppose any particular conclusions about what the content of such an agreement should be. It would require, however, reflection on how questions of equity have been dealt with in other forums and other instruments. These other instruments include, of course, Part XI of UNCLOS. However, Part XI is not the only example of equity-pursuing measures in international law. Other examples can be found in multilateral environmental agreements such as the climate change regime and the biodiversity regime, and financing instruments such as the Global Environment Facility.[64]

4 Concluding remarks

The issues surrounding the sharing of benefits arising from the exploitation and utilization of genetic resources found in marine areas beyond national jurisdiction are complex and divisive. The various interpretative possibilities of UNCLOS which arise based on the North–South divide have only served to exacerbate the complexity and divisiveness of the issue.

Arguably, a solution to the impasse will only be found through the adoption of an implementing agreement to clarify the legal framework applicable to genetic resources in marine areas beyond national jurisdiction. The processes initiated within the UN, including the Ad Hoc Working Group and the discussions within the UN Informal Consultative Process on Oceans and the Law of the Sea, may well result in such an implementing agreement. There is, however, still much work to be done. If indeed these processes place us on a road to an implementing agreement then, while there is a need to be aware of the pot-holes and thorns ahead, we should be encouraged that when, in 1973, the process towards codifying the law of the sea was initiated the task must have seemed insurmountable. An alternative approach, although likely to be less palatable to states, is for the General Assembly to request an advisory opinion, either from the International Court of Justice or the Tribunal for the Law of the Sea.

[63] The use of the phrase sustainable development in the same breath as international law is likely to be objectionable to some. It is not necessary to go in the debate of the status of sustainable development in international law as the status of sustainable development in UNCLOS forums is undeniable, see, e.g., UNGA Res 59/24 (2004), preambular para. 2 and UNGA Res. 61/222 (2006). This issue is covered in Tladi, S*ustainable Development in International*, *supra* note 48, at chapter 4 in particular.

[64] See, generally, Franck, *Fairness in International Law*, *supra* note 8. For more information on the GEF, see <http://www.gefweb.org>.

How the Whale Got Its Impasse

Ed Couzens[1]

1 Introduction

The International Convention for the Regulation of Whaling (ICRW),[2] dating from 1946, is a strange beast. Obviously, given its date of creation, it is not a treaty concluded under the United Nations treaty system as such – being concluded roughly at the same time as the UN Charter[3] – although influenced thereby.

The ICRW is an early treaty, a short one, and stark. In one sense it is prescient and forward-looking, almost ahead of its time. This is evident when one considers that at the time it was concluded there was (certainly compared to today) little concern for conservation; and the world was in a rebuilding phase after World War II, with promotion of development being heavily prioritized over environmental protection. Yet the treaty includes in its Preamble the statement of its object as being 'to provide for the proper conservation of whale stocks and thus make possible the orderly development of the whaling industry'.

At the time it was concluded its parties were all *ad idem* – they were all whaling states (such as Australia, Iceland, New Zealand, Norway, South Africa, the UK and the US) and whaling was being promoted. Only four developing countries (Argentina, Brazil, Chile and Peru) participated. Prior to the aftermath of the Second World War, Japanese people did not eat significant quantities of whale meat – Japan being fairly isolationist in its approach to world affairs and not undertaking pelagic whaling efforts until the 1930s. This changed when the American Governor of Japan after World War II, General Douglas MacArthur, promoted the use of whale meat in

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[2] International Convention for the Regulation of Whaling, Washington D.C., 2 December 1946, in force 10 November 1948, 161 *United Nations Treaty Series* 72.

[3] Charter of the United Nations, 26 June 1945.

order to combat the lack of protein in the shattered country.[4] Most commentators (be they pro- or anti-whaling) consider that the treaty was, in fact, intended at its inception to be an 'oil cartel' – to enable a few parties to control whale oil prices worldwide.[5]

In a sense the treaty is remarkably conservationist[6] for its time – even though its parties all must have known at the time of their agreeing to it that they were going to flout/ignore the quotas which they would set for themselves each year. Friedheim describes the treaty as being 'remarkably prescient and "Brundtland"-like in its attempt to define its goal'.[7]

On the other hand, the ICRW does not contain many of the features of more modern treaties – such as what Kuokkanen has called 'problem-solving tools'.[8] The Treaty has, for instance, no dispute-resolving mechanism; and contains no provision for ongoing monitoring (although it does have a general supervisory body – the International Whaling Commission, or IWC – made up of the Parties themselves). Further, the treaty makes no provision for participation by non-governmental organisations – NGOs are allowed to attend, but do not have speaking rights.

As with views on whaling, so views on the ICRW itself seem to be polarized. There are those who have argued that the treaty is inherently extremely flexible. Patricia Birnie, for example, argues that the use of a Schedule provides the ICRW with a means of being flexible without the need to amend the treaty text itself.[9] Others argue that the treaty is badly outdated and out of kilter with modern environmental instruments. Scarff, for instance, argues that one of the worst problems faced by the ICRW is that it 'strives to achieve several goals which have proven incompatible'.[10]

At a time when the world's states seem to be moving toward synergies and clusterings of international instruments,[11] almost to recognising a 'biodiversity of conventions',

4 See Andrew Darby, *Harpoon: Into the Heart of Whaling* (Allen & Unwin, 2007) at 51–57.

5 See, from an anti-whaling stance, David Day, *The Whale War* (Grafton, 1987, 1992) at 41–43; and, from a pro-whaling stance, Masayuki Komatsu and Shigeko Misaki, *Whales and the Japanese: How We Have Come to Live in Harmony with the Bounty of the Sea* (Institute of Cetacean Research, 2003) at 19.

6 Although clearly not in a 'preservationist' sense – the goal was the utilitarian one of gaining maximum benefit from the sustainable use of a natural resource.

7 Robert L. Friedheim, 'Introduction: The IWC as a Contested Regime', in Robert L. Friedheim (ed.), *Toward a Sustainable Whaling Regime* (University of Washington Press, 2001) 3–48 at 20–21.

8 See, generally, Tuomas Kuokkanen, 'The Problem-solving Role of International Environmental Law', in Tuula Kolari and Ed Couzens (eds), *International Environmental Lawmaking and Diplomacy Review 2007*, University of Joensuu – UNEP Course Series 7 (University of Joensuu, 2008) 3–19.

9 Patricia Birnie, *International Regulation of Whaling: From Conservation of Whaling to Conservation of Whales and Regulation of Whale-watching: Volume I* (Oceana, 1985) at 169–170. An example of such flexibility is the use of the Schedule to put in place in 1982 a moratorium ('zero quota') on commercial killing – see *infra* note 30.

10 James E. Scarff, 'The International Management of Whales, Dolphins and Porpoises: An Interdisciplinary Assessment (Part One)', 6 *Ecology Law Quarterly* (1977) 323–427 at 353–354.

11 See, for instance, Kerstin Stendahl, 'Enhancing Cooperation and Coordination among the Basel, Rot-

it sometimes seems that nobody wishes to touch this one 'with somebody else's ten-foot barge pole'.

2 The relationship between the ICRW and other specific conventions

The ICRW's relationships with many other conventions are arguably characterised by a sense of isolation with the issue not being dealt with in other fora, even where these fora might reasonable be supposed inherently to need to consider whales and/or whaling.

The Convention on International Trade in Endangered Species (CITES),[12] for instance, has several times agreed by Resolution to recognize the IWC as the management authority for whales.[13]

The Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR)[14] provides, in Article VI, that: '[n]othing in this Convention shall derogate from the rights and obligations of Contracting Parties under the International Convention for the Regulation of Whaling…'. Sand points out that Article VI of CCAMLR 'expressly reserves (and hence would give priority to) treaty rights and obligations of member states under' the ICRW; which would, of course, severely limit the relevance of CCAMLR to any dispute between IWC members.[15]

The Convention on Biological Diversity[16] provides, in Article 22, that '[t]he provisions of this Convention shall not affect the rights and obligations of any Contracting Party deriving from any existing international agreement except where the exercise of those rights and obligations would cause a serious damage or threat to biological diversity'. In other words, suggest de Klemm and Shine, where there is a conflict between the CBD and any other agreement with regard to the conservation of biological diversity, the provisions of the former will prevail.[17] 'Strangely', per de Klemm, this provision does not appear to apply to the United Nations Convention

terdam and Stockholm Conventions', in Tuula Kolari and Ed Couzens (eds), *International Environmental Law-making*, *supra* note 8, 127–141.

12 Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington DC, 3 March 1973, in force 1 July 1975, 993 *United Nations Treaty Series* 243, <http://www.cites.org>.

13 See, for instance, Resolution 11.4 (2000) 'Conservation of cetaceans, trade in cetacean specimens and the relationship with the International Whaling Commission'.

14 Convention on Conservation of Antarctic Marine Living Resources, Canberra, 20 May 1980, in force 7 April 1982, 19 *International Legal Materials* (1980) 841, <http://www.ccamlr.org>.

15 Peter H. Sand, 'Japan's 'Research Whaling' in the Antarctic Southern Ocean and in the North Pacific Ocean in the Face of the Endangered Species Convention (CITES)', 17 *Review of International and European Environmental Law* (2008) 56–71 at 60.

16 Convention on Biological Diversity, Rio de Janeiro, 5 June 1992, in force 29 December 1993, 31 *International Legal Materials* (1992) 822, <http://www.biodiv.org>.

17 Cyrille de Klemm with Clare Shine, *Biological Diversity Conservation and the Law: Legal Mechanisms for Conserving Species and Ecosystems* (IUCN, 1993) at 25.

on the Law of the Sea (UNCLOS),[18] as the CBD states that parties must implement the CBD consistently with their rights and obligations under UNCLOS.[19]

Article 65 of UNCLOS, in turn, reads as follows:

> [n]othing in this part restricts the right of a coastal state or the competence of an international organisation, as appropriate, to prohibit, limit or regulate the exploitation of marine mammals more strictly than provided for in this part. States shall cooperate with a view to the conservation of marine mammals and in the case of cetaceans shall in particular work through the appropriate international organisations for their conservation, management and study.

In other words, the Convention, which was intended to codify as much as possible of the customary law relating to the use and protection of the oceans, specifically excludes covering the use and protection of cetaceans.

Another example of international avoidance of the subject of whaling can be found in the Protocol on Environmental Protection (the Madrid Protocol)[20] to the Antarctic Treaty.[21] Article 7 of Annex II ('Conservation of Antarctic Fauna and Flora') of the Madrid Protocol reads starkly: '[n]othing in this Annex shall derogate from the rights and obligations of Parties under the International Convention for the Regulation of Whaling'.

It seems, therefore, that there is at least a degree of careful avoidance of the whaling issue-area in other, newer, multilateral environmental agreements. One possible reason for this is that states attach so much importance to whaling that they can only get agreement elsewhere by excluding the issue-area. There are so many vested interests, and so much at stake, that negotiations would quickly reach impasse stage if cetacean management were not excluded.

Another possible reason is that states are so worried by the possibility of contaminating newer treaties with the conflict that has marked the ICRW for decades that they prefer to exclude the issue-area. What one then sees is states essentially pretending not to notice the 'whale in the room' and concentrating on more manageable issues.

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[18] United Nations Convention on the Law of the Sea (UNCLOS), Montego Bay, 10 December 1982, in force 16 November 1994, 21 *International Legal Materials* (1982) 1261.

[19] de Klemm, *supra* note 17; Article 22(2) of the CBD.

[20] Protocol on Environmental Protection to the Antarctic Treaty, Madrid, 4 October 1991, in force 14 January 1998, 30 *International Legal Materials* (1991) 1461.

[21] Antarctic Treaty, Washington, 1 December 1959, in force 23 June 1961, 19 *International Legal Materials* (1980) 860.

3 Membership and conflict

The membership issue in the ICRW is an interesting one – it has seen long periods without many new states joining, followed by several waves of new membership. It took many decades for countries other than the original 15–20 Contracting Governments[22] to become interested – membership fluctuated as countries like the Netherlands and New Zealand (1959) became tired of being told that they could not take as many Antarctic whales as they wanted to, and left.[23] It was only to be in the early/mid-1970s that others really began to take an interest as the true extent of the damage done to whale populations became apparent in the 1960s.

Shortly before the 24th Annual Meeting of the IWC, in London in 1972, the United Nations Conference on the Human Environment (UNCHE) met in Stockholm – at that time, the largest ever gathering of Heads of State or Government and the first ever truly global consideration of environmental issues. The Conference produced the Stockholm Declaration,[24] an important set of guiding principles; and led directly to the formation of the United Nations Environment Programme (UNEP).[25] It produced also a Resolution on whaling (recommending a 10-year moratorium on commercial whaling) which was forwarded to the IWC, presented by Maurice Strong, the Conference Secretary-General.[26] The IWC ignored it.[27]

However, as countries such as Australia, Germany, New Zealand, South Africa, the UK and the US began to abandon whaling – and countries such as Oman and the Seychelles to join with the express purpose of bringing whaling to an end – things changed. This was the second wave of membership and it culminated in the imposition in 1982 of a zero quota (or 'moratorium') on commercial whaling. This was achieved as increased membership[28] had given the 'conservation-minded' nations sufficient numbers to achieve a successful moratorium vote – a three-fourths majority being necessary. The decision was taken, but the agreement of many states was

[22] Fifteen states initially signed the 1946 ICRW: Argentina, Australia, Brazil, Canada, Chile, Denmark, France, Netherlands, New Zealand, Norway, Peru, South Africa, the UK, the US and the USSR. Iceland, Ireland, Portugal and Germany attended as observers. Japan joined within a few years. See <http://www.iwcoffice.org/commission/convention.htm#convsigs>.

[23] Patricia Birnie, *International Regulation of Whaling*, *supra* note 9, at 253–254.

[24] Stockholm Declaration, Report of the United Nations Conference on the Human Environment, A/CONF/48/14/Rev.1 (1972), 11 *International Legal Materials* (1972) 1416, available also at <http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=97&ArticleID=1503> (visited 6 April 2009).

[25] For an account of the founding of UNEP, see Donald Kaniaru, 'The Stockholm Conference and the Birth of the United Nations Environment Programme' in Marko Berglund (ed.), *International Environmental Law-making and Diplomacy Review 2005,* University of Joensuu – UNEP Course Series 2 (University of Joensuu, 2006) 3–22.

[26] Birnie, *International Regulation of Whaling*, *supra* note 9, at 364–365.

[27] See Day, *The Whale War*, *supra* note 5, at 43–49; and Scarff, 'The International Management of Whales', *supra* note 10, at 367.

[28] By 1982 there were 39 Parties (Contracting Governments) to the ICRW. Eight new Parties attended in 1982: Antigua, Belize, Egypt, Kenya, Monaco, Philippines, Fed. Rep. of Germany, and Senegal – all of which were, at the time, non-whaling states.

obtained by making a commitment to review the decision by 1990 at the latest.[29] It seems that the pro-whaling countries had been caught 'napping'. By the time they woke up, it was too late.

However, the numbers race then began in earnest – with both sides drawing in supporters. Japan, in particular, has drawn in largely developing countries from Africa, Asia, the Caribbean, and the South Pacific. The anti-whaling countries have drawn in, particularly, the new EU states. Probably, as at the time of writing and for the foreseeable future, the pro-whaling Parties will have to accept that they have lost the numbers race – while this side might occasionally have a slight numerical advantage and be able to win the odd resolution, it will not be able to muster the three-fourths necessary to be able to overturn the moratorium.

There was a sudden surge in membership at the beginning of the 21st century – with many states with no apparent interest in whaling choosing to join. By December 2008, there were 83 members – with recent arrivals including states such as Cambodia, Croatia, Cyprus, Greece, Israel, Laos, Lithuania, the Marshall Islands, Romania, and Slovenia.[30]

Accusations and counter-accusations fly. Cynical observers, particularly from anti-whaling NGOs, claim regularly that Japan has been bribing its supporters to join, particularly with investment in fisheries-related infrastructure – but Japan points out that it gives 'overseas development aid' ('ODA') also to opponents of renewed commercial whaling, such as Brazil. The anti-whaling countries are, arguably, no less guilty – it seems that many of the new EU states, for instance, have joined as part of a *quid pro quo* for EU membership (or at the very least in a spirit of European Community unity).

On one hand, this has created a highly artificial situation with many states that have no interest in, or little knowledge about, the issue-area muddying the waters. Many of these states have taken the opportunity to push their own agendas. The Caribbean states, for instance, take a vehement anti-colonialism line; the Small Island Developing States (SIDS) have found another forum in which to make their voices heard and exercise some influence at a time when they are increasingly worried about their futures; and the African states take a hard line on post-colonialist views too. The issues of sovereignty over natural resources and of food security are regularly raised at the IWC by these three groups of states. On the issue of food security, the argument is made today by pro-whaling states that minke whales have become so numerous that they are preventing the recovery of other species, especially the blue whale; and that whales are now competing with fishermen for scarce fish resources.

[29] Paragraph 10(e) of the Schedule to the ICRW, available at <http://www.iwcoffice.org/commission/convention.htm#convention>.

[30] 'Member nations (83)', available at <http://www.iwcoffice.org/commission/members.htm> (visited 11 December 2008).

One effect that this 'artificial situation' has had is to drive states like Norway and Iceland to seek alternatives – such as the North Atlantic Marine Mammal Commission[31] – and to move toward regional control and management, rather than global governance. On the other hand, one might argue that the sheer weight of numbers and the involvement of new states might serve eventually to bring the IWC fully into the fold of environmental instruments (where at present it seems, as has been argued above, fairly isolated) – perhaps this is even a good thing, in the sense that states with little traditional interest in whaling itself might be starting to realize that in fact they are not isolated from the *issues*, and that they *should* not be isolated. All states are affected by the philosophy of sustainable use which the world chooses to adopt at any one time, and if there is ever a global determination of this philosophy then all states ought to give input. As we battle toward concluding this philosophy, so we should value the input of all stakeholders, even where their direct interests in particular issues are small.

4 Conclusion: whaling in muddy waters?

The present writer has puzzled much over the reasons for the present impasse over the resumption of commercial whaling, and over the future generally, of the IWC. One of the most difficult questions to resolve is that of why it has come to have so much importance – the numbers of whales taken are very small, and would remain so under resumed commercial whaling (which would be highly restricted); there is no realistic possibility of a return to the mass and indiscriminate slaughter of the past; and it seems that not many people even wish to eat whale anyway – in the Scandinavian area whale meat is potentially so polluted with heavy metals (like cadmium and mercury) and polychlorinated biphenyls (PCBs) that people are warned not to eat whale meat more than once a month and pregnant or young women are advised not to eat it.[32] Japan maintains that Antarctic whale meat is relatively free from contaminants, but it seems that not many modern people in Japan eat it anyway – and cetacean meat is of course available from species not governed by the IWC, such as Dall's porpoises, dolphins and Baird's beaked whales.[33] So, why is the issue of such importance? Why is so much energy put into it; and why is so much money (with the cost of research whaling expeditions to the Antarctic being huge) invested?

Clearly, parties *could* make the ICRW/IWC work if they desired to. The cynic might say, however, that in fact parties are all relatively happy. Japan takes more whale meat every year under scientific permit whaling, and the taking of so-called 'small cetaceans', than it would be able to take for many years were commercial whaling to

[31] The North Atlantic Marine Mammal Commission is a regional organization with four members: the Faroes, Greenland, Iceland and Norway; see, generally, <http://www.nammco.org/>. The NAMMCO Agreement was signed at Nuuk, on 9 April 1992.

[32] See, generally, Ed Couzens, 'Chemicals and Marine Mammals' in Tuula Kolari and Ed Couzens (eds), *International Environmental Law-making*, *supra* note 8, 231–245.

[33] *Ibid*. at 236–237.

resume. Norway and Iceland are not bound by restrictions on the taking of whales and largely ignore contrary opinions. The anti-whaling countries, many of which have appalling environmental records, gain much credit in the eyes of their domestic constituencies for being opposed to whaling (at little cost to themselves). NGOs on all sides of the debate benefit from having an emotional fund-raising issue. It is hard to see where the drive for a resolution of the impasse might come from.

However, it might be that the issue has more importance than that, even. This is where explanation becomes really difficult. On one hand, the present writer thinks that perhaps it is of importance as the battleground on which states are fighting to determine the future philosophy of sustainable use which the world will eventually adopt and work with. In this sense, it is not simply whaling that is at stake; rather, it is hardwoods in tropical forests, it is mineral resources in developing countries, it is the ivory trade, it is the trade in all species of wild animals, it is fishing on a global scale. This, perhaps, is why states – possibly even without realizing the full implications – are fighting so hard – 'drawing lines in the sand' (or in the sea!) – and arguably this battle is taking place even if it is not the actual intention of the parties to make the IWC the battlefield.

Further, it might be that pro-whaling countries do believe that, currently, momentum is with them – and that the world's philosophy of sustainable use is changing; and that this is a battle worth fighting.

An even more cynical (although related) view which the present writer is beginning to feel may be right, however, is that the entire issue might be simply a huge 'red herring'. While Japan ties anti-whaling countries into the issue, with a skilful policy of antagonism and threats to withdraw, the whaling issue distracts anti-whaling countries and NGOs from global overfishing. The fear being that if the battle for whaling were to be lost, the battle for tuna would be the next to be fought, and so on.

Given the current high membership figures (with just less than half of the world's states having become members), and given the high level of conflict within the IWC, it is clear that the issue-area is an important one – whatever its state parties' motives might be.

PART III

SPECIFIC GOVERNANCE ISSUES IN REGIONAL SEAS

The Oceanographic Research Institute: Half a Century of Marine Research towards Meeting Challenges in the West Indian Ocean

Rudy P. van der Elst[1]

1 In the beginning

It all started around a campfire along the Indian Ocean shores of Zululand – a remote area of great natural beauty, biodiversity and underdeveloped coastal communities. Recognizing the marvellous, but neglected, marine and coastal biodiversity of the province of Natal, a group of academics, conservationists and anglers undertook an expedition to the remote Maputaland region, in the North-East of the province, in 1947. Conditions were tough – roads were few, swampy terrain and tropical diseases were many – but the rewards were substantial. Numerous unusual ecosystems and species were documented, and their spirit of adventure was transformed into a passion to conserve this enormously rich and valuable area. One balmy night, under an indigenous coastal milkwood tree (*Mimusops caffra*), expedition leader Dr George Campbell vowed to create a marine research institute that would spearhead the investigation of these natural resources and contribute to their long term conservation as a source of food security and biodiversity. From that spark of enthusiasm grew an organization that is today world famous: the Oceanographic Research Institute.

From 1947 to 1952, the pioneers toiled to gather funds and, at times, to overcome active opposition from those critics sceptical of their non-governmental plans. It was an era when excessive hunting and culling of the province's rich game was being questioned by some; and when a campaign to exterminate vast herds of game to protect livestock from the Nagana sleeping sickness drew fervent criticism from a

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growing environmental lobby.[2] It was also the beginning of a dark era in South Africa with the institutionalizing of Apartheid and segregation policies that included restrictions on access to coastal and marine resources. Despite these prevailing legal conditions, the membership-drive brochure explicitly focused on research that would support conservation and investigate increasing protein food for poor people, irrespective of race.

The concept underpinning this new institution was innovative. The idea was to develop a coastal and marine research institute of excellence, academically linked to the University of Natal[3] and financially supported by the funds generated from operating a public aquarium drawing on the tourism popularity of Durban. The South African Association for Marine Biological Research (SAAMBR)[4] was born as the parent body; with the Oceanographic Research Institute (ORI)[5] as its research institute; and with the Durban Aquarium (later Sea World – Durban) the fund-generating tourist attraction. This aquarium also proved a valuable educational tool, so that a formal Education Centre was later added.

Having overcome a number of hurdles, an aquarium, research laboratories and administration facilities were finally constructed on a prime site at the beach end of West Street on Durban's Golden Mile. One decade later, in March 1957, the foundation stone was laid and by the end of 1959 seawater poured for the first time into the aquarium's tanks. Though physically modest, the buildings and facilities were adequate to launch this visionary marine conservation initiative. The pioneering effort was recognized internationally with a feature in *Nature*, praising the pioneering efforts of the founders[6] and acknowledging the future potential and role of the SAAMBR and ORI.

The pioneering vision was clearly articulated in several telling quotes from the past. Founding President George Campbell, at the time of opening, said:

> ...this is the only organisation of its kind, developed by ordinary members of the public whereby all the profits from the present establishment, and future developments, will be devoted exclusively to research. No longer will we be dependent

[2] See, for instance, John A. Pringle, *The Conservationists and the Killers: The Story of Game Protection and the Wildlife Society of Southern Africa* (Books of South Africa, 1982) at 192–204. 'Nagana' is the term used for the disease in cattle; *trypanosomiasis* (or 'sleeping sickness') the term used when the disease affects humans. It was a belief widely-held at the time, particularly by cattle farmers, that the tsetse fly which transmitted the disease might be eliminated by destruction of wild animals.

[3] Now the University of KwaZulu-Natal; see <http://www.ukzn.ac.za> generally.

[4] See, generally, <http://www.saambr.org.za/>.

[5] See, generally, <http://www.saambr.org.za/div.php#ori> or <http://www.ori.org.za/>. During the fifth annual University of Joensuu/UNEP Course on International Environmental Law-making and Diplomacy, hosted by the University of KwaZulu-Natal from 29 June–11 July 2008, the participants visited ORI and were given a lecture by the present author.

[6] Robert Clarke, 'Marine Biology in Natal', 173 *Nature* (1954) 1164–1168.

> solely on overseas or Cape[7] scientists to provide advice and information on our own ocean.[8]

Campbell added, later, that '[t]hose who have supported us will be amply rewarded by the benefits that we will generate for our beloved Province'.[9] Equally telling were the inaugural remarks by the University of Natal's Professor Frank Bush, who said that:

> [i]t is envisaged that this research establishment will gain international standing and provide linkages with others along the Indian Ocean Rim, such as in Cochin and Perth. We should provide advice and knowledge to governments and people, irrespective of their race and colour.[10]

Uniquely, ORI remains a non-governmental marine research institute today. While its NGO status does present a constant financial challenge, it also adds to the value and objectivity of the scientific advice given – free from government or other stakeholder influence, where the NGO manages to establish credibility and independence. This has been recognized in different ways, including the role played by ORI in the development of new national policies post-Apartheid, such as the Fisheries and Integrated Coastal Zone Management policies.[11] It is especially fitting that some 50 years after that auspicious resolution under the milkwood tree in Maputaland, the entire region, known as the Greater St. Lucia Wetland Park, is now a UNESCO World Heritage Site,[12] much of the original motivation and scientific justification having been derived from ORI's research endeavours.

2 The catalyst of need

The SAAMBR was designed to provide a service, namely being the delivery of scientific advice about resources from the sea to people and their government. In no way would a research-NGO survive unless the services were relevant and sought after.

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7 This being a reference to the Cape Province, as it then was, of South Africa. At the time, only two of South Africa's four provinces (the Cape and Natal) had coastlines. South Africa now has nine provinces, four of which are coastal.

8 SAAMBR Opening address by Dr George Campbell – Durban, 22 June 1959.

9 SAAMBR fund-raising letter to SAAMBR members, 1959.

10 SAAMBR Opening address by Prof Frank Bush – Durban, 22 June 1959.

11 White Paper for Sustainable Coastal Development in South Africa (Department of Environmental Affairs and Tourism (DEAT), 2000) at 137; Developing New Fisheries Policy for a Democratic South Africa (ANC Fisheries policy, 1994) at 16. Rudy P. van der Elst, G. Branch, D. Butterworth, P. Wickens and K. Cochrane, 'How Can Fish Resources Be Allocated…Who Owns the Fish?' in D. A. Hancock, D. C. Smith A. Grant and J. P. Beumer (eds), *Developing and Sustaining World Fishery Resources*, Second World Fisheries Congress, Brisbane, 1996 (CSIRO, 1997) at 307–314.

12 See <http://whc.unesco.org> generally; and <http://whc.unesco.org/en/list/914> (visited 11 May 2009) for the specific entry on the Greater St Lucia Wetland Park (which has recently been renamed as the iSimangaliso Wetland Park).

This 'need' provided the initial impetus to develop ORI and later to strengthen its capacity and scientific standing. An important catalyst was provided by a spate of dramatic shark attacks in 1957/58 along the coast of Natal with 19 people killed in 23 years; seven in 1957/8 alone (the period being nicknamed 'Black December').[13] Although shark attack numbers were insignificant relative to many other forms of mortality (there were about 1 334 car accident deaths per year at that time), the effect was dramatically to threaten the tourist industry with a mass boycott by holiday-makers of coastal resorts. Panic gripped the tourism industry, which began clamouring for advice.

Two decades of shark research then began, including risk assessment, preventative measures, shark repellents, electrical barriers and a plethora of related topics. Significantly, research focused also on taxonomy, zoogeography and biology of sharks. Consequently, ORI produced a series of scientific papers that are still recognized today as pioneering research on shark behaviour, taxonomy and biology.[14] A further by-product was the establishment of the Natal Anti-Shark Measures Board, later renamed the KwaZulu-Natal Sharks Board (KZNSB).[15] However, this Provincial institution was arguably later to become over-zealous in its elimination of sharks, imposing abnormally high mortalities on local large shark populations and thereby contributing to an environmental cascade of events with negative effects for other species in sharks' ecosystems.[16] However, as public awareness about sharks changed and they moved from being seen as 'evil' or vermin to being understood to be ecologically desirable, the KZNSB gradually introduced less intrusive methods, thereby reducing the overall shark mortality and lowering the by-catch of harmless turtles and dolphins.

As international conservation awareness has increased in recent decades, actively promoted by quasi-international organisation like the IUCN[17] and non-governmental organisations like the WWF,[18] the study and protection of endangered species received attention. One such group was the sea turtles. Although loggerhead and leatherback turtles were known to be nesting in the Maputaland region, their conservation status was in peril and the scientific knowledge of their ecology inadequate. ORI embarked on a turtle research programme,[19] jointly with the provincial manage-

[13] David H. Davies, *About Sharks and Shark Attack* (Shuter and Shooter, 1964).

[14] For instance, A. J. Bass, J. D. D'aubrey and N. Kistnasamay, *Sharks of the East Coast of Southern Africa, 1: The genus Carcharhinus (Carcharhinidae)*, 33 ORI Investigational Report (1973).

[15] See, generally, <http://www.shark.co.za/>.

[16] See Rudy P. van der Elst, 'A Proliferation of Small Sharks in the Shore-based Natal Sport Fishery', 4 *Environmental Biology of Fishes* (1979) 349–362.

[17] The International Union for the Conservation of Nature; see, generally, <http://www.iucn.org>.

[18] The Worldwide Fund for Nature; see, generally, <http://www.wwf.org/> or, for a South African perspective, <http://www.panda.org.za/>.

[19] G. R. Hughes, *The Sea Turtles of South-East Africa, 1: Status, Morphology and Distributions*, 35 ORI Investigational Report (1974); and G. R. Hughes, *The Sea Turtles of South-East Africa, 2: The Biology of the Tongaland Loggerhead Turtle Caretta caretta L. with comments on the leatherback turtle Dermochelys coriacea L. and the green turtle Chelonia mydas L. in the study region*, 36 ORI Investigational Report (1974).

ment agency[20] to develop a detailed scientific understanding and especially a long-term population monitoring programme that is today one of the oldest ongoing sea turtle conservation programmes in the world.

Numerous issues requiring research came to the attention of the ORI. A severe drought in the early 1970s, matched by abnormally high levels of water extraction for sugar cane irrigation from several rivers, resulted in a massive water shortage in Lake St Lucia, Africa's largest estuarine system. Salinity levels peaked at 120ppt (four times normal seawater) with severe impacts on the nursery function of numerous species of fish and crustaceans. Threats to food security and the popular tourist angling destinations around St Lucia prompted a government commission of inquiry (the Kriel Commission, 1964–1966[21]) which in turn identified the need for scientifically-based solutions. This provided yet another catalyst for research, and ORI embarked on an intense phase of estuarine studies that resulted in a good understanding of estuarine resources, their vulnerability and especially aspects of improved estuarine management to protect nurseries and thus recruitment to fish stocks of value.

The hugely popular angling fish (the elf, shad or bluefish (*Pomatomus saltatrix*)) suffered a severe stock collapse in the period 1972–1975. The resultant public outcry prompted a formal government commission of inquiry, especially to address the strict management proposals put forward by ORI. In a tense week of acrimonious debate between fishermen and scientists, it was concluded that management was indeed necessary and that further research into angling and linefish species was urgently needed. As a result, a further two decades of research into linefish resources was entered into at ORI. With a blend of good science and favourable environmental conditions, the elf stocks recovered and this generated enormous applause and support from the public, fishers and management agencies.

Numerous other decision-support subjects of study emerged over the years. The inevitable growing demand for greater access to food resources, especially by disadvantaged communities, has engaged ORI in studies on key species such as lobsters (crayfish), linefish, mussels, oysters and several other invertebrate resources. The recognition that estuaries are a major asset in the coastal environment, yet seriously degraded, has been the basis of two large estuarine health studies. The uniqueness of South Africa's high-latitude corals reefs has underpinned a large reef ecology programme that is developing management approaches, especially in respect of the effects of climate change, to reduce long-term risks.

[20] Now known as Ezemvelo KZNWildlife; see <http://www.kznwildlife.com> generally.

[21] J. P. Kriel (ed.), *Report of the Commission of Inquiry into the Alleged Threat to Animal and Plant Life in St Lucia Lake, 1964–1966* (Government Printer, 1966).

While clearly committed to advancing marine research in KwaZulu-Natal, ORI scientists have not neglected their wider regional commitments. ORI has for years forged close links with other institutions in the West Indian Ocean (WIO), building up a network of collaboration in at least ten countries of the region. Much of this has been done in support of the Nairobi Convention,[22] the multilateral environmental agreement that is specifically designed to ensure protection and sustainable use of the coastal and marine environment of the WIO. This has resulted in joint approaches to the study and management of coral reefs, turtles, coastal zone management and shared fish stocks. The latter has seen the development of a comprehensive WIO fisheries database that provides insight into more than 165 different, mostly small-scale, fisheries in the region.[23] The development of marine protected areas (MPAs) has also been an area of focus, as reflected in the Transmap programme where transboundary MPAs were evaluated as an effective tool for creating a network of MPAs in the WIO.[24]

3 The status of resources

A high proportion of the coastal and marine resources of KwaZulu-Natal are endemic, with 13 percent of fishes being confined to a region stretching from southern Mozambique to Cape Agulhas.[25] Prominent amongst these fishes are the seabreams (*Sparidae*), a family of large and popular linefish species. Best known examples are the seventyfour (*Polysteganus undulosus*), the musselcracker (*Cymatoceps nasutus*) and the red steenbras (*Petrus rupestris*), which can exceed 50kg. All are slow growing, late maturing and many undergo sex reversal at some stage in their lives; making them vulnerable to overexploitation and difficult to manage in a conventional way. For years, excessive fishing pressure exerted on these species lowered their spawner biomass per recruit ratio (SB/R is an index of species' regenerative capacity) to below the critical level of 25 percent (see Figure 1 below). Belated management is now in place, but considering the longevity of these species it will take many years for the SB/R to reach the optimum target of 40 percent.

[22] Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region, Nairobi, 21 June 1985, in force 30 May 1996, available at <http://www.unep.org/NairobiConvention/The_Convention/Protocols/Convention_Text.asp> (visited 13 February 2009).

[23] See the Western Indian Ocean Fisheries Database, available at <http://www.wiofish.org>.

[24] See the Transboundary networks of marine protected areas for integrated conservation and sustainable development: biophysical, socio-economic and governance assessment in East Africa, available at <http://www.transmap.fc.ul.pt> and <http://www.transmap-metadata.org.za> (visited 11 May 2009).

[25] Margaret M. Smith and Phillip C. Heemstra, *Smiths' Sea Fishes* (Springer, 1986).

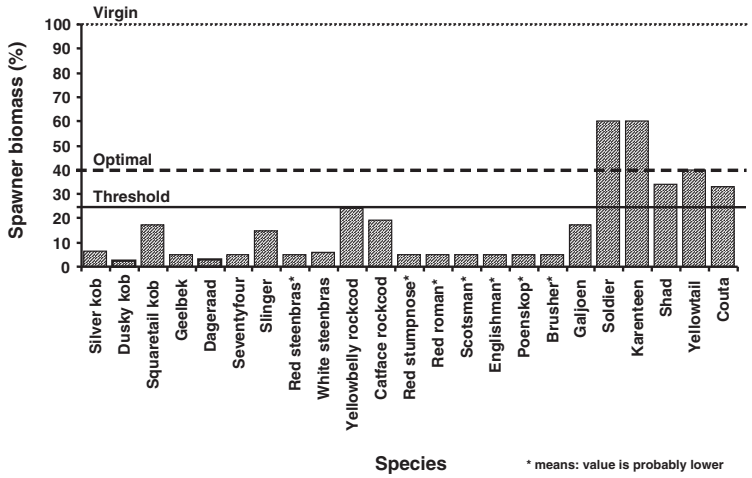

Figure 1. The spawner biomass per recruit values, expressed as a percentage of virgin stock, related to optimal and threshold biological indicator levels.[26]

While South African marine resources have a high level of endemism, many of the other species do not exist in isolation, but form part of the West Indian Ocean Ecoregion.[27] Just as fish, turtles, marine mammals and other forms of marine life do not adhere to political borders, so research and management will not be effective if done in isolation. Bilateral and regional management initiatives are an imperative for securing long-term sustainability in resource use. However, such multinational collaboration presents socio-political and economic challenges that have hitherto not been adequately overcome.

The West Indian Ocean is a region facing enormous challenges. Half of the world's population lives in countries bordering on the Indian Ocean. Countries of the WIO rim are underdeveloped and most have a low Human Development Index (HDI), some still declining.[28] Just as goods and services from the sea generate about half of the global GDP (US$ 12.6 trillion, as at 1997),[29] so too do fisheries of the WIO represent an enormously important resource. In Tanzania, fisheries contribute

[26] After Rudy P. van der Elst et al, 'Fish, Fishers and Fisheries', *supra* note 34.

[27] Amani Ngusaru, Kate Newman, Sarah Humphrey, Philip Goetenboth and David Hoyle, *The Eastern African Marine Ecoregion. Biodiversity Conservation Strategic Framework 2005–2025* (WWF, 2004), available at <http://www.worldwildlife.org/what/wherewework/coastaleastafrica/WWFBinaryitem7687.pdf> (visited 11 May 2009) at 50.

[28] See UNDP, *Human Development Report 2007/2008*, available at <http://hdr.undp.org/en/media/HDR_20072008_EN_Complete.pdf> (visited 18 March 2009).

[29] See UNEP, *'Marine and Coastal Ecosystems and Human Wellbeing. A synthesis report based on the findings of the Millennium Ecosystem Assessment'* (UNEP, 2006), available at <http://www.millenniumassessment.org/documents/Document.799.aspx.pdf> (visited 11 May 2009) at 32.

2.1–5 percent to the GDP, while in Mozambique an estimated 40 percent of foreign export earnings are derived from fisheries.[30] An estimated 1 million people depend on fishing in the WIO. For example, in Mozambique at least 75 000 people are 'employed' in the artisanal sector, while in Madagascar 40 percent of the population lives at the coast, most engaged in some form of marine harvesting. In Mozambique, 50 percent of people's animal protein intake originates from fish. Considering the additional challenges of sub-Saharan Africa, especially high levels of undernourishment and the impact of HIV-Aids, it is clear that the coastal and marine resources of the WIO represent an enormously valuable lifeline to millions of people.

Fisheries of the WIO currently generate a catch of more than four million metric tons (mmt) annually, as officially reported by the FAO. These landings are based on calculations and estimates submitted by individual countries to the Fisheries and Aquaculture Information and Statistics Service (FIES)[31] in Rome. For statistical reasons, the FAO divides the world's oceans into major fishing areas. The West Indian Ocean is Area 51, where a minimum of 41 countries reported harvesting fish during 2005, only 18 of these from Africa, with seven countries from Europe and North America.[32]

The total catch declared in 2005 from Area 51 was 4.39 mmt,[33] an amount that has remained high for several years, with 2005 reported as having the highest catch ever. However, it has become increasingly clear that incorrect reporting can seriously compromise these data. For example, Watson and Pauly have demonstrated that the official Chinese fisheries statistics were systematically over-reported in the late 1990s, ostensibly adhering to national growth-strategy reporting guidelines.[34] Conversely, van der Elst et al. estimated that the declared catch from Area 51 could be two times higher than that officially published if the non-reported artisanal landings were added.[35] Similarly, Jacquet et al have revealed substantial underreporting from Mozambique and Tanzania, suggesting that the declared catch for those countries could be 1.7 to 6.2 times larger than that reported to the FAO.[36]

[30] A. M Hoguane, H. Motta, S. Lopes and Z. Menete, *Mozambique National Report: Integrated Problem Analysis*; NEPAD, 'Development and Protection of the Coastal and Marine Environment in Sub-Saharan Africa', GEF MSP Sub-Saharan Africa Project (GF/6010-0016) (2002).

[31] See <http://www.fao.org/fishery/about/organigram/fie/fies> (visited 18 March 2009).

[32] FAO, 'Fishery Statistics: Capture Production', available at <http://www.fao.org/fishery/statistics/programme/3,1,1> (visited 18 March 2009).

[33] *Ibid*.

[34] Reg Watson and Daniel Pauly, 'Systematic Distortion in the World Fisheries Catch Trends', 414 *Nature* (2001) 534–536.

[35] Rudy P. van der Elst, Bernadine Everett, Narriman Jiddawe, Gerald Mwatha, Paula S. Afonso and David Boulle, 'Fish, Fishers and Fisheries of the Western Indian Ocean: Their Diversity and Status: A Preliminary Assessment', 363 *Philosophical Transactions of the Royal Society* (2005) 263–284.

[36] J. Jacquet, H. Fox, H. Motta, A. Ngusaru and D. Zeller, *Few Data but Many Fish: Marine Small-scale Fisheries Catches for Mozambique and Tanzania*, (WWF, 2008) at 19.

Besides the actual catch targeted and retained, there is also a large bycatch, much of which is discarded. Globally, the level of marine discards was estimated at around 8 percent for the period 1992–2001,[37] down from earlier (less precise) calculations of 32 percent.[38] Trawl and shrimp fisheries account for most of the discards, although the introduction of bycatch reduction devices (BRDs) and greater demand for using the bycatch as food, has kept the WIO discard levels lower than most other regions. Earlier estimates suggested that the WIO discard may have reached 1.4 mmt, but more recent revised estimates indicate a lower figure, closer to one-fourth of this amount. However, the precise quantity discarded will vary depending on prevailing market prices, types of gear and other factors. Nevertheless, 300 000 mmt still represents a significant wasted resource which can only have negative ecosystem implications.

Considering only the FAO declared landings, it is useful to draw some regional comparisons. In 2005, the South East Atlantic (Area 47) yielded a declared catch of 1.63 mmt, compared to the 4.39 mmt from Area 51.[39] This translates to 89.1 and 149 kg/km^2 per annum respectively. Although India takes by far the greater proportion of the Area 51 catch, the underreporting of artisanal fishers will still result in Area 51 generating an overall high level of productivity, despite popular claims to the contrary. In South Africa, the highly productive and valuable industrial fisheries off the West Coast (Area 47) are understandably treated with considerable 'reverence' in terms of allocation of research and management resources. However, the seemingly disproportionately lower allocation of funding and technical support to fisheries research and management by South Africa in Area 51 runs contrary to this Area's importance, including the fact that many more people are involved or employed in WIO artisanal and small-scale fisheries than in the industrial operations of the South East Atlantic.

An analysis of the data from WIO fisheries reveals several trends, some disconcerting. In a review of the data submitted to FAO, it can be seen that the number of species harvested has increased significantly, year after year, since 1955 (see Figure 2 below). While this trend may in part reflect a progressive improvement in the data and species identification, it is also a symptom of serial overfishing, where one depleted species is replaced by another to sustain the fleets' viability.

[37] Kieran Kelleher, *Discards in the World's Marine Fisheries. An Update*, FAO Fisheries Technical Paper No 470 (FAO, 2005).

[38] D. L. Alverson, M. H. Freeberg, S. A. Murawaski and J. G. Pope, *A Global Assessment of Fisheries Bycatch and Discards*, FAO Fisheries Technical Paper No 339 (FAO, 1994).

[39] FAO, 'Fishery Statistics', *supra* note 31.

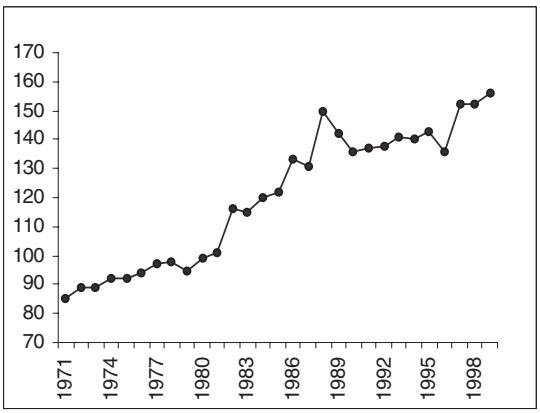

Figure 2. The total number of species reflected in annual landings for the West Indian Ocean.[40]

In a global review of the status of the world's fisheries based on 1990–1994 data, the FAO projected that the Indian Ocean (both West and East) held the greatest potential for expansion of the global catch – possibly by as much as 15 mmt.[41] These projections were made at a time when Atlantic and Pacific industrial fisheries were severely depleted and the world's industrial fleets were operating at a collective loss of US$ 54 billion.[42] It is, thus, not surprising that the tuna fleet in Area 51 increased enormously at that time (see Figure 3 below), taking their catch to more than 1 mmt

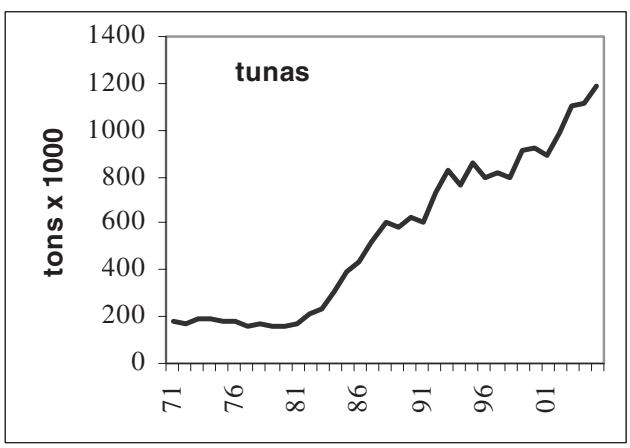

Figure 3. The increasing trend in tuna harvest of the WIO.[43]

[40] FAO, *Fishery Statistics: Capture and Production*, 100 (1) – year 2005 (FAO, 2007).
[41] FAO, *Review of the State of World Fishery Resources: Marine Fisheries* (FAO, 1997).
[42] P. Mace, 'Developing and Sustaining World Fisheries Resources: The state of the Science and Management', in D. A. Hancock, D. C. Smith A. Grant and J. P. Beumer (eds), *Developing and Sustaining World Fishery Resources*, Second World Fisheries Congress, Brisbane, 1996 (CSIRO, 1997) at 1–22.
[43] *Ibid*.

in 2005: a near six-fold increase in two and a half decades. Significantly, the drivers of this increased catch were the large international fleets from Far East and the EU that today account for most of the tuna harvest, from international waters, or in terms of bilateral fisheries agreements with individual countries, or in some cases illegally from country exclusive economic zones (EEZs).

Other trends are evident. For example, the harvest of echinoderms (starfish, sea urchins, etc) is revealing. Comprising mostly sea cucumbers, a popular delicacy in the Far East, this resource has all but collapsed in a typical 'boom-and-bust' fishery (see Figure 4 below). Considering that the artisanal sea cucumber fisher may receive anything from US$ 2.50 to US$ 10 per kg of dried product,[44] it is no surprise that these high-value external pressures resulted in over-exploitation. Poor coastal communities obviously succumb to such high-value opportunities, even where a resource has a poor conservation status.

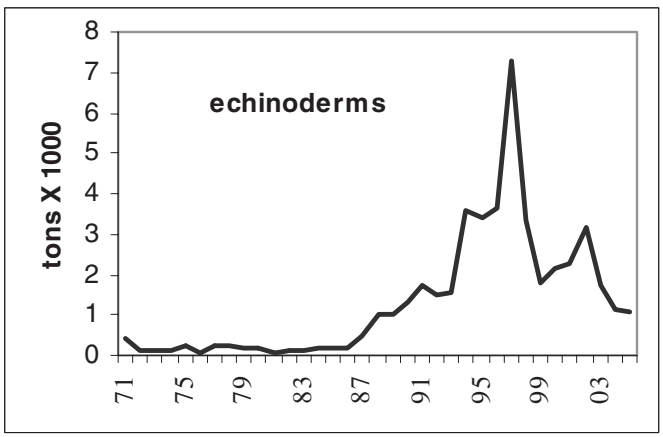

Figure 4. The overfished sea cucumber fishery of the WIO.[45]

External pressures are also responsible for the great increase in harvesting sharks, primarily for their fins. Dried shark fins are in high demand in the Far East – and, considering their enormous value, this too is a product that will present unreasonable pressures on poorer communities to harvest sharks non-sustainably for their fins alone. Although data are imprecise, the export value of dried shark fin has been rising sharply as demand exceeds supply, with average FOB ('free-on-board', being the price at which the vessel will sell) values in 2005 peaking at US$ 35 per kg of dried fin[46] and retail values alleged to exceed US$ 100 per kg (see Figure 5 below).

[44] C. Conand and N. A. Muthiga (eds), *Commercial Sea Cucumbers – A Review for the Western Indian Ocean* (WIOMSA, 2007).
[45] *Ibid.*
[46] FAO, 'Fishery Statistics', *supra* note 31.

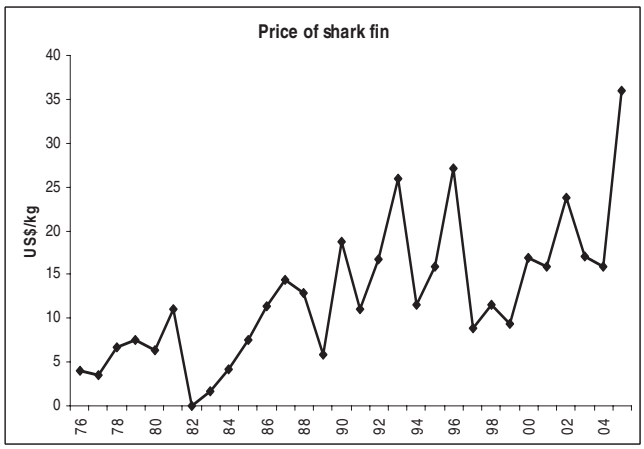

Figure 5. Trend in the FOB value of dried shark fin from the WIO.[47]

Another resource that has succumbed to high-value overfishing is the orange roughy (*Hoplostethus atlanticus*), a slow-growing and late-maturing deep water fish that forms aggregations at depths of up to 1 500m or even deeper. Some specimens are known to reach an age of 100 years. This fishery was found and lost in the West Indian Ocean within a matter of three years (see Figure 6 below) driven by high market value and non-sustainable harvesting largely imposed by external fleets. Many other resources harvested in Area 51 are also primarily destined for markets far away from the region itself. The shrimp fisheries, with their high levels of discarded by-catch are another example of external pressures and high values imposing challenges on sustainable resource management.

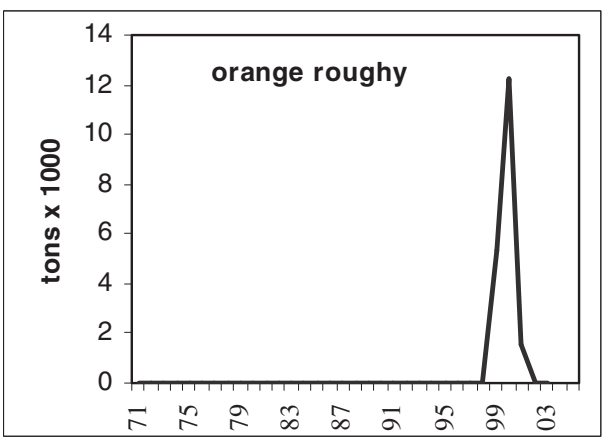

Figure 6. The short-lived orange roughy fishery in the SWIO.[48]

[47] *Ibid.*
[48] *Ibid.*

Considering the great external pressures imposed on the marine resources of developing West Indian Ocean nations by the global demand for high-value products in the developed world, there is a clear need for multinational collaboration and agreements that ensure sustainable use and fairness in access rights. Many of the species involved straddle two or more national waters and are thus a shared resource requiring shared management.

5 Fishery Access Agreements

In terms of the United Nations Convention on the Law of the Sea (UNCLOS),[49] nations can access fishery resources beyond their own borders, either in international waters or, by agreement, within the exclusive economic zones of other countries. Such intrusion into the domain of other nations should only be according to a set of rules and conditions which form the basis of so-called Fisheries Access Agreements. More than 20 such Agreements exist in the WIO, providing access to more than 200 vessels – especially from Europe, which in 2002 caught 20 percent of the EU's total fish, valued at €1 billion.[50] While these Agreements clearly generate much needed direct revenue and foreign exchange for the host country, there is increasing evidence that the full benefits may not always be adequately realized. There are also significant discrepancies in the amounts agreed on. For example, in East Africa, the general amount traditionally paid equates to about 10 percent of the value of the catch taken; while in West Africa it is believed to have been one-tenth of that for many years. Although payment arrangements are complex and varied, more recently recommended compensation rates range from 15 percent to 37 percent of the value of the catch.[51] It should be noted that discards are not normally included in these calculations, despite their ecological impact in many cases.

Some Fishery Agreements arguably border on piracy – as in the case of Somalia. After the break-up of Somali, the 'authorities' in Mogadishu continued to issue fishing rights to foreigners, who would then consider themselves within their rights to harvest anywhere along the 3 000 km Somali coast and its 200 nautical mile EEZ. The 'authority' was mainly Mr Aideed (sometimes 'Aidid') Junior, a well-known warlord who carried no credibility with leaders of other coastal regions, such as Puntland and the relatively peaceful Somaliland. Aideed 'sold' these permits, 'sanitized' through a London-based agency, thereby generating considerable revenue to support his war efforts – rather similar to 'blood diamonds' from war-torn African

[49] United Nations Convention on the Law of the Sea (UNCLOS), Montego Bay, 10 December 1982, in force 16 November 1994, 21 *International Legal Materials* (1982) 1261.

[50] Jane Mbendo and Amanu Ngusaru (eds), *The Eastern African Marine Ecoregion. Towards Sustainable and Equitable Fisheries Access Agreements in the West Indian Ocean Region* (WWF, 2005).

[51] W. Martin, M. Lodge, J. Caddy and K. Mfondo, *A Handbook for Negotiating Fishing Access Agreements* (WWF, 2001).

countries.[52] It seems that fishing communities in areas not controlled by Aideed were incensed and began to attack and impound fishing vessels, demanding ransoms for their release. In two years, the amount of revenue generated more or less approximated to the fees which companies would have been obliged to pay to gain access to fishing rights in those regions. It was also strongly rumoured, but not yet proven, that foreign vessels were dumping toxic cargo in Somali waters with permits purportedly issued by Mogadishu. This resulted in any vessel becoming suspect and the piracy widened, reaching crisis proportions today.[53]

Arguably, the situation (including the recent rise of piracy in waters off Somalia) might not have reached its current crisis proportions had warnings in the early-2000s through the United Nations Security Council not been ignored. In 2003 the Chairman of the Security Council Committee concerning Somalia suggested that the international community could not ignore, without serious and perhaps long-term consequences, the Somali maritime sector – including environmental and ecological issues.[54] According to this report, 'some faction and political leaders' issued fishing licences and 'generated considerable funds from them'; with 'much of the money [being] used to pay militias and procure arms and ammunition'.[55]

Central to the issue is oceanography and the abundance of fish. The Horn is known for its unique, monsoon-driven seasonal upwelling that provides nutrients for a spectacular increase in fish resources. However, these resources are located mostly in the province of Puntland and not anywhere near Mogadishu. Aideed's authority to issue permits for fishing off Puntland was thus highly questionable and clearly created regional tensions. It is not known for sure who was involved in the illegal fishing, but a number of developed nations were believed to have been implicated – and may still be.[56] Much of the catch comprised valuable tuna and was probably offloaded in the Seychelles, which has the world's second largest tuna processing factory. Entrance to that factory and its fishing wharf is strictly controlled and only possible with special permission and an armed police escort. Clearly, the Somali Fishery Agreements

[52] In this regard, the UN Expert Panel on Somalia, mandated by the UN Security Council to gather information on violations of the UN arms embargo, has pointed out that much money paid for fisheries access has ended up in the hands of warlords – with some fishing permits being typed out on the previous government's letterhead, and others bearing warlords' personal seals. See Report of the UN Expert Panel on Somalia, 25 March 2003, S/2003/223 and Report of the UN Monitoring Group on Somalia, 4 May 2006, S/2006/229, in Alec Crawford and Oli Brown, *Growing Unrest: The Links between Farmed and Fished Resources and the Risk of Conflict* (International Institute for Sustainable Development, 2008), available at <http://www.iisd.org/pdf/2008/growing_unrest_resources.pdf> (visited 8 June 2009) at 25, fn 118–119.

[53] United Nations Security Council Resolutions 1816 and 1838 (2008); in addition, there is wide media coverage on recent Somali piracy.

[54] UN Security Council, S/2003/223, Report of the Panel of Experts on Somalis pursuant to Security Council Resolution 1425 (2002), available at <http://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/SOMALIA%20S2003223.pdf> (visited 8 June 2009), at 9.

[55] *Ibid*.

[56] See, for instance, Mohamed A. Waldo 'The Two Piracies in Somalia: Why the World Ignores the Other?' *Transcend Media Service* of 4 May 2009, available at <http://www.transcend.org/tms/article_detail.php?article_id=1132> (visited 10 May 2009).

were fraudulent; but, not surprisingly, international fishing operations in the Somali region have been substantially curtailed following the escalation of piracy.[57]

There is a growing international drive to provide for more sustainable and equitable Fisheries Access Agreements in the WIO. In particular, the development of true partnerships that recognize the development needs of WIO-rim countries and island states. The Worldwide Fund for Nature (WWF) has been instrumental in developing strategies in support of such Agreements, identifying nine basic principles to promote fairness: review of existing Agreements, transparency, monitoring and enforcement, research cooperation, sustainability, environmental costs, protecting local fishers, more selective gear and closed areas.[58] Moreover, the individual countries that grant access to foreign fishing interests need to be empowered to deal on an equal basis with such issues. For one, they require greatly improved knowledge of the extent and status of resource within their EEZ so as to ensure fair compensation. There may also be merit in developing a collective regional approach to ensure better use of shared resources.

6 Do fisheries have a viable future?

While fast-growing and short-lived species may be able to recover, given the chance, it is clear that many of the slower growing apex predators, turtles and other vulnerable resources will require more attention than just another Fisheries Agreement. However, the situation is not all doom and gloom and there is growing recognition of the need for international action. As a result, there are an unprecedented number of well-funded research and development projects that have recently been initiated in the West Indian Ocean. Prominent amongst these is a trio of interlinked projects under the umbrella of the International Waters and Biodiversity thrust of the Global Environmental Facility (GEF).[59] Against the backdrop of the Large Marine Ecosystem (LME) approach, these projects address Land Based Activities and Sources of Pollution (WIOLAB, implemented by the UN Environment Programme (UNEP)),[60] oceanography, ecosystem health and productivity of the Agulhas and Somali LME's (ASCLME-project implemented by the UN Development Programme (UNDP))[61] and the South West Indian Ocean Fisheries Project (SWIOF-P implemented by the World Bank).[62] The latter project involves nine West Indian Ocean countries in a collaborative effort to develop a regional framework for capacity-building and scien-

[57] Indian Ocean Tuna Commission, Report of 11th session of scientific committee, Seychelles (2008), available at <http://www.iotc.org/files/proceedings/2007/s/IOTC-2007-S11-R%5BE%5D.pdf> (visited 11 May 2009).
[58] Mbendo and Ngusaru (eds), *The Eastern African Marine Ecoregion*, *supra* note 44.
[59] See, generally, <http://www.gefweb.org/>.
[60] See, generally, <http://www.wiolab.org/>.
[61] See, generally, <http://www.asclme.org/>.
[62] See, generally, <http://www.swiofp.net/>.

tific development towards the collective management of shared WIO resources.[63] The results of this participatory regional and ambitious five-year project will be a prelude to creating a collaborative management structure under the auspices of the South West Indian Ocean Fisheries Commission (SWIOF-C). While the various management agencies (such as Indian Ocean Tuna Commission (IOTC)[64] and SWIOF-C) have the potential to improve overall management, this will only be effectively achieved when countries are compelled to adhere to standards and allocations, instead of the voluntary compliance that is presently in place.

The Oceanographic Research Institute has been a strong proponent of the SWIOFP project, especially as it meets the underlying objectives of SAAMBR's founding vision. ORI's involvement is also a tribute to those early pioneers who correctly predicted the important role that could be played by a non-governmental marine research institute in increasing global understanding of marine ecosystems, with resultant implications for law-making and diplomacy. This paper has hopefully demonstrated the usefulness for environmental law-making and diplomacy of the research support which can be given by dedicated non-governmental organisations.

[63] Rudy P. van der Elst, J. C. Groeneveld, A. P. Baloi, F. Marsac, K. I. Katonda, R. K. Ruwa and W. Lane, 'Nine Nations: One Ocean: A Benchmark Appraisal of the South West Indian Ocean Fisheries Project (2008–2012)', 53 *Ocean and Coastal Management* (2009, in press).

[64] See, generally, <http://www.iotc.org/>.

NGOs versus European Pirates: Fisheries Agreements, IUU Fishing and the ITLOS in West African Seas

Cathrin Zengerling[1]

1 Introduction

The difficulty of implementing and enforcing international environmental law has often been highlighted. The legal regime of the United Nations Convention on the Law of the Sea (hereinafter 'UNCLOS' or 'the Convention')[2] is one of the most advanced international regimes in terms of enforcement tools. With the International Tribunal for the Law of the Sea (hereinafter 'ITLOS' or 'the Tribunal'), it has even put in place a judicial body to trace breaches of the Convention. Nevertheless, the luxury of judicial control is not equally available to all interest groups protected by the Convention. Access and standing provisions indirectly filter the legal rules which the Tribunal scrutinizes. In principle, only states have the right to initiate a trial. Generally they do so only when their individual exploitation-related interests are at stake. States hardly ever call for judicial support to protect collective environmental interests. Thus, although the Convention safeguards individual and collective marine interests; the latter are very unlikely to be surveyed by the judicial branch. Environmental, let alone social, arguments are not brought forward; and thus cannot be considered by the Tribunal in the same way as economic arguments. The jurisdiction of the ITLOS shows this imbalance.

European fisheries policies cause significant harm to fish stocks off West African coasts. Fisheries Agreements between the European Union (EU) and West African countries, and the implementation of these Agreements, for many years did not

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[2] United Nations Convention on the Law of the Sea (UNCLOS), Montego Bay, 10 December 1982, in force 16 November 1994, 21 *International Legal Materials* (1982) 1261.

comply with the requirements of the United Nations Convention on the Law of the Sea and the Straddling Fish Stocks Agreement.[3] Nowadays, so-called 'third generation' Partnership Agreements still show significant shortcomings when measured against modern standards of international environmental law. However, the question of whether these Agreements, and fishing activities of EU fleets in West African waters, comply with the UNCLOS or with the Straddling Fish Stocks Agreement has never been scrutinized by the ITLOS. None of the states involved has an interest in bringing such a case. This paper aims to highlight the necessity and benefits of broader access and standing rules in international judicial bodies such as the ITLOS to support the enforcement of international environmental law, to give equal access to justice and to give opportunities to international judicial bodies to contribute to sustainable development.

This paper first gives some background information on the European fisheries policy related to West Africa, the state of the fisheries, and the contents of Fisheries Agreements. It then focuses on the legal regimes governing fish stocks; and identifies some evidence for actual breaches of law. In its next step, the paper aims to answer the question of whether, and how, these possible infringements of international law could be given judicial attention. Finally, it is argued that broader access and standing rights for environmental non-governmental organizations (NGOs) before the ITLOS could generate more sustainable jurisprudence and better management of fisheries.

2 European Union fisheries policy in West Africa

2.1 Introduction

In the late 1970s the European Economic Community started to conclude bilateral Fisheries Agreements with coastal states – arguably to ensure access to fisheries resources. This policy emerged through the growing depletion of its own regional fish stocks, fleet over-capacity, the wish to secure employment opportunities for European Community (EC) citizens, as well as the need to feed a steadily growing demand for fish on the European market.[4] The first Fisheries Agreement was negoti-

[3] Agreement for the Implementation of the Provisions of the UN Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, New York, 4 August 1995, in force 11 December 2001, 34 *International Legal Materials* (1995) 1542, <http://www.un.org/Depts/los/convention_agreements/texts/fish_stocks_agreement/CONF164_37.htm> (visited 2 February 2009).

[4] Emma Witbooi, 'The Infusion of Sustainability into Bilateral Fisheries Agreements with Developing Countries: The European Union Example', 32 *Marine policy* (2008) 669–679 at 672; David Fluharty, 'Incorporating Ecosystem-based Management of Fisheries in the Asia-Pacific Economic Cooperation Context', 33 *Korea observer* (2002) 197–217 at 76. Highlighting the problem of fleet over-capacity and giving North Sea cod fishery as an example: Gerd Hubold, 'Fishery and Sustainability' in Peter Ehlers (ed.), *Marine Issues: From a Scientific, Political and Legal Perspective* (Kluwer Law International, 2002), 187–194 at 187f.

ated in 1977 with the United States of America. The first West African country that entered into such a 'cash for access' Agreement with the EC was Senegal in 1979. By 2002, Fisheries Agreements had been concluded with 20 countries, most of them in Africa.[5] Thus, for almost 30 years distant water fleets of EC countries have fished extensively off West African coasts.

2.2 Fishing in dead waters

The state of world marine fishery resources is increasingly alarming. After a steady increase of overexploited and depleted fish stocks observed in the 1970s and 1980s, the last report on the state of world fisheries by the United Nations Food and Agriculture Organization (FAO) in 2006 could only announce that, since then, the proportions of overexploited and depleted stocks have remained at best unchanged.[6] In 2005, as in previous years, about 75 percent of the world's fish stocks were fully exploited, overexploited or depleted.[7] The situation seems even more critical for some highly migratory, straddling and other fishery resources that are exploited solely or partially on the high seas.[8] According to a recent study by the Worldwide Fund for Nature (WWF), 90 percent of the stocks of big fish such as tuna, marlin, swordfish, shark, codfish and halibut have already disappeared.[9] The same study asserts that the global fishing fleet is 2.5 times bigger than sustainable fishery would allow for; and predicts the collapse of commercial fishery by 2050.[10]

European seas are amongst the most overexploited seas in the world. About two-thirds of Europe's commercial fish stocks are already outside biological safety limits.[11] In the North Atlantic between Europe and North America, for example, the biomass of used fish stocks declined to one-sixth within the past 100 years.[12] Nowadays, only about 50 percent of the EU's demand for fish can be supplied from its own fishing grounds,

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5 Brown, Oli, 'Policy Incoherence: EU Fisheries Policy in Senegal', Human Development Report 2005, (UNDP, 2005), available at <http://hdr.undp.org/en/reports/global/hdr2005/papers/hdr2005_oli_brown_29.pdf> (visited 2 February 2009), at 3. The problems of fisheries Agreements and marine environmental protection described in this paper also arise for East African waters. A table with current bilateral fisheries Agreements is available at <http://ec.europa.eu/fisheries/cfp/external_relations/bilateral_agreements_en.htm> (visited 3 March 2009). See also Andrew Mwangura, *IUU Fishing and Indian Ocean Piracy*, paper from ESA Workshop: Fishing Communities and Sustainable Development, 2006, available at <http://www.icsf.net/icsf2006/jspFiles/eastAfrica/pdfs/IUU%20fishing/esaandrewiuu.pdf.PDF> (visited 3 March 2009).

6 FAO, *The State of World Fisheries and Aquaculture 2006*; available at <http://www.fao.org/docrep/009/A0699e/A0699e00.htm> (visited 27 October 2008).

7 *Ibid*.

8 *Ibid*.

9 Ralf Kampwirth, *Unsere Ozeane: Geplündert, verschmutzt und zerstört. WWF-Bericht über die Bedrohung der Meere und Küsten* (WWF Deutschland, 2007), available at <http://www.wwf.de/fileadmin/fm-wwf/pdf_neu/WWF-Meeresbericht_Gepluendert_verschmutzt_zerstoert.pdf> (visited 2 February 2009) at 3.

10 *Ibid*. at 3–4.

11 Milan Ilnyckyj, 'The Legality and Sustainability of European Union Fisheries Policy in West Africa', *MIT International Review* (2007) 33–41 at 35, citing Charles Clover, the Environment Editor of The Daily Telegraph.

12 Kampwirth, *Unsere Ozeane*, *supra* note 9, at 4–5.

the other 50 percent has to be imported.[13] In its 2002 review of the Common Fisheries Policy (CFP), the Commission specifically noted the 'alarming' state of the Community fish stocks and the excessive fishing capacity of the Community fleet.[14]

There is scientific proof for an equally alarming trend in overfishing in West African waters. According to recent studies by the University of British Columbia, along the Northwest Atlantic African coast the fishing activity has tripled since the mid-1970s. Compared to 1950, the biomass of demersal (bottom-dwelling) stocks in the region has been reduced to one quarter by 2002.[15] This increasing (over)exploitation is not due to rising fishing activities of local fleets. It is estimated that 80–90 percent of the catches off West African coasts are made by non-domestic fishing fleets.[16] In addition to European Union countries, China, Korea and Japan, for example, also use the marine resources of West Africa.[17] However, the European Commission's Directorate General for Trade states that more than 80 percent of the fish exported by the Economic Community of West African States (ECOWAS) goes to the EU.[18] In a recent resolution the European Parliament 'notes with concern that according to the most recent assessment by the Fishery Committee for the Eastern Central Atlantic from 2006, many stocks in West Africa are overexploited and at least one is at risk of extinction'.[19] An assessment of 15 years of EU/Senegalese 'cooperation' has come to a clearly negative conclusion; from both an environmental and social point of view, fish stocks are depleted and artisanal fishery is disrupted.[20] Thus, the known facts appear to show conclusively that there is a significant relation between fishing activities of EU fleets and declining fish stocks in West African waters. A 2007 study by the International Organization for Migration (IOM) even showed a direct link between the decline of local fishery industry and increased migration in the case of Senegal.[21] Fisheries Agreements do not seem to generate sustainable fishing or fair benefit-sharing.

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[13] Frithjof Schmidt, *Wenn Fischer zu Migranten werden: oder Die Herausforderung, Politik entwicklungsfreundlich zu gestalten* (Frithjof Schmidt, 2008), available at <http://www.frithjof-schmidt.de/uploads/media/PCD-Broschuere_web.pdf> (visited 27 October 2008); Moustapha Kamal Gueye, 'Uncertainties Loom in EU-ACP Fisheries Trade Relations', 11 *International Centre for Trade and Sustainable Development – News and Analysis* (2007), available at <http://ictsd.net/i/news/bridges/4125/> (visited 2 February 2009).

[14] Communication from the EU Commission on the Reform of the Common Fisheries Policy "Roadmap", COM(2002) 181 final. Witbooi, 'The Infusion of Sustainability', *supra* note 4, at 671.

[15] Thomas Binet, *Fishing for Coherence in West Africa: Policy Coherence in the Fisheries Sector in Seven West African Countries* (OECD, 2008) at 10.

[16] Frithjof, *Wenn Fischer zu Migranten warden, supra* note 13.

[17] Vlad M. Kaczynski and David L. Fluharty, 'European Policies in West Africa: Who Benefits from Fisheries Agreement', 26 *Marine policy* (2002) 75–93 at 76.

[18] European Parliament Resolution of 17 June 2008 on policy coherence for development and the effects of the EU's exploitation of certain biological natural resources on development in West Africa, A6-0137/2008 (2008).

[19] *Ibid*. European Parliament Report on policy coherence for development and the effects of the EU's exploitation of certain biological natural resources on development in West Africa, A6-0137/2008 (2008) at 13 f.

[20] Kaczynski and Fluharty, 'European policies in West Africa', *supra* note 17, at 82.

[21] European Parliament Resolution A6-0137/2008 (2008), *supra* note 18.

2.3 Fisheries Agreements

The Fisheries Agreements between West African countries and the EU can be divided into three different types; or, as sometimes described, into three different 'generations'. The early first generation Agreements were so-called 'cash for access' Agreements. They were driven by economic interest alone. The EU Directorate General for Fisheries explicitly claimed that the Agreements were purely commercial in nature and that they had nothing to do with development or reduction of poverty.[22]

The second generation Agreements were part of the EU's new strategy for distant water fishing and were aimed at re-shaping access Agreements to foster sustainable fishing and mutual benefit. Accordingly, they were called 'Fisheries Partnership Agreements' (FPAs). However, there was no intention to diminish the EU fleet capacities; it was argued that the partnerships would only entail that EU vessels are replaced by vessels from third countries or by vessels flying flags of convenience.[23] The latest Agreements concluded can be called 'third generation Agreements'. They aim for a higher consistency with the objectives of the EU development and cooperation policy, elimination of subsidies, enhanced scientific research and better monitoring systems.[24]

Fisheries Agreements were already concluded before the UNCLOS entered into force in 1994. Now the UNCLOS explicitly provides for these instruments. According to Article 62, a country shall, in certain circumstances, sell its surplus of fish stocks to other countries.[25] However, a 'free', market-based sale of the surplus of fish stocks as aimed for in Article 62 of the UNCLOS leads, under the given realities, to systematic overexploitation and depletion of the West African fish stocks without actual development benefits.

The vicious circle goes in the following manner. Access fees are significant sources of income for many West African countries. In Guinea-Bissau, for example, they account for approximately 40 percent of the total government income.[26] This puts pressure on West African governments continuously to enter into access Agreements and even to pretend to have surpluses to sell. It does not, however, give them a strong position for negotiating good prices nor management support. Also, Fisheries Agree-

[22] Kaczynski and Fluharty, 'European policies in West Africa', *supra* note 17, at 76 with further reference.

[23] See Brian O'Riordan, 'Fisheries Partnership Agreements: Goodbye to Irresponsible Fishing?: The New Fisheries Partnership Agreements Being Advocated by the European Union May Eliminate Irresponsible Fishing Practices', 34 *Samudra* (2003) 13–19 at 14.

[24] See Kaczynski and Fluharty, 'European policies in West Africa', *supra* note 17, at 83 with further reference.

[25] See below under 3.2.1, where Article 62(2)(2) is discussed. This exploitation approach of UNCLOS itself can, of course, be criticized. See Nele Matz, 'The Interaction between the Convention on Biological Diversity and the UN Convention on the Law of the Sea' in Peter Ehlers (ed.), *Marine Issues: From a Scientific, Political and Legal Perspective* (Kluwer Law International, 2002), 203–220.

[26] Gueye, 'Uncertainties Loom in EU-ACP Fisheries Trade Relations', *supra* note 13, at 1.

ments are concluded one-by-one separately with each West African country. There is no coalition on the African side to oppose the bargaining strength of the EU countries. Consequently, there is an overexploitation of West African fish stocks and cheap fish for the EU. The disparity in value between the resources taken by EU companies and the price paid to the West African countries is huge. According to the OECD sources, countries in Africa receive on average only 3–6 percent of the value of the catch.[27]

On average, the license fee paid by the EU vessel owner accounts for only 7.5 percent of the value of the processed product.[28] This discrepancy is partly caused by heavy subsidizing of the EU fleet. The payment for access splits into two parts. One amount is directly paid by the EU, usually in form of a lump sum yearly compensation; the other comprises licence fees paid by individual EU vessel owners. The latter only accounts for one-third or less of the total payment. In other words, at least two-thirds of the payment for access is subsidized by the EU lump sum yearly compensation.[29]

There is hardly any development benefit noted on the side of West African countries. Instead, constantly declining fish stocks increase environmental and socio-economic problems. A study of the economics of the Fisheries Agreements underlines the positive correlation between the level of public debt and the level of access granted to overexploited resources; as well as the negative correlation between the level of public debt and the level of financial compensation received.[30]

The second generation fisheries partnership Agreements claim a better balance between losses and benefits. However, they still show significant shortcomings. WWF's European Fisheries Campaign commissioned a report of the Institute for European Environmental Policy to review the progress in four second generation partnership Agreements including a comparison with previous Agreements.[31] The analysis suggested the conclusion that, although there have been some improvements of management measures and monitoring systems, the Agreements are mostly 'business as usual'. The lack of catch limits remains the key weakness.[32] In addition, a report of the European Parliament recently noted that fisheries partnership Agreements do

[27] *Fisheries: Improving Policy Coherence for Development*, OECD Policy Brief of September 2008, available at <http://www.oecd.org/dataoecd/41/0/41412053.pdf> (visited 27 October 2008).

[28] Kaczynski and Fluharty, 'European policies in West Africa', *supra* note 17, at 89. See also Ilnyckyj, 'The Legality and Sustainability', *supra* note 11, at 34.

[29] Kaczynski and Fluharty, 'European policies in West Africa', *supra* note 17, at 79.

[30] Gueye, 'Uncertainties Loom in EU-ACP Fisheries Trade Relations', *supra* note 13, at 1. See also Frithjof, *Wenn Fischer zu Migranten warden, supra* note 13.

[31] Niki Sporrong, Clare Coffey and Kate Bevins, *Fisheries Agreements with Third Countries: Is the EU Moving towards Sustainable Development?* (Institute for European Environmental Policy, 2003), available at <http://www.wwf.org.uk/filelibrary/pdf/eufishdeals.pdf> (visited 27 October 2008).

[32] This is also not in line with domestic European policies where Total Allowable Catch limits (TACs) are increasingly used to avoid overexploitation. *Ibid*. See also Charles Clover, *The End of the Line: How Overfishing Is Changing the World and What We Eat* (New press, 2006) at 40–44.

not meet the standards set by the FAO Code of Conduct for Responsible Fisheries[33] and that, among others, the areas of scientific research, surveillance and control of waters are not sufficiently covered. It underlined the 'urgent need for the EU to take further steps to bring about policy coherence'.[34] With regard to the third generation Agreements, practice has still to show whether they actually ensure a sustainable management of fish stocks off West African coasts.[35] Since they still mostly lack catch limits it can be doubted that they do so.[36]

3 Legal regimes governing fish stocks and evidence for breaches of international law

3.1 Introduction

Looking more closely into the Agreements and factual situations of West African fish stocks, one finds not only 'policy incoherence', wrong incentives and unfortunate vicious circles; but also substantive evidence for actual breaches of international (environmental) law. Marine ecosystems, including fish stocks in the Exclusive Economic Zones (EEZs), are governed by various bodies in international law. The most prominent regulation might be the UNCLOS. However, the Straddling Fish Stocks Agreement,[37] in force since 2001, sets more concrete standards for exploitation as far as straddling stocks and highly migratory stocks are concerned. Furthermore, the Convention on Biological Diversity (CBD),[38] and here especially the Jakarta Mandate,[39] address international fisheries. The body of EU law encompasses numerous regulations addressing the management of marine resources. Finally, non-binding

[33] Available at < http://www.fao.org/DOCREP/005/v9878e/v9878e00.htm> (visited 3 February 2009).

[34] European Parliament Report on policy coherence for development and the effects of the EU's exploitation of certain biological natural resources on development in West Africa, A6-0137/2008 (2008) at 14.

[35] Witbooi, 'The Infusion of Sustainability', *supra* note 4, at 677.

[36] Information on current fisheries Agreements can be found at <http://ec.europa.eu/fisheries/cfp/external_relations/bilateral_agreements_en.htm> (visited 17 March 2009)

[37] Agreement for the Implementation of the Provisions of the UN Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, New York, 4 August 1995, in force 11 December 2001, 34 *International Legal Materials* (1995) 1542, <http://www.un.org/Depts/los/convention_agreements/texts/fish_stocks_agreement/CONF164_37.htm> (visited 2 February 2009).

[38] Convention on Biological Diversity, Rio de Janeiro, 5 June 1992, in force 29 December 1993, 31 *International Legal Materials* (1992) 822, <http://www.biodiv.org>. For an analysis of the interaction between the CBD and UNCLOS, see Matz, 'The Interaction between the Convention on Biological Diversity', *supra* note 25, at 203ff.

[39] The 'Jakarta Mandate on Marine and Coastal Biological Diversity' is the Ministerial Statement on the Implementation of the Convention on Biological Diversity referring to the new global consensus on the importance of marine and coastal biological diversity (launched at COP 2 of the CBD). The Ministerial Statement reaffirmed the critical need for the COP to address the conservation and sustainable use of marine and coastal biological diversity, and urged parties to initiate immediate action to implement COP decisions on this issue Ministerial Statement. See also CBD, Marine and Coastal Biodiversity, available at <http://www.cbd.int/marine/>.

so-called 'soft' laws, such as the FAO Code of Conduct for Responsible Fisheries[40] or Agenda 21,[41] address the protection and sustainable use of fisheries. This analysis focuses on the regulations of the UNCLOS and the Straddling Fish Stocks Agreement.[42]

3.2 UNCLOS

3.2.1 General

Prior to the entry into force of the UNCLOS there was no legal regime governing the fish stocks off states' coasts. UNCLOS divided the sea, broadly spoken, into three main areas and, respectively, assigned rights to the coastal states. Within the territorial sea, which extends up to 12 nautical miles from the baseline (the high water mark on the landward side), the coastal state enjoys full sovereignty rights, just as onshore (Articles 2 and 3 of the UNCLOS). The second and, for the purpose of this paper more interesting, zone established by the UNCLOS is the so called Exclusive Economic Zone (EEZ). It is the area beyond the territorial sea up to 200 nautical miles from the baseline (Articles 55 and 57). EEZs cover 35 percent of the world's oceans and 95 percent of the world's fish stocks.[43] All of the remaining parts of the sea are referred to as 'high seas'. They are equally open to all states, whether coastal or landlocked, under the regime of the freedom of the high seas.

The EEZ is subject to a specific legal regime established by the Convention. Coastal states only have certain sovereign rights as specifically enumerated in the Convention. According to Article 56(1)(a), in the EEZ the coastal state has sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil. By means of the EU–West African Fisheries Agreements at issue, the EU buys and West African coastal states sell exploitation rights in the EEZ. Article 62(2)(2) of the UNCLOS explicitly provides for this:

> [w]here the coastal State does not have the capacity to harvest the entire allowable catch, it shall, through agreements or other arrangements and pursuant to

[40] The FAO Code of Conduct sets out principles and international standards of behaviour for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity. The document is available at <http://www.fao.org/DOCREP/005/v9878e/v9878e00.htm> (visited 3 February 2009).

[41] Agenda 21, UN Conference on Environment and Development, Rio de Janeiro, 13 June 1992, A/CONF.151/26/Rev.1 (1992).

[42] Another important Convention regulating fishing activities in the region is the Convention on the Conservation and Management of Fishery Resources in the South East Atlantic Ocean (Windhoek, 20 April 2001, in force 13 April 2003, 41 *International Legal Materials* (2002) 257). It created the South-East Atlantic Fisheries Organisation (SEAFO) as a regional fisheries organisation (RFO). The SEAFO Convention was signed in 2001 and entered into force in 2003. Signatories are: the European Community, Angola, Iceland, Namibia, Norway, South Africa, South Korea, United Kingdom (in respect of its overseas territories and dependencies) and the United States of America. However, the objective of the Convention is to ensure the long-term conservation and sustainable use of the fishery resources on the high seas of the South East Atlantic Ocean and thus the Convention does not cover the EEZ.

[43] Brown, 'Policy Incoherence: EU Fisheries Policy in Senegal', *supra* note 5, at 1.

> the terms, conditions, laws and regulations referred to in paragraph 4, give other States access to the surplus of the allowable catch […].

Consequently, it is legal to buy and sell the 'surplus' of fish under the conditions laid down in the more detailed paragraph 4:

> [n]ationals of other States fishing in the exclusive economic zone shall comply with the conservation measures and with the other terms and conditions established in the laws and regulations of the coastal State.

Such laws and regulations may relate, inter alia, to licensing of fishermen, fishing vessels and equipment, including payment of fees and other forms of remuneration; determining species and catch quotas; regulating seasons and areas of fishing; specifying information required of fishing vessels, including catch and effort statistics; the placing of observers of trainees on board such vessels by the coastal state; the landing of all or any part of the catch in the ports of the coastal state; terms and conditions relating to joint ventures or other cooperative arrangements, requirements of training and transfer of fisheries technology; and enforcement procedures.[44] Several aspects of the fisheries Agreements and their implementation as well as unregulated fishing activities of EU vessels possibly infringe the UNCLOS regulations.

3.2.2 Surplus

The UNCLOS compels a coastal state to give other states access to the surplus of the allowable catch.[45] Significant scientific evidence exists to imply that there is no surplus of various fish stocks bought and sold under the EU-West African Fisheries Agreements. However, such scientific advice has consistently been ignored or disputed by the EU.[46] By now, the European Commission itself admits that the overcapacity of European fleets resulted in overexploitation of target stocks. It has acknowledged that, after 20 years, the CFP 'has not delivered sustainable exploitation of fisheries resources'.[47] In particular, it has stated that 'available fishing capacity of the Community fleets far exceeds that required to harvest fish in a sustainable manner and that the 'overcapacity in EU fleets has resulted in overexploitation of target stocks and excessive pressure on non-target species and on habitats'.[48]

Article 61 of the UNCLOS explains in more detail how the coastal state, being the responsible state for the EEZ, has to ensure the conservation of the living resources. It provides the following:

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[44] Article 62(4) of the UNCLOS.
[45] Article 62(2)(2). See *supra* note 25; and the discussion under 3.2.1.
[46] O'Riordan, 'Fisheries Partnership Agreements', *supra* note 23, at 15; UNEP, *Integrated Assessment of Trade Liberalization and Trade-Related Policies: A Country Study on the Fisheries Sector in Senegal* (2002), available at <http://www.unep.ch/etu/publications/CSII_Senegal.pdf> (visited 27 October 2008).
[47] Green Paper on the Future of the Common Fisheries Policy, COM(2001) 135 final, at 4.
[48] *Ibid.* at 4 and 9.

1. The coastal State shall determine the allowable catch of the living resources in its exclusive economic zone.
2. The coastal State, taking into account the best scientific evidence available to it, shall ensure through proper conservation and management measures that the maintenance of the living resources in the exclusive economic zone is not endangered by over-exploitation. As appropriate, the coastal State and competent international organizations, whether subregional, regional or global, shall cooperate to this end.

Conservation measures such as allowable catch rates must be designed to maintain populations of harvested species at the maximum sustainable yield. Environmental as well as economic factors, including the economic needs of coastal fishing communities and special requirements of developing states, can determine this maximum sustainable yield.[49]

Thus, it is the coastal states that determine the amount of surplus and allowable catch rates. However, the EU has never, apart from a very few recent exceptions, agreed on catch quotas to ensure sustainable fishing.[50] Instead, the EU insists that its fishing rights and intensity of resource exploitation be assigned in terms of vessel size, measured in gross registered tonnage (GRT), number of authorized vessels and time when they can operate.[51] A vessel's GRT has little relation to the harvesting and fish processing capacity of a vessel.[52] It is an inappropriate means to measure the actual catches and therefore cannot ensure that only 'surplus' is harvested. On top of this, in most Agreements, the EU reserves the right to increase the allocated tonnage of its fleets at its sole discretion. As a consequence, and contrary to Article 62 of the UNCLOS, the decisions about the amount of resource exploitation are taken by EU fleet operators rather than by the coastal states.[53]

3.2.3 Unregulated by-catch

Very high amounts of unwanted by-catch also contribute significantly to the overexploitation of marine living resources. Experts estimate that there is about 30-million tons of by-catch each year.[54] Most fisheries Agreements do not clearly define by-catch limitations. However, they are essential to control exploitation. There are various examples where by-catch exceeded 50 percent of the licensed fish. In one case, EU vessel owners with a shrimp license, for example, had chosen cephalopods (cuttlefish, octopus and squid) and demersal fish as their target species rather than shrimps,

[49] Article 61(3) of the UNCLOS.

[50] See also Sporrong et al., *Fisheries Agreements, supra* note 31; and Clover, *The End of the Line, supra* note 32, at 40–44.

[51] Emma Witbooi, *International Fisheries Access Agreements: Instruments of Conservancy or Exploitation?: The Case of EU–Senegal,* A presentation at the Global Ecological Integrity Group Conference (2006), available at <http://www.globalecointegrity.net/pdf/samos/Witbooi.pdf> (visited 2 February 2009); Kaczynski and Fluharty, 'European policies in West Africa', *supra* note 17, at 78.

[52] *Ibid*.

[53] *Ibid*.

[54] Kampwirth, *Unsere Ozeane*, *supra* note 9, at 6.

which accounted only for 8 percent of their total catch.[55] In these cases the already poor license control system is circumvented through by-catch loopholes. It is not compatible with Article 62 of the UNCLOS to leave by-catch unregulated.

3.2.4 Compliance with coastal state control measures

There are several indications that the EU has not always complied with particular Agreements; in particular, preventing coastal state control measures. For example, despite obligations in the Agreements, the EU did not ensure monitoring and reporting of certain fleet activities; including actual volume or composition of catches, data on effort, and other vital information.[56] Furthermore, EU fleets have not always cooperated with local authorities; have not always accepted local observers on board; have not always visited local ports for inspection; and have not always accepted local crew members on board.[57] Also, in cases where the allowed tonnage of trawlers was exceeded, EU fleets have not always consulted with the coastal states or paid the additional compensation.[58]

3.2.5 IUU fishing

Illegal, unreported and unregulated (IUU) fishing poses a serious threat to fish stocks and is not compatible with the management framework set up by the UNCLOS.[59] On various occasions, and even when there were formal Agreements with the EU, EU fleets have been caught fishing illegally. IUU fishing includes, for example, fishing with prohibited fishing gear; catching undersized or not licensed fish; catching fish within the 12 mile zone reserved for local fishermen; illegally transhipping fish; repackaging fish products on IUU vessels into boxes stamped with the name of a legal boat; or violating hygiene safety rules. A recent report of the Environmental Justice Foundation details the illegal operations at sea and the laundering process which enables IUU vessels to sell their catch on the European market.[60] During the course of an investigation in Guinea-Bissau they observed 104 vessels; over half of which (53) were either engaged in or linked to IUU activities.[61] The study estimates that Africa alone is losing almost US$ 1 billion a year to illegal fishing activities.[62]

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55 Kaczynski and Fluharty, 'European policies in West Africa', *supra* note 17, at 85.

56 *Ibid*. at 77f.

57 *Ibid*. at 87.

58 *Ibid*. at 84.

59 Budislav Vukas, 'The International Tribunal for the Law of the Sea: Some Features of the New International Judicial Institution' in P. Chandrasekhara Rao and Rahmatullah Khan (eds), *The International Tribunal for the Law of the Sea: Law and Practice* (Kluwer Law International, 2001) 59–72.

60 Environmental Justice Foundation, *Pirate Fish on Your Plate: Tracking Illegally-caught Fish from West Africa into the European Market* (2007), available at <http://www.ejfoundation.org/pdf/EJF%20pirate%20fish.pdf> (visited 27 October 2008).

61 *Ibid*. at 2.

62 *Ibid*. at 3. On IUU fishing in East Africa see Andrew Mwangura, IUU Fishing and Indian Ocean Piracy, paper from ESA Workshop: Fishing Communities and Sustainable Development, 2006, available at <http://www.icsf.net/icsf2006/jspFiles/eastAfrica/pdfs/IUU%20fishing/esaandrewiuu.pdf.PDF> (visited 17 March 2009).

3.3 The Straddling and Highly Migratory Fish Stocks Agreement

3.3.1 The duty to cooperate and the precautionary approach

The Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks was adopted in 1995. It entered into force in December 2001; and introduced a number of innovative measures, particularly in the area of environmental and resource protection, obliging states to adopt a precautionary approach to fisheries exploitation and giving expanded powers to port states to enforce proper management of fisheries resources.

The Straddling and Highly Migratory Fish Stocks Agreement aims to ensure the long-term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks through effective implementation of the relevant provisions of the Convention.[63] It applies generally to the conservation and management of straddling fish stocks and highly migratory fish stocks beyond areas under national jurisdiction. However, Articles 6 and 7 also apply to the conservation and management of such stocks within areas under national jurisdiction, including the EEZ[64] According to Article 3(2) of the Agreement, the coastal state shall apply mutatis mutandis the general principles enumerated in Article 5 in exercise of its sovereign rights of managing straddling fish stocks and highly migratory fish stocks within areas under national jurisdiction. States shall give due consideration to the respective capacities of developing states to apply Articles 5, 6 and 7 within areas under national jurisdiction.[65]

Article 5 highlights the duty to cooperate in accordance with the Agreement. Coastal states and states fishing on the high seas (mutatis mutandis in the EEZ) shall adopt measures to ensure long-term sustainability of straddling fish stocks and highly migratory fish stocks; ensure that such measures are based on the best scientific evidence available and are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield;[66] apply the precautionary approach; assess the impacts of fishing; minimize pollution, discards and by-catch; protect marine biodiversity; take measures to prevent or eliminate overfishing; take into account the interests of artisanal and subsistence fishers; collect and share, in a timely manner, complete and accurate data concerning fishing activities on, inter alia, vessel position and catch of target and non-target species; promote and conduct scientific research; and implement and enforce conservation and management measures through effective monitoring, control and surveillance.

[63] Article 2.
[64] Article 3(1). See already M. Dahmani, *The Fisheries Regime of the Exclusive Economic Zone,* (Martinus Nijhoff Publishers, 1987) at 42.
[65] Article 3(3).
[66] For critique of this approach and arguments in favour of the ecosystem approach of the CBD, see Matz, 'The Interaction between the Convention on Biological Diversity', *supra* note 25, at 207.

The application of the precautionary approach[67] is further detailed in Article 6. All states, including coastal states and states fishing in the EEZ, shall apply the precautionary approach in their fishing activities and management. In particular, states shall be more cautious when information is uncertain, unreliable or inadequate. The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures. Annex II of the Convention contains more concrete guidelines for the application of precautionary reference points in the conservation and management of straddling fish stocks and highly migratory fish stocks. To ensure the compatibility of the conservation and management measures, Article 7 enlists detailed duties to cooperate for coastal states and states fishing in the adjacent high seas, or, mutatis mutandis, in the EEZ.

Articles 18 and 19 of the Straddling Fish Stocks Agreement detail the duties of the flag state and the compliance and enforcement obligations for flag states. These provisions apply for fishing on the high seas. However, they can come into play when vessels illegally intrude into the EEZ of a coastal state adjacent to the high seas – a growing fishing practice.[68]

3.3.2 Shortcomings in fisheries Agreements

The fisheries Agreements between the European Union and West African countries also regularly include rights for the EU vessels to fish straddling and highly migratory fish stocks. Thus, the shortcomings of these fisheries Agreements and their enforcement, as listed above, also indicate several incompatibilities with the regulations of the Straddling Fish Stocks Agreement. As the studies cited above show, the measures adopted in the fisheries Agreements do not ensure long-term sustainability of straddling and highly migratory fish stocks. They are not based on the best scientific evidence available. Lack of scientific data is frequently taken as a reason to postpone, or to fail to take, conservation and management measures. By-catch is not documented; and its impact is not assessed. Complete and accurate data concerning fishing activities are not collected and shared as provided for by the Agreement and its Annex I. Furthermore, non-compliance with coastal state control measures and IUU fishing violate the Straddling Fish Stocks Agreement.

Part VII of the Straddling Fish Stocks Agreement highlights the importance of recognizing the special requirements of developing states. To ensure proper conservation

[67] One of the primary global foundations of the precautionary approach can be found in Principle 15 of the Rio Declaration which states that '[i]n order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.' There is a debate whether the precautionary principle already forms part of customary international law. In favour of this with regard to marine resources, see Simon Marr, *The Precautionary Principle in the Law of the Sea: Modern Decision-making in International Law* (Martinus Nijhoff, 2003).

[68] Alexander Yankov, 'Reflagging of Fishing Vessels: Critical Assessment of Its Impact on the Enforcement of Fishing Regulations and the Responses Thereto' in Peter Ehlers (ed.), *Marine Issues: From a Scientific, Political and Legal Perspective* (Kluwer Law International, 2002), 195–201, at 201.

and management of straddling and highly migratory fish stocks, states shall directly or indirectly provide assistance to developing states. Article 24(2) underlines, inter alia, that states shall, in particular, take into account the vulnerability of developing states which are dependent on the exploitation of living marine resources. Forms of cooperation are outlined in Article 25. The fisheries Agreements between the European Union and developing West African countries do not include appropriate assistance measures as required by these Articles.

4 Judicial review

4.1 General

Thus, there is significant evidence that the fisheries Agreements between the European Union and West African countries, as well as unregulated behavior by EU vessels in the EEZs of West African countries, do not comply with rules of protection and preservation of fisheries and the marine environment under UNCLOS and the Straddling Fish Stocks Agreement. There should be a way to have national, EU or international judicial bodies scrutinize the fisheries Agreements and fishing activities of EU vessels in the EEZ of West African countries.

4.2 Jurisdiction of national courts

Through ratification or similar procedures international law usually becomes part of national law which has to be applied by national courts. UNCLOS confers jurisdiction within the EEZ on the coastal state. Article 56(1) of the Convention states that:

> [i]n the exclusive economic zone, the coastal State has: […] (b) jurisdiction as provided for in the relevant provisions of this Convention with regard to: […] (iii) the protection and preservation of the marine environment.

Article 73 provides some more detail as to the enforcement of the laws and regulations of the coastal state. Accordingly,

> the coastal State may, in the exercise of its sovereign rights to explore, exploit, conserve and manage the living resources in the exclusive economic zone, take such measures, including boarding, inspection, arrest and judicial proceedings, as may be necessary to ensure compliance with the laws and regulations adopted by it in conformity with this Convention.

In addition, UNCLOS gives enforcement powers to flag states and port states. It is the main duty of the flag state, being the state where a ship is registered and whose flag it flies, to enforce the rules adopted for the control of marine pollution from

vessels, irrespective of where a violation occurs.[69] This is intended to serve as a safeguard for the enforcement of international rules, particularly in waters beyond the national jurisdiction of the coastal state, i.e., on the high seas.[70]

Thus, depending on standing rights in particular West African countries, individual fishermen or environmental NGOs could, for example, bring a lawsuit in a local court and sue either their own government or the EU for entering into a fisheries Agreement despite the lack of surplus, catch quotas, regulation of by-catch, and so forth. In the case of a violation of the Agreement, or general illegal fishing in the EEZ, the coastal state may initiate judicial proceedings as provided for in Article 73 of the UNCLOS.

Focusing more on the EU side, it is also possible to initiate a lawsuit in a local court of an EU country or at the European Court of Justice. As parties to the UNCLOS and the Straddling Fish Stocks Agreement, the EC and its Member States are bound by its provisions. However, as long as the breach of law concerns the EEZ of a West African country the EU courts would not have jurisdiction according to Articles 56 and 73 of the UNCLOS.

Suing an own government, or the EU, in front of a local West African court raises a range of practical problems. Furthermore, leaving the interpretation and application of international law to courts of each national legal system is likely to lead rapidly to confusion and prevent a uniform and coherent application among the parties.[71] Would it not be more effective to ask the ITLOS for review of these fisheries Agreements and fleet activities?

4.3 International Tribunal for the Law of the Sea and marine environment disputes

4.3.1 General

The International Tribunal for the Law of the Sea is an independent judicial body established by the UNCLOS to adjudicate disputes arising out of the interpretation and application of the Convention. Its jurisdiction encompasses more than 70 percent of the Earth's surface.[72] The Tribunal had its first session in October 1996, it is composed of 21 independent members and it has formed a number of chambers, including a chamber for marine environment disputes. Since the beginning of its

[69] More on the duties of flag states, Robin Churchill, 'The Jurisprudence of the International Tribunal for the Law of the Sea Relating to Fisheries: Is There Much in the Net?', 22 *International Journal of Marine and Coastal Law* (2007) 383–424 at 421f.

[70] Article 217.

[71] See also Alan Boyle, 'UNCLOS, the Marine Environment and the Settlement of Disputes' in Henrik Ringbom (ed.), *Competing Norms in the Law of Marine Environmental Protection: Focus on Ship Safety and Pollution Prevention* (Kluwer Law International, 1997), 241–256 at 241.

[72] See Stefan Talmon, 'Der Internationale Seegerichtshof in Hamburg als Mittel der friedlichen Beilegung seerechtlicher Streitigkeiten', 41 *Juristische Schulung* (2001) 550–556, at 550.

activities, 15 cases have been submitted to the Tribunal. Although the jurisdiction of the Tribunal is broad – it encompasses all disputes regarding the interpretation and application of the Convention or of any other agreement related to the purposes of the Convention – the majority of the cases submitted to the Tribunal so far have been confined to instances where the jurisdiction of the Tribunal is compulsory. This concerns proceedings that require urgent action by the Tribunal; and that may be instituted by any state party to the Convention by means of a unilateral application. With respect to the protection of the marine environment, it is important to note that the Tribunal may prescribe provisional measures not only to preserve the respective rights of the parties but also to prevent serious harm to the marine environment.

4.3.2 Subject matter jurisdiction of the ITLOS

The *ratione materiae* jurisdiction of the Tribunal is rather broad; as long as parties agree to refer a dispute to the Tribunal. Article 288 of the UNCLOS and Section 2 of the Statute of the International Tribunal for the Law of the Sea[73] regulate the competences of the Tribunal. Article 21 of the ITLOS Statute states that:

> [t]he jurisdiction of the Tribunal comprises all disputes and all applications submitted to it in accordance with this Convention and all matters specifically provided for in any other agreement which confers jurisdiction on the Tribunal.

Article 22 further broadens the consensual jurisdiction, stating that:

> [i]f all the parties to a treaty or convention already in force and concerning the subject-matter covered by this Convention so agree, any disputes concerning the interpretation or application of such treaty or convention may, in accordance with such agreement, be submitted to the Tribunal.

However, the scope of the Tribunal's compulsory jurisdiction that entails binding decisions is very limited and subject to significant exceptions. Part XI of UNCLOS regulates the settlement of disputes. According to Article 287, parties to the UNCLOS are free to choose one or more means for the settlement of disputes concerning the interpretation or application of the UNCLOS: the ITLOS; the ICJ; an arbitral tribunal constituted in accordance with Annex VII; or a special arbitral tribunal constituted in accordance with Annex VIII of the Convention. A dispute can unilaterally be referred by any party to the dispute to the Tribunal in cases where all parties to the dispute have made a declaration under Article 287 choosing the Tribunal as their preferred means of settlement. As it stands, no West African country has made such a declaration.[74] Several European countries have made declarations under Arti-

[73] See Annex VI of UNCLOS.

[74] See UN, Division for Ocean Affairs and the Law of the Sea, table of declarations under Article 287, available at <http://www.un.org/Depts/los/settlement_of_disputes/choice_procedure.htm> (visited 16 January 2009).

cle 287 selecting the ITLOS as their preferred means of settlement.[75] However, most matters concerning fisheries fall within the exclusive competence of the EC.[76] Thus, it is impossible for an EC Member State to be party to such a dispute.[77] The EC has not made a declaration under Article 287. Consequently, in the case of the fisheries Agreements at issue it is not possible unilaterally to refer a dispute to the Tribunal.

With respect to fishing in the EEZ and fisheries Agreements, there are two more important exceptions. Although there is binding compulsory settlement for EEZ disputes which relate to the protection of the marine environment,[78] Article 297(3) of the UNCLOS states that in cases of disputes concerning the interpretation or application of the provisions of the Convention with regard to fisheries:

> the coastal State shall not be obliged to accept the submission to a settlement of any dispute relating to its sovereign rights with respect to the living resources in the exclusive economic zone or their exercise, including its discretionary powers for determining the allowable catch, its harvesting capacity, the allocation of surpluses to other States and the terms and conditions established in its conservation and management laws and regulations.

Considering that 95 percent of commercial fishing takes place within EEZs, this exception weakens significantly the Tribunal's chances of contributing to the sustainable development of fisheries.[79] Furthermore, according to Article 282 of the UNCLOS the dispute settlement provisions shall not apply if the fisheries Agreement itself provides for a procedure that entails a binding decision, unless the parties to the dispute agree otherwise.

There are two specific provisions that empower the Tribunal to grant interim relief with high practical relevance. Of 15 cases argued before the ITLOS, 13 were based on one or the other of these provisions. According to Article 290, the Tribunal:

> may prescribe any provisional measures which it considers appropriate under the circumstances to preserve the respective rights of the parties to the dispute or to prevent serious harm to the marine environment, pending the final decision.

[75] For example Austria, Belgium, Germany, Italy, Portugal and Spain (partly combined with declarations under Article 298 of UNCLOS). See *ibid*.

[76] See the declaration made by the EC, availables via United Nations Treaty Collection (at <http://treaties.un.org/Pages/ViewDetailsIII.aspx?&src=IND&id=459&chapter=21&Temp=mtdsg3&lang=en#EndDec> (visited 2 February 2009).

[77] See also ECJ ruling in *Commission v. Ireland*, Case C-459/03 (30 May 2006), in which the court held that Ireland had breached Community law by bringing proceedings against the United Kingdom before an Annex VII tribunal in the MOX Plant case.

[78] See also Boyle, 'UNCLOS, the Marine Environment and the Settlement of Disputes', *supra* note 71, at 248 and 250, highlighting the problem of fragmentation of issues.

[79] Churchill, 'Fisheries Jurisprudence', *supra* note 69, at 389f.

Article 292 gives the Tribunal jurisdiction over the prompt release of vessels and crews. In cases under both provisions, arguments to protect fisheries and the marine environment have been brought forward. Some of these cases are analyzed below under section 4.3.4.[80]

According to Article 30(2) of the Straddling Fish Stocks Agreement, the settlement provisions set out in Part XV of the UNCLOS apply mutatis mutandis to disputes concerning the interpretation and application of the fisheries Agreements relating to straddling fish stocks or highly migratory fish stocks.[81] This encompasses the above mentioned exceptions.

Thus, although the subject matter jurisdiction of the Tribunal is very broad, a case concerning fisheries Agreements between the European Union and West African countries will only be dealt with by the Tribunal if both of the EC and the particular West African country concerned agree to its submission. This is very unlikely to happen. The European Community profits from these Agreements and will not initiate any proceedings. If a neighboring West African country would like to bring proceedings because it might be affected with respect to migratory fish stocks, the defendant West African country could refer to the above cited Article 297(3) of the UNCLOS as far as its sovereign rights with respect to living resources in the EEZ are concerned. On the other hand, it is very unlikely that West African countries which voluntarily entered into access Agreements with the European Community would bring proceedings against EU vessels for IUU fishing. To start proceedings against EU vessels which do not comply with coastal state control measures might also endanger the fisheries Agreements and are not therefore likely to be tackled this way by West African authorities. Given these factual and legal circumstances, it becomes clear that environmental rights enjoy very limited judicial protection. States do not seem to be the ideal stakeholders of environmental concerns. Environmental NGOs or international organizations like the United Nations Environment Programme (UNEP) might be in a better position to invoke rules aimed at the protection of the marine environment. But could they get involved in proceedings before the ITLOS or even initiate them?

4.3.3 Access to the ITLOS for non-state entities

The Tribunal is, as are other dispute settlement procedures, open to all states parties.[82] State parties are defined in Article 1(2.2) as states for which the UNCLOS is in force and other entities referred to in Article 305(1)(b), (c), (d), (e), and (f), which become parties to the UNCLOS in accordance with the conditions relevant to each. Article 305(1)(b) – (e) refer to Namibia, self-governing associated states and territories which enjoy full internal self-government recognized as such by the United Nations. Article

[80] For a more detailed analysis of these provisions see Boyle, 'UNCLOS, the Marine Environment and the Settlement of Disputes', *supra* note 71, at 245ff.
[81] For more details see Churchill, 'Fisheries Jurisprudence', *supra* note 69, at 394.
[82] Article 291(1).

305(1)(f) refers to international organizations in accordance with Annex IX which regulates their participation in detail. Article 1 of Annex IX states that:

> [f]or the purposes of article 305 and of this Annex, 'international organization' means an intergovernmental organization constituted by States to which its member States have transferred competence over matters governed by this Convention, including the competence to enter into treaties in respect of those matters.

In 1998 the European Community ratified the UNCLOS and it is so far the only international organization and non-state member of the Convention. From a practical point of view, it could be helpful if UNEP fell under this proposition.[83] UNEP would then have the option of acceding to the UNCLOS, or to the Straddling Fish Stocks Agreement, and to take cases to the Tribunal. However, UNEP as a programme of the United Nations does not fall under the above cited definition of an international organization, which is rather designed to encompass regional economic integration organizations such as the European Community.[84]

Furthermore, according to Article 291(2), dispute settlement procedures including the ITLOS shall be open to entities other than state parties only as specifically provided for in the UNCLOS. Article 20(2) states that:[85]

> [t]he Tribunal shall be open to entities other than States Parties […] in any case submitted pursuant to any other agreement conferring jurisdiction on the Tribunal which is accepted by all the parties to that case.

There are several opinions on how to interpret this conferral of jurisdiction. 'Entities' could encompass private corporations, as well as NGOs, if they are parties to the Agreement in question.[86] 'Any other agreement' could be any bi- or multilateral

[83] Susanne Heitmüller, *Durchsetzung von Umweltrecht im Rahmen des Seerechtsübereinkommens von 1982 durch den Internationalen Seegerichtshof in Hamburg* (Cuvillier, 2001) at 71. She sees UNEP as a possible 'ocean guardian'.

[84] *Ibid*.

[85] According to the not cited part of Article 20(2) of the Statute of the Tribunal, natural or judicial persons have access to the Area and Seabed Disputes Chamber as set out in part XI of the UNCLOS. However, this possibility has not been used to this day and it is irrelevant with respect to disputes concerning fishing in the EEZ.

[86] Sicco Rah and Tilo Wallrabenstein, 'Sustainability Needs Judicial Support: What Does the International Tribunal for the Law of the Sea (ITLOS) Offer in This Respect?' in Peter Ehlers and Rainer Lagoni (eds), *International Maritime Organisations and Their Contribution Towards a Sustainable Marine Development* (LIT, 2006), 285–316 at 311; Sicco Rah, 'Introduction' in Peter Ehlers and Rainer Lagoni (eds), *International Maritime Organisations and Their Contribution Towards a Sustainable Marine Development* (LIT, 2006), 7–20, at 18; Thomas A. Mensah, 'The Significance of the International Tribunal for the Law of the Sea for the Shipping Industry', 3 *WMU Journal of Maritime Affairs* (2004) 111–118, at 118; Vukas, 'The International Tribunal for the Law of the Sea', *supra* note 59, at 66; Susanne Heitmüller, *Durchsetzung von Umweltrech, supra* note 83, at 73f who states that given this, for example, the Rainbow Warrior Case could have been negotiated directly between France and Greenpeace instead of New Zealand before the ITLOS, citing Alan Boyle, Settlement of Disputes Relating to the Law of the Sea and the Environment, in Koufa Kalliopi (ed.), International Justice, XXVI Thesaurus Acroasium, at 332.

public or private agreement. Some authors argue that 'agreement' can only be a public international agreement as stated in Article 288(2). This would entail that the ITLOS is not open for private entities.[87]

The only agreement that so far encompasses other entities than states is the Straddling Fish Stocks Agreement.[88] According to its Article 1(3):

> [t]his Agreement applies mutatis mutandis to other fishing entities whose vessels fish on the high seas.

Thus, the Agreement does not include environmental NGOs. Fishing entities are encompassed only as far as they fish on the high seas. Consequently, environmental NGOs could not submit a dispute under the rules of the Agreement.[89] Furthermore, Article 39 of the Agreement provides that the formal accession to the Agreement is restricted to states and international organizations.

Thus, theoretically, the second part of Article 20(2) leaves a door open for NGOs to participate in a lawsuit. However, there would have to be a new international Agreement that confers such jurisdiction on the Tribunal; and all parties to cases would have to be parties to this Agreement.[90] For example, an implementation agreement similar to the one cited above could apply, just as to fishing entities, to environmental NGOs which aim to protect fisheries and marine environments in the high seas and EEZs.

Apart from the question of possible parties to proceedings before the ITLOS, the issue of legal standing has to be clarified. A plaintiff before the ITLOS needs to have standing according to the general rules of international public law. Thus, the question of erga omnes obligations in international environmental law has to be dealt with. Environmental NGOs would have either to claim the infringement of their own rights or interests; or have the option of arguing altruistically in the common interest. The ITLOS could develop criteria for such standing.[91]

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[87] Talmon, 'Der Internationale Seegerichtshof in Hamburg', *supra* note 72, at 555. In favor of a broader interpretation of 'Agreement' with the consequence that the ITLOS could be open for private entities, see Mensah, 'The significance of the International Tribunal', *supra* note 86, at 119; Thomas A. Mensah, 'The Place of the International Tribunal for the Law of the Sea in the International System for the Peaceful Settlement of Disputes', in P. Chandrasekhara Rao and Rahmatullah Khan (eds), *The International Tribunal for the Law of the Sea: Law and Practice* (Kluwer Law International, 2001), 21–32 at 30; Vukas, 'The International Tribunal for the Law of the Sea', *supra* note 59, at 68.

[88] Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, New York, 4 August 1995, in force 11 December 1995, UN Doc. A/CONF.164/37 (1995).

[89] Rah and Wallrabenstein, 'Sustainability Needs Judicial Support', *supra* note 86, at 312.

[90] *Ibid*. at 314 estimate that this is unlikely to happen and the openness of the Tribunal to parties other than states will probably have little practical relevance.

[91] Susanne Heitmüller, *Durchsetzung von Umweltrech, supra* note 83, at 80.

So far, environmental NGOs have not tried to participate as amicus curiae or to introduce advisory opinions in the proceedings at the ITLOS.[92] It might be worthwhile to give more attention to such participation in the future. However, this would not circumvent the problem of how certain questions could be taken to court in the first place. According to Article 138 of the Rules of the Tribunal, the possibility of requesting the Tribunal to give an advisory opinion on a legal question is limited to parties to an international agreement related to the purposes of the UNCLOS.[93] The same limits apply to a procedural intervention.[94] Environmental NGOs could get access to the Tribunal if they were called as witnesses or as experts under Articles 72 and 82 of the Rules of the Tribunal. According to Article 84, the opportunity to furnish information to the ITLOS at the request of the Tribunal, or on an organization's own initiative, is limited to 'intergovernmental organizations'. An environmental NGO would not fall under this provision; arguably, an organization like the IUCN would.[95] Formal or informal regulation such as, for example, a code of conduct on participation of environmental NGOs before the ITLOS might be a helpful step.[96]

4.3.4 Jurisprudence of the ITLOS related to fisheries

The jurisprudence of the Tribunal shows its general support for environmental arguments.[97] However, very few states have submitted cases related to fisheries; and therefore the Tribunal has hardly had any chance to build environmental and fisheries jurisprudence. The first three cases cited here dealt with provisional measures, only one case (still pending) might be decided on the merits.

The *M/V SAIGA* case could have been argued as a fisheries case, but was not.[98] It dealt with the refuelling of vessels in resource-rich areas of Guinea's EEZ. Refuelling presents an environmental risk and Guinea could have argued that its power to regulate refuelling derives from its power to regulate fishing in the EEZ. Since the argument was not made, the ITLOS did not address the issue.[99]

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92 Philippe Gautier, 'NGOs and Law of the Sea Disputes' in Tullio Treves et al. (eds), *Civil Society, International Courts and Compliance Bodies,* A Project of the Universities of Milano, Brescia and Verona with the Co-operation of PICT – the Project on International Courts and Tribunals (Asser Press, 2005), 233–242 at 242.

93 See also *ibid*. at 236.

94 *Ibid*. at 238. See also Articles 31 and 32 of the Statute of the Tribunal.

95 *Ibid*. at 239f.

96 See Luisa Vierucci, 'NGOs Before International Courts and Tribunals', in Pierre-Marie Dupuy, and Luisa Vierucci (eds), *NGOs in International Law: Efficiency in Flexibility?*(Edward Elgar, 2008), 155–180 at 169ff.

97 For a good overview of fisheries cases see Churchill, 'Fisheries Jurisprudence', *supra* note 69, at 405ff.; a good overview on environmental cases of the ITLOS provides Jon M. van Dyke, 'Giving Teeth to the Environmental Obligations in the LOS Convention' in Alex G. Oude Elferink, and Elferink-Rothwell (eds), *Oceans Management in the 21st Century: Institutional Frameworks and Responses* (Martinus Nijhoff, 2004), 167–186 at 168ff.

98 The M/V "SAIGA" Case (*Saint Vincent and the Grenadines v. Guinea*), available at <http://www.itlos.org/>.

99 Rah and Wallrabenstein, 'Sustainability Needs Judicial Support', *supra* note 86, at 3.

In the *Southern Bluefin Tuna Case*, the Tribunal did apply Article 290(1) of the UNCLOS and prescribed provisional measures to prevent serious harm to the marine environment. More concretely, the Tribunal ordered that Japan had to 'refrain from conducting an experimental fishing programme involving the taking of a catch of southern bluefin tuna', unless the catch is deducted from Japan's annual national allocation. The Tribunal used language that basically defines the precautionary approach without mentioning the term itself:

> [p]arties should in the circumstances act with prudence and caution to ensure that effective conservation measures are taken to prevent serious harm to the stock of southern bluefin tuna; […] parties should intensify their efforts to co-operate with other participants in the fishery for southern bluefin tuna with a view to ensuring conservation and promoting the objective of optimum utilization of the stock; […] there is scientific uncertainty regarding measures to be taken to conserve the stock of southern bluefin tuna and […] there is no agreement among the parties as to whether the conservation measures taken so far have led to the improvement in the stock of southern bluefin tuna; […] although the Tribunal cannot conclusively assess the scientific evidence presented by the parties, it finds that measures should be taken as a matter of urgency to preserve the rights of the parties and to avert further deterioration of the southern bluefin tuna stock.[100]

In the *Volga Case*, a vessel flying the flag of the Russian Federation was accused of illegally fishing in Australia's EEZ.[101] The Tribunal had to consider whether the bond set by the arresting state for the release of the vessel was a 'reasonable bond or other security'. Australia argued for the charge of an extra bond to stop the vessel from further illegal fishing that threatened the viability of endangered fish stocks and by-catch species. The extra bond aimed to guarantee the carrying of a fully operational monitoring system until the end of the proceedings. The Tribunal rejected Australia's argument. It interpreted Article 73 narrowly and stated that non-financial conditions, such as the establishment of a monitoring system, could not be considered as components of a bond. With respect to Australia's efforts to combat IUU fishing, the Tribunal could only state that it:

> understands the international concerns about illegal, unregulated and unreported fishing and appreciates the objectives behind the measures taken by States […] to deal with the problem.[102]

[100] The "Southern Bluefin Tuna" Cases No. 3 and 4 (*New Zealand v. Japan; Australia v. Japan*), Provisional Measures, Order of 27 August 1999, paras 77–80. The provisional measure was overturned by a later decision because of lack of jurisdiction.

[101] The ITLOS decided two more prompt release cases in which the vessel was accused of IUU fishing: The "Camouco" Case (*Panama v. France*) and the The "Monte Confurco" Case (*Seychelles v. France*), cases No. 5 and 6, available at <http://www.itlos.org/> (visited 5 March 2009).

[102] The "Volga" Case (*Russian Federation v. Australia*), Prompt Release, Judgment of 23 December 2002, para. 68.

The *Swordfish Case* is the first and so far only case on the merits that aimed at the protection of the marine environment.[103] It was submitted in 2000 consensually by Chile and the European Community and is still pending. The main issues concern the conservation and sustainable exploitation of swordfish stocks in the South-Eastern Pacific Ocean. The dispute has been submitted to a special chamber of the Tribunal consisting of four of its judges and one ad hoc judge. The case raises, inter alia, the following issues: whether the European Community has complied with its obligations under the United Nations Convention on the Law of the Sea to ensure the conservation of swordfish in the fishing activities undertaken by vessels flying the flag of its Member States on the high seas adjacent to Chile's EEZ; whether the Chilean decree, which purports to apply Chile's conservation measures to swordfish on the high seas, is in breach of the Convention; and whether the 'Galapagos Agreement' of 2000 was negotiated in keeping with the provisions of the Convention. The time-limits of the proceedings were recently extended until 1 January 2010.[104] In their communications, the Parties have expressed their commitment to finding an amicable solution to the dispute. They are currently drafting a bilateral fisheries cooperation framework.[105]

Within its 12 years of existence, the Tribunal could have applied the regulations of the UNCLOS that aim to protect fisheries and the marine environment only in a very few cases. However, these cases have enabled the Tribunal to contribute towards the development of international environmental law – at least to some extent. The Tribunal has stressed the precautionary approach – without explicitly using that term –, the duty of cooperation, the notion of prudence and caution and the importance of procedural rights as essential components of environmental obligations. In addition, in its orders for provisional measures, the Tribunal has adopted a pragmatic approach and prescribed measures which, in its view, would assist the parties in finding a solution. However, simply given the low number of cases, the impact of the Tribunal's work has not been very high yet. The same is true for other judicial bodies in the international arena. For example, the Environmental Chamber of the International Court of Justice has not had a single case to decide yet.[106] Furthermore, some authors criticize that the dispute settlement procedures of the UNCLOS, which allow for the choice among various dispute resolution bodies, embark the risk that the jurisprudence developed by different bodies is not coherent.[107] It is important to think about reasons and solutions for these shortcomings; and to give international

[103] The "Swordfish" Case (*Chile/European Community),* available at <http://www.itlos.org/>.
[104] Order 2008/1 of 11 December 2008 in Case No. 7 (*Chile v. European Community*).
[105] Order 2008/1 of 11 December 2008 p. 2 number 7 in Case No. 7 (*Chile v. European Community*).
[106] The Chamber has jurisdiction only to hear environmental cases where the parties consent thereto. See UNEP, *Manual on Compliance with and Enforcement of Multilateral Environmental Agreements*, available at <http://www.unep.org/dec/onlinemanual/Compliance/NegotiatingMEAs/DisputeSettlement Provisions/Resource/tabid/661/Default.aspx> (visited 17 March 2009). It should be noted, though, that the ICJ itself has decided one environmental case.
[107] See for example Alan Boyle, 'The Environmental Jurisprudence of the International Tribunal for the Law of the Sea', 22 *International Journal of Marine and Coastal Law* (2007) 369–381 at 381.

judicial bodies a chance to contribute to the enforcement of international environmental law.

5 Conclusions and recommendations

As the first part of this paper showed, fisheries Agreements between West African countries and the European Union as well as IUU fishing significantly contribute to overfishing off the West coast of Africa. Overfishing, then, entails serious environmental and social problems in West African countries. Both the UNCLOS and the Straddling Fish Stocks Agreement set up a legal framework aiming at sustainable use of fisheries and protection of the marine environment. The European Union and most West African countries are parties to these international Agreements and bound by their provisions. With the ITLOS there is even an institution for judicial review of these international treaties. Nevertheless, the existing international (environmental) law and the institutions established by it are not proving effective in preventing the continuing degradation of fisheries and marine environment. In addition, the body of soft law that has developed to date has not been able to change the trend of continuing marine pollution and overexploitation of marine resources.[108] Furthermore, given the 'market forces' at play, it is unlikely that self-regulation will solve the problems.

None of the cases submitted to the Tribunal have dealt with fisheries Agreements. As described above, this is a logical consequence of the given legal and factual circumstances. States that have concluded fisheries Agreements are not, at present, likely to litigate over them. States do litigate over prompt release of vessels that have been caught fishing illegally. Nine out of fifteen cases decided by the ITLOS were prompt release cases. In three of these cases, the vessels were detained for IUU fishing. The ITLOS proved very effective in deciding these cases. However, as the trigger was based on individual rights protection also the judges of the ITLOS mainly weighed individual interests of the states involved when setting up a 'reasonable' bond for the release of a vessel. The collective interest of marine environmental protection was not reflected very much in the ITLOS decisions, even though it is safeguarded in Article 63 of the UNCLOS.

The ITLOS, and other international judicial bodies, can only develop jurisprudence and actually contribute to environmental and fisheries protection if environmental and fisheries disputes are submitted to them.[109] Such disputes are very unlikely to be submitted by states. Therefore, if states really want to ensure sustainable use of fish-

[108] This might be argued against Churchill, 'Fisheries Jurisprudence', *supra* note 69, at 424 who comes to the conclusion that there are very few disputes about fisheries, but that there is no urgent need to change anything in the judicial field because soft law instruments are developed.

[109] Rah and Wallrabenstein, 'Sustainability Needs Judicial Support', *supra* note 86, at 313.

eries and marine environmental protection, as they have agreed to in international (environmental) treaties, they need to find a way to give third parties, stakeholders of collective interests, such as recognized environmental NGOs, access to the ITLOS and other international (quasi-)judicial bodies. At present such third parties are effectively prevented by the rules of international law from taking such action; however, it is not impossible that this might be remedied in the future.

The often expressed danger of such a step lies only in the higher probability of actual enforcement of what states have earlier agreed to; in other words, the only danger is that states might be exposed as having made commitments which they do not wish to or which they cannot meet. In the latter case, creative litigation and judicial support could help to balance the vicious 'market forces' at play and make the UNCLOS system work the way it was actually meant to.

At least two further arguments are usually made against legal standing for NGOs. First, courts might become overloaded with cases and, therefore, either 'blockaded' or too expensive or both. This has not proved to happen. Financial strictures are likely to inhibit a flood of law suits being initiated by NGOs. Law suits are likely, rather, to be very carefully chosen. The other typical argument against broader standing is that courts gain too much power at the costs of state sovereignty. However, the very balanced judgments of the ITLOS show that the judges in charge are well aware of their high responsibility towards state sovereignty. Finally, the crucial role of international courts in a globalized world should not be underestimated. They should be strengthened as a means of peaceful conflict resolution and in their function as catalysers of peaceful communication and negotiation between various stakeholders of a growing world public.

The Global Environment Facility: A Brief Introduction to the GEF and Its International Waters Focal Area

Matti Nummelin[1]

1 Introduction

The Global Environment Facility (GEF)[2] was established in 1991. Its goal is to provide support for developing countries and for countries in economic transition. This goal is achieved through grants and concessional credits toward implementing multilateral environmental agreements. The GEF provides new and additional funding to meet the incremental costs of transforming an environmental project with national benefits into one which could have global environmental benefits. GEF's first budget, for the years 1994–1997, was US$ 2 billion. Since then, replenishments have been made in the amount of approximately US$ 3 billion; the latest replenishment, made for the years 2006–2010, included 32 donors. Two-thirds of the GEF's total funding comes from governments and multilateral donors (one-third each) and one-sixth from the private sector. EU member countries are the major donors of GEF; giving nearly 60 percent of the last replenishment.

Negotiations toward the 5th GEF replenishment (2010–2014) have begun; and these are expected to be ready by early 2010 at the latest. Most probably, additional chemicals-related conventions (Basel,[3] Rotterdam[4]) will be added to the GEF con-

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[2] For more information, see <http://www.thegef.org>.

[3] Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, Basel, 22 March 1989, in force 5 May 1992, 28 *International Legal Materials* (1989) 657, <http://www.basel.int>.

[4] Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, Rotterdam, 11 September 1998, in force 24 February 2004, 38 *International Legal Materials* (1999) 1, <http://www.pic.int>.

ventions and funding for their implementation will be provided from the 'chemical-window' of the GEF. On the other hand the current negations are not easy; since at the same time the negotiations on the new climate change regime are ongoing and the role of GEF in that regime is still open.

2 The GEF in operation

GEF has six focal areas: i) biodiversity; ii) climate change; iii) international waters; iv) ozone depletion; v) land degradation; and vi) persistent organic pollutants. A developing country must be a party to the relevant environmental treaty in order to be eligible for GEF funding. Other countries have to be a party to the relevant treaty and be eligible to borrow from the World Bank.

GEF's primary role is to link local level structures with global institutions dealing with global environmental concerns. GEF provides funding for the global benefits. Thus, the parts of the projects providing local benefits should obtain funding from other sources; GEF only provides funding for incremental costs to gain global benefits. GEF also advances sustainable development in individual nations; whilst improving protection of the global environment. It complements existing aid; but is not, and is not intended to be, a substitute for regular development finance. However, the criterion of 'incrementality'[5] was much discussed and questioned, especially by the developing world, when the rules of the GEF were being formulated. GEF leverages additional funding and seeks to operate by way of co-finance, replication and follow-up. GEF projects are country-driven and based on national priorities. They must also be designed for sustainable development.

During the years 1991–2007, GEF funded over 2 200 projects in 165 developing countries. Of these, GEF provided US$ 2 444 million for biodiversity-related projects; US$ 2 413 million for climate change-related projects; US$ 933 million for projects related to international waters; US$ 182 million for ozone depletion-related projects; US$ 353 million for projects related to land degradation; US$ 215 million for projects related to persistent organic pollutants; and US$ 819 million for projects having multiple focal areas. GEF projects are normally designed to work through co-financing arrangements. Of the total financing of GEF projects, over 80 percent has been made by way of co-financing. Thus, every one US dollar invested by GEF leverages four US dollars in co-financing from partners.

[5] 'Incremental cost funding' is the GEF's fundamental operational principle – the idea being that the GEF will help to fund 'incremental' or additional costs which assist in transforming a local/national project into one that has international (global, if possible) environmental benefits also. GEF 'Evaluation of Incremental Cost Assessment' Summary of Doc GEF/ME/C.30/2, available at <http://www.gefweb.org/Documents/council_documents/GEF_30/documents/GEFME-C30-2-Summary_IncrCost-English.pdf> (visited 29 April 2009).

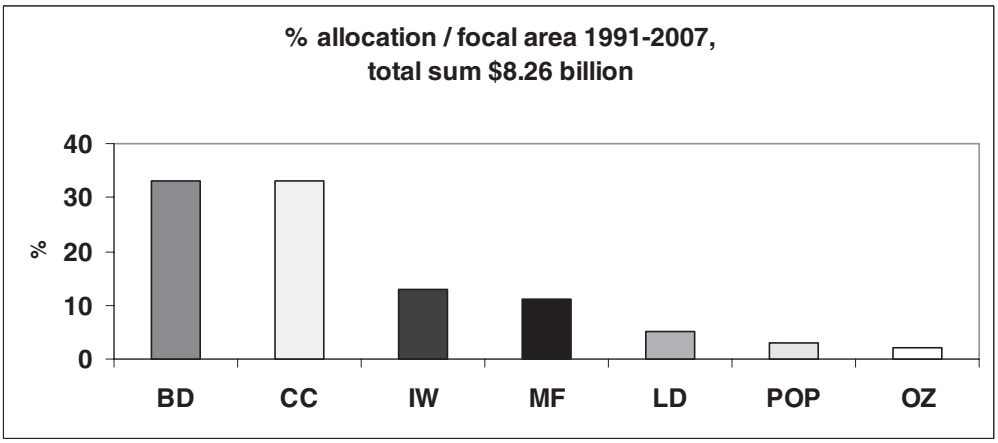

Figure 1. Percent allocation of GEF funds to projects on different focal areas. BD: biodiversity; CC: climate change; IW: international waters; MF: multiple focus areas; LD: land degradation; POP: persistent organic pollutants; OZ: ozone depletion.[6]

GEF's Governing Council develops, adopts, and evaluates GEF programmes and policies. Its 32 members[7] represent 16 developing countries, 14 developed countries, and two countries with economies in transition. The members represent their regional constituencies and normally the representative and her/his alternate member come from a different country. GEF performs its work in countries through political and operational Focal Points. GEF also provides support to the Focal Points. Country dialogue in programme countries, which also includes dialogue with non-governmental organizations (NGOs) and local communities, is considered to be an important working method. Representatives from all GEF member-states provide overall direction to the GEF through the GEF Assembly, which meets every four years.

3 The implementation of GEF projects

GEF projects are managed by GEF Implementing Agencies; which are i) the United Nations Environment Programme (UNEP);[8] ii) the United Nations Development Programme (UNDP);[9] and iii) the World Bank.[10] Seven other international organizations, known as GEF Executing Agencies, contribute to the management and execution of GEF projects.

6 The graph is taken from the GEF website.
7 GEF as a whole has 177 participating member countries, see <http://www.thegef.org/participants/Members_Countries/members_countries.html> (visited 29 April 2009).
8 See <www.unep.org>.
9 See <www.undp.org>.
10 See <www.worldbank.org>.

Implementing Agencies have different roles: the UNDP provides technical assistance, takes care of capacity-building for the environmental sector, and supports the preparation and implementation of national strategies of the environmental agreements. The UNDP also manages the GEF Small Grants Programme for non-governmental organizations (NGOs), which links environmental concerns to livelihood needs through community-based approaches. UNEP's role is to support technical and scientific development and co-operation. The World Bank takes care of GEF investment projects.

The seven Executing Agencies are: the African Development Bank (AfDB);[11] the Asian Development Bank (ADB);[12] the European Bank for Reconstruction and Development (EBRD);[13] the Inter-American Development Bank (IDB);[14] the International Fund for Agricultural Development (IFAD);[15] the UN Food and Agriculture Organization (FAO);[16] and the UN Industrial Development Organization (UNIDO).[17]

The GEF has, to date, 177 member countries.[18] The GEF Secretariat coordinates activities and serves and reports to the Assembly and Council and to the Conventions. Implementing Agencies and Executing Agencies create project proposals and manage GEF projects. NGOs assist in the design, execution, and monitoring of projects. GEF's Scientific and Technical Advisory Panel (STAP)[19] assures the scientific and technical quality of projects. GEF also has an independent Evaluation Office.[20]

Over 1 000 NGOs are accredited by the GEF; and more than 700 NGOs participate actively in GEF activities and oversee GEF projects. There are NGO consultations before Council Meetings; and five NGOs act as observers in Council meetings. NGOs also give assistance in designing of projects; and in executing Small Grants Programmes.[21]

GEF adopted the so-called Resource Allocation Framework (RAF)[22] in 2006 for the climate change and biodiversity focal areas. The RAF is based on each country's

[11] See <www.afdb.org>.
[12] See <www.adb.org>.
[13] See <www.ebrd.com>.
[14] See <www.iadb.org>.
[15] See <www.ifad.org>.
[16] See <http://www.fao.org>.
[17] See <http://www.unido.org>.
[18] See <http://www.gefweb.org/participants/Members_Countries/members_countries.html> (visited 29 April 2009).
[19] See <http://www.gefweb.org/participants/Scietific_Technical/scietific_technical.html> (visited 29 April 2009).
[20] See <http://www.thegef.org/gefevaluation.aspx>.
[21] See <sgp.undp.org>.
[22] See <http://www.gefweb.org/Operational_Policies/Resource_Allocation_Framework.html> (visited 29 April 2009).

potential to generate global environmental benefits and each country's capacity, policies and practices successfully to implement GEF projects. It is presumed that the RAF will bring increased predictability in the allocation of GEF funds (giving indicative allocations for countries). An independent review of the RAF operational experience was completed late 2008;[23] and GEF is currently adjusting its operations according to recommendations stemming from this review.

4 GEF and its international waters focal area[24]

GEF's work is relevant to oceans and international waters, with international waters being one of its dedicated focal areas. The target of this focal area is to address issues such as transboundary water pollution, the unsustainable use of fisheries, the over-extraction of groundwater, the protection of fishery habitats, control of invasive species, and the balancing of rival water uses.[25] These issues are addressed where found in transboundary water systems, such as marine ecosystems bordered by more than one state; and GEF's focus is to foster cooperation between such neighbouring states. In this regard, GEF's Operational Strategy goal for international waters is to assist states, through support for projects, to cooperate, set joint action priorities, and implement such joint actions.[26]

While GEF does not, as a financial mechanism, assist specific conventions, it does associate itself with various regional, and some global, conventions.[27] These include the Convention on the Sustainable Management of Lake Tanganyika;[28] a five-year project for the conservation of biodiversity[29] in the lake, and which sets out the rights and duties in this regard of the four states[30] which border the lake.

Another example is the Western and Central Pacific Fisheries Convention;[31] the object of which is to establish a Commission to ensure, through effective management, the use and conservation of highly migratory fish species in the western and

[23] See GEF Evaluation Office, 'Midterm review of the GEF Resource Allocation Framework', available at <http://www.gefweb.org/uploadedFiles/Evaluation_Office/RAF/RAF_FLYER_EN.doc> (visited 29 April 2009).

[24] See also chapter 6 of the paper by Rudy P. van der Elst in Part III of this *Review*.

[25] See <http://www.thegef.org/projects/Focal_Areas/iw/iw.html> (visited 29 April 2009).

[26] *Ibid*.

[27] *Ibid*.

[28] Convention on the Sustainable Management of Lake Tanganyika, Dar es Salaam, 12 June 2003, available at <http://www.ltbp.org/FTP/LAKECONV.PDF> (visited 29 April 2009).

[29] While biodiversity conservation is the core programme, there are technical studies conducted into environmental education, fishing practices, geographical information systems (GIS), pollution, sedimentation, socio-economic issues and training issues. See Lake Tanganyika Biodiversity Project, 'The Biodiversity Special Study (BIOSS)', available at <http://www.ltbp.org/BIOSS.HTM> (visited 29 April 2009).

[30] Burundi, Democratic Republic of Congo, Tanzania and Zambia.

[31] The Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, Honolulu, 5 September 2000, in force 19 June 2004, <http://www.wcpfc.int/>.

central Pacific regions.[32] GEF has sought to support this Commission, and the Convention generally, through such programmes as its UNDP-GEF Pacific Small Islands Developing States (SIDS) International Waters Strategic Action Programme (Pacific IW SAP).[33] The particular object of this latter programme is to foster cooperation in order to ensure sustainable bluefin tuna catches in the Pacific.[34]

A third example of GEF's work in this focus area is the West Indian Ocean Land Based Activities (WIOLAB) project;[35] which brings together four continental states[36] and four island states.[37] The main aim of the project is to strengthen African capacity to deal with environmental problems in the area; in particular, to reduce marine and coastal degradation by improving water and sediment quality, preventing land-based source-pollution, and working toward less polluting land environments.[38] GEF contributed US$ 4 511 140; UNEP (in kind) US$ 375 000; the participating governments (in both money and kind) US$ 3 131 675; and the government of Norway US$ 3 395 650.[39]

5 Conclusion

The GEF is a major funder of the implementation of multilateral environmental agreements. It combines global and local benefits and supports sustainable development. It has improved its functions during the years and is constantly doing so. It has a proven track-record in successful management of large-scale multinational projects, and its activities on a grass-root level through its Small Grants Programme are acknowledged for good results as well.

[32] *Ibid*.
[33] UNDP-GEF, 'Pacific Islands Oceanic Fisheries Management', June 2005, available at <http://www.undp.org/gef/05/news/pr_june05.html> (visited 29 April 2009).
[34] *Ibid*.
[35] WIO-LaB, Addressing Land Based Activities in the Western Indian Ocean', available at <http://www.wiolab.org> (visited 29 April 2009). On this, see the paper by Rudy P. van der Elst in Part III of the present *Review*.
[36] Kenya, Mozambique, Tanzania and South Africa.
[37] The Comoros, Madagascar, Mauritius and the Seychelles.
[38] See WIO-LaB, 'About the Project', available at <http://www.wiolab.org/about/> (visited 29 April 2009).
[39] See WIO-LaB, 'Funding', available at <http://www.wiolab.org/about/folder.2005-08-17.9448751733/> (visited 29 April 2009).

Looking South: Antarctic Environmental Governance

Ewan McIvor[1]

1 Introduction

Although remote from permanently inhabited lands and unvisited by humans until the late nineteenth century, Antarctica is no longer quarantined from the direct and indirect influence of human activities. The continent is very different to all others in many respects, including its governance arrangements. Through a purpose-built regional framework of international Agreements, known collectively as the Antarctic Treaty system, the states active in Antarctic affairs jointly develop measures to protect and manage the southern high latitudes. This paper provides an introduction to Antarctica, its governance mechanisms, and the main environmental issues currently facing the Parties to the Antarctic Treaty[2] and its Environmental Protocol.[3] It does not address in detail matters relating to the sound management of Antarctic fisheries, which form part of the conservation mandate of the Parties to the Convention on the Conservation of Antarctic Marine Living Resources.[4]

2 The Antarctic continent

2.1 Geography and environment

If you are standing where a step in any direction will be a step to the north, you are at the geographic South Pole in Antarctica, the continent at the bottom of traditional maps and globes of the Earth. Having travelled a great distance across the

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[2] See *infra,* note 16.

[3] See *infra,* note 21.

[4] See *infra,* note 20.

ocean and ice sheet, you will know that Antarctica is very remote from, and very unlike, any of the other continents.

Antarctica is a continental landmass surrounded by ocean, a setting that is geographically opposite to that of the Arctic. The distances across the Southern Ocean from Antarctica to the other southern hemisphere continents are vast – around 1 200 km to South America, 2 500 km to Australia and 4 000 km to Africa – and the ocean is notorious for having some of the strongest winds and largest waves on the planet. The southern boundary of the Southern Ocean is the Antarctic coast itself; and oceanographers usually consider the Sub-tropical Front, which lies roughly along a latitude of 40°S, as the northern boundary. Defined in this way, the Southern Ocean occupies about 20 percent of the surface area of the global ocean,[5] and it is connected to all the world's oceans through the movement of surface and deep water currents.

The continent is massive, spanning approximately 5 300 km at its greatest width, and covering an area, including islands and ice-shelves, of over 13 600 000 km^2 (compared, for example, to Australia – 7 700 000 km^2, the United States – 9 400 000 km^2, or Europe – 10 500 000 km^2).[6]

The climatic conditions are exceptional, and the landscape and environment is correspondingly distinctive. Antarctica is the driest continent, with the amount of moisture received being comparable to that falling on the world's hottest deserts. Most precipitation falls as snow, ranging from an average annual water equivalent of 200 mm near the coast to less than 50 mm further inland over the elevated ice-covered plateau.[7] Antarctica is also the coldest continent, with the mean temperature at the coast being about 0°C in summer and minus 18°–29°C in winter. Temperatures inland on the plateau are much colder even than this. The lowest temperature ever recorded on Earth was -89.2°C at Vostok, approximately 1 300 km inland from the coast of East Antarctica at an elevation of 3 488 m.[8]

Antarctica is the windiest continent, with 'Katabatic' winds flowing downhill under gravity from the interior of the continent to the coastal slopes. These regularly strong winds are caused by a combination of the cold of the interior, the domed shape of the continent and intense low pressure systems around the coast. A wind speed of 327 km/h was recorded at the French research station Dumont d'Urville.[9] Antarc-

[5] Stephen Rintoul and John Church, *The Southern Ocean's Global Reach* (Australian Antarctic Division, 2002), available at <http://www.aad.gov.au/default.asp?casid=4267> (visited 9 February 2009).

[6] Scientific Committee on Antarctic Research, 'Antarctic Statistics', available at <http://www.scar.org/information/statistics/> (visited 9 February 2009).

[7] Australian Antarctic Division, 'Fact File – Weather', available at <http://www.aad.gov.au/default.asp?casid=1548> (visited 9 February 2009).

[8] See Scientific Committee on Antarctic Research, 'Antarctic Statistics', available at <http://www.scar.org/>.

[9] *Ibid*.

tica is also the highest continent, with the average elevation being 2 500 m above mean sea level (AMSL). The surface height at the geographic South Pole is 2 835 m AMSL, and the highest point on the ice sheet is Dome Argus at 4 100 m ASL.[10] Except for coastal peaks, only the highest mountains show above the thick ice. The highest point in Antarctica is the Vinson Massif at 4 897 m AMSL.

Antarctica is the iciest continent, being almost entirely covered by ice which averages 2 500 m thick and has a total volume of approximately 29 000 000 km^3. Ninety per cent of the world's ice and approximately 80 per cent of its fresh water (in frozen form), is contained in the ice sheet. If this ice were to melt, it is calculated that global sea level would rise 65 to 70 metres. When snow does fall in the interior, it is progressively compressed into ice and slowly pushed downhill towards the coast as glaciers, a process which can take many thousands of years. The largest Antarctic glacier – and the largest glacier in the world – is the Lambert Glacier, which is 40 km wide and 400 km long.[11]

Finally, Antarctica is the 'expandable' continent. Beyond the continent proper, the extent of sea-ice varies dramatically throughout the year, from a minimum of about 4 000 000 km^2 in summer to 20 000 000 km^2 in winter.[12] This is the world's largest seasonal event. The thickness of the sea-ice is also quite variable, ranging between a few centimetres to several metres thick.

Although a severe and unwelcoming place for humans, Antarctica does support life. It is home to a range of seal, penguin and flighted bird species, most of which occur on the coastal margins, on the sea ice and in the ocean, and most of which migrate south in the (Austral) summer months and north again for winter. Terrestrial vegetation is limited in species diversity and geographic extent. There are no trees, and only two species of flowering plant are found in the most northerly parts of the Antarctic Peninsula. Otherwise the flora is comprised primarily of lichens, mosses, liverworts, algae and fungi.

The relatively hospitable coastal ice-free areas represent about half of one per cent of the continent. These relatively warm areas also provide important sources of freshwater, terrestrial habitat for breeding, moulting and feeding, as well as ready access to the sea. Most human activities also take place in these areas.

2.2 Human activities

There are no indigenous communities, permanent residents, towns or cities in Antarctica. The southern-most continent's isolation and harsh environment delayed its discovery by humans until late in the nineteenth century. A series of exploratory

[10] *Ibid.*
[11] *Ibid.*
[12] *Ibid.*

expeditions conducted in the late 1800s and early 1900s led to increasing scientific interest in the mid-to-late 1900s, as improving technology and knowledge progressively allowed greater ease of access and the establishment of robust, long-term facilities from which to mount research expeditions.

The main human activities are government-led scientific research (including associated support activities) and tourism. There are several thousand national programme visitors each year, with the total summer population of around 4 000 dropping considerably to around 1 000 over winter.[13] At the time of writing, there were 37 year-round research stations operated by national governments and 16 summer-only stations, most of which accommodate fewer than 100 people. There is currently no permanent infrastructure established for non-governmental purposes, although commercial tourism companies do maintain some relatively small-scale seasonal facilities. In recent years, over 40 000 annual non-government visitors have travelled to the Antarctic by ship or aircraft, with close to 30 000 of those visitors going ashore.[14]

It is important to consider these figures in the context of the size of the continent. A lecture room full of students might have a similar number of residents as one r esearch station, with the next research station located several hundreds or even thousands of kilometres away. Similarly, the total number of tourists to the continent is relatively very low compared, for example, to the number of annual visitors to South Africa's Table Mountain National Park.[15] Even so, the high importance accorded by the Antarctic Treaty Parties to the environmental and scientific values of Antarctica means that all human activities are subject to a comprehensive suite of measures intended to ensure the long-term protection of those values.

3 Governance arrangements

3.1 Antarctic Treaty

By the middle of the twentieth century, several permanent research stations were established, nine nations had asserted territorial claims – some overlapping – or had reserved the right to do so, and planning was underway for the International Geophysical Year (IGY) in 1957–58. The IGY was the first major multi-nation research programme in Antarctica, and held the promise of significantly enhancing scientific understanding.

[13] Council of Managers of National Antarctic Programmes, 'Antarctic Facilities in Operation', available at <https://www.comnap.aq/operations/facilities/> (visited 9 February 2009).

[14] International Association of Antarctica Tour Operators, 'Tourism Statistics', available at <http://www.iaato.org/tourism_stats.html> (visited 9 February 2009).

[15] According to South African National Parks (SANParks), Table Mountain National Park receives in excess of 4.2 million visits per year. See <http://www.sanparks.org/parks/table_mountain/all.php> (visited 3 May 2009).

The twelve states active in Antarctica (Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, United Kingdom, United States and USSR) agreed that the IGY should proceed on the basis of collaboration and cooperation, and that political and legal differences arising from territorial claims should be set aside to allow the international research activities to proceed. The resounding success of that approach during the IGY led those nations to agree on the benefits of continuing peaceful scientific cooperation, and they commenced negotiations toward the Antarctic Treaty.[16] The Treaty was completed in a short time, being signed in Washington on December 1959[17] and entering into force in June 1961.

The purpose of the Treaty, as outlined in the preamble, is to ensure that 'Antarctic shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international accord'. The preamble also notes the Parties' conviction that ensuring the use of Antarctica for peaceful purposes only, and continuing international harmony in the region, will further the purposes and principles embodied in the Charter of the United Nations.[18]

The Treaty's purpose is reflected in the operative text, in which the parties agree to use Antarctica only for peaceful purposes – military activities being specifically prohibited (Article I); continue the freedom of scientific investigation and cooperation shown during the International Geophysical Year (Article II); promote international cooperation in scientific investigation, by providing for free exchange of information, personnel and scientific results (Article III); and set aside the potential for sovereignty disputes between Treaty Parties by providing that no activities will enhance or diminish previously asserted positions with respect to territorial claims, and that no new or enlarged claims can be made while the Treaty is in force (Article IV). The parties further agree to prohibit nuclear explosions and disposal of radioactive waste material (Article V); to apply these provisions to the area south of 60° South latitude, without prejudice to high seas rights in that area (Article VI); to promote the objectives and ensure observance of the Treaty's provisions by allowing other Parties' designated observers to conduct inspections at any time of their stations, installations, ships and aircraft (Article VII); and to hold meetings to develop measures to further the principles of the Treaty (Article IX).

While environmental protection was not specifically identified as a purpose of the Treaty, the prohibitions on military and nuclear activities, the emphasis on cooperation between nations, and the importance given to maximizing the scientific potential of Antarctica have all contributed to ensuring the environmental effects of human activities in the region are minimized. In fact, environmental matters have been the

[16] Antarctic Treaty, Washington, 1 December 1959, in force 23 June 1961, 19 *International Legal Materials* (1980) 860.

[17] The 32nd Antarctic Treaty Consultative Meeting held in Washington and Baltimore in April 2009 marked the 50th anniversary of the signing of the Treaty.

[18] Charter of the United Nations, 26 June 1945.

overwhelming focus of specific measures subsequently developed by the Parties in accordance with Article IX.

3.2 The Antarctic treaty system

3.2.1 Introduction

The 'Antarctic Treaty system' comprises the Treaty itself plus a 'suite' of related international Agreements established for the governance of the Antarctic region; including the 1972 Convention for the Conservation of Antarctic Seals (CCAS),[19] which was negotiated in response to concerns for vulnerable Antarctic seal species if commercial sealing was to resume. The Convention has seen little application to this point and no nation has shown a desire to recommence sealing.

Also in the suite is the 1980 Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR),[20] which was negotiated in response to concerns about the potential over-exploitation of krill, a small crustacean found in high numbers in the Southern Ocean and which plays a crucial role in the marine ecosystem. The Convention is considered a world-leading Agreement, taking an ecosystem-approach to the conservation – including rational use – of Antarctic marine living resources. The parties to CCAMLR face a major ongoing challenge in combating illegal, unreported and unregulated (IUU) fishing, which is estimated to involve catches significantly higher than those authorized by the Commission established under the Convention.

Also in the suite is the 1991 Protocol on Environmental Protection to the Antarctic Treaty (the Madrid Protocol, or the Protocol),[21] which was negotiated following several years of discussion in the mid-to-late1980s about establishing a regime for the regulation of mineral resource activities in the Antarctic,[22] and then a shift in international political desire towards an Agreement for the comprehensive protection of the Antarctic environment.

[19] Convention for the Conservation of Antarctic Seals, London, 16 January 1972, in force 11 March 1978, 11 *International Legal Materials* (1972) 251.

[20] Convention on Conservation of Antarctic Marine Living Resources, Canberra, 20 May 1980, in force 7 April 1982, 19 *International Legal Materials* (1980) 841, <http://www.ccamlr.org>.

[21] Protocol on Environmental Protection to the Antarctic Treaty, Madrid, 4 October 1991, in force 14 January 1998, 30 *International Legal Materials* (1991) 1461.

[22] Following discussions in the late 1970s about the possibility of future mineral resource activities in Antarctica and the inadequacy of existing Treaty measures with regard to the exploitation of non-living resources, the Antarctic Treaty parties held a Special Consultative Meeting that ran from 1982 to 1988 to negotiate an Agreement called the Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA). The Convention provided for the regulation of mining, should it have ever been contemplated, but it did not enter into force as a consequence of the decision by Australia and France to forgo a minerals regime in favour of an Agreement on the comprehensive protection of the Antarctic environment.

3.2.2 The Madrid Protocol

As mentioned above, the Madrid Protocol was negotiated with the purpose of ensuring the 'comprehensive protection of the Antarctic environment'. This objective is outlined in Article 2, which also designates Antarctica as a 'natural reserve, devoted to peace and science'.

Article 3 defines the environmental principles to be considered in the planning and conduct of all activities in the Antarctic Treaty area. For example, activities are to be planned and conducted so as to avoid such things as 'adverse effects on climate or weather patterns', 'significant adverse effects on air or water quality', 'significant changes in the atmospheric, terrestrial, glacial or marine environments', and 'detrimental changes to the distribution, abundance or productivity of species'.

Article 7 bans mining and any other activity relating to mineral resources, other than scientific research. Article 8 requires that all proposed activities be subject to prior environmental impact assessment, in accordance with Annex I (see below). Article 11 establishes the Committee for Environmental Protection (CEP),[23] with functions identified in Article 12, to provide environmental advice and formulate recommendations to the Parties on the implementation of the Protocol.

There are also a number of Annexes detailing provisions for particular issues, which form an integral part of the Protocol. Annex I on Environmental Impact Assessment outlines the procedures for prior environmental assessment of all proposed activities. The Annex establishes a three-tiered assessment process, administered in accordance with individual national procedures. While there is no mechanism for a party or parties to prevent an activity proposed by another party from proceeding, the proponent of any activity likely to have the greatest environmental effects (more than a minor or transitory impact) must prepare and circulate a 'comprehensive environmental evaluation' and address all comments received from the Parties and the CEP. This open and transparent process generally results in high quality proposals which provide an adequate assessment of likely impacts and which identify comprehensive mitigation measures.

Annex II on Conservation of Antarctic Fauna and Flora establishes the requirement that a permit be issued for any proposal to 'take' or 'harmfully interfere with' Antarctic fauna and flora. The Annex also includes a mechanism to declare Antarctic specially protected species (threatened species) and outlines provisions to prevent the introduction of non-native species. Annex III on Waste Disposal and Waste Management details requirements for the management of wastes generated through present operations, including the mandatory removal of some wastes from the Treaty area, and the clean up of wastes remaining from past activities. Annex IV on Prevention of Marine Pollution prohibits and regulates the discharge of substances from ships,

[23] See <http://www.ats.aq/e/cep.htm>.

including oily waste and garbage. Annex V on Area Protection and Management establishes a protected area system comprising Antarctic Specially Protected Areas (entry to which requires a permit) and Antarctic Specially Managed Areas, and provides for the designation of Historic Sites and Monuments. Finally, Annex VI on Liability Arising from Environmental Emergencies outlines arrangements to prevent and respond to environmental emergencies arising from scientific research programmes, tourism and all other governmental and non-governmental activities.

Annexes I to IV entered into force in 1998 at the same time as the Protocol itself. Annex V entered into force in 2002, and Annex VI was adopted at ATCM XXVIII in 2005 and has yet to enter into force.

3.3 Antarctic Treaty Consultative Meetings

Annual meetings of the Parties (Antarctic Treaty Consultative Meetings or ATCMs) are held over two weeks, generally late in the first half of the year. Decisions are taken by a consensus of the 'consultative' Parties, being those Parties with decision-making rights arising from their status as one of the twelve original signatories or on the basis of their conducting substantial scientific activities in Antarctica. There are currently 47 contracting Parties, 28 of which have 'consultative' status.[24] Those Parties that have ratified the Madrid Protocol (currently 32) are also entitled to be represented in the CEP.[25]

A number of other organizations are invited to participate in the meetings as observers or experts, including Antarctic-specific organizations such as the Council of Managers of National Antarctic Programmes (COMNAP),[26] the Scientific Committee on Antarctic Research (SCAR),[27] the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)[28] and the Antarctic and Southern Ocean Coalition (ASOC),[29] and other interested non-Antarctic-specific organizations including the World Meteorological Organisation (WMO),[30] International Union for the Conservation of Nature (IUCN),[31] and United Nations Environment Programme (UNEP).[32]

The structure of the ATCM is not fixed from year to year, although recent meetings have been organized into two sets of parallel sessions comprising the CEP meeting

[24] See Secretariat of the Antarctic Treaty, 'Parties', available at <http://www.ats.aq/devAS/ats_parties.aspx> (visited 9 February 2009).
[25] See Secretariat of the Antarctic Treaty, 'Authorities and Members', available at <http://www.ats.aq/devAS/cep_authorities.aspx> (visited 9 February 2009).
[26] See <http://www.comnap.aq>.
[27] See <http://www.scar.org>.
[28] See <http://www.ccamlr.org>.
[29] See <http://www.asoc.org>.
[30] See <http://wmo.int>.
[31] See <http://www.iucn.org>.
[32] See <http://www.unep.org>.

plus working groups on operational matters, tourism and non-governmental activities, and legal and institutional matters.

4 Antarctic environmental issues

4.1 Introduction

The CEP is the principal environmental advisory body to the ATCM and to the Antarctic Treaty Parties. The Committee's agenda covers many of the environmental issues faced in other parts of the world, such as protection of threatened species; waste management; marine pollution; introduced species; biodiversity loss; protection of special areas; and so on. While the Protocol's – and therefore the Committee's – scope extends to protection of the Antarctic marine environment, the conservation (including rational use) of marine living resources in the Southern Ocean is largely handled separately by CCAMLR.

At its annual meeting in 2008, the CEP concluded a strategic planning exercise and adopted a prioritized five-year work plan of actions to address the most significant environmental issues facing Antarctica. The following sections provide a brief introduction to some of the environmental issues determined to be of the highest priority.

4.2 Non-native species

The introduction and spread of non-native species and disease is recognized as one of the most significant threats to biodiversity worldwide.[33] While the isolation and harsh conditions of Antarctica have helped to prevent non-native species taking hold, continuing and increasing activity in Antarctica, combined with warming trends already observed in some regions, means the risk of such species becoming established if introduced to the region is increasing.[34] As the biodiversity in separate ice-free areas varies, there is also concern about unwanted intra-continental transfer being caused by operations, research programmes and tourist groups moving from one Antarctic location to another.

Every item of footwear, clothing, food, equipment, or cargo entering the Antarctic or transported between locations is a potential vector for species or propagules such as seeds and insect eggs. This threatens not only the environmental values of Antarctica, but also the scientific values. Experience in other parts of the world, including the sub-Antarctic islands outside the Antarctic Treaty area, shows that non-native

[33] Osvaldo E. Sala et al., 'Global Biodiversity Scenarios for the Year 2100', 287 *Science* (2000) 1700–1774, at 1770.

[34] Yves Frenot et al., 'Biological Invasions in the Antarctic: Extent, Impacts and Implications', 80 *Biological Reviews* (2005) 45–72, at 45.

species are very difficult and costly to eradicate once established.[35] Preventing such introductions is acknowledged as the most effective means of minimizing impacts.[36]

There are very few records of species being introduced to and established in the Antarctic. This means there remains an important opportunity to implement comprehensive quarantine measures to maximize the chances of maintaining that situation. Developing such measures is highest on the CEP's list of priorities.

4.3 Global pressures

Coupled with increasing understanding of the global effects of some environmental pressures is the growing recognition that the Antarctic environment is not immune to such effects. These 'external' pressures, resulting from human activities outside the Antarctic region, are outside the direct control of the Antarctic Treaty system instruments.

For example, observations indicate that temperatures on the Antarctic Peninsula increased by at least 2.5°C in the 50 years to 2003, and in response nearly 90 percent of the glaciers in that region are in retreat.[37] As mentioned above, increasing temperatures as a result of global or regional climate warming are also likely to mean that non-native species transported to the Antarctic region will stand a better chance of survival.[38]

Global pollutants are another external pressure with potential adverse consequences for the Antarctic environment. Persistent organic pollutants (POPs), sourced from warmer locations can travel south via atmospheric circulation to Antarctica where they condense and enter the environment. For example, research is showing that seabirds that spend all their lives in the Antarctic have levels of POPs in their tissues at concentrations that suggest that biomagnification is occurring in the region,[39] although there are only limited and very minor sources of POPs in Antarctica.

Although there is little that can be done within the Antarctic Treaty System to prevent the human causes of climate warming or the production of volatile contaminants, research results and evidence about the consequences for the Antarctic envi-

[35] The Australian and Tasmanian Governments have allocated AU$ 24 600 000 to eradicate rabbits and rodents from Macquarie Island. See <http://www.environment.gov.au/heritage/publications/protecting/macquarie-rabbit-eradication-plan.html> (visited 22 May 2009).

[36] Maj de Poorter et al., 'Introduction' in Michelle Rogan-Finnemore (ed.), 'Non-native Species in the Antarctic Proceedings', Gateway Antarctica Special Publication Series 0801 (University of Canterbury, 2008), at 16.

[37] A. J. Cook et al., 'Retreating Glacier Fronts on the Antarctic Peninsula over the Past Half-Century', 308 *Science* (2005) 541–544, at 541.

[38] See Frenot et al., 'Biological Invasions', *supra* note 34, at 45.

[39] Nico Van den Brink, 'Directed Transport of Volatile Organochlorine Pollutants to Polar Regions: the Effect on the Contamination Patter of Antarctic Seabirds', 198 *The Science of the Total Environment* (1997) 43–50, at 43.

ronment can be fed back to the international organizations implementing the appropriate multilateral agreements, such as the Framework Convention on Climate Change[40] and the Stockholm Convention on Persistent Organic Pollutants,[41] as further evidence and justification for their negotiations.

What the Antarctic Treaty Parties must also do is ensure that they respond appropriately to environmental changes in Antarctica, irrespective of their cause. For example, putting in place stringent measures to prevent the arrival of non-native species will help minimize the risk of unwanted introductions, even if a warming climate might diminish natural 'defences'. Similarly, protected areas declared to safeguard breeding or feeding habitat might need to be regularly reviewed to ensure the species or values being protected have not migrated beyond the area boundary. For example, studies have already shown that gentoo (*Pygoscelis papua*) and chinstrap (*P. antarctica*) penguins now breeding in the vicinity of the United States Palmer Station on the Antarctic Peninsula have undertaken such migrations, expanding their ranges southward in correlation with pronounced regional warming.[42]

4.4 Area protection and management

All of Antarctica is protected to a high degree through the provisions of the Protocol, but some areas warrant additional protection for their particularly valuable or vulnerable environmental or scientific value. There are currently 71 Antarctic Specially Protected Areas (ASPAs) designated under Annex V of the Protocol, to protect outstanding environmental, scientific, historic, aesthetic or wilderness values, or ongoing or planned scientific research. These areas are located mostly in the coastal margins where human activities and biological values are in closest proximity.[43] There are also currently seven Antarctic Specially Managed Areas (ASMAs) designated under Annex V, to assist in the planning and co-ordination of activities, avoid possible conflicts, improve co-operation between Parties or to minimize environmental impacts.[44]

Annex V requires that ASPAs be designated within a 'systematic environmental-geographic framework', meaning that Parties should seek to establish a system of protected areas that includes representative examples of the various different types of the Antarctic environment. A classification of the Antarctic into 21 distinct physical environments was endorsed at the CEP meeting in 2008 after many years of devel-

[40] United Nations Framework Convention on Climate Change, New York, 9 May 1992, in force 21 March 1994, 31 *International Legal Materials* (1992) 849, <http://unfccc.int>.

[41] Convention on Persistent Organic Pollutants, Stockholm, 22 May 2001, in force 17 May 2004, 40 *International Legal Materials* (2001) 532, <http://www.pops.int>.

[42] Steven D. Emslie et al., 'Abandoned Penguin Colonies and Environmental Change in the Palmer Station Area, Anvers Island, Antarctic Peninsula', 10 Antarctic Science (1998) 257–268, at 257.

[43] See Secretariat of the Antarctic Treaty, 'ASPA Map', available at <http://www.ats.aq/e/ep_protected_aspamap.htm> (visited 9 February 2009).

[44] *Ibid*.

opment.[45] Further work is now required to apply this new tool to assist with the strategic development of the protected area system.

Annex V also allows for marine areas to be designated as ASPAs or ASMAs. Consistent with commitments elsewhere in the world, the nations active on the Antarctic continent and in the Southern Ocean are working towards the goal of developing a network of representative marine protected areas. To this point, a bioregionalization of the Southern Ocean has been prepared,[46] identifying broad scale areas of like and unlike characteristics, and work is ongoing to develop criteria and procedures to identify and declare areas for protection.

4.5 Tourism

Understandably, people who are not scientists or otherwise part of a national programme are interested to visit Antarctica to experience its spectacular landscape, wildlife and historic sites. The majority of such visitors travel from South America by ship and visit a fairly standard set of popular landing sites along the Antarctic Peninsula. Over the past decade, the annual total numbers of passengers, voyages and landings have increased markedly. Other modes include cruise-only voyages where no landings take place, fly-sail operations where visitors take an aircraft to Antarctica and then embark a ship, and largely land-based tourism where small parties travel south by aircraft or are put ashore by ship for a range of adventurous pursuits including trekking, skiing and ice-climbing. The industry body, International Association of Antarctica Tour Operators (IAATO),[47] actively promotes an environmentally sustainable approach by its membership.

Like government activities, tourism and non-governmental activities are also subject to all the provisions of the Protocol. However, because the number of non-governmental visitors continues to increase, and is now vastly greater than the number of personnel involved in national programme activities, tourism is an activity that warrants continuing close attention. If not managed properly, tourism activities – like government-run activities – create the potential for introduction and transfer of species, disturbance of wildlife and other sensitive values, and other environmental damage such as impacts arising from shipping incidents. For example, in the 2007/08 operating season a tourist vessel, the MV Explorer, sank in waters off the Antarctic Peninsula, thankfully with no loss of human life or immediately obvious environmental effects.[48]

[45] 'Environmental Domains Analysis for the Antarctic Continent As a Dynamic Model for a Systematic Environmental Geographic Framework', XXXI Resolution 3 (2008), available at <http://www.ats.aq/devAS/info_measures_list.aspx> (visited 9 February 2009).

[46] Susie Grant et al., 'Bioregionalisation of the Southern Ocean: Report of Experts Workshop, Hobart, September 2006' (WWF-Australia and ACE CRC, 2006), available at <http://www.wwf.org.au/publications/bioregionalization-southern-ocean/> (visited 9 February 2009).

[47] See <http://www.iaato.org/>.

[48] Belgium, 'Report by Liberia on Sinking of MS Explorer', Information Paper submitted to ATCM XXXII (2009), available at <http://32atcm.ats.aq/32atcm/Documents/docPaperList.aspx> (visited 21 May 2009).

Antarctic Treaty Consultative Meetings have for some time held detailed discussions about the proper management of Antarctic tourism. The Parties have already agreed that ships carrying more than 500 passengers should not land passengers ashore, that no more than 100 passengers should go ashore at one time at any site, and that a guide to client ratio of at least 1:20 must be maintained during all shore visits.[49] They have also adopted general minimal impacts guidelines for visitors and visit organizers,[50] are continuing to develop a series of site-specific guidelines for the most frequently visited sites,[51] and have agreed measures to require that all visit organizers have in place adequate contingency plans and insurance arrangements.[52] Preliminary discussions are also underway about agreeing a 'strategic vision' for Antarctic tourism, and the CEP is investigating the environmental aspects of tourism as a high priority in its work plan.

5 Concluding remarks

Antarctica is remarkable, not just in the geographical or environmental sense, but also in terms of its governance. As an environmental regime, the Antarctic Treaty system is surely unequalled, with the commitment and cooperation of the Treaty Parties providing for the comprehensive protection of an entire continent. In contrast to continuing discussions about the proliferation of multilateral environmental agreements, many with overlapping objectives, and many being under-utilized, the Antarctic Treaty Parties' sharp regional focus has resulted in an efficient and effective approach to governing the Antarctic region for almost 50 years.

The physical separation from centres of government and administrative head offices creates challenges in management by 'remote control', including monitoring, compliance and enforcement. However, the remoteness and isolation, combined with the 'A' factor ('Antarctic factor' – the tendency for the highly dynamic Antarctic environment to present unexpected challenges even to very carefully made plans) also means that it is essential to maintain effective cooperation and good relationships with other nations and operators active in the region. This accommodating approach on the ground is generally mirrored in the annual ATCMs, and is reflective of the Parties' continuing commitment to peaceful and collaborative governance.

There is no doubt that environmental challenges are ongoing, particularly as growing understanding of the global reach of some environmental pressures highlights the

[49] 'Ship-based Tourism', ATCM XXX Resolution 4 (2007), available at <http://www.ats.aq/devAS/info_measures_list.aspx> (visited 9 February 2009).

[50] 'Guidelines for Tourism', ATCM XVIII Recommendation 1 (1994), available at <http://www.ats.aq/devAS/info_measures_list.aspx> (visited 28 January 2009).

[51] For example, 'Site Guidelines for Visitors', ATCM XXXI Resolution 2 (2008), available at <http://www.ats.aq/devAS/info_measures_list.aspx> (visited 28 January 2009).

[52] 'Tourism and Non-Governmental Activities', ATCM XXVII Measure 4 (2004), Resolution 3 (2004), available at <http://www.ats.aq/devAS/info_measures_list.aspx> (visited 28 January 2009).

reality Antarctica is no longer isolated and immune to outside influences. Combined with the not inconsiderable environmental effects of ongoing and increasing activity on and around the continent, this means the state of the Antarctic environment is far from static, and the Treaty Parties will need to actively continue and enhance their collaboration and cooperation to ensure that Antarctica is maintained as a natural reserve devoted to peace and science.

Transboundary Marine Life Issues in the Gulf of Aqaba: a Jordanian Case Study

Jarrah AlZu'bi[1]

1 Introduction

Jordan is located to the east of the Jordan River and is considered to be an arid to semi-arid country, it has a total area of Jordan is 92 300 km². Jordan has various topographic features. In the western parts, a mountainous range runs from the north to the south of the country. To the east of the mountain range, ground slopes gently to form the eastern deserts; to the west, ground slopes steeply towards the Jordan Rift valley. The Jordan Rift valley extends from Lake Tiberias in the north, at ground elevation of 220 m below sea level, to the Red Sea at Aqaba. The Dead Sea is located about 120 km south of Lake Tiberias with a water level of approximately 408 m below sea level. The Jordan valley rift is known as Ghor. The southern Ghors and Wadi Araba, south of the Dead Sea, form the southern part of the Rift Valley. The Gulf of Aqaba is a part of the Wadi Araba region and lies in the southern part with a 26 km coastline, which stretches along the northern shores of the Red Sea.[2]

The country can be divided into four physiographic regions: The Ghors (lowlands) in the western part of the country, which consist of three zones: the Jordan valley which starts at Lake Tiberias in the north (220 m below sea level), the lowlands along the Dead Sea (408 m below sea level) and the Wadi Araba which extends in a southerly direction to the northern shores of the Red Sea (total area: 5 000 km²); the highlands, which run from north to south at an altitude of between 600 and 1600 m

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[2] CIA, 'The World Fact Book: Jordan', available at <https://www.cia.gov/library/publications/the-world-factbook/geos/jo.html#Geo> (visited 27 February 2009).

above mean sea level (total area: 5 510 km²); the plains, which extend from north to south along the western borders of the desert (Badiah or Badia) (total area: 10 000 km²); and, finally, the desert region (Badiah) in the east, which is an extension of the Arabian Desert (total area: 68 700 km²).[3]

In 1992, 4.3 percent of Jordan's total area was considered to be arable land, estimated at about 381 740 ha. In 1991, the total cultivated area was estimated at 214 767 ha, which is about 56 percent of the cultivable area. Crops in the area largely comprise two kinds: annual crops that equal about 120 077 ha; and permanent crops that equal 94 690 ha. Additionally, each year up to 50 000 ha of rain-fed land might be left uncultivated due to fluctuating and unevenly distributed annual rainfall.

The total population is almost 5.87 million, of which 29 percent is rural. The population growth is estimated at 2.33 percent not including fluctuations caused by international political events. Currently, about 90 percent of the population is concentrated in the northwest part of the country, where rainfall is highest and where most of the water resources are located. Agriculture accounted for 3.6 percent of Jordan's GDP in 2008 and 5 percent of the labour force were employed in agriculture.[4]

2 Water resources and marine life in Jordan

Due to the effect of topographic features in Jordan, the distribution of rainfall varies considerably with location. Rainfall intensities change from 600 mm in the North West uplands to less than 200 mm in the eastern and southern deserts lowland that form about 91 percent of the surface area. The average total quantity of rainfall that falls on Jordan is about 7 200 million cubic metres (MCM) per year, and it varies from place to place between 6 000 and 11 500 MCM/year. Approximately 85 percent of the rainfall evaporates back into the atmosphere, the rest flows in rivers and wadis (as flood flow) and recharges groundwater. Groundwater recharge amounts to approximately 4 percent of the total rainfall volume, surface water amounts to approximately 11 percent of total rainfall volume.[5]

Jordan shares some of its most important water resources with its neighbouring countries. These resources form a large percentage of the presently exploited water resources, on which the country depends for meeting present and future water demand. One of the most important shared surface water resources is the Jordan River

[3] Office of King Hussain, 'Keys to the Kingdom: Geography and Environment', available at <http://www.kinghussein.gov.jo/geo_env.html> (visited 3 March 2009).
[4] CIA, 'The World Fact Book', *supra* note 2.
[5] Jordan Ministry of Water and irrigation,", available at <http://www.mwi.gov.jo/NWMP/INDEX.HTM> (visited 2 March 2009).

system. Other important shared water resources include the groundwater resources of north Jordan (Azraq, Yarmouk and Amman Zarqa basins).[6]

In Jordan the pressures on the limited available water supplies are increasing as demand rises rapidly. The need for additional water supplies has put tremendous pressure on the groundwater resources, with some basins, such as the Azraq Basin, suffering from over-exploitation. The gravest environmental challenge that Jordan faces today is the scarcity of water, the country having one of the lowest amounts of renewable water resources per capita in the world.[7]

Table 1: Water resources per capita in selected countries.

Country	**Renewable water resources per capita m^3**
Kuwait	8
United Arab Emirates	49
Saudi Arabia	96
Jordan	**157**
Yemen	198
Israel	255
Iraq	2 917
Canada	91 419
Papua New Guinea	137 252
Guyana	314 211
Iceland	582 192

The above table[8] shows the poorest countries in water resources m^3 per capita in the world, and Jordan is considered one of the five poorest countries due to limited resources available when compared with Israel, which borders Jordan from the west with the same climatic conditions.

Indeed, water is a decisive factor in the population/resources equation that are stretching water availability beyond sustainable levels, whereas the country's population has continued to rise. There are two types of growth, the first is the natural population growth, and the second is periodic massive influxes of refugees from Palestine (1948

[6] Jordan Ministry of Water and Irrigation, 'Water Strategy', available at <http://www.mwi.gov.jo/mwi/WaterStrategy.aspx#GROUND> (visited 2 March 2009).

[7] Phillip Brown, I. Hussein, A. Keller, Michael Rock, Abdul Aziz Weshah and Hala Zawati, 'Concept Paper for Jordan Water Policy: Implementation Program', USAID unpublished report (1999).

[8] World Resources Institute, 'Freshwater Resources 2005', available at <http://earthtrends.wri.org/pdf_library/data_tables/wat2_2005.pdf> (visited 2 March 2009).

and 1967), refugees from Kuwait (1990 and 1991) after the Gulf War, and refugees from Iraq (2003) after 'Desert Storm'. This kind of population increase has transformed a comfortable balance between population and water in the first half of 20th century into a chronic and worsening imbalance in the second half.[9]

Jordan's water resources system is characterized by political issues and water poverty. Jordan shares most of its surface water resources with neighbouring countries (Syria, Saudi Arabia and Israel). The Jordan River system is one of the most important shared water sources where water allocation forms one of the most difficult regional political issues as it is shared between five countries (Jordan, Syria, Lebanon, Palestine and Israel). The Azraq-Yarmouk and the Amman-Zarqa basins, which are shared with Syria, and the Disi Aquifer south of Jordan in which Saudi Arabia also has interest, are important resources of ground water in Jordan.[10]

Jordan is facing a significant environmental challenge in water scarcity. The arrival of immigrant populations since 1948 has resulted in the over-exploitation of already scarce resources. Since that time a continual imbalance has occurred between population and water. Most experts consider countries with a per capita water production below 1 000 m^3 per year to be water-poor countries. In 1995, Jordanians consumed a total of 882 m^3. In 1996, per capita share of water was less than 200 m^3 for all uses compared with 370 m^3 in Israel, 1 200 m^3 in Egypt and 3 500 m^3 in Turkey. Jordan thus had only a fifth of the per capita volume deemed to be at the poverty level. With the Jordanian population expected to continue to grow, the gap between water supply and demand threatens to widen significantly. By the year 2025, if current trends continue, per capita water supply will fall from the current average of less than 200 m^3 per person to only 91m^3; which will put Jordan in the category of having an absolute water shortage. Jordan has one of the lowest levels of water resources in the world, as mentioned in the table above. The per capita share of water in 1996 was less than 175 m^3. Jordanians consumed a total of 882 MCM in 1997. This situation brought the attention of the government to bear on the fact that around 225 MCM was pumped from the non-renewable fossil layer; which means that it makes sense for the government to regulate water use tightly even for agriculture purposes.[11] In fact, 1997, marked a turning point for Jordan, when it realized that there was a water crisis and the government sought to put plans in place and to seek funds to regulate and manage water resources in better ways.

[9] National Environment Strategy (1991).

[10] See Ilan Berman and Paul Michael Wihbey, 'The New Water Politics of the Middle East', (Institute for Advanced Strategic & Political Studies, 1999), available at <http://www.iasps.org/strategic/water.htm> (visited 7 May 2009).

[11] B. Al-Kloub and T. Al-Shemmeri, 'Looking for Alternative Source of Water', *The Resource Journal* (1994) 8–11.

3 Environmental threats and the Jordanian response

Many significant factors, and changes undergone, have threatened Jordanian wildlife habitats and communities over the centuries. The rapidly expanding population, industrial pollution, wildlife hunting and habitat loss due to development have taken a toll on Jordan's wildlife population. Further, Jordan's absorption of hundreds of thousands of people[12] has resulted in the over-exploitation of many of its natural resources, and the country's severe shortage of water has led to the draining of underwater aquifers and damage to the Azraq Oasis. The Iraq war has led people to leave Iraq and Kuwait. Since 1990, up to 2007, the Jordanian authorities estimated the number of Iraqis entering Jordan at 547 000. The war in Iraq in 2003, however, increased the number of Iraqi nationals leaving their country to take up residence in neighbouring countries, especially Jordan and Syria. This situation saw the number of Iraqis in Jordan increase to about 1-million.[13]

Jordan has concentrated on these and other threats to the environment, beginning the process of reversing environmental decline. Jordan has a national environment strategy, which represents a study of all sectors and which highlights and recommends areas that should be considered in future plans; including areas such as agriculture, air pollution, coastal and marine life, antiquities and cultural resources, mineral resources, wildlife and habitat preservation, population and settlement patterns, and water resources.[14]

4 Protecting Aqaba

On the importance of marine life in Jordan, the Gulf waters contain many marine species, such as starfish, sea cucumbers, crustaceans, shrimps, sea urchins, worms and many species of fish. Different kinds of sea grasses provide both food and shelter to the species that inhabit the area. Several species of eel can be found with sea horses and pipe fishes. There are varieties of stony coral reefs near the southern part of Jordan's coastline which forms a great attraction for divers. The Gulf of Aqaba is considered as one of the most beautiful spots of the Red Sea. It is a home to many marine species typical of the Middle East. The coral reefs, in particular, are unique and amongst the most attractive in the world. The area of the Gulf is only 5 kilometres wide in the northern part, with depth ranges of from 1000 to 1800 metres. The depth

[12] From Palestine after the Israeli occupation since 1948 and then 1967, followed by the Gulf war in 1990.

[13] Jordan Department of Statistics, 'Iraqis in Jordan. Their Number and Characteristics', available at <http://www.dos.gov.jo/dos_home_e/main/Iraqis%20in%20Jordan.pdf> (visited 2 March 2009).

[14] National Environment Strategy for Jordan, available at <http://www.unep.org/dewa/WestAsia/data/Knowledge_Bases/Jordan/National%20Strategy/National%20Environ%20Strategy.pdf> (visited 2 March 2009).

of the gulf and its isolation from sea currents reduces turbulence and improves visibility.[15]

Aqaba lies 328 km south of Amman, the capital of Jordan. It is situated in southern Jordan on the north shore of the Gulf of Aqaba. The Gulf of Aqaba, a branch of the

Red Sea with 367 km of coastline, about 27 km of which belongs to Jordan,[16] is one of the Kingdom's primary tourist attractions and its only access to the sea. Fortunately, however, Aqaba has always been acknowledged as being more than just a centre of trade and tourism. Boasting one of the world's most unique coral reef systems and being rich in fish and aquatic plant life, the Gulf of Aqaba is an environmental treasure which Jordan is endeavoring to protect.

The enclosed nature of this marine environment, which contributes to its high degree of biological diversity, also makes it susceptible to pollution from trade, industry and tourism. The existing and potential environmental threats to Aqaba include such industrial pollution as that from phosphates, potash, cement production, traffic, electricity generation and shipping. Tourism contributes to individual littering, garbage accumulation, and increases in sewage problems, air pollution and traffic levels. As Aqaba is a major tourism centre and the country's only port, plans for preserving this natural treasure have necessarily been combined with the region's economic and social development. Jordan's early commitment to sustainable development has facilitated this combination, as environmental regulation has been instituted relatively early in the industrialization process.

The Aqaba Regional Authority (ARA) was established in 1984. It is a specialized governing body responsible for the social and economic development of the Aqaba region. The main roles of ARA are to monitor and control all major construction and development along the coast. Strict sets of requirements have been prepared to control future industrial development of the area. A protected marine area has been reserved by the ARA. Monitoring of this area needed more attention, and the Royal Scientific Society (Jordan) started to play a role along with ARA to monitor water quality generally from selected coastal facilities.

The University of Jordan and Yarmouk University conduct marine ecology and oceanographic research in Aqaba. Also, Aqaba Marine Science Station was established in 1982 as a research centre to help to preserve the Aqaba's marine life. The Gulf of Aqaba is shared between four countries – Egypt, Israel, Jordan, and Saudi Arabia. Jordan is taking measures to preserve the unique fragile marine ecosystem; but these

[15] See, generally, The Hashemite Kingdom of Jordan, 'Marine Life', available at <http://www.kinghussein.gov.jo/geo_env2.html#Marine%20Life> (visited 15 August 2008).
[16] See CIA, 'The World Fact Book', *supra* note 2.

will not be sustainable without regional cooperation between these neighbouring countries.[17]

The Gulf of Aqaba Environmental Action Plan (GAEAP)[18] was established by the multilateral working group of the region as a sustainable development plan – indus

trial and economic growth being actively stimulated. This regulatory framework and the coordinating policies among the various governmental ministries associated with environmental protection are aimed at controlling existing damage and preventing future harm. The GAEAP is modelled on the Mediterranean Action Plan, with 23 specific actions in six related administrative categories:

- legal and regulatory framework;
- institutional strengthening;
- infrastructure investments;
- protected area management;
- monitoring and applied research; and
- public awareness and environmental education[19]

In addition to the GAEAP, Jordan and Israel are also developing a bi-national Marine Peace Park at the northern tip of the Gulf. The GAEAP demands an environmental audit of Jordan's nearby power plant, and an update to the emergency plans for oil spills, enhanced monitoring of air and marine water quality and the management of the protected marine area.[20] The primary benefit of the GAEAP will be enhanced local capability to contain undesirable pollutants consequent on industrial developments.

The strategy proposed by GAEAP is complemented by two existing projects: the Egypt Red Sea Coastal Zone Management project[21] and the Yemen Marine Ecosystem Protection project.[22] It is hoped that a comprehensive environmental accord will soon be negotiated between the four Gulf of Aqaba states, establishing a long-term regional framework for pollution control.

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17 The website of the Hashemite Kingdom of Jordan, available at <http://www.kinghussein.gov.jo/jo_information.html> (visited 15 August 2008).

18 Available at <http://www.iwlearn.net/iw-projects/Fsp_11279946913> (visited 3 March 2009).

19 See the Hashemite Kingdom of Jordan, Gulf of Aqaba Environmental Action Plan, GEF Report No. 15290 JO, available at <http://www.iwlearn.net/iw-projects/Fsp_11279946913/project_doc/gulf-of-aqaba-project-document-116p-5-2mb.pdf> (visited 7 May 2009).

20 *Ibid*.

21 For more information, see, for example, A. G. Abul-Azm, Ibrahim Abdel-Gelil and Ivicia Trumbic, 'Integrated Coastal Zone Management in Egypt: The Fuka-Matrouh Project', 9 *Journal of Coastal Conservation* (2003) 5–12.

22 Global Environment Facility, 'Protection of Marine Ecosystems of the Red Sea Coast', project document, available at <http://www.gefweb.org/Outreach/outreach-PUblications/Project_factsheet/Yemen-prot-2-iw-undp-eng.pdf> (visited 2 March 2009).

The peace treaty[23] signed by Jordan and Israel in October 1994 gave special attention to arrangements for the Aqaba/Eilat region, Annex IV mentioning environmental protection.[24] The two countries signed a Protocol outlining a detailed framework for cooperation in conserving this delicate ecosystem, prevention of pollution and maritime matters.[25]

The Aqaba Special Economic Zone (ASEZ) was established in Jordan in 2001 as a major project for economic development of the region. Since then, the ASEZA Authority has taken the necessary steps to change laws and regulations governing the economic activities; so as to align them with the strategies and policies necessary for economic development, including environmental protection of the zone. A master plan for the development of the zone[26] was designed and approved and, furthermore, an international development company was contracted for the implementation of the development plan. While the ASEZA is focussing on the economic development; the protection of the environment and preservation of ecological treasures of the zone, especially the Red Sea coral reefs, is of high priority and a major concern. As a result, environmental tourism is growing and becoming a new norm in Aqaba. Only the future will tell whether the ASEZA will succeed in creating a synergy between preservation of the environment and economy; whilst accompanying core economic development with a major growth of habitats in the zone. Certainly, the region and the world needs such sustainable initiatives.[27]

5 Transboundary Issues

The idea of an inter-sea transfer between the Red Sea and the Dead Sea has been studied in many forms since the 1800s, and more seriously since the mid-twentieth century.[28] The 400-metre difference in elevation between these two seas has attracted countries because of its gravity flow advantage and its great potential for the generation of hydropower. A plan has been drawn up to bring seawater from the Red Sea via tunnels, canals or pipelines to the Dead Sea to generate electricity and desalinate the seawater. The concept currently under consideration places a high priority on

[23] Treaty of Peace between the State of the Hashemite Kingdom of Jordan and Israel, Arava, 26 October, 1994.

[24] *Ibid*. paras C3 and I1.

[25] Treaty of Peace between the State of the Hashemite Kingdom of Jordan and Israel, Arava, 26 October, 1994, available at <http://www.jewishvirtuallibrary.org/jsource/Peace/isrjor.html> (visited 2 March 2009), Article 23.

[26] Strategic Plan for ASEZA, available at <http://www.aqabazone.com/files/bro-eng.pdf> (visited 2 March 2009).

[27] *Ibid*. at 48.

[28] See World Bank, 'Red Sea – Dead Sea Water Conveyance Study Program', available at <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/MENAEXT/EXTREDSEADEADSEA/0,contentMDK:21827416~pagePK:64168427~piPK:64168435~theSitePK:5174617,00.html> (visited 9 May 2009).

restoration of the Dead Sea and involves three elements:[29] the 'Peace Conduit' with Red Sea water to be conveyed to the Dead Sea; a desalination plant for the Red Sea water to be built close to the Dead Sea to produce potable water from a part of the water transferred and to provide energy by a hydropower facility; and potable water to be distributed by pipelines for domestic use in Israel, Jordan, and the area under the control of the Palestinian Authority.

The concept of transferring water from the Red Sea into the Dead Sea could serve various purposes, such as[30] protecting a unique region of the world with various aspects such as cultural, religious and political significance; reversing the environmental degradation of the Dead Sea region; providing a potential solution to drinking and tourism water needs; and presenting an opportunity for the concerned government entities in the region to work together on a major project of mutual interest with a view to increasing the prospects for peace, security, and prosperity in the region

The feasibility study was agreed upon at a meeting between the three countries during the annual World Economic Forum – Dead Sea Conference in 2005. The Hashemite Kingdom of Jordan, the state of Israel and the Palestinian Authority ('beneficiary parties') announced their agreement and commitment to study the feasibility of transferring water from the Red Sea to the Dead Sea, with support from the World Bank.[31] The Bank has noted that the study emphasizes the importance of cross-country synergies on a vital shared resource – water. Accordingly, the three parties are seen as truly signifying how water can be a catalyst for regional cooperation.[32]

The project will be shared between three countries (Jordan, the Palestinian Authority which administers certain territories, and Israel). The water will be transferred from the Red Sea (to the Dead Sea) where the Dead Sea is shared between the three main partners and there are peace Agreements between these countries that will cover the legal aspects. As a part of the peace negotiations, water conveyance from the Red Sea to the Dead Sea was considered as a way of arresting the declining water level; and allowing gradual refilling over time to a reasonable level. Table (1) shows the multilateral Agreements between countries sharing the Red Sea and it is noticeable that Israel is not part of these Agreements. This is due to the fact that Israel has peace treaties only with Jordan and Egypt. This situation might have an effect on the project after the feasibility study has been finished.[33]

[29] Statement by Inger Andersen, Director, Sustainable Development for Middle East and North Africa Region of the World Bank, World Bank Press Release of 10 December 2006, available at <http://siteresources.worldbank.org/MENAEXT/Resources/RDS_Press_Release_121006.pdf? resourceurlname =RDS_Press_Release_121006.pdf> (visited 28 October 2008).

[30] See World Bank, 'Red Sea – Dead Sea Water Conveyance Study Program', *supra* note 30.

[31] World Bank Press Release, *supra* note 31.

[32] *Ibid*.

[33] Yossi Nasser, *Coral Reefs at Risk: Trade & Tourism in the Red Sea, and Its Threat to the Environment*, Trade and Environment Database (TED) Case Studies Number 669 (2003), available at <http://www.american.edu/TED/redsea.htm> (visited 10 November 2008).

Table 1: Agreements regarding the Red Sea.

Relevant Agreements, initiatives and actors	**Description**	**Adopted**	**Into force**	**Countries**
The Jeddah Convention	The Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden, is an intergovernmental body dedicated to the conservation of the coastal and marine environments in the region.	1982	1985	Sudan, Jordan, Saudi Arabia, Somalia, Yemen
PERSGA	Implementation of the Jeddah convention, the Action Plan and the Protocol.	1996	1996	Sudan, Jordan, Saudi Arabia, Somalia, Yemen
SAP	Strategic Action Plan for the Red Sea and Gulf of Aden to provide a framework for the long-term conservation of the environment of the Red Sea and Gulf of Aden	1998	1998	Djibouti, Egypt, Jordan, Saudi Arabia, Somalia, Sudan, Yemen
Gulf of Aqaba Environmental Action Plan	As part of the regional Environmental Action Plan for the Gulf of Aqaba, the project will (a) develop regional collaborative mechanisms for strengthening the capacity to protect coastal zone and marine biodiversity; (b) develop and enforce the legal framework and regulations for control of trans-boundary pollution; (c) provide safeguards against oil pollution; (d) establish and implement guidelines for sustainable development of the coastal zone; (e) assess the effects of wastewater seepage on the quality and level of the trans-boundary water table; (f) implement a plan to control solid waste impacts on marine and coastal waters; and (g) demarcate and manage a marine protected area.	1995	1995	Jordan

6 Conclusion

The Gulf of Aqaba is a closed gulf within the Red Sea area. It is shared between four countries: Egypt, Israel, Jordan and Saudi Arabia. It contains unique and fragile marine life. However, this has been threatened by increased traffic in the Gulf of Aqaba in the past 60 years. Since the Arab–Israel conflict started, there was no co-operation between the neighbouring countries (Egypt, Israel and Jordan) regarding the protection of the Gulf. This situation persisted until Jordan took the lead and established the Aqaba Regional Authority (ARA) in 1984 to control and monitor the development in the Aqaba Region. The ARA had its own rules and regulations to control the process until the establishment of ASEZA (Aqaba Specialized Economic Zone Authority). ASEZA took over from ARA to control the whole development process in the Aqaba region as an independent organization.

In 1994, Jordan and Israel signed the Treaty of Peace. Both countries were aware about the situation in the Gulf and they agreed to take action regarding the protection of the ecosystem. They created a framework to protect the environment and to control development in the region. More recently, in 2005, the three beneficiary countries (Israel, Jordan, and the area under the control of the Palestinian Authority), supported by the World Bank, signed an Agreement to conduct a feasibility and environmental impact assessment (EIA) study of a new mega-project to transfer Red Sea water to the Dead Sea, which is in a highly critical condition due to environmental degradation. Such a project could cause tension in the region as other countries sharing the Red Sea, like Saudi Arabia, which have not signed any Agreement with Israel, are not included in such a study.

The Gulf of Aqaba is a sensitive area for both its ecosystem and the political situation. Consequently, Agreements for peace and cooperation are needed for further development in the region to lead to more stability and peace. The general relevance of efforts made so far is that they augur well for the future – it is an interesting, and important, point of environmental diplomacy that environmental protection and cooperation (in this case study in the marine environment) could conceivably be something which contributes significantly to political calm.

Part IV

The Interface between Land and Sea: the Coastal Zone

Integrated Coastal Management Boundaries and South Africa's New Integrated Coastal Management Act

Warren Freedman[1]

1 Introduction

On 9 February 2009, President Kgalema Mothlanthe signed South Africa's National Environmental Management: Integrated Coastal Management Act[2] into law. According to Section 2 of this Act, one of its objectives is to provide for the 'co-ordinated and integrated management of the coastal zone by all spheres of government in accordance with the principles of co-operative governance'.[3]

In order to achieve this objective, the South African Parliament had to make a number of difficult decisions. One of the more difficult was to determine what is meant by the 'coastal zone' as it may be defined in different ways depending upon the perspective of the person responsible for providing the definition. Besides defining the coastal zone, a legislature which intends to enact a coastal management statute must also make a number of other difficult decisions. Amongst these are the following:

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[2] Act 24 of 2008, available at <http://www.info.gov.za/view/DownloadFileAction?id=96260> (visited 20 April 2009).

[3] Apart from stating that one of the objectives of the Act is to provide for the co-ordinated and integrated management of the coastal zone by all spheres of government in accordance with the principles of co-operative governance (section 2(b)), Section 2 also states that the objectives of the Act are:

- to determine the coastal zone of the Act (section 2(a));
- to preserve, protect, extend and enhance the status of coastal public property as being held in trust by the state on behalf of all South Africans, including future generations (section 2(c));
- to secure equitable access to the opportunities and benefits of coastal public property (section 2(d)); and
- to give effect to the Republic's obligations in terms of international law regarding coastal management and the marine environment (section 2(e)).

(a) determining the legal status of the coastal zone; (b) identifying appropriate mechanisms for resolving conflicts amongst coastal users; and (c) setting out the jurisdictional boundaries of official coastal management bodies.[4]

Coastal ecologists, for example, argue that coastal ecosystems are inherently variable and dynamic. Consequently, they regard the use of strict physical boundaries to define the coastal zone as incompatible with its ecological characteristics. Coastal regulators, on the other hand, favour the use of strict physical boundaries. This is because they want to know the precise geographic area within which coastal management rules apply.

The difficulties associated with determining what is meant by the 'coastal zone' have confronted not only the South African Parliament, but also the legislatures in several other coastal nations. A careful examination of the coastal management statutes adopted in certain of these countries, in particular the coastal management statute adopted in Spain, has influenced the approach adopted by the South African Parliament.

The purpose of this paper is to set out and critically evaluate the decisions made by the South African Parliament in the light of the coastal management statutes adopted in certain other countries; in the light, in particular, of the coastal management statute adopted by the Spanish legislature. Before doing so, however, it will be helpful to briefly discuss what is meant by the concept of integrated coastal zone management itself.

2 A unique and threatened environment

As its name suggests, a system of integrated coastal zone management focuses on a particular geographical area, namely the coastal zone. The reasons why the coastal zone requires its own dedicated management system are well known: first, because it is a distinct and unique part of the environment; and, second, because it is subject to enormous developmental pressures.

2.1 A unique environment

The distinct and unique nature of the coastal zone lies in the fact that it is the transition zone between land and sea. As Cicin-Sain has pointed out, this interface is a highly dynamic area in which the biological, chemical and geological attributes change frequently and sometimes dramatically, altering the profile of the shoreline.[5]

[4] See Cormac Cullinan, *Integrated Coastal Management Law. Establishing and strengthening National Legal Frameworks for Integrated Coastal Management*, FAO Legislative Study No. 93 (2006) at 83.

[5] Biliana Cicin-Sain, 'Sustainable Development and Integrated Coastal Management', 21 *Ocean and Coastal Management* (1993) 11–43 at 29.

In addition, she goes on to point out, the coast includes highly productive and biologically diverse ecosystems that offer crucial nursery habitats for many marine species, for example coral reefs and seabed grasses.[6] Coastal zone features such as coral reefs, mangrove forests and beach and dune systems also serve as natural defences against storms, flooding and erosion.[7]

Given these features it is not surprising that the coast provides important economic and social opportunities for the inhabitants of coastal nations and that the inhabitants of coastal nations have come to rely on marine and coastal resources for commercial opportunities, food, recreation and transport. The important role that the coast can play in a nation's economy has been highlighted in South Africa's recent national *State of the Environment* Report.[8] This Report points out that:

> [t]he marine and coastal environment and its associated resources contribute considerable to the South African economy in terms of employment, recreation and tourism. Since the 1980s the four major coastal cities of Cape Town, Port Elizabeth, East London and Durban have shown the fastest economic growth of all cities in the country. In 2000, the estimated value of direct benefits derived from all coastal goods and services in South Africa was approximately R168-billion, with indirect benefits contributing a further R134-billion.

2.2 A threatened environment

Coastal ecosystems are, however, under enormous pressure. The *Fourth Global Environment Outlook* points out that over the past twenty years marine and coastal ecosystems have been heavily degraded, some irreversibly, and that this process is continuing despite national and international efforts to the contrary, with it having been projected that many coral reefs will disappear by 2040 because of rising seawater temperatures. Freshwater and marine species are declining more rapidly than those of other ecosystems.[9]

The degradation of the coastal zone is largely due to a dramatic increase in coastal populations. According to the *Ocean Atlas*, approximately 44 percent of the human population (more people than inhabited the entire globe in 1950) live within

[6] *Ibid*.
[7] *Ibid*.
[8] Department of Environmental Affairs and Tourism of South Africa, *South Africa Environmental Outlook* (2007), available at <http://soer.deat.gov.za/dm_documents/CHAPTER_7_Hp7av.pdf> (visited 4 March 2009).
[9] UNEP, *Fourth Global Environmental Outlook* (UNEP, 2007), available at <http://www.unep.org/geo/geo4/report/GEO-4_Report_Full_en.pdf> (visited 4 March 2009) at 136.

150 kilometres of the coast. The degradation of the marine and coastal environment caused by the increase in coastal populations is described as follows:

> [t]he more people that crowd into coastal areas, the more pressure they impose both on land and sea. Natural landscapes and habitats are altered, overwhelmed and destroyed to accommodate them. Lagoons and coastal waters are reclaimed, wetlands are drained and covered with rubbish, the floodplains around estuaries are built over and reduced, and mangroves and other forests are cut down. Ecosystems are damaged, frequently lost forever. Fish stocks, fresh water, soils and beach sands are often overexploited, at great economic and ecological cost.[10]

These global trends are mirrored to some extent in South Africa. The *State of the Environment* Report points out that marine and coastal resources in South Africa are showing signs of modification and degradation; and, in some instances, destruction.[11] The Report then goes on to point out that the key factors contributing to this process are population pressure; coastal development pressure; pressure on estuaries; invasive alien species; marine pollution; oil pollution; harmful algal blooms; and climate change.[12]

A unique feature of the South African coast is that while some parts are characterized by overdevelopment and environmental degradation, other parts are characterized by underdevelopment and high levels of poverty. This is the result of the Apartheid system. Glavovic thus points out that:

> [f]or most of the 20th century, racial discrimination shaped public policy and development in South Africa, severely restricting access to and use of coastal resources. This process of dispossession and exploitation manifests itself in sharply divided social and geographical patterns of underdevelopment and development along the coast, where many, mainly black Africans, remain trapped in a vicious cycle of poverty and environmental degradation … The need to unlock development opportunities to reduce poverty, meet basic needs and improve livelihood option is self-evident. The coast and its resources provide an important basis for bringing about this transformation. The new coastal policy focuses attention on how to realize this developmental potential, on a sustainable basis. This policy is a radical departure from earlier coastal management efforts.[13]

[10] See United Nations Atlas of the Oceans: Uses of the Ocean: Human Settlements on the Coast, available at <http://www.oceansatlas.org> (visited 5 February 2009).

[11] Department of Environmental Affairs and Tourism of South Africa, *South Africa Environmental Outlook*, *supra* note 8, at 172.

[12] *Ibid*. at 173.

[13] Bruce C. Glavovic, 'The Evolution of Coastal Management in South Africa: Blood is Thicker than Water', 49 *Ocean and Coastal Management* (2006) 889–904.

Therefore, it is generally accepted that the coast must contribute to the development of South Africa and the elimination of poverty, but that this contribution must take place on a sustainable basis.

3 Integrated Coastal Zone Management (ICZM)

3.1 A brief history of ICZM

In light of the pressures outlined above, it is widely accepted today that the coastal zone needs to be managed in an integrated manner to ensure that coastal habitats and resources are maintained and restored. Coastal Zone Management (CZM) as a formal government activity first emerged in the United States when the Coastal Zone Management Act was passed in 1972.[14] Following the introduction of this Act, a significant number of coastal management programmes were adopted; first in developed, and, later, in developing countries. Most of these programmes focused on a single sector, for example coastal erosion or marine pollution. They did not attempt to deal with the entire coastal zone and all of its resources.[15]

Beginning in the mid-1980s, however, it became increasingly apparent that an area as complex as the coastal zone could not be effectively managed using a single sector approach. Coastal managers and other relevant parties then began promoting the idea of managing the coast in an integrated manner. Unlike Coastal Zone Management, they argued, Integrated Coastal Zone Management (ICZM) takes into account all of the sectoral activities that affect the coastal zone and deals not only with ecological and environmental concerns, but also with economic and social issues.[16]

This integrated approach to coastal zone management was formally endorsed at the United Nations Conference on Environment and Development (UNECD) in 1992, when it was included as one of the principle recommendations of Agenda 21[17] and today it is accepted by most coastal nations as the most appropriate method of managing the coastal zone. It is a common global practice.[18]

[14] Available at <http://coastalmanagement.noaa.gov/about/media/CZMA_10_11_06.pdf> (visited 20 April 2009).

[15] Jens Sorensen, 'The International Proliferation of Integrated Coastal Management Efforts', 21 *Ocean and Coastal Management* (1993) 45–80.

[16] Jens Sorensen, *Baseline 2000 Background Report: The Status of Integrated Coastal Management as an International Practice* (2nd Iteration, 2002), available at <http://www.uhi.umb.edu/b2k/baseline2000.pdf> (visited 4 March 2009).

[17] Agenda 21, UN Conference on Environment and Development, Rio de Janeiro, 13 June 1992, A/CONF.151/26/Rev.1 (1992).

[18] Sorensen, *Baseline 2000 Background Report*, *supra* note 16.

3.2 ICZM and international law

Apart from Agenda 21, integrated coastal zone management has also been referred to with approval in other non-binding international instruments ('soft law') such as the FAO Code of Conduct for Responsible Fisheries[19] and the Johannesburg Plan of Implementation.[20]

Insofar as treaties are concerned, there is no global treaty that focuses on coastal management. This is largely because ICZM is seen primarily as a matter for national law and policy given that it deals with the relationship between sectors and tiers within an individual state, rather than relationships between states.[21] Nevertheless, there are a number of global treaties that have important implications for coastal zone management. Amongst these are the following:

- the UN Convention on the Law of the Sea (UNCLOS)[22] which defines the extent of coastal states' powers over their offshore zones;
- the UN Framework Convention on Climate Change (UNFCCC),[23] which requires states to prepare integrated coastal zone management plans;
- the International Convention for the Prevention of Pollution from Ships (MARPOL),[24] which deals with marine pollution; and
- the Convention on Biological Diversity,[25] which requires the preparation of national biodiversity strategy and action plans.

Regional treaties have also played a particularly important role in the development of ICZM. Many started as treaties designed to address particular problems such as fisheries or marine pollution and have gradually evolved to encompass ICZM. For example, the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean[26] originally began as a convention dealing with marine

[19] FAO, *International Code of Conduct for Responsible Fisheries* (1995), available at <ftp://ftp.fao.org/docrep/fao/005/v9878e/V9878E00.pdf> (visited 4 March 2009).

[20] Plan of Implementation of the World Summit on Sustainable Development, A/CONF.199/20 (2002).

[21] John Gibson, *Legal and Regulatory Bodies: Appropriateness to Integrated Coastal Management*. Final Report to the European Commission – DG XI.2.D.2 (1999) at 61.

[22] United Nations Convention on the Law of the Sea (UNCLOS), Montego Bay, 10 December 1982, in force 16 November 1994, 21 *International Legal Materials* (1982) 1261.

[23] United Nations Framework Convention on Climate Change, New York, 9 May 1992, in force 21 March 1994, 31 *International Legal Materials* (1992) 849, <http://unfccc.int>.

[24] International Convention for the Prevention of Pollution from Ships, 1973, first signed 2 November 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78), adopted 17 February 1978. The combined instrument entered into force on 2 October 1983, 12 *International Legal Materials* (1973) 1319, <http://www.imo.org>.

[25] Convention on Biological Diversity, Rio de Janeiro, 5 June 1992, in force 29 December 1993, 31 *International Legal Materials* (1992) 822, <http://www.biodiv.org>.

[26] Convention for the Protection of the Mediterranean Sea against Pollution, Barcelona, 16 February 1976, in force 12 February 1978, 15 *International Legal Materials* (1976) 290, amended to be the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, Barcelona,

pollution in the Mediterranean Sea. Similarly, the Helsinki Convention for the Protection of the Marine Environment of the Baltic Sea[27] began as a convention dealing with marine pollution in the Baltic Sea.[28]

It should also be noted that the first legally binding regional Agreement to promote ICZM has recently been adopted, namely the Protocol on the Integrated Coastal Zone Management in the Mediterranean.[29] The Protocol defines the coastal zone, prescribes principles and elements of ICZM, and requires parties to adopt various instruments including strategies, programmes and plans.

3.3 The definition and main characteristics of ICZM

There is no generally accepted definition of ICZM. Different definitions emphasize different characteristics of the ICZM process. For example, some definitions emphasize the importance of balancing conservation and development:

> [i]ntegrated coastal management (ICM) is a process by which rational decisions are made concerning the conservation and sustainable use of coastal and ocean resources and space. The process is designed to overcome the fragmentation inherent in single-sector management approaches (fishing operations, oil and gas development, etc), in the splits in jurisdiction among different levels of government, and in the land-water interface.[30]

Other definitions emphasize the importance of multi-sectoral planning:

> [i]ntegrated coastal management (ICM) is a broad and dynamic process that… requires the active and sustained involvement of the interested public and many stakeholders with interests in how coastal resources are allocated and conflicts are mediated. The ICM process provides a means by which concerns at local, regional and national levels are discussed and future directions are negotiated.[31]

10 June 1995, in force 9 July 2007, <http://www.unep.ch/regionalseas/regions/med/t_barcel.htm> (visited 13 February 2009)

27 Convention for the Protection of the Marine Environment of the Baltic Sea Area, Helsinki, 9 April 1992, in force 17 January 2000, 13 *International Legal Materials* (1974) 546, <http://www.helcom.fi>.

28 See the Convention on the Protection of the Marine Environment of the Baltic Sea Area, Helsinki, 22 March 1974, in force 3 May 1980, 13 *International Legal Materials* (1974) 546.

29 Protocol on the Integrated Coastal Zone Management in the Mediterranean, Madrid, 21 January 2008, not yet in force, available at <http://195.97.36.231/dbases/webdocs/BCP/ProtocolICZM08_eng.pdf> (visited 5 March 2009).

30 Biliana Cicin-Sain and Robert W. Knecht, *Integrated Coastal and Ocean Management: Concepts and Practices* (Island Press, 1998) at 1.

31 FAO Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection, *The Contribution of Science to Integrated Coastal Management*, GESAMP Reports and Studies No 61 (1996), available at <http://www.fao.org/docrep/meeting/003/w1639e/w1639e00.htm> (visited 4 March 2009) at 66.

Yet other definitions emphasize the importance of public participation and conflict mediation:

> ICZM is a process of governance and consists of the legal and institutional framework necessary to ensure that development and management plans for coastal zones are integrated with environmental goals and are made with the participation of those affected. The purpose of integrated coastal zone management is to maximize the benefits provided by the coastal zone and to minimize the conflicts and harmful effects of activities upon each other, on resources and on the environment.[32]

While there is no generally accepted definition of ICZM, there is widespread consensus as to its general characteristics. According to Cullinan, these characteristics may be summarized as follows:

- *Purpose*: The purpose of ICZM is to ensure that development in the coastal area takes place in an ecologically sustainable fashion.
- *Functions*: In order to achieve its purpose an ICZM programme should strengthen and harmonize sectoral management in the coastal area. In addition, it should also protect the productivity and biological diversity of coastal ecosystems; promote sustainable economic development; and facilitate conflict resolution in the coastal area.
- *Horizontal and Vertical Integration*: In order to strengthen and harmonize sectoral management in the coastal area, an ICZM programme should establish institutional mechanisms aimed at coordinating or integrating the different sectoral activities that take place within the coastal zone as well as the activities carried out by different levels of government.
- *Spatial Integration*: Apart from integrating the different sectoral activities that take place within the coastal zone, an ICZM programme should also encompass those landward areas, the use of which can affect coastal waters, as well as those seaward areas, the use which can affect coastal lands. An ICZM programme may also include the entire ocean area under national jurisdiction (the Exclusive Economic Zone).
- *Principles*: Finally, an ICZM programme should promote the Rio Declaration Principles, with particular emphasis on the polluter pays principle, the precautionary principle and the principle of intergenerational equity. An ICZM programme should also be holistic and interdisciplinary in nature. It should be based on the best science available.[33]

[32] Jan Post and Carl G. Lundin (eds), *Guidelines for Integrated Coastal Zone Management,* World Bank Environmentally Sustainable Development Studies and Monographs Series No 9 (1996) at 1.

[33] See Cormac Cullinan *Integrated Coastal Management Law*, *supra* note 4, at 11.

4 Integrated Coastal Zone Management law

Given that ICZM is a relatively recent phenomenon, it is usually necessary for a country intending to introduce an ICZM programme to amend its existing coastal laws; or, more frequently, to enact an entirely new coastal law. It is important to note, however, that not all legislation which introduces ICZM is enacted with that specific objective (of introduction) in mind. As Cullinan points out, legislation which introduces ICZM can be divided into four different categories:

- A *national integrated coastal management* approach. This is when legislation is specifically enacted to implement a programme of ICZM.
- A *sustainable development* approach. This is when legislation is enacted to implement a national programme of sustainable development, a part of which focuses on the coast.
- An *extended land-use planning* approach. This is when land-use planning laws are used to achieve more integrated management of coastal areas.
- A *special regions* approach. This is when special coastal regions are identified and integrated management programmes are applied in those regions to achieve specific objectives.[34]

Of these different approaches, Cullinan points out further, only the first two can be considered to be truly integrated and national in scope and only the first is primarily motivated by the desire to implement an ICZM programme on a national scale.[35]

The South African Parliament has clearly opted for the first approach. Apart from South Africa, this approach has also been adopted by a number of other countries, for example Barbados,[36] Belize,[37] Eritrea,[38] Estonia,[39] Israel,[40] Korea,[41] the Marshall Islands,[42]

[34] *Ibid*. at 110.
[35] *Ibid*.
[36] See the Barbados Coastal Zone Management Act 39 of 1998, available at <http://faolex.fao.org/docs/pdf/bar18058.pdf> (visited 20 April 2009).
[37] See the Belize Coastal Zone Management Act 5 of 1998, available at <http://faolex.fao.org/docs/pdf/blz13962.pdf> (visited 20 April 2009).
[38] See the Eritrean Integrated Marine and Coastal Zone Management Proclamation of 1995, available at http://faolex.fao.org/docs/pdf/eri4583.pdf (visited 20 April 2009).
[39] See the Estonian Law on the Protection of the Marine and Freshwater Coast, Shores and Banks 6 of 2005, available at <http://faolex.fao.org/docs/pdf/est10245.doc> (visited 20 April 2009).
[40] See the Israeli Law of the Protection of the Coastal Environment of 2004, available at <http://www.sviva.gov.il/Environment/Static/Binaries/Articles/coastal_law_1.pdf> (visited 20 April 2009).
[41] See the Korean Coastal Zone Management Act of 1999, available at <http://www.globaloceans.org/icm/resources/laws/koreanczma.html> (visited 20 April 2009).
[42] See the Marshall Island's Coast Conservation Act of 1999, available at <http://www.faolex.fao.org/docs/pdf/mas49722.pdf> (visited 20 April 2009).

St Kitts and Nevis,[43] Sri Lanka,[44] Turkey[45] and the United States.[46]

Having set out some of the key characteristics that underlie the concept of integrated coastal management, we may now turn to consider the issue of identifying appropriate coastal boundaries in more detail.

5 Determining the geographic boundaries of the coast

As was pointed out in the introduction to this paper, one of the most difficult decisions the South African Parliament had to make was to determine what is meant by the 'coastal zone'. This is because the coast may be defined in different ways depending upon the criteria the person responsible for providing the definition has taken into account. As discussed, the way in which the coastal zone is defined by coastal ecologists will, therefore, differ from the way in which it is defined by coastal regulators. This is because coastal ecologists tend to take ecological criteria into account when defining the coastal zone; while coastal regulators tend to take legal criteria into account.

Given that these different approaches appear to be irreconcilable, the legislatures in most countries have avoided giving a substantive definition of the coastal zone. Instead, they have simply defined the coastal zone as a geographic area with fixed landward and seaward boundaries.[47] Adopting such an approach, however, does not necessarily make the legislature's task any easier. This is because in much the same way that different definitions of the coast can be formulated depending upon whether ecological or legal criteria are taken into account, different geographic boundaries can also be identified depending on whether ecological or legal criteria are taken into account.

For example, in Australia the landward boundary of the coastal zone in Queensland is based on ecological criteria; while the landward boundary in Victoria is based on legal criteria. Section 15 of the Queensland Coastal Protection and Management Act, 1995, thus provides that the coastal zone encompasses, inter alia, 'all areas to

[43] See the Saint Kitts and Nevis National Conservation and Environment Protection Act 5 of 1987, available at <http://faolex.fao.org/docs/pdf/stk3561.pdf> (visited 20 April 2009).

[44] See the Sri Lankan Coast Conservation Act 57 of 1981, available at <http://faolex.fao.org/docs/pdf/srl5289.pdf> (visited 20 April 2009).

[45] See the Turkish Coast Law 3621 of 1990, available at <http://faolex.fao.org/docs/pdf/tur7702.pdf> (visited 20 April 2009).

[46] See the United States Coastal Zone Management Act of 1972, available at <http://coastalmanagement.noaa.gov/about/media/CZMA_10_11_06.pdf> (visited 20 April 2009).

[47] The best known example of a substantive definition of the coast may be found in the United States Coastal Zone Management Act. This Act defines the coastal zone as 'the coastal waters (including lands therein and thereunder) and the adjacent shorelands (including the waters therein and thereunder), strongly influenced by each other and in proximity to the shorelines of several coastal states, and includes islands, transitional and intertidal areas, salt marshes, wetlands and beaches.'

the landward side of the coastal waters in which there are physical features, ecological or natural processes of human activities that affect, or potentially affect, the coast or coastal resources'; while Section 3(1) of the Victoria Coastal Management Act, 1995, provides that coastal crown land includes, inter alia, 'any Crown land within 200 metres of the high water mark of (i) the coastal waters of Victoria; or (ii) any sea within the limits of Victoria'.

An examination of the coastal management statutes adopted in the countries referred to in the previous part of this paper shows that the legislatures in a majority of these countries have favoured legal rather than ecological criteria; and, accordingly, that the coastal boundaries in most of these countries have been demarcated quite precisely using relatively fixed lines. This is not surprising given the importance attached to the principle of legal certainty in the modern regulatory state.[48]

It is important to note, however, that the decision to use legal rather than ecological criteria does require the drafters to make one further difficult decision; namely to decide where exactly these boundaries should be physically located. This decision is particularly difficult insofar as the landward boundaries are concerned. This is because: (a) there are no clearly obvious or internationally accepted landward coastal boundaries; and (b) the nature of coastal land and the manner in which it is used differs from one area to the next.

Insofar as the countries mentioned above are concerned, a majority have opted simply to define the landward boundary as a certain distance inland from a physical reference such as the mean low or high-water mark. A similar approach has also been adopted in those countries which have not enacted a separate coastal management statute but which have included coastal management provisions in a more general environmental protection statute; for example Mauritius,[49] New Zealand,[50] and Sweden.[51]

As the examples set out below indicate, while these boundaries are fairly precise, they also appear to be somewhat arbitrary.

[48] In the interests of accuracy, it is important to note that the arguments made in this part of the paper are based on an examination of those national coastal management statutes which are available in English. Coastal management statutes which are not available in English have not been considered.

[49] See the Mauritian Environment Protection Act 19 of 2002, available at <http://faolex.fao.org/docs/texts/mat47831.doc> (visited 20 April 2009).

[50] See the New Zealand Resource Management Act 69 of 1991, available at <http://www.legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html> (visited 20 April 1009).

[51] See the Swedish Environmental Code of 1999, available at <http://faolex.fao.org/docs/pdf/swe50970.pdf> (visited 20 April 2009).

Table 1: Landward boundaries in selected countries.

Belize	The mean high-water mark[52]
Eritrea	1 kilometre inland of the mean high-water spring line[53]
Israel	300 metres inland from the Mediterranean shoreline[54]
Korea	500 metres inland from the high tide line[55]
Marshall Islands	25 feet landwards of the mean high water line[56]
Mauritius	1 kilometre inland from the high-water mark[57]
New Zealand	The line of mean high-water springs, except where that line crosses a river, the landward boundary at that point shall be whichever is the lesser of (a) 1 kilometre upstream of the river mouth; or (b) the point upstream calculated by multiplying the width of the river mouth by five[58]
St Kitts and Nevis	Any area having an elevation less than 15 metres above mean sea level within a limit of 100 metres of the mean high-water mark[59]
Sri Lanka	300 metres landwards of the mean high-water line and, in the case of rivers, streams, lagoons or any other body of water connected to the sea, two kilometres landwards measured perpendicular to the straight base line drawn between the natural entrance points thereof[60]
Sweden	100 metres inland from the normal average water level[61]

While there are no clearly obvious or internationally accepted landward boundaries, the same is not true of seaward boundaries. A number of internationally accepted seaward boundaries are set out in the United Nations Convention on the Law of the Sea (UNCLOS). A majority of the countries mentioned in part four of this paper have, accordingly, simply adopted the boundaries set out in UNCLOS.

Amongst those countries which have not relied on the boundaries set out in UNCLOS, a significant number have followed the same approach they used when defining their landward boundary. In other words, they have simply defined the seaward boundary as a certain distance seawards from a physical reference such as the mean low or high-water mark or the shoreline.

[52] Section 2 of the Belize Coastal Zone Management Act, *supra* note 36.
[53] Section 3(1) of the Eritrean Integrated Marine and Coastal Zone Management Proclamation, *supra* note 38.
[54] Section 2 of the Israeli Law for the Protection of the Coastal Environment, *supra* note 40.
[55] Section 2(2) of the Korean Coastal Zone Management Act, *supra* note 41.
[56] Section 302 of the Marshall Islands Coast Conservation Act, *supra* note 42.
[57] Section 49 of the Mauritian Environment Protection Act, *supra* note 49.
[58] Section 2(1) of the New Zealand Resource Management Act, *supra* note 50.
[59] Section 2 of the St Kitts and Nevis National Conservation and Environment Protection Act, *supra* note 43.
[60] Section 1 of the Sri Lankan Coast Conservation Act, *supra* note 44.
[61] Section 14 of Part 2 of the Swedish Environmental Code, *supra* note 51.

Table 2: Seaward boundaries in selected countries.

Belize	the outer limit of the territorial sea[62]
Eritrea	the outer limit of the territorial sea[63]
Israel	the outer limit of the territorial sea[64]
Korea	the outer limit of the territorial sea[65]
Marshall Islands	200 feet seawards of the mean low water line[66]
Mauritius	1 kilometre seaward from the high-water mark[67]
New Zealand	the outer limit of the territorial sea[68]
St Kitts and Nevis	2 kilometres seaward from the mean low-water mark[69]
Sri Lanka	2 kilometres seaward from the mean low-water line[70]
Sweden	100 metres seaward from the normal average water level[71]

6 The Integrated Coastal Management Act of South Africa

6.1 Introduction

Section 1 of South Africa's Integrated Coastal Management Act provides that the coastal zone encompasses 'the area comprising coastal public property, the coastal protection zone, coastal access land and coastal protected areas, the seashore, coastal waters and the exclusive economic zone and includes any aspect of the environment on, in, under and above such areas'.

As this definition clearly indicates, the South African Parliament has avoided giving a substantive definition of the coastal zone. Instead, it has chosen to define the coastal zone by, inter alia, demarcating the (relatively fixed) landward and seaward boundaries of the geographical areas within which the Act will be applied.

Unlike most of the countries referred to in part four of this paper, however, the South African Parliament has not defined the coastal zone by demarcating the boundaries of a single geographic area, but rather by demarcating the boundaries of several adjacent and sometimes overlapping geographical areas.

62 Section 2 of the Belize Coastal Zone Management Act, *supra* note 37.
63 Section 3(1) of the Eritrean Integrated marine and Coastal Zone Management Proclamation, *supra* note 38.
64 Section 2 of the Israeli Law for the Protection of the Coastal Environment, *supra* note 40.
65 Section 2(2) of the Korean Coastal Zone Management Act, *supra* note 41.
66 Section 302 of the Marshall Islands Coast Conservation Act, *supra* note 42.
67 Section 49 of the Mauritian Environment Protection Act, *supra* note 49.
68 Section 2(1) of the New Zealand Resource Management Act, *supra* note 50.
69 Section 2 of the St Kitts and Nevis National Conservation and Environment Protection Act, *supra* note 43.
70 Section 1 of the Sri Lankan Coast Conservation Act, *supra* note 44.
71 Section 14 of Part 2 of the Swedish Environmental Code, *supra* note 51.

In this respect, the South African Parliament appears to have been heavily influenced by the approach followed in Spain's Coastal Act (*Ley de Costas)*.[72]

6.2 The Spanish Coastal Act

The *Ley de Costas*,[73] which was adopted in 1988, divides the coast into a number of different zones and then demarcates the boundaries of each of these zones. These zones are 'coastal public property' and the 'zone of coastal influence'. In addition, the *Ley de Costas* also make provision for a zone of coastal 'protection' and a zone of coastal 'passage'.

Of the different zones identified in the *Ley de Costas*, coastal public property is the most important. This is because it lies at the heart of the Spanish coast and encompasses the area where the sea meets the land. This area – which is owned by the general public – is made up of a number of different components.

In this respect, Article 3 of the *Ley de Costas* provides that the coastal public property consists of:

- the beach;
- the sea-shore;
- the territorial seas and inland waters, including the seabed and the subsoil; and
- the natural resources of the exclusive economic zone or continental shelf.

The 'beach' is defined as the area 'where free and unattached materials are deposited, such as sand, gravel, pebbles, including rocks, sediment and dunes, with or without vegetation, formed by the actions of the sea or the sea wind, or other natural or artificial causes';[74] and the 'sea-shore' as the area 'between the lowest water mark of high spring tides and the highest limit reached by the waves in the worst storms or the highest water mark of spring tides, whichever is higher'.[75]

Apart from the components set out in Article 3, the *Ley de Costas* goes on to provide in Article 4 that coastal public property also consists of: (a) land created as a result of the sea depositing material on the shore or retreating from the shore; (b) land reclaimed from the sea as a 'consequence of works or drainage'; and (c) land invaded by the sea. Lastly, Article 5 provides that coastal public property also consists of islands located in the territorial sea, rivers and inland waterways, except where they are privately owned.

72 Law No. 22 of 1988.
73 *Ibid*.
74 *Ibid*., Article 3(1)(b).
75 *Ibid*., Article 3(1)(a).

In order to protect and effectively regulate coastal public property, the *Ley de Costas* goes on to impose restrictions on certain areas that are located adjacent to the landward side of coastal public property and that form a part of the coastal ecosystem. These areas – the majority of which are privately owned – are known as the zone of influence.[76]

The zone of influence is defined as a strip of land that extends inland from the high-water mark for a minimum of 500 metres. The first 100 metres of this zone is encumbered by a servitude of protection. This 'zone of protection' is considered to be a green area and no development may take place in it, with the exception of some leisure and sporting facilities. If necessary, the zone of protection may be extended to a maximum of 200 metres.[77]

Apart from the zone of protection, building and development may take place in the remaining 400 (or 300) metres of the zone of influence. All building and development in this area must, however, comply with certain regulations. For example, sufficient land must be set aside for parking, building density may not exceed the average allowed for urban land, and the authorizations that apply to waste disposal in coastal public property must also be applied here.[78]

Finally, the zone of coastal passage consists of a strip of land that is located adjacent to the landward side of coastal public property and which extends inland from the high-water mark for a distance of 6 metres. This strip of land is encumbered by a servitude of public access. In terms of this servitude members of the public are entitled to use the zone of coastal passage as a promenade. If necessary, the zone of coastal passage may be extended to a maximum of 20 metres.[79]

The landward boundary of the Spanish coast for the purposes of the *Ley de Costas*, therefore, is 500 metres from the high-water mark, while the seaward boundary is the outer limit of the exclusive economic zone or the continental shelf.

6.3 The South African Integrated Coastal Management Act

Like the *Ley de Costas*, the Integrated Coastal Management Act divides the coast into different zones and then demarcates the boundaries of each of these zones. These zones are referred to as 'coastal public property' and the 'coastal protection zone'. In addition, the Act also provides for 'coastal access land'.

For essentially the same reasons for which it is the most important zone in Spain, coastal public property is also the most important zone in South Africa. It lies at the

76 *Ibid*., Article 30.
77 *Ibid*., Articles 23 to 26.
78 *Ibid*., Article 30
79 *Ibid*., Article 27.

heart of the coastal zone and encompasses the area where the sea meets the land. It is also owned by the citizens of South Africa.

The components which make up coastal public property in South Africa are, however, somewhat different from the components that make up this area in Spain. This is because the South African coast has certain features which are unique to it, such as the so-called 'admiralty reserves'.

The components which make up coastal public property in South Africa are therefore coastal waters, including land submerged by coastal waters as well as the substrata beneath such land; any existing or future island, whether created naturally or artificially, within the coastal waters (subject to certain exclusions); the sea-shore, including the sea-shore of privately owned islands within coastal waters (subject to certain exclusions). Also, any admiralty reserve owned by the state, as well as any state land that is declared to be coastal public property; and any natural resource on or in (i) any coastal public property, (ii) the exclusive economic zone, (iii) the continental shelf, and (iv) any harbour work or other installation on or in any coastal public property that is owned by an organ of state.[80]

The two most significant components of the definition of coastal public property are the 'coastal waters' and the 'sea-shore'. This is because, in most cases, they will determine the outer boundaries of coastal public property. The coastal waters are defined as the 'marine waters that form part of the territorial waters or the internal waters of the Republic... and… any estuary'; and the sea-shore as the 'area between the low-water mark and the high-water mark'.[81] The low-water mark is defined as 'the lowest line to which coastal waters recede during periods of ordinary spring tides', and the high water mark as the 'highest line reached by coastal waters but excluding exceptional or abnormal floods that occur no more than once in ten years, or an estuary being closed to the sea.'[82]

In order to promote integrated coastal management and to protect coastal public property, the Act provides that restrictions may be imposed on certain areas that are located adjacent to coastal public property and that form a part of the coastal ecosystem. These areas – the majority of which are privately owned – are known as the coastal protection zone.[83]

The coastal protection zone is defined in the Act as a strip of land that extends 1 kilometre inland from the high-water mark in those areas that are zoned for agricultural or undetermined use, or are not zoned, or do not form part of a lawfully

[80] See Section 7 of South Africa's Integrated Coastal Management Act, *supra* note 2.
[81] *Ibid*. Section 1.
[82] *Ibid*.
[83] Section 17.

established township, urban area or human settlement; and 100 metres inland from the high-water mark in all other areas.[84]

In addition, the coastal protection zone also encompasses certain environmentally important areas such as: any area declared to be a sensitive coastal area; any part of the littoral active zone that is not coastal public property; any coastal protected area that is not coastal public property; and any coastal wetland, lake, lagoon or dam that is situated wholly or partly within the one kilometre or 100 metre boundary referred to above.[85]

Finally, coastal access land refers to strips of land located above the high-water mark that have been designated as such by coastal municipalities. These strips of land – most of which will be privately owned – are encumbered by a public access servitude in favour of the relevant municipality. In terms of these servitudes members of the public are entitled to use coastal access land to gain access to coastal public property.[86]

The landward boundary of the South African coast for the purposes of the Integrated Coastal Management Act, therefore, is one kilometre from the high-water mark in rural areas and 100 metres from the high-water mark in urban areas, while the seaward boundary is the outer limit of the exclusive economic zone or the continental shelf.[87]

While these boundaries clearly satisfy the principle of legal certainty they are relatively arbitrary and may exclude important aspects of the coastal ecosystem. In order to address this problem, the Act contains a number of innovative provisions. These provisions provide, inter alia, that the boundaries of coastal public property and the coastal protection zone may be specially adjusted and determined on a case-by-case basis.

The Act begins in this respect by providing that boundaries of coastal public property may be adjusted by the Minister of Environmental Affairs and Tourism, while

[84] Section 16.

[85] *Ibid*. The coastal protection zone is a new concept in South African law. Under the previous statutory regime, the coast was defined as the area situated between the high-water mark and the outer limit of the territorial sea (see section 1 of the Sea-shore Act 21 of 1935). This definition, however, was severally criticized on the grounds that it was not broad enough to encompass the coastal ecosystem. The introduction of the coastal protection zone goes a long way towards addressing this criticism and it should significantly enhance the state's ability to manage the coast in an environmentally sustainable manner.

[86] Section 18.

[87] As John Gibson has pointed out, the important role played by the high-water mark in determining the landward boundary of the coastal zone may give rise to practical problems. This is because there are no official maps that accurately depict the position of the high-water mark. The position of the high-water mark can only be discovered by an inspection on the ground (see John Gibson 'The Development of Integrated Coastal Management Legislation in South Africa' 18 *Journal of Water Law* (2007) 117–121).

the boundaries of the coastal protection zone may be adjusted by a provincial Member of the Executive Council (MEC) responsible for environmental affairs.[88]

The Minister or an MEC may only adjust these boundaries if a boundary is (a) uncertain or undefined; (b) subject to disputing claims; or has (c) shifted due to natural or artificial process. The Minister or MEC may also adjust the boundary if he or she reasonably believes that the objects of the Act will be achieved by doing so.[89]

Before the Minister or an MEC may adjust a particular boundary, the Act goes on to provide, he or she must also follow the procedures set out in the Act,[90] and take into account certain factors which are also set out in the Act.[91] These factors essentially provide that the Minister or an MEC may adjust a particular boundary if this is necessary to protect the coastal ecosystem[92] or to promote the system of integrated coastal management.[93]

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[88] Section 26(1). Apart from coastal public property and the coastal protection zone, section 26(1) also provides that the boundaries of special management areas may be adjusted by the Minister and that the boundaries of coastal access land may be adjusted by the relevant municipality. The Minister's power to adjust the boundary of coastal public property also includes the power to make consequential changes to the adjoining boundaries of the coastal protection zone or coastal access land (section 26(2)).

[89] Section 26(3).

[90] These procedures are set out primarily in section 26(4). This section provides that when the Minister or an MEC adjusts a coastal boundary he or she must:

> (a) give interested and affected parties an opportunity to make representations;
> (b) take into account –
> (i) any representation made by interested and affected parties,
> (ii) the interests of any affected local community, and
> (iii) any applicable coastal management programme; and
> (c) comply with any other requirements that may be prescribed.'

[91] These factors are set out in section 27(1) and section 28(3).

[92] Section 27(1) provides that when the Minister adjusts the inland boundary of coastal public property, he or she must take the factors set out below into account:

> (a) the dynamic nature of the shoreline;
> (b) the need to make appropriate allowance for –
> (i) the periodic natural movements in the high-water mark; and
> (ii) the erosion and accretion of the sea-shore;
> (c) the importance of ensuring the natural functioning of dynamic coastal processes and of extending the coastal boundaries of coastal public property including the littoral active zone and sensitive coastal ecosystems, including coastal wetlands;
> (d) the potential effects of projected rises in sea-level; and
> (e) any other factor that may be prescribed.

[93] Section 28(3) provides that when an MEC adjusts the boundaries of the coastal protection zone, he or she must take the factors set out below into account:

> (a) the purpose for which the coastal protection zone is established;
> (b) the importance for coastal management to incorporate into the coastal protection zone land inland of the high-water mark that is not coastal public property but that should be maintained in, or restored tom a natural or semi-natural state;
> (c) the need to avoid risks posed by natural hazards to people, biodiversity, coastal public property and private property;

These provisions create a mechanism, therefore, that can be used to address the negative environmental consequences which may flow from the decision to define the coastal zone using fixed landward and seaward boundaries.

7 Conclusion

When the Integrated Coastal Management Act comes into operation, South Africa will have a new and significantly enlarged coastal zone. This coastal zone will consist of several adjacent and overlapping areas, each of which has its own fixed landward and seaward boundaries.

Although the decision to define the coastal zone using fixed landward and seaward boundaries could potentially exclude parts of the coastal ecosystem and thus undermine the objectives of the Act, it is difficult to criticize the South African Parliament's decision to do so. First, this is because, the Act creates a wide range of obligations, some of which may be enforced through the use of criminal sanctions, and it is obviously very important for people to know with some certainty whether they are bound by these obligations or not. Second, the Act creates mechanisms in terms of which the landward and seaward boundaries of the coastal zone may be adjusted if this is necessary to protect the coastal environment or to promote the objectives of the Act.

The mechanisms in terms of which the landward and seaward boundaries of the coastal zone may be adjusted represent a particularly nuanced and sophisticated method of addressing some of the problems associated with defining the coastal zone. The manner in which these provisions are implemented will undoubtedly be carefully examined by coastal regulators in other countries.

(d) the potential for the number of severity of natural disasters to increase due to the effects of global climate change and other impacts on the environment, and the importance of taking measures to address these threats;
(e) the importance of allowing for the movement of the position of the high-water mark over time and of protecting the inland coastal boundary of coastal public property by demarcating a continuous strip of land adjacent to it; and
(f) any other factor that may be prescribed.

Drafting Integrated Legislation for the Conservation and Sustainable Use of Marine and Coastal Environments

Robert Wabunoha[1]

1 Introduction

1.1 The importance of marine and coastal environments: services, values and functions

Marine and coastal environmental resources are essential for an immeasurable number of human needs as they provide services and perform functions which are both beneficial and necessary for the human existence. These environments hold vastly important social, economic and environmental values. The value of global ecosystem services has been estimated to be approximately US$ 33 trillion.[2] Ocean and coastal regions make up a significant percentage of this total. The marine environment is a great source of wealth, from fisheries resources to oil[3] and gas. For many countries, offshore oil and gas is of greater economic importance than fisheries. In addition to extractive values, ocean and coastal recreation stimulates many coastal economies. Approximately US$ 30 billion per year is generated from recreational activities associated with coral reefs (e.g. scuba diving and snorkeling).[4] Furthermore, there is a

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[2] WWF, *Payments for Environmental Services: An Equitable Approach for Reducing Poverty and Conserving Nature* (WWF, 2006), available at <http://assets.panda.org/downloads/pes_report_2006.pdf> (visited 12 February 2009).

[3] This includes any form of hydrocarbons (oil and derivates) including fuel oil, dregs, wastes of petrol and refined products.

[4] Millennium Ecosystem Assessment: Ecosystems and Human Well-Being: Wetlands and Water. Synthesis (World Resource Institute, 2005), available at <http://www.millenniumassessment.org/documents/document.358.aspx.pdf> (visited 12 February 2009).

great quantity of ecosystem services that sustain coastal populations and provide many benefits including protection (coral reefs, mangroves[5] and wetlands can provide protection from storms and flooding), food and economic security, and aesthetic and recreational value, amongst others.

Coastal land-based activities can directly impair the marine environment through altered coastlines, run-off, and sewage outflow. Inland-based activities impact freshwater aquatic ecosystems through siltation, erosion, and non-point and point sources of pollution into rivers, lakes and streams. These impacts eventually work their way downstream affecting the marine environment. Coastal services and their by-products contribute to marine habitat degradation, loss of biodiversity, and decreased water quality.

Coastal zones and their systems are complex environments with, among other things, zones of mixed freshwater and saltwater, and diverse and versatile habitats such as coral reefs and kelp forest and spawning habitats. In addition to their impacts on these natural complexities, the abovementioned human activities and influences contribute to the degradation of marine and coastal areas.

1.2 The need for legal intervention: marine and coastal environments under threat

Exploitation of the environment, to provide for both the necessities and comforts of human life, has taken many forms, including the exploitation of wood and forests, the extraction of minerals and fossil fuels, and the use of water bodies for transportation and power generation, amongst others.[6] As coastal and marine ecosystems degrade, the ecosystem services provided by these environments also decline. Human impacts include fishing,[7] sand mining, tourism, development activities, agriculture, aquaculture, waste disposal[8] and shipping. If not properly managed, the human uses of coastal and marine ecosystems and the impact thereof can also diminish and de-

[5] Mangroves are 'important components of tropical and subtropical ecosystems dominated by a variety of trees and shrubs with specific-adaptations to survive under submersion in saline waters'. They are tolerant to salinity, strong tide wave action, strong winds, high temperatures, and mud soils. They are also anaerobic and colonize successfully between tide zones along the coastal lines, lagoons, riverbanks, and estuaries, including river deltas. See FAO, *Mangrove Forest Management Guidelines*, FAO Forestry Paper No. 117 (1994), available at <http://www.archive.org/stream/mangroveforestma034845mbp/mangroveforestma034845mbp_djvu.txt> (visited 11 July 2008).

[6] George Sarpong, 'Function, Content and Foundation of Environmental Law', paper presented at a Trainers Course for the Judiciary (Nairobi, Kenya, 2005) at 2.

[7] 'An activity including all activities of capture or catching of aquatic species, and any operation related to the preparation for the capture or catching of aquatic species. Fishing includes the submarine fishing, the hunting of aquatic mammals and the catching of coral and decorative shells or of collection'. Tundi Agardy et.al., 'Coastal Systems', in Ecosystems and Human Well-Being vol. 1: Current State and Trends. Findings of the Condition and Trends Working Group/Millennium Ecosystem Assessment (Island Press, 2005) 513–549 at 513.

[8] 'Including discharges of faecal matter and gutter/sanitary water from ships, installations (support equipment such as ducts or buoys for ship-frames) or urban zones'. *Ibid*.

plete resources. These uses need to be controlled; not only to ensure that resources are not destroyed but also to ensure that the use is done in a sustainable or sound manner.

Another issue that requires urgent legal intervention by coastal states is the potential impact of climate change on coastlines – many coastlines consist of unconsolidated beach rock which can be easily eroded. Another issue that needs to be addressed is that of sea-level rise: changes in sea level at regional and local levels are relative and associated with vertical land movement which affects sea-level and, as such, will not necessarily be the same as the global average change. Therefore it is necessary for countries to develop and draft laws with these differences in mind. States must commit to taking climate change considerations into account in their relevant social, economic and environmental policies and actions. In addition, they must employ appropriate methods; for example impact assessments, formulated and determined nationally, with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by countries to mitigate or adapt to climate change.[9]

Coastal erosion can also be linked to a decline in the health of reef systems. This is due to activities such as the removal of coastal vegetation, intensive infrastructure development, the blasting of reef channels and poorly constructed sea walls. This significantly reduces the value of coastal zones[10] as they provide a wealth of beauty and are an essential element in tourism development as well as the base for sustaining livelihoods and economic development.[11] Additionally, coastal zones provide protection of the coastline from erosion and are a breeding ground and habitat for marine species.

Furthermore, marine and coastal environments face several anthropogenic threats ranging from land-based sources (the clearing of vegetation, polluted in-land rivers, mining and the building of roads, homes and hotels, i.e. coastal development) to sea-based sources (solid waste and sewage poison, sanitary disposals that are not from the ship-load, produced during ship service, as well as wastes associated to the load and discharges[12] from vessels). For example, land-based mining has serious detrimental impacts on oceans and coastal zones. Toxic substances used in mining operations can wash into streams and rivers and make their way to the ocean, harming marine

[9] Article 4(1)(f) of the Climate Change Convention (United Nations Framework Convention on Climate Change, New York, 9 May 1992, in force 21 March 1994, 31 *International Legal Materials* (1992) 849, <http://unfccc.int>).

[10] See Ramsar Convention Secretariat, *Ramsar Handbooks for Wise Use of Wetlands. Handbook 10: Coastal Management* (3rd ed., 2007), available at <http://www.ramsar.org/lib/lib_handbooks2006_e10.pdf> (visited 18 May 2009).

[11] *Ibid*.

[12] 'Any dump, spill, leak, eruption, the launch of harmful and dangerous substances at any quantity, from an embarkation, organized port, port settlement, duet, or platform on its support installations. See Environmental Law Institute and UNEP, *Legal Drafter's Handbook on Conservation and Sustainable Use of Marine and Coastal Environments* (UNEP, 2006) at 52.

organisms. Mining can also cause extensive sedimentation and turbidity of coastal and marine ecosystems, with negative impacts on habitats and biological productivity.[13] Additionally, marine systems may receive aerial fallout from mine operation.[14] Coastal development has resulted in large losses of habitat including important wetlands and mangrove forests.

These losses, which are primarily caused by population growth and increasing economic development in the form of infrastructure development, land conversion, water withdrawal, pollution, and over-harvesting, are expected to lead to global species extinctions.[15] A review of the status and trends of major wetlands-dependent species reveals that significant percentages of these species are threatened or in decline, including 41 percent of waterbirds; 37 percent of mammals (of those assessed for the IUCN Red List); 20 percent of freshwater fish; 50 percent of freshwater turtles (of those assessed for the IUCN Red List); and nearly 50 percent of crocodiles.[16]

Coastal zones contain some of the most productive ecosystems and are highly sensitive areas where ecosystems exist in a state of natural balance – the management of coastal zones is therefore of necessity a multidisciplinary effort which has to encompass the concepts of integrated ecosystem-based management and sustainable development systems. To counter human impacts on coastal and marine areas, legal and policy interventions are vital. It is a fundamental duty for states to prevent and control pollution of coastal and marine environments from land-based activities.[17]

Conflicting ocean and coastal uses among sectors may also disrupt the ability of the marine and coastal environment to provide services to human populations. For example, energy platforms[18] may conflict with habitats for commercially important fish; or offshore structures or marine protected areas may conflict with shipping lanes. These conflicts may result in the inefficient use of ocean resources and, if not considered holistically, may result in cumulative impacts that impair the provision of future ecosystem services. This means that effective ocean and coastal governance requires consideration of ocean users and governing authorities within the context of the entire system.

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[13] Earle A. Ripley, Robert E. Redmann and Adèle A. Crowder, *Environmental Effects of Mining* (St. Lucie Press, 1996) at 30.

[14] *Ibid*.

[15] *Ibid*. Millennium Ecosystem Assessment: Ecosystems and Human Well-Being, *supra* note 4.

[16] *Ibid*. at 4.

[17] See Articles 207 and 213 of the United Nations Convention on the Law of the Sea (United Nations Convention on the Law of the Sea (UNCLOS), Montego Bay, 10 December 1982, in force 16 November 1994, 21 *International Legal Materials* (1982) 1261).

[18] Fixed or mobile structures located in waters under national jurisdiction, for the activity directly or indirectly related to research, prospecting of energy or mineral resources from the bed of the interior waters or from its subsoil.

1.3 Sustainable Development and Environmental Law

One difficulty facing humanity is to protect the environment on a sustainable basis while still guaranteeing a level of development consistent with human well-being on a global scale. Sustainable development has, consequently, become the beacon of national plans and programmes on environmental management and economic development. The most frequently quoted definition of the concept is from 'Our Common Future', the 'Brundtland Report' of 1987 which states that: *'sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs'*.[19] In 1989, UNEP's Governing Council defined the notion of sustainable development as 'the maintenance, rational use and enhancement of the natural resource base that underpins ecological resilience and economic growth (and implies) progress towards international equity'.[20] Both the 1987 Brundtland and the 1989 UNEP GC definitions contain within them two key concepts: the concept of 'needs' (particularly the essential needs of the world's poor)[21] to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.[22]

Generally, sustainable development of renewable resources (for example, forests, marine and coastal ecosystems, and fish stocks) does not mean necessarily that the resources have to be depleted; provided that the rate of use is within the limits of regeneration and natural growth. However, most renewable resources are part of complex and interlinked ecosystems; and, consequently, maximum sustainable yield must be defined after taking into account system-wide effects of exploitation.[23] As for non-renewable resources (for example, fossil fuels and minerals), their use reduces the stock available for future generations. Therefore, the rate of depletion should take into account the criticality of that resource; the availability of technologies for minimizing depletion; and the likelihood of substitutes being available.[24] Thus, land should not be degraded beyond reasonable recovery levels – sustainable development requires that the rate of depletion of non-renewable resources should foreclose as few future options as possible.

The nature and legal content, as well as the operational definitions, of sustainable development remain multifaceted. A review of many international solutions, declarations and legal instruments shows that states are urged to take global, regional and

[19] World Commission on Environment and Development (WCED), *Our Common Future* (Oxford University Press, 1987) at 43.
[20] See UNEP Governing Council Decision 15/2 of 26 May 1989, UN Doc. UNEP/GC.15/2 (1989), Annex II.
[21] WCED, *Our Common Future*, *supra* note 19, at 43.
[22] David Hunter, James Salzman and Durwood Zaelke, *International Environmental Law and Policy* (Foundation Press, 1998) at 100.
[23] *Ibid*. at 101.
[24] *Ibid*.

national efforts towards the harmonization of economic and environmental considerations in order to facilitate sustainable development.[25] The principle of sustainable development is a principle fundamental to the determination of competing considerations in international law cases and is likely to play a major role in determining important environmental disputes of the future. The elements of sustainable development come from well-established areas of international law: human rights, state responsibility, environmental law, economic and industrial law, equity, territorial sovereignty, abuse of rights, and good neighbourliness – to mention a few. [26]

International ocean and coastal law and policy can provide guidance for those wishing to develop national laws and policies. International legal frameworks form an important component of international environmental law that protects the world's oceans, coastal wetlands, and biodiversity. Such a framework is a legal instrument of general application to all environmental challenges and issues as perceived by a particular country. Its future effect is made possible through the establishment and provision of terms of reference for enabling or implementing procedures and mechanisms.[27] The general legal framework does not include matters of the organization, management or personnel of an agency or institution.[28] In addition, it is silent on the details of the management of a particular environmental sector, such as forestry or water. It takes into account, however, all factors that have adverse impacts on the environment; i.e. water quality, land use, wildlife management, natural resources exploration and exploitation. The framework law formalizes the sustainable development policy of a country from an integrated position and creates a legal and institutional framework that harmonizes all environmental management measures and sets forth the relationship between the framework law and the sectoral laws.[29]

2 International instruments for the management of coastal and marine environments

2.1 Non-binding instruments

Due to the transboundary character of environmental problems, the world has adopted many international legal instruments including conventions, resolutions, and declarations to address the subject. The conventions create obligations for the states, and are required to be implemented once they enter into force. Non-binding instruments such as resolutions, declarations, and decisions really just give policy directions for environmental protection and sustainable development.[30]

[25] V. Crabbe and F. Situma, *Training Manual on Drafting of Environmental Law* (Arusha, 2004) at 26.
[26] Hunter, et al., *International Environmental Law and Policy*, *supra* note 22, at 243.
[27] Crabbe and Situma, *Training Manual*, *supra* note 25, at 73.
[28] *Ibid*.
[29] *Ibid*.
[30] Environmental Law Institute and UNEP, *Legal Drafter's Handbook, supra* note 12, at 16.

In the area of coastal and marine environments, various non-binding instruments are applicable. The 1994 Declaration of Barbados[31] and the Programme of Action for the Sustainable of Development of Small Island Developing States (BPOA/SIDS)[32] provide basic principles and specific actions regarding the following topics: climate change and sea level rise; natural and environmental disasters; management of wastes; coastal and marine resources; freshwater resources; land resources; energy resources; tourism resources; biodiversity resources; national institutions and administrative capacity; regional institutions and technical cooperation; transport and communication; science and technology; human resource development; and implementation, monitoring and review.

The UNEP Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA),[33] develops guidance, programmes, and plans that will prevent, reduce, control, and eliminate land-based sources of marine pollution. It calls for the decentralized regulation of coastal and marine areas. GPA aims to prevent the degradation of the marine environment from land-based activities by facilitating the duty of states to preserve and protect the marine environment. It seeks to assist countries in taking action individually or jointly according to their respective policies, priorities and resources.

Chapter 17 of Agenda 21[34] focuses on oceans and coasts and calls for the precautionary approach[35] and integrated ocean and coastal management at the national, regional, and international levels. Agenda 21 addresses the achievement of sustainable development with regard to seas and oceans including: sustainable development of marine resources; conservation and sustainable use of marine and coastal biodiversity; and the protection and preservation of the marine environment.

The Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States[36] identifies concrete actions that should be taken to address the issues. The Mauritius Strategy calls, inter alia, for action in the management of wastes; to strengthen control of the transboundary movement of hazardous wastes;[37] to promote sustainable waste management; and to complete delimitation of maritime boundaries.

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31 UN Doc. A/CONF.167/9 (1994), Annex I.

32 Ibid., Annex II.

33 UN Doc. UNEP(OCA)/LBA/IG.2/7 (1995). See also <http://www.gpa.unep.org/>.

34 Agenda 21, UN Conference on Environment and Development, Rio de Janeiro, 13 June 1992, A/CONF.151/26/Rev.1 (1992). Agenda 21 is the global blueprint for sustainable development which was adopted at the United Nations Conference on Environment and Development (UNCED) in 1992.

35 This approach suggests that lack of scientific certainty is no reason to postpone action that will avoid potentially serious or irreversible harm to the environment. For the full description see note 89.

36 UN Doc. A/CONF.207/11 (2005).

37 Drawing from the tenets of the Basel Convention (Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, Basel, 22 March 1989, in force 5 May 1992, 28 *International Legal Materials* (1989) 657, <http://www.basel.int>).

The eight Millennium Development Goals (MDGs) derive from the United Nations Millennium Declaration.[38] These goals, which include ensuring environmental sustainability (Goal 7), have general applicability to ocean and coastal regions, and there are specific marine and coastal issues that need to be addressed to achieve these goals.

The Johannesburg Plan of Implementation[39] resulted from the 2002 World Summit on Sustainable Development (WSSD). The Plan highlights the need to promote oceans conservation. This includes maintaining the productivity and biodiversity of important and vulnerable marine and coastal areas including those within and beyond national jurisdiction; encouraging the application of the ecosystem approach; the promotion of an integrated coastal and ocean management at the national level; and, among others, the establishment of a network of marine protected areas by 2012.

2.2 Binding instruments

Regarding the legally binding instruments, a number of instruments are applicable to oceans and coastal regions. In the areas of forestry, nature, natural resources and wildlife, the Ramsar Convention on Wetlands[40] provides, among the activities for the conservation and wise use of wetlands which require legal intervention, the designation of national wetlands for inclusion in the List of Wetlands of International Importance,[41] and protection of natural habitats and biodiversity, especially in relation to inland/freshwater ecosystems and coastal/marine ecosystems.

The UN Convention on Biological Diversity (CBD)[42] provides for the conservation and sustainable use of biological resources, and the fair and equitable sharing of benefits derived from the utilization of genetic resources. The CBD calls for the implementation of integrated marine and coastal area management; the protection of marine and coastal living resources; the establishment of marine and coastal protected areas; the protection of mariculture; and for dealing with alien species and genotypes.[43]

[38] UNGA Res. A/55/L.2 (2000)..
[39] Plan of Implementation of the World Summit on Sustainable Development, UN Doc. A/CONF.199/20 (2002).
[40] The Ramsar Convention on Wetlands, 2 February 1971, in force 21 December 1975, 11 *International Legal Materials* (1972), 963, <http://www.ramsar.org>.
[41] *Ibid*., Article 2.
[42] Convention on Biological Diversity, Rio de Janeiro, 5 June 1992, in force 29 December 1993, 31 *International Legal Materials* (1992) 822, <http://www.biodiv.org>.
[43] CBD, 'Marine and Coastal Biodiversity', available at <http://www.cbd.int/marine/>. Other resources at this internet site include, meeting announcements, national reports, biodiversity strategies and action plans, handbooks, guidelines and other tools.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)[44] seeks to protect threatened and endangered species by restricting or eliminating trade. For example, listed marine species include 22 species of cetaceans, dugongs, manatees, all sea turtles, three shark species, and many coral species.[45]

The Convention on the Conservation of Migratory Species and Wild Animals (CMS or Bonn Convention)[46] seeks to conserve terrestrial, marine, and avian migratory species. Sovereign regional treaties and MOUs (Memoranda of Understanding) have been created to protect marine species including several species of cetaceans, seals, marine birds, migratory waterfowl and sea turtles. This convention, therefore, calls for the national protection of these species.

In the areas of marine environment regulation, fishery resources and prevention of pollution by oil and other hazardous substances, The World Heritage Convention[47] seeks to safeguard the world's marine cultural and natural heritage by nominating marine sites, promoting large-scale marine conservation, and effectively managing these sites.

The United Nations Convention on the Law of the Sea (UNCLOS) lays out the international foundation for states' obligations to protect and preserve the marine environment.[48] States have both the sovereign right to exploit their marine resources and the duty to protect and conserve the marine environment – in doing so, states have the duty to prevent, reduce and control pollution[49] and prevent introduction of invasive species.[50] States must also cooperate regionally or globally to protect and preserve the marine environment.[51]

The Straddling Fish Stocks Agreement[52] applies the precautionary approach[53] in collaboration and cooperation with countries that exploit transboundary and highly

[44] Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington DC, 3 March 1973, in force 1 July 1975, 993 *United Nations Treaty Series* 243, <http://www.cites.org>.

[45] CITES has more than 30 000 species listed (5 000 animal species, 28 000 plant species). See <http://www.cites.org/eng/disc/species.shtml> (visited 18 May 2009).

[46] Convention on the Conservation of Migratory Species of Wild Animals, Bonn, 23 June 1979, in force 1 November 1983, 19 *International Legal Materials* (1980) 15, <http://www.cms.int>.

[47] Convention Concerning the Protection of the World Cultural and Natural Heritage, Paris, 16 November 1972, in force 17 December 1975, 11 *International Legal Materials* (1972) 1358, <http://whc.unesco.org>.

[48] Part VIII 'Protection and Preservation of the Marine Environment'.

[49] Article 194.

[50] Article 196.

[51] Article 197.

[52] Agreement for the Implementation of the Provisions of the UN Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, New York, 4 August 1995, in force 11 December 2001, 34 *International Legal Materials* (1995) 1542, <http://www.un.org/Depts/los/convention_agreements/texts/fish_stocks_agreement/CONF164_37.htm> (visited 2 February 2009).

[53] This approach suggests that lack of scientific certainty is no reason to postpone action that will avoid potentially serious or irreversible harm to the environment. For the full description, see note 89.

migratory fish stocks and resources, in order to achieve long term sustainability and optimal yield.

The 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Dumping Convention)[54] and the 1996 Protocol thereto[55] where the contracting parties individually and collectively promote the effective control of all sources of pollution of the marine environment, and pledge themselves especially to take all practicable steps to prevent the pollution of the sea by the dumping[56] of waste and other matter that is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

The Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention) provides for parties to address transboundary movement of hazardous waste and their disposal. The Convention is relevant to the marine environment since shipping is the major mechanism for trade, and coastal and marine environments are potential waste sites. In addition, the Basel Convention covers areas such as dismantling and abandoning of ships[57] and storing of vessels.

There are also Agreements in other areas, such as the United Nations Framework Convention on Climate Change (UNFCCC) which addresses the need for parties to commit themselves to formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems[58] and measures to facilitate adequate adaptation to climate change.[59] Furthermore, the Convention calls upon states to enact effective environmental legislation, that environmental standards, management objectives and priorities to reflect the environmental and developmental context to which they apply, and that standards applied by some countries may be inappropri-

[54] Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, London, 13 November 1972, in force 30 August 1975, 11 *International Legal Materials* (1972) 1294, <http://www.londonconvention.org/>.

[55] Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, London, 17 November 1996, in force 24 March 2006, 36 *International Legal Materials* (2006) 1.

[56] The deliberate disposal of wastes and other substances by embarkations, air planes, platforms or other constructions including its sinking in waters under national jurisdiction. See London Dumping Convention and its website provides guidance documents including national guidance for the implementation of the 1996 Protocol.

[57] Includes an embarkation of any kind operating in the aquatic environment. This also includes hydrofoils, vehicles of air sustenance including embarkation of dynamic sustenance, submersible and other engines, and floating structures.

[58] Article 4(1)(d).

[59] Article 4(1)(b).

ate and of unwarranted economic and social cost to other countries, in particular developing countries.[60]

Further, there are river basin Agreements. Around 40 percent of land-based pollution of coastal and marine areas washes downstream through rivers. Most of the world's 263 international basins or 158 river-based Agreements call for the prevention of pollution into water bodies. The 1997 United Nations Convention on the Law of Non-Navigational Uses of International Watercourses[61] regularized principles of 'equitable and reasonable utilization' and the 'obligation not to cause significant harm' and established a framework for the exchange of data and information, the protection and preservation of shared water bodies, the creation of joint management mechanisms, the protection and preservation of the ecosystems of international watercourses,[62] and the settlement of disputes.[63]

3 Regional legal frameworks

3.1 Introduction

Regional Agreements often complement global international treaties and allow for region-specific responses to marine and coastal threats. Regional frameworks provide clear mandates and platforms for identifying and furthering the implementation of regional priorities. Although instruments vary from region to region, they all provide an obligation for states to develop national action plans to protect the coastal and marine environment and include the duty to develop legislation to that effect. These regional seas conventions and programmes include: the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention);[64] the Convention for the Protection, Management and Development of the Marine and Coastal Environment in the Eastern African Region (Nairobi Convention);[65] Convention for the Protection of the Mediterranean Sea against Pollution;[66] and the Convention for Co-operation in the Protection and

[60] Article 1.

[61] Convention on the Law of Non-Navigational Uses of International Watercourses, New York, 21 May 1997, not yet in force, 36 *International Legal Materials* (1997) 713.

[62] Articles 20 and 22.

[63] See UNEP, *Atlas of International Freshwater Agreements* (UNEP, 2002), available at <http://www.transboundarywaters.orst.edu/publications/atlas/atlas_pdf/1_Front_atlas.pdf> (visited 13 February 2009) at 5.

[64] Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, Cartagena, 24 March 1983, in force 30 March 1986, 22 *International Legal Materials* (1983) 221.

[65] Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region, Nairobi, 21 June 1985, in force 30 May 1996, available at <http://www.unep.org/NairobiConvention/The_Convention/Protocols/Convention_Text.asp> (visited 13 February 2009).

[66] Convention for the Protection of the Mediterranean Sea against Pollution, Barcelona, 16 February 1976, in force 12 February 1978, 15 *International Legal Materials* (1976) 290, amended to be the Convention

Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention).[67]

The basis of pollution control in international rivers is no longer found mainly in customary obligations concerning equitable utilization or harm prevention, but in regional regimes employing common standards of environmental protection for river pollution and in the requirements of international cooperation. 'Pollution' in this context does not include biological alterations. Regional Accords include the 1991 Convention on Environmental Impact Assessment in a Transboundary Context[68] and the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes,[69] the Mekong Agreement,[70] and the Southern African Development Community (SADC) Protocol on Shared Watercourse Systems.[71] For instance, the 1995 Mekong Agreement requires the parties to protect the environment, natural resources, aquatic and marine life, and 'ecological balance' of the Mekong River basin, and to avoid or minimize harmful effects.[72]

3.2 The interface between terrestrial and marine environments

Many coastal states have specific coastal zone management laws that regulate the unique environment at the interface between the terrestrial and marine environments as well as defining coastal zones. There is no uniform definition of a coastal zone. In Finland, the coastal zone is defined on a case-by-case basis at the local level.[73] The Maldives, whose land mass comprises a chain of coral atolls in the Indian Ocean, considers the coast to be 'the total land area of each island, its surrounding lagoon extending over the reef flat to the outer edge of its reef'.[74] In Madagascar, marine and

for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, Barcelona, 10 June 1995, in force 9 July 2007, available at <http://www.unep.ch/regionalseas/regions/med/t_barcel.htm> (visited 13 February 2009).

67 Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region, Abidjan, 23 March 1981, in force 5 August 1984, 20 *International Legal Materials* (1981) 746.

68 Convention on Environmental Impact Assessment in a Transboundary Context, Espoo, 25 February 1991, in force 10 September 1997, 30 *International Legal Materials* (1991) 802.

69 Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Helsinki 17 March 1992, in force 6 October 1996, 31 *International Legal Materials* (1992) 1312.

70 Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin, Chieng Rai, 5 April 1995, in force 5 April 1995, 34 *International Legal Materials* (1995) 864, <http://www.mrcmekong.org/>.

71 Protocol on Shared Watercourse Systems in the Southern African Development Community, Johannesburg, 28 August 1995, in force 29 September 1998, available at <http://www.sadcwscu.org.ls/protocol/protocol_tab.htm>, revised by the Protocol on Shared Watercourse Systems in the SADC Region, Windhoek, 7 August 2000, in force 22 September 2003, available at <http://internationalwaterlaw.org/regionaldocs/Revised-SADC-SharedWatercourse-Protocol-2000.pdf> (visited 13 February 2009).

72 Patricia Birnie and Alan Boyle, *International Law and the Environment* (2nd ed., Oxford University Press, 2002) at 315.

73 See Coastal and Marine Union (EUCC), 'Integrated Coastal Management (ICM) in Europe', available at <http://www.coastalguide.org/icm/index.html> (visited 13 February 2009).

74 UNEP and the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, *A Comparative Review of Coastal Legislation in South Asia* (UNEP, 2004), available at <http://www.gpa.unep.org/document.html?id=281> (visited 13 February 2009).

coastal zones include a terrestrial part as the whole unity based on the administrative delineation, and a marine part comprised of the whole continental shelf and territorial waters delineated in conformity with the UNCLOS. Different territorial planning is regulated by law in respect of the principle of the ecosystem approach.[75]

Laws, policies and regulations that have been established for the prevention of erosion can help to conserve buffer zones, and safeguard natural environments that serve as protective barriers for coastal communities. In the protection of soil and land, many conservation laws are not specific to the coastal zone but either apply generally or have provisions that specify coastal zone protections. For example, Taiwan's Soil and Water Conservation Law[76] is one such law. It allows for designated soil and water conservation zones, explicitly including '[s]ea shores… that need special protection [and]… [s]and dune areas, beaches, and other areas that are especially susceptible to wind erosion'.[77] This designation is important, inter alia, to prevent landslides and erosion and to protect adjacent lands.[78] Other countries have specific beach or coastal zone laws that prohibit removal or dredging in beach or coastal areas. In Barbados, for example, it is illegal to remove 'any vegetation, sand, stone, shingle or gravel' from the foreshore or protected areas except for owners or land occupiers in limited amounts.[79]

3.3 Linking freshwater and coastal management

Rivers and streams are mediums supplying both harmful substances[80] and beneficial materials to marine and coastal environments. Freshwater is often diverted and retained for many human needs, and land-based needs often outweigh ocean and coastal considerations. However, freshwater uses while immediately beneficial to upstream users may have enormous impacts downstream including the ocean and coastal environments to which the waters have historically flowed. An analysis of 227 major river basins worldwide revealed that approximately 37 percent were strongly affected by fragmentation and altered flow and 23 percent were moderately affected.[81] Freshwater is critical to human survival and is an integral component of many coastal ecosystems.

Pollution from rivers emptying into coastal watersheds and marine environments is particularly problematic because it comes from a wide variety of sources. The best solution would be to extend the legislation beyond the coastal region to areas far

[75] Averil Lamont, 'Policy Characterization of Ecosystem Management', 113 *Environmental Monitoring and Assessment* (2006) 5–18.
[76] Adopted in 1995, available at <http://waswc.ait.ac.th/law.html> (visited 13 February 2009).
[77] Article 16.
[78] Article 19.
[79] Coastal Zone Management Act of 1998, available at <http://eelink.net/~asilwildlife/BarbadosCoastal.html> (visited 18 May 2009), section 28.
[80] Any substances that when discharged or launched into the sea, lake, or into a river may generate risks or cause damages to human health, to the aquatic ecosystem and may poison the waters.
[81] Millennium Ecosystem Assessment, Ecosystems and Human Well-being, *supra* note 4.

inland so as to reduce the impacts to marine and coastal environments. This may not be possible and hence the need to devise other means of legislating.

To address the freshwater and marine interface, the legislation should contain a licensing system for inland water uses. Integrated Coastal Area and River Basin Management (ICARM)[82] has attracted more interest where the linkage of freshwater management to coastal area management through ecosystem-based management and integrated coastal zone management proceeds. The ICARM recognizes the strong ecological linkages between river basins and coastal zones and seeks to link the management of these systems. Currently these efforts exist largely on paper or as voluntary local pilot projects and few national laws exist to integrate freshwater and coastal management.[83] ICARM approaches are appropriate for large-scale transboundary watersheds as well as for small coastal watersheds. In the application of such an integrative approach, the following example of a local action is relevant:

> In San Luis Obispo, California a local ecosystem-based management effort strives to coordinate science, management, and policy activities based on the interconnected watershed, estuarine, bay and coastal environment of Morro Bay. This is a collaborative effort among scientists and managers that seek to develop scientific tools in response to management needs and develop and maintain institutional linkages.[84]

One major challenge facing the successful implementation of ICARM is overcoming geographic, ecosystem, and institutional complexity, as well as shifting attitudes from sector-based to ecosystem-based management – this requires horizontal and vertical institutional cooperation and integration.

3.4 Approaches to coastal marine management

The approach to coastal and marine management determines the type of legislation that should be crafted. The draftsperson should, therefore, be very familiar with the different approaches to management and also make sure that the technical persons he or she is dealing with have the knowledge to determine that a particular style of management is the best for that country. It should be noted that there is not any one approach that can be regarded as the best and many countries choose to have a combination of different approaches to management and to

[82] An approach that promotes the adoption of goals, objectives and policies and the establishment of governance mechanisms that recognize the relationships between the systems of integrated water resources management and integrated coastal zone management, with a view to developing environmental protection and encouraging socio-economic development.

[83] For further guidance, see Ramsar Convention Resolution VIII.4: 'Principles and Guidelines for Incorporating Wetland Issues into Integrated Coastal Zone Management (ICZM)' (2002).

[84] California Polytechnic State University, Center for Coastal and Marine Sciences, 'San Luis Obispo Science and Ecosystem Alliance. Project Summary', available at <http://www.marine.calpoly.edu/researchprograms/slosea.php> (visited 13 February 2009).

subsequent legislation. In the following summary, some of the approaches to the management of coastal and marine environments are presented.

(a) Adaptive management is based upon the premise that managed ecosystems are complex and inherently unpredictable. Adaptive management accepts the inherent uncertainty that exists in the world and views management actions as experiments rather than solutions. It relies on statistical analysis, experimental controls, and computer models to create an understanding of the managed ecosystem.[85]

(b) Co-management is a management strategy in which local resource users and governments share the responsibility of managing resources.[86] The strategy encourages participation of the local community, stresses negotiations instead of litigation in conflict situations and combines western scientific knowledge with more traditional environmental practices. The decision-making process is also shared among the participants.[87]

(c) Ecosystem-based management is a management approach that considers the entire ecosystem, including humans, with the goal of maintaining a healthy and resilient ecosystem that is able to provide services that humans need while taking into account the impact of a variety of sectors.[88]

(d) The precautionary approach is a management approach relying on the premise that the lack of scientific certainty is no reason to postpone action to avoid potentially serious or irreversible harm to the environment.[89] Several international environmental treaties and soft law documents call upon parties to adopt the precautionary approach when managing marine and coastal resources including the Straddling Fish Stocks Agreement, Agenda 21, the CBD, and the Jakarta Mandate.[90]

(e) Integrated Coastal Area Management (ICAM) is also described as Integrated Coastal Management (ICM), Integrated Coastal Zone Management (ICZM), and Integrated Marine and Coastal Area Management (IMCAM).[91] It is a continuous and dynamic process to protect and sustainably use marine and coastal environments. Integrated Water Resources Management (IWRM) was intro-

[85] Stephen B. Olsen, Kem Lowry and James Tobey, *A Manual for Assessing Progress in Coastal Management*, Coastal Management Report No. 2211 (The University of Rhode Island Coastal Resources Center, 1999), available at <http://www.wio-compas.org/files/Olsen_Assessing%20ICM_1999.pdf> (visited 13 February 2009).

[86] International Institute for Sustainable Development, 'Information for Sustainable Development Team', (IISD, 1998), available at <http://www.iisd.org/>.

[87] *Ibid.*

[88] Lamont, 'Policy Characterization', *supra* note 75, at 38.

[89] See Principle 15 of the Rio Declaration (UN Declaration on Environment and Development, Rio de Janeiro, 14 June 1992, A/CONF.151/5/Rev.1 (1992), 31 *International Legal Materials* (1992) p. 876. See also notes 35 and 53.

[90] Global Environment Facility (GEF), '*Regional – Integrating Watershed and Coastal Area Management in Small Island Developing States*' (2004), available at <http://www.gefonline.org/projectDetails.cfm?projID=1254> (visited 18 May 2009).

[91] UNEP, *Guidelines for Integrated Management of Coastal and Marine Areas*, UNEP Regional Seas Reports and Studies No. 161 (UNEP, 1995).

duced at the 1992 UN Conference on Environment and Development as a comprehensive approach for achieving sustainable freshwater resource use, reducing human vulnerability to water-related environmental change.

(f) Market-based approaches utilize economic incentives to protect the environment.[92] The 'cap and trade' system is one common market-based approach. In this approach, a nation, for example, may put a cap (or total allowable amount for the industry) on a particular pollutant. This approach is expanding in the coastal and marine realm, especially in the fisheries sector.

Some management approaches, such as ICZM and ecosystem-based management (EBM), seek to integrate management and consider the ecosystem holistically.[93] In the federal territory of Sabah, Malaysia, for instance, authorities take an integrated approach to management with a mandate to control activities in both marine and terrestrial environments. In this case, marine ecosystems are protected from harmful land-based activities and conservation efforts because of this combined approach and the marine protected area (MPA) is thought to be more effectively managed here when compared to other MPAs on the Peninsular Malaysia.[94]

3.5 Adapting to emerging issues in the legislation

Coastal communities and economic activities concentrated in the coastal zones are vulnerable to climate change or the potential impacts of sea-level rise. Economic development and social changes have placed pressure on sensitive environmental systems and sectors such as coastal zones and coral reefs, marine resources, water resources and biodiversity – which are likely to be affected by climate change and sea-level rise. Therefore, it is necessary for countries to develop and draft laws with this relativity in mind. To respond successfully to the threat and to implement appropriate adaptation strategies, each major sector needs to identify information gaps and capacity-building requirements that must be addressed. It is essential that development in coastal and marine areas be managed more closely to increase the resilience of these sensitive areas, thereby reducing vulnerability when there is extra stress from climate change or sea-level rise occurs. In addition, management measures and effective legislation should be drafted to address the control of waste, run-off and pollutants in coastal and marine areas as well as to facilitate the investigation of ground water resources. In general, legislation in this regard should call for increased knowledge of interactions between marine flora and fauna (including coral) and the effects of external influences on these species and their interactions.

[92] Paul R. Portney, 'Market-Based Approaches to Environmental Policy. A Refresher Course', 151 *Resources* (2003) 15–18.

[93] See previous sections of this paper.

[94] Catherine P. S. Cheung et al., *Marine Protected Areas in Southeast Asia*, (ASEAN Regional Centre for Biodiversity Conservation, 2002), available at <http://www.arcbc.org.ph/arcbcweb/pdf/mpa_in_sea.pdf> (visited 13 February 2009).

4 Drafting of integrated coastal and marine legislation

4.1 Introduction

In recent years, international environmental law has expanded. In addition, major trends in marine and coastal law and policy include consideration of broad rather than narrow objectives, including sustainability, economic stability, food security, climate change, traditional and cultural values, conservation, and preservation. It is important, in the drafting of legislation, to keep in mind changing circumstances and new approaches to management.

When it comes to national action, each country has its own government structure, legislation and national budget, all dealing with different aspects that are of direct relevance to coastal and marine environments. Greater efforts are being made towards shifting from sectoral-based action towards integrated approaches that, for example, consider whole ecosystems and multi-user environments, such as integrated coastal zone management and ecosystem-based management.[95] Further, at national levels, sectoral ministries have different policies, strategies and regulations to direct national developments in their sectors such as in ports management, pollution control, freshwater, biodiversity and waste.

Sectoral legislation is generally designed to control specific natural resource sectors and environmental media such as wildlife, forestry, minerals, water or components of the coastal and marine environments. The legislation may be aimed at facilitating the sustainable use of a specific natural resource and controlling or preventing the adverse environmental consequences of the resource.[96] Legislation may also set threshold limits to the user through the institution of environmental quality criteria and standards, in order to control or prevent the lowering of the quality of the resource or media. For example, coastal and marine legislation may establish procedures and mechanisms to manage access to and use of coastal produce in order to ensure sustainable use of the produce and the marine environment and thereby prevent over-exploitation. Such legislation would also ensure maintenance of the quality of the marine and coastal environment for domestic, agricultural or industrial uses. The law may then require that the utilization of the resource takes into account not only the immediate environmental impacts, but that the same be preceded by long-term management plans to address issues such as conservation, rehabilitation or restoration measures for the benefits of future generations.[97]

Framework legislation covers the main aspects and principles of environmental management, in this case the management of the coastal and marine environment. For its implementation, the legislator will be called upon to draft subsidiary legislation:

[95] Environmental Law Institute and UNEP, *Legal Drafter's Handbook, supra* note 12, at 17.
[96] Crabbe and Situma, *Training Manual*, *supra* note 25, at 79.
[97] *Ibid.*

regulations, orders, rules and standards. Subsidiary laws also consist of control provisions. Control provisions of the multilateral environmental agreements (MEAs) are substantive provisions that focus on an Agreement to act or to refrain from acting in a certain way in order to protect, conserve or enhance the environment. These commitments may focus on results or may take the form of control measures, standards or limitations, including specific bans and/or quantifiable targets. They may also include or focus on process (for instance, prior informed consent) or on mechanisms to govern decision-making and how certain activities are managed. At centre stage in these provisions will be the quest for the achievement of sustainable development.

When it comes to subsidiary legislation, there are a number of formal or technical differences that the draftsperson must always remember:[98]

- Paragraphing: careful, restrained paragraphing leads to a clearer presentation. This is as true for subsidiary legislation as it is for principal legislation.
- Definitions: expressions in subsidiary legislation bear the same meanings as in the relevant principal legislation unless the contrary intention appears.
- Headings: the introductory headings and the enacting provision of the subsidiary legislation must be simple and clear, so as to present information as plainly as possible to the user.
- Enacting Provision: this usually follows directly after the introductory headings, though there may be variations in different jurisdictions.
- Preamble and purpose provisions: if it serves a useful purpose, a preamble may be introduced before the enacting provision. The preamble will not be a part of the legislation, however; its primary function being to aid interpretation.
- Citation: every instrument of subsidiary legislation should be given a short title, as a rule of practice. The short title of subsidiary legislation fulfils the same basic function as in the case of principal legislation in that it serves as a descriptive label and is construed according to the same rules as for principal legislation.
- Commencement: in many countries, the interpretation and general provisions of the legislation make specific provisions for the commencement of all legislation, both principal and subsidiary.
- Operation: whether subsidiary legislation may have retrospective effect depends on the scope of the enabling power. Whether the subsidiary legislation may bind the government also depends on the scope of the enabling power.
- Amendment and repeal: these are guided by the individual country's relevant rules of legal interpretation. Where the principal legislation is repealed, the subsidiary legislation made thereunder is also repealed.
- Signature: the signature of the legislative authority should be at the foot of the legal document and where the said document contains schedules, the signature should follow the schedules.

[98] *Ibid*. at 109–111.

- Consent: where the consent, approval, or confirmation of some authority is required by the enabling provision, this should be recited at the foot of this instrument and signed.
- Explanatory note: in some jurisdictions, an explanatory note is added at the foot of the subsidiary legislation as an aid to efficient communication.

The law should make provisions for several unrelated but vital issues dealing with the effect of the new law on existing institutions and pre-existing legislation. Such provisions will relate to issues such as the binding effect of the new law on the government and other organizations of the state; the savings of institutions; obligations; powers or appointments made under pre-existing legal instruments; transitional implications of the change in law; and repeals, amendments and substitution of legal instruments.

4.2 Drafting style and stages of the drafting process

The task of the draftsperson is to translate and communicate scientific, administrative and technical content into legislative language. Precise and clear use of language is generally preferable for legal drafting, including the texts of treaties and decisions. Often, the use of legal language can make a text more clear and concise.[99] In addition, the type of language used in a treaty depends on the particular context. As treaties are legally binding, it is important that treaty language be as clear as possible in order to measure compliance by parties.[100] For the law to be intelligible, to convey the intended meaning so that it is comprehensible and easily understood by the affected parties, it must be written with simplicity and precision[101] – which are mutually complementary.

The style that is appropriate to any particular legislation will to some extent depend on the identity of those actors to whom the law should be communicated. The draftsperson must in each case attempt to draft in such a way that the law is successfully communicated to the persons who make up three groups: the members of the law-making authority; members of society who are concerned with or affected by the law; and members of the judiciary who might be called upon to interpret the law definitively.[102]

The process of drafting legislation begins with the receipt of drafting instructions and ends with the completion of an agreed draft. The desire for legislation may come from one or more of a great many stakeholders. There are five stages of this process starting with the stage of understanding. The draftsperson must have a thorough and

[99] Cam Carruthers (ed.), *Multilateral Environmental Agreement Negotiator's Handbook,* University of Joensuu – UNEP Course Series 5 (2nd ed., University of Joensuu, 2007) at 3-53.
[100] *Ibid.* at 3-56.
[101] *Ibid*.
[102] Crabbe and Situma, *Training Manual*, *supra* note 25, at 65.

complete understanding of the purposes of the legislation s/he is instructed to draft.[103] The second stage of the process is analysis: legislative proposals should be subject to careful analysis in relation to existing law; potential danger areas in respect of which the draftsperson has a special responsibility; and practicability.[104] Third, there is the stage of design or planning. This stage involves, firstly, considering whether further legislation is necessary or whether the desired ends might be capable of achievement either by administrative means or under existing legislation.[105] If new legislation is deemed necessary, it is essential that its structure should be designed before the actual drafting begins. Fourth, there is the composition stage, which is a process of development. There is a need for every subsequent draft to be subject to searching scrutiny that will lead to a number of revisions before the final product.[106] The fifth and final stage is that of scrutiny:[107] the draftsperson must discipline her/himself to take a critical look at her/his finished product. When read as a whole, the draft must be coherent and achieve all the intended goals.

4.4 Content in drafting coastal and marine legislation

4.4.1 Introduction

Typically and structurally, the content of coastal and marine law ought to address certain criteria:[108]

- setting out fundamental objectives, principles and concepts of environmental management in coastal and marine areas;
- promotion of requirements for sustainable development activities in coastal and marine environments, including rights and duties;
- incorporation of provisions that create or establish an institutional framework for the protection of coastal and marine areas;
- recognition of provisions that facilitate access to environmental justice and environmental governance;
- amendment and consolidation of pre-existing sectoral environmental legislation (coastal and marine sector);
- regulation of potentially hazardous activities on the coast and the mitigation of their adverse environmental impacts through precautionary approaches;
- domestication and implementation of international legal instruments;
- provision of mechanisms for funding of environmental management activities;
- provision of mechanisms and procedures for the settlement of environmental conflicts and disputes; and
- provision of mechanisms for compliance and enforcement of coastal and marine law.

[103] *Ibid.* at 66.
[104] *Ibid.* at 67.
[105] *Ibid.*
[106] *Ibid.*
[107] *Ibid.*
[108] *Ibid*. at 104.

4.4.2 Objectives, principles and concepts of coastal and marine management

The objectives clause is among the most difficult clauses to draft, in the sense that there is a tendency to have the objective crafted as 'a means and end' rather than just as the end to be achieved by the law. A clear objective is useful since it should drive all of the legislative work and constitute the key basis upon which the evaluation of the effectiveness of the law is to be measured. The object of the regulations on coastal and marine management in Mozambique, for instance, is to prevent and limit pollution from illegal discharges by ships, platforms or sources based on land along the Mozambique coast. Furthermore, the Mozambique regulations aim at the establishment of legal bases for the protection, and conservation areas constituting public domain, maritime, lacustrine and fluvial, of the beaches and fragile ecosystems.[109] Such an objective covers very many areas and is therefore easier to understand.

In the development of laws, policies and institutions that affect the marine and coastal environment, the draftsperson should endeavour to abide by the basic principles related to conservation, sustainability, and rights, i.e. the consideration of the fundamental right to a healthy environment. These principles are not limited in their applicability only to the marine and coastal environments and should apply broadly to all national and international laws and policies.

5 Regulating the conservation of biological resources

'Marine biodiversity' and 'coastal biodiversity' refer to the ocean's diverse habitats that support an abundance of marine life. Some examples of vital marine and coastal communities include: coral reefs, mangroves, wetlands, deep-sea communities and sea-grasses.

From an international law perspective, the regime of ecosystems and protected areas relies on the extent of powers that the countries concerned may exercise over the marine area in which they are established.[110] Many laws and instruments, such as the Convention on Biological Diversity (CBD) or the Ramsar Convention, facilitate the halting of degradation and the promotion of restoration of coastal and marine ecosystems. Others, such as the World Heritage Convention,[111] seek to preserve biologically diverse or culturally important areas. Other conventions that mention

[109] Mozambique Decree number 45/2006 of 30th November 2006, Article 2. Such ecosystems include those whose natural characteristics and geographical location are susceptible to fast degradation, namely wetlands, mangroves, dunes, carpets of marine herbs, carpets of macro seaweeds, beaches and coral reefs.

[110] See UNDP, UNEP, World Bank, and *World Resources Institute (WRI), World Resources 2000–2001: People and Ecosystems: The Fraying Web of Life* (WRI, 2000), available at <http://pdf.wri.org/world_resources_2000-2001_people_and_ecosystems.pdf> (visited 19 May 2009).

[111] Convention Concerning the Protection of the World Cultural and Natural Heritage, Paris, 16 November 1972, in force 17 December 1975, 11 *International Legal Materials* (1972) 1358, <http://whc.unesco.org>. The WHC website has a searchable database of World Heritage Sites that includes official documents, links and activities at each site.

coastal wetlands include the United Nations Framework Convention on Climate Change (UNFCCC);[112] the Convention on Protection and Use of Transboundary Watercourses and International Lakes; and the Convention on the Law of Non-Navigational Uses of International Watercourses.[113]

The Ramsar Convention includes twelve classes of marine and coastal sites and includes mangrove forests, estuaries and coral reefs in the Ramsar List of International Importance.[114] Although the Convention does not explicitly provide for the conservation of 'coastal' wetlands; by inference and in the light of the definition that includes 'brackish or salt water', the term 'coastal wetlands' falls within the Convention's definition. The Convention requires parties to consult with each other and encourages coordination and cooperation, especially in cases of transboundary wetlands. Over the years, the Agreement has broadened in scope to cover all aspects of wetland conservation and wise use – it now recognizes wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities.

In addition, the Protocol Concerning Specially Protected Areas and Wildlife (SPAW) to the Cartagena Convention[115] calls for the establishment of protected areas in order 'to conserve, maintain and restore, in particular and amongst other things:… representative types of coastal and marine ecosystems… to ensure their long-term viability and to maintain biological and genetic diversity'. The Protocol highlights the region's growing recognition of the need to conserve threatened, endangered and depleted fauna and flora (for example, mangroves and coral reefs) and encourages the sustainable management of the region's coastal and ocean resources.[116] The protection of mangroves is assured by extensive legislation, though several factors make legal practice more difficult due to man-made as well as natural causes. For example, the length of the coastline may prevent the effective supervision of coastal ecosystems. Another reason is a lack of ecological and environmental awareness in the population that lives on the coast; which, consequently, ends up abusing mangrove forests through irrational and unchecked exploration. For instance, Belize protects its man-

[112] The Convention sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. It enjoys nearly universal membership, with 192 countries having ratified the Convention.

[113] The Convention is concerned with the uses and conservation of all waters that cross international boundaries, including both surface and groundwater. The document required ratification by 35 countries to enter force, but as of 2008, only 16 countries had ratified the Convention. Though not ratified, it is still regarded as an important step towards arriving at an international law governing water.

[114] The Ramsar list is available at <http://www.ramsar.org/key_sitelist.htm > (visited 19 May 2009).

[115] Protocol Concerning Specially Protected Areas and Wildlife to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, Kingston, 18 January 1990, in force 18 June 2000, available at <http://www.cep.unep.org/cartagena-convention/spaw-protocol/spaw-protocol-en.pdf> (visited 13 February 2009).

[116] Caribbean Environment Programme (CEP), *Status of Protected Area Systems in the Wider Caribbean Region,* CEP Technical Report No. 36 (CEP, 1996), available at <http://www.cep.unep.org/cepold/pubs/Techreports/tr36en> (visited 19 May 2009).

grove forests through a permitting system under the Forests (Protection of Mangroves) Regulations (1989).

The Law of the Sea Convention prescribes that measures taken to protect and preserve the marine environment 'shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life'.[117]

Many well known protected areas that have been designated as World Heritage Sites under the relevant Convention are coastal or marine, including the Belize Barrier Reef Reserve and the Australian Great Barrier Reef Marine Park. The World Heritage Convention promotes the protection of coral reefs, not directly, but through the attraction and encouragement of increased funding and protection due to a higher public profile of these as designated and recognized marine parks.

The World Heritage Convention is an important tool to bring attention to, and protection for, these unique marine and coastal ecosystems – coastal wetlands, coral reefs and mangroves – as they are a compelling illustration of major types of natural heritage not sufficiently represented on the World Heritage List.[118] In nominating marine sites, the state parties benefit not only from the increased attention brought to these sites in the form of additional funding from partners and donors; but also from managing these sites in ways that can provide ongoing livelihood, food security and revenue streams for coastal and island societies through the sustainable management of tourism and fisheries benefits associated with these sites.

6 Marine and coastal pollution prevention by land-based sources and Activities (LBS/A)

6.1 Introduction

Land-based sources of marine and coastal pollution can be from coastal or inland sources and include development, wastewater treatment, industrial processes, recreation, agriculture, mining, and transportation. They have the potential to impair marine environments and the ecosystem services that they provide. The cumulative environmental impact of these pollutants is considerable. A more ominous consequence, that still is not well understood, concerns damage to the immune systems of mammals. For inland activities, freshwater flows act as delivery systems carrying LBS/A by-products to the sea. The management of LBS/A should also prevent and limit pollution from illegal discharges by ships and from platforms. These critical factors are not receiving nearly enough attention. Each year hundreds of new chem-

[117] Article 194(5).
[118] Available at <http://whc.unesco.org/en/list> (visited 19 May 2009).

icals are dumped into the seas, to go with the thousands already there, and with next to no idea of their actual or potential impacts. Therefore, it is necessary to establish legal bases for the protection of conservation areas from the adverse effects of land-based pollution of marine and coastal environments. While most states would agree that the prevention and control of LBA is a legitimate subject of international action; the complexity of the issues and strong concern protecting national interests has seen only very limited progress occur at the international level.

6.2 Regulating coastal developments and the environmental impacts of ports and harbours

A wide range of laws, including zoning restrictions, coastal zone management, environmental impact assessments, place-based protections, and erosion control laws, are used to regulate coastal development. For example, India has developed the Coastal Regulation Zone Notification under its Environmental Protection Act (1986)[119] defining the coastal zone and limiting coastal development activities within that zone. Such activities include the discharge of untreated waste; erosion control; prevention of salinization of freshwater resources and, in some circumstances, groundwater withdrawal.[120]

The construction and expansion of ports, harbours and marinas, amongst other developments, has the potential to inflict severe environmental damage on marine and coastal areas in the form of pollution; including pollution from ship accidents in ports, dangerous materials, garbage, dredging and the dumping of sewage.[121] Environmental laws and regulations for ports and harbours should consider impacts both from land and from nearshore permanent structures. For example, the Tanzania Ports Act[122] grants the Tanzania Ports Authority the authority to 'prescribe the limits within the levels to which dredging may be carried out by or on its behalf in the ports under its jurisdiction and the approaches'.

The International Association of Ports and Harbours (IAPH) has identified six principles that should be considered in the drafting of environmental policies for ports: (a) limit sea (from ship, land and dredging) and air pollution; (b) use environmental impact analysis in port development; (c) prevent risk of major accidents (Vessel Traffic System (VTS), emergency plans, dangerous goods); (d) manage waste and dis-

[119] Available through Environmental Law Alliance's Legal and Scientific Resources, at <http://www.elaw.org/resources>.

[120] CRZ Notification, 2002, s.2; see also UNEP, *A Comparative Review of Coastal Legislation in South Asia* (UNEP, 2003), available at <http://www.gpa.unep.org/document.html?id=281> (visited 19 May 2009).

[121] AI M. Gouilemos, 'European Policy on Port Environmental Protection, 2 *Global Nest : The International Journal* (2000) 189–197, available at <http://www.gnest.org/journal/Vol2_No2/07_goulielmos.pdf> (visited 13 February 2009) at 190.

[122] Act no. 17 of 2004, available at <http://faolex.fao.org/docs/pdf/tan62524.pdf> (visited 13 February 2009).

charge (recovery, collection, recycling and supervised disposal areas); (e) create quality areas; and (f) regulate against pollution.[123]

6.3 Mining

Mining laws often mandate environmental assessments and prohibit mining in conservation areas. In Madagascar, for example, mining activities require an environmental impact assessment and the compatibility of all investment activities to environmental protection.[124] The Mining Code of Madagascar[125] requires that all mining activities be executed in conformity with the plan of environmental obligation.

In the Philippines, the Mining Act[126] of 1995 protects the environment through general mining provisions that apply to all activities as well as specific mining restrictions and prohibitions in certain marine and coastal areas including mangrove forests, designated marine reserves, parks, tourist zones, and areas designated under the National Integrated Protected Areas System (NIPAS).

7 The management and control of sea-based activities

7.1 Tourism (Sea-Based)

A lot of at-sea tourism activities, for example boating, swimming and surfing, exist because of unique environmental qualities. Nevertheless, uncontrolled tourism can degrade conditions and destroy important habitats. Laws regulating at-sea tourism may restrict certain activities within designated zones or regulate according to activity.

7.2 Marine protected areas (Sea-Based)

There is growing interest in the creation of marine protected areas and other marine management areas for the purposes of conservation, preservation, and restoration. In addition, these areas have sector-specific management purposes: for instance, oil and gas platform siting, laying of cables on the sea floor, shipping lane designations, and serving as fishery management zones. Effective management of MPAs is challenged by factors such as user conflicts, development, lack of public awareness, inadequate resources, enforcement problems, lack of capacity, and lack of financial stability.[127]

[123] Gouliemos, 'European Policy', *supra* note 121, at 189.
[124] Decree 99-954.
[125] Law 99-022 (1999), Article 100.
[126] Act no. 7942 of 1995, Chapter VXI.
[127] UNEP, *People and Reefs: Successes and Challenges in the Management of Coral Reef Marine Protected Areas*, UNEP Regional Seas Report and Studies No. 176 (2004), available at <http://www.unep.org/regionalseas/Publications/itmems2reportfinal.pdf> (visited 13 February 2009).

Several legal challenges exist with MPA development, management, and enforcement and compliance. Often, a collection of laws applies to MPAs, and several institutions are responsible for different aspects of management and enforcement. This can lead to ineffective, inefficient and inadequate protection.

7.3 Aquaculture (Sea-Based)

Coastal and marine aquaculture is growing in importance and becoming an increasingly important source of protein for many people worldwide. Aquaculture's contribution to the world's supply of fish, molluscs, and crustaceans increased from 3.9 percent of the total production by weight in 1970 to 29.9 percent in 2002.[128] In 2002, this amounted to approximately 39.8 million tonnes.

The impacts that aquaculture can have on the marine and coastal environment depend upon the species being cultivated; and can be many and varied. Aquaculture farms can be point sources of marine and coastal pollution from animal by-products and waste, food materials, pharmaceuticals, and anti-bacterial and anti-fungal compounds. Escaped aquaculture species may become invasive, spread disease, or dilute the gene pool by hybridizing with wild species. Aquaculture sites may conflict with other ocean activities. Furthermore, aquaculture facilities may be developed in important wetland environments. Of particular concern is the immense loss of mangrove forests due to development of aquaculture facilities. In the Philippines, for example, approximately 210 500 hectares (40 percent of the total) of mangrove forest was lost from 1918 to 1988 due to aquaculture development.[129]

Many laws and policies are being developed to enable further development of aquaculture in both the nearshore or coastal environment and the offshore environment. Measures to ensure adequate protection of the coastal and marine environment from aquaculture activities include the requiring of permits; the requiring of environmental assessments or environmental impact statements before allowing expansion or development of new aquaculture facilities; the restricting of the use of exotic species in aquaculture, or requiring a review of species before allowing aquaculture for those species; the regulating of pollution from aquaculture facilities including fish meal and animal waste; the restricting of prophylactic use of antibiotics, anti-fungals, and other treatments; and the prohibiting of aquaculture in specified conservation areas or sensitive regions.

[128] FAO, *State of World Fisheries and Aquaculture* (2006), available at <ftp://ftp.fao.org/docrep/fao/009/a0699e/a0699e.pdf> (visited 13 February 2009).
[129] Millennium Ecosystem Assessment: Ecosystems and Human Well-Being, *supra* note 4.

8 Institutional arrangements for coastal and marine protection

8.1 Introduction

Effective implementation and enforcement of integrated marine and coastal legislation will largely depend on the institutional framework created and the functions and powers conferred upon it by legislation.[130] The institution created, be it a Minister, a Government Department, or a public corporation (parastatal), must be endowed with the statutory mandate and capacity to undertake various responsibilities and to ensure effective implementation of and compliance with the law. Such an institution may be required to undertake management and preventive measures such as assessing, monitoring and regularly reporting on the state of the environment.[131] Also, it is necessary to establish a forum at which the public can participate in decision-making and enforcement of the law on water resource management – public participation is a critical tool in the enforcement of the legislation.

8.2 Economic instruments: licensing, fees and financing

Licensing provides a mechanism to control access to resources and regions. Licences are used to regulate access to resources and they can be a source of financial support for managing resources. Financing administrative and conservation expenses may be achieved through taxation. Care should, however, be taken to ensure that taxes are not overly burdensome; and that they do not create perverse incentives to evade regulations. Despite potential drawbacks, many nations levy taxes on extracted renewable and non-renewable resources to achieve partial remuneration for the resources. In some cases, the taxes are used to pay the costs of conservation measures to offset the impacts of extraction including the administration of conservation programmes.[132]

Law-makers and regulators also use incentives – both positive and negative – to encourage voluntary compliance. These include provisions of subsidies or tax incentives for undertaking actions that conserve and protect the marine and coastal environment. In addition, granting certain rights such as transferable quotas or tradable licenses encourages compliance with conservation-oriented objectives to protect the value of the purchased quotas or licenses.

[130] Crabbe and Situma, *Training Manual*, *supra* note 25, at 82.
[131] *Ibid.* at 83.
[132] See Environmental Law Institute and UNEP, *Legal Drafter's Handbook, supra* note 12, at 58. The example of Belize: Environmental Tax Act, Chapter 61:01 (2003), available through <http://www.faolex.fao.org/faolex>.

8.3 Compliance and enforcement mechanisms

For effective implementation of laws and regulations, compliance and enforcement mechanisms should be considered. Important elements of compliance and enforcement include the authority to obtain search warrants and conduct searches, seizures, and forfeitures; the power to detain and arrest violators; the availability of civil and criminal penalties and injunctive relief; surveillance and monitoring systems; and reporting requirements. Enforcement measures for marine and coastal laws and regulations are found at various levels of government – local, state, and regional – and the more effective enforcement systems embody a coordinated, multi-level approach.[133]

Fines and penalties may determine the level of compliance for coastal and marine activities. Decisions to comply with laws and regulations may depend on the cost of fines and penalties, the risk of getting caught, the risk of prosecution if caught, and the risk of adverse judgment if prosecuted. Fines may not be an effective deterrent if they are too low or inconsistently enforced. Additional approaches to achieving compliance include tax incentives, subsidies, and private sector measures such as certification programs.

The legislation should define activities or categories of conduct that will be equivalent to non-compliance; and which, therefore, will be punishable under the law. Provision should also be made for institutions with the powers to investigate non-compliance and arrest and prosecute errant individuals, whether these be natural or legal.[134]

9 Assessment of the environmental impacts of regulation

9.1 Introduction

Environmental impact assessment (EIA) is a key component of the environmental review, helping regulators to make informed decisions about projects and processes that may disrupt the marine and coastal environment. EIA is, therefore, an extremely valuable regulatory tool for requiring thorough evaluation of the environmental impacts of coastal and marine projects that may have significant environmental consequences. Most countries have some requirement for an EIA – for instance, Tanzania's Environmental Management Act[135] ensures that mitigation actions recommended in the EIA are incorporated in project design and implementation.[136] EIA legislative provisions for major projects usually require a preliminary assessment at

[133] Pio Manoa and Yoli Tomtavala, *An Assessment of Marine Environmental Compliance and Enforcement in the Pacific Islands Region* (2006) at 2 and 17.
[134] Crabbe and Situma, *Training Manual*, *supra* note 25, at 84.
[135] National Environmental Management Act (NEMC), 2004.
[136] The Environmental Management Act (2004), Part V.

the outset of a project and a final assessment before construction is permitted.[137] In Ireland, for instance, the EIA Act[138] lists 24 types of project that are always subject to an EIA, along with an additional 81 types of project that may require an EIA 'when they could have significant environmental effects due to their scope, nature or location'.[139]

The EIA legislation generally requires that an EIA is undertaken by the entity proposing a project or, sometimes, by the government permitting agency. Professional environmental engineers usually perform the assessments. Consideration of alternatives to the proposed project and of measures to mitigate environmental impacts is to be included in the assessment. Some provision for public hearings on the EIAs is also usually required. EIA reports would enable the decision-making and law enforcement agency to determine which development projects would have adverse effects on the quantity and quality of the environmental resource.[140] Some countries have enacted EIA legislation specific to marine and coastal activities; for instance, the United Kingdom has developed EIA regulations for fish farming in marine waters;[141] requiring that 'environmental information' be considered for marine fish farming license applications where the proposed project 'will be likely to have significant effects on the environment by virtue of its nature, size, or location among other things'.[142]

9.2 Participation, access to information and access to justice

Justice involves fairness and equity – a basic concept of justice is the issue of equal access to justice. In the marine and coastal context, environmental injustices occur both within nations and amongst them. Some developing countries are unable to enforce fisheries regulations, and illegal or unregulated fishing vessels over-harvest limited resources depriving subsistence communities of important protein sources and income. International environmental injustice may also occur through the shipment of waste. Africa's waters run a heightened risk of toxic waste dumping due to a lack of domestic laws restricting dumping, this being combined with poor political oversight and an influx of foreign companies seeking to evade clean-up costs.[143]

[137] UNEP, *UNEP Handbook for Legal Draftsmen on Environmentally Sound Management of Energy Efficiency and Renewable Energy Resources* (UNEP, 2007), available at <http://www.unep.org/law/PDF/UNEP_Energy_Handbook.pdf> (visited 19 May 2009), at 7.

[138] The Planning (Environmental Impact Assessment) (Amendment No. 2) Regulations Statutory Rules of Northern Ireland (2008) No. 372.

[139] Articles 5–6 and Annexes 1–2 (2000).

[140] Crabbe and Situma, *Training Manual*, *supra* note 25, at 109.

[141] The Environmental Impact Assessment (Fish Farming in Marine Waters) Regulations (1999).

[142] Section 3(1).

[143] Alister Doyle, 'Africa Said Most at Risk to Ill-Regulated Toxics', *Toxic Trade News* of 7 September 2006, available at <http://www.ban.org/BAN_NEWS/2006/060907_illregulated_toxics.html> (visited 19 May 2009).

While a lack of regulation currently leaves the coastal communities of some developing countries susceptible to varying forms of environmental injustice, many countries, both developing and developed, have instituted laws to protect their coastal communities from these crimes. In India, the world's leading ship-recycling nation in terms of volume, the Central Pollution Control Board in Delhi has prepared Environmental Guidelines for Shipbreaking Industries.[144] The Guidelines aim to 'minimize the effect of ship-breaking industries on the surrounding environment through proper citing of industries and by preparing and implementing an Environmental Management Plan (EMP) and a Disaster Management Plan (DMP)'.

Public participation is an important mechanism to ensure the conservation and sustainable development of the marine and coastal environment. It will be necessary to establish an appropriate forum at which the public can participate in the decision-making and enforcement of the law on water resource management, through the support of their entitlement to access and use the resource.[145] Opportunities for public participation can arise during several steps of the legal process, including in the development of laws and regulations as well as in administrative and judicial processes and hearings. Public participation is not only a critical tool in the enforcement of the law, but also a means to check and control governmental or institutional policies and decisions in order to ensure environmental accountability and transparency.

Participation in the management of marine and coastal environments can take many forms. In the formulation of regulations, participation can happen through:

- membership in councils and committees – for example, in Saint Vincent and the Grenadines, at least three members of the Fishery Advisory Committee must represent professional fishing interests;[146]
- negotiated rulemaking;
- notice and comment periods;
- administrative hearings – hearings on EIAs provide a good vehicle for educating the public and eliciting community concerns; and
- legal challenges.

In order for public participation to be meaningful, the public needs full access to all available information. Legislation can thus provide a right for any person to access government information about sustainability and conservation of ocean and coastal environments. The right may be accessed by petition, and a denial of any information

[144] See also Basel Convention Secretariat, 'Technical Guidelines for the Environmentally Sound Management of the Full and Partial Dismantling of Ships' (2003), available at <http://www.basel.int/pub/techguid/dismships/dismsh2003.pdf> (visited 14 February 2009).

[145] Crabbe and Situma, *Training Manual*, *supra* note 25, at 109.

[146] Fisheries Regulations (1987), implementing the Fisheries Act s45, No. 8 of 1986. Often unrepresented or under-represented on fishing committees and councils are those representing conservation and preservation interests.

can be subject to judicial review. State and local governments may have similar legislation. The scope of the access to information may be limited to exclude matters relating to national security and personnel. The Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)[147] is a relatively new kind of environmental Agreement that links environmental rights and human rights. The Aarhus Convention highlights the importance of the relationship between people and governments in environmental matters; especially where access to information, public participation in decision-making and access to justice are concerned.

In the case of a transboundary water resource that crosses borders, the legislation should make provision for regional collaboration in the joint management of that resource. Furthermore, prior notification in the event of an actual or potentially injurious activity to the water with significant transboundary environmental effects should be provided for.

10 Conclusion

One way of addressing the need for integrated marine and coastal legislation is to identify information gaps and capacity-building requirements in order to respond successfully to the impacts of human activities, pollution and other degrading factors on coastal and marine environments. Knowledge of the interactions between marine flora and fauna (including corals) and the effects of external influences on these species and their interactions is imperative in the conservation of, and drafting of legislation for, the sustainable use of coastal and marine areas. In order to achieve this, draftspersons and policy-makers alike need to deal with issues at the ecosystem level rather than with single species only. Understanding the effects of coastal developments and structures and the effect of sea-level rise on the coastal foreshore is one way of filling the information gap. Measures to develop and enforce legislation relating to coastal and marine zones include legislation and policy as well as integrated management plans.

Adaptation and mitigation strategies for such hazards as climate change and coastal erosion ought to be based on an integrated and comprehensive approach, which encompasses the health and well-being of the state.

[147] Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, Aarhus, 25 June 1998, in force 30 October 2001, 38 *International Legal Materials* (1999) 517, <http://www.unece.org/env/pp/>.

'Living with Coastal Erosion': Steps That Might Be Taken, Based on the KwaZulu-Natal Best Practice Response Strategy

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1 Introduction

1.1 Preface

In 2007, the coastline of the province of KwaZulu-Natal (KZN), South Africa, was subjected to unprecedented levels of erosion and associated property damage. This was the result of storm events, most notably on 19 and 20 March 2007.[6] The initial event occurred at a time when the tide reached an exceptional height, known to happen once every 18 years. Combined with huge storm waves, in excess of 8 metres, the event caused widespread property damage and erosion to the coastline over a distance of approximately 350 kilometres. According to marine geologists, the sand was moved from the shoreline to deeper waters, from where much of it may never return to the beaches.

Although unprecedented then, it now seems likely that these events will recur. In June 2008, in fact, there were further serious floods. What many people do not real-

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[6] Tandi Breetzke et al., *Living with Coastal Erosion: A Short Term, Best Practice Guide* (KwaZulu-Natal Department of Agriculture & Environmental Affairs, 2008), available at <http://agriculture.kzntl.gov.za/portal/LinkClick.aspx?fileticket=RqQFm1Pdydg%3D&tabid=269&mid=735> (visited 26 April 2009).

ize is that the KZN coastline is continually changing; and that it either erodes (retreats) or builds seawards (accretes). Coastal change is therefore constant and – over the long-term – inevitable. It is the human response to such change, especially in the light of climate change (including global warming)[7] that is manageable.

The seriousness of this KZN coastal erosion incident (which was described as having been a 'crisis') necessitated that the lead provincial agent for coastal management in KwaZulu-Natal, the Department of Agriculture and Environmental Affairs (DAEA), formulate a comprehensive and holistic integrated response plan which outlines the work that needs to be undertaken, now and in the future. One of the recent products of this exercise was the development of a guideline document entitled *Living with Coastal Erosion: A Short Term, Best Practice Guide*.[8]

This paper provides a background to the need for the *Guide*, and illustrates its content by specifically detailing the principles applied, forms of mitigation of erosion which could be applied, international experience and concludes with DAEA's 'Best Practice Strategy' which is part of the *Guide*.

1.2 What is coastal erosion?

Coastal erosion is the weathering of rocks and the removal of beach or dune sediments by wave action, tidal currents, wave currents, or drainage. Coastal erosion results in three different types of impact, these being loss of land and damage to the built environment; destruction of natural sea defences such as dunes; or the undermining and failure of artificial sea defences.

The character and nature of the coast at any one place or time results from combinations of geological, climatic and oceanographic processes, as well as human intervention. Coasts are continually changing and can either erode (retreat) or build seawards (accrete). The recent changes along the KZN coast are therefore not the exception, but the rule. It was the damage to man-made structures that was unprecedented. Most people perceive coasts as stable because coastal change is generally slow with only occasional exceptional events such as storm-induced erosion.

1.3 The changing shoreline

It is not possible to predict whether the coastline will return to its pre-storm condition but if it does, it may take up to three to five years to recover. The original shoreline profile was eroded downwards to the post storm profile during the three days of the event. Immediately after the storm, the coast was then out of balance and with

[7] The real problem being the increasing volatility of nature, not simply a general rise in temperature.
[8] See *supra*, note 6.

the return of normal wave conditions sand started moving to reform all the previous underwater bars and sandy areas. The beach then started to change and is now attempting to return to its original shape and position. However, as there is now no sand left below the sea, beach rebuilding cannot happen. Even normal waves have been eroding the dune and concomitantly raising the sea floor.

While this was happening, winter storms also began to move sand northwards (as they do normally) which resulted in substantial local erosion, particularly north of any rocky outcrop. At Amanzimtoti and Kelso on the Southern KZN coastline, for example, erosion caused the coastline to retreat (by 90 m and 78 m respectively). What occurred at these rocky outcrops is that winter storms created waves, as they do, which generally arrive from the south and move the beach sand in a northerly direction (in a process termed 'long-shore drift'). This movement often goes unnoticed when the sand is plentiful, but when the sand is in short supply the rocky headland sometimes acts as a barrier. This causes the northbound sediment to remain south of the headland, where it stays until enough builds up for it to get around the point. The sand north of the headland continues to move northwards, driven by these same wave conditions, but is not being replaced because of the headland barrier. This creates the conditions for dramatic local erosion to occur, until the amount of sand bypassing the headland matches the erosion rate in the bay.[9]

2 The coastal erosion risk in Kwazulu-Natal

Coastlines with mixed rocky shores and sandy beaches were most vulnerable in the March 2007 storm and sandy shores have been the most vulnerable since that storm. The most-affected areas appeared to include some similar characteristics, such as that stretches of coast had been drained (for instance, Ballito) and the cohesiveness that was supplied by the ground water had been lost; beaches and bays were narrow and sand depleted; there were sandy bays, north of points; and there were beaches with a thin veneer of sand over rock. Further badly-affected areas included beaches whose natural defence mechanisms such as foredunes, naturally vegetated dunes, offshore sand bars and reefs had been removed; beaches with, and adjacent to, inappropriate sea defences; beaches where the built environment was located too close to the shoreline and the high-water mark; beaches with badly planned, inappropriate and poorly maintained storm water systems; and beaches where the natural dune vegetation has been removed and replaced with alien vegetation such as kikuyu grass and ornamental gardens.[10]

Continued living with coastal erosion in KwaZulu-Natal will require that a number of principles be acknowledged; including that continued global warming will cause

[9] See *supra*, note 6.
[10] *Ibid*., generally.

sea-level rise and increased intensity and frequency of coastal storms; increased coastal erosion will lead to higher and continued risk to human life and to the natural and built environments; best international practice in the face of sea-level rise and changing coastal dynamics is a managed retreat away from the shoreline. Further, it is not inconceivable that KwaZulu-Natal's beaches will lose more sand as a result of natural processes; and the severity of this loss will be dependant on coinciding phenomena such as storm events, equinoxes and spring high-tides. It must also be acknowledged that any construction too close to the beach interferes with natural sand movement and may impede beach recovery after a serious storm event; that removing sand from beaches increases the severity of erosion; that badly planned and inappropriate sea defences may cause further loss of sand, resulting in beach degradation on site and to beaches and properties further along the coast; and that removing vegetation from dunes destabilizes these protective sand barriers and reduces their function as natural sea defences.[11]

3 Responses to coastal erosion

Mitigation of coastal erosion can be described as measures that are implemented to reduce the negative effects on the natural and built environment. The scale and type of a proposed mitigation scheme is a critical consideration in terms of reducing negative 'knock-on' environmental and infrastructure damage. Our limited knowledge of coastal sediment transport processes has often resulted in inappropriate measures of coastal erosion mitigation. In many cases, measures may have solved coastal erosion locally, but have exacerbated coastal erosion problems at other locations – up to tens of kilometres away – or have generated other environmental problems.

Schemes for mitigation of coastal erosion use a combination of techniques and approaches which may include 'hard engineering techniques' – meaning the using of permanent concrete and rock constructions to 'fix' or consolidate the coastline and protect the inland assets. These techniques – usually in the form of seawalls, groins, detached breakwaters, or revetments – represent a significant share of the protected shorelines of Europe.[12] Then there are 'soft engineering techniques'; in other words, building with natural processes in mind by relying on natural elements such as sand dunes and vegetation to prevent erosive forces from reaching the built environment, and the use of sandbags and beach nourishment schemes. Finally, there is 'managed retreat' – the removal and relocation of houses and other infrastructure away from erosion prone areas.[13]

There are lessons to be learned from international experience. International case

[11] *Ibid*.
[12] Eurosion, *Living with Coastal Erosion in Europe. Results from the Eurosion Study*' (European Commission, 2004), available at <http://www.eurosion.org/project/eurosion_en.pdf > (visited 14 June 2009).
[13] *Ibid*.

studies have provided a range of experiences in relation to the cost-effectiveness and environmental friendliness of mitigation schemes. Major lessons learnt from hard protection techniques include the fact that positive effects are restricted to the defended site; it is expensive to construct with a continued maintenance burden; the result is often aesthetically offensive; expansion to adjacent areas is required as their impacts extend beyond the affected area; there is increased turbulence and sediment scouring; and long-shore sediment transport is disrupted.[14]

Lessons that have been learned from soft protection techniques include that soft coasts require soft solutions; that they are cost-effective relative to hard protection measures; that they are growing in popularity with proven effectiveness; that continuous maintenance is required; that there is a reduced safety hazard; that coastal dune re-vegetation improves slope stability, consolidates beach sediment and reduces wave energy; and that there is a greater opportunity for the continuation of natural coastal processes and beach amenities.[15]

Lessons that have been learned from managed retreat include that it is an expensive option; that it is often not an option in highly transformed urban environments; that managed retreat, although expensive, is less expensive than the cost of construction and maintenance of sea defences; and that it is a sound environmental solution.[16]

4 Living with coastal erosion: a short-term response strategy

The coastline is a dynamic and active system that can be both benign and pleasurable; but which can also be violent and potentially dangerous to humans. This latter attribute of the coastal system was clearly demonstrated during the March 2007 storms. Coastal societies living alongside the ocean need to accept and adapt to the natural variations of this environment. In this regard, it is possible to provide a number of best practice guidelines to manage the human response to coastal erosion, in which regard the following nine points are offered as guidelines.

First, it is important to accept and live with erosion by planning any coastal construction so that it is a safe distance away from the high-water mark; and by reinstating natural defence mechanisms with the necessary environmental authorizations. Second, it is vital that a collective response be provided for. In this regard, holistic planning and implementation by municipalities in response to coastal erosion is critical. A municipal coastal management programme, incorporating shoreline management plans, is required to reduce the direct and associated effects of erosion.

[14] See *supra*, note 6.
[15] *Ibid*.
[16] *Ibid*.

Neighbours need to institute similar mitigation measures for the same reason. This collaboration will increase defence effectiveness and will reduce costs.[17]

Third, a coastal setback must be established. A development setback line should be designed to protect both the natural environment from encroachment from buildings as well as protecting beachfront developments from the effects of storms and accelerated coastal erosion.[18] It is proposed that this setback be used as an environmental authorization support tool and 'trigger' to manage the location of new coastal developments and inform the upgrading of existing developments. Development seaward of such a setback should be considered as being at high risk from coastal erosion, and landowners should take cognisance of this limitation. The limitation should be considered as part of the environmental investigation and authorization process.

Fourth, natural processes should be worked with in responding to erosion. In this regard, it should be borne in mind that 'soft' coasts require 'soft' solutions. As such, preferred protection measures should make use of soft engineering solutions; examples of which solutions might include the establishment of a berm (or earth mound barrier) consisting of geofabric or other suitable sand bags, as per the design of a coastal engineer, along the immediate front of the dune system in question. The bags used should be of suitable weight and should reach a height approaching that of the original frontal dune; after which the berm should be covered with an appropriate sand fill, suitably fertilized to reach a gradient between 18˚ and 24˚. The dune should then be vegetated with appropriate dune species as per the original natural zones and maintained.[19] An ideal species used will have a sinuous and highly adventitious rooting system able to hold sand intact under extensive wave attack, slowly releasing sand in order to allow the dune to 'slump' back to its natural repose. Dune fencing should then be used along the length of the artificial dune to prevent encroachment and trampling. Suitable warning notices should be posted. After the creation of such a berm, protection for it must be provided. In this regard, gabion baskets[20] with bags can be used to protect the toe of the berm created. Probably, municipalities should not be responsible for providing sea defence systems for private property owners; and both private property owners and municipalities should remain obliged to maintain any defence system they do establish and should be liable for any failure of such

[17] *Ibid*.

[18] Using a precautionary approach, the KZN preliminary coastal setback line is set at the 10 metre contour above mean sea level; with this line being determined scientifically using a 50 year storm event cycle as well an estimated 50 year sea level rise, and is extrapolated to the rest of the KZN coast using the existing eThekwini erosion line. *Ibid*.

[19] *Chrysanthemoides monilifera* (Tickberry) has been identified as the most significant dune stabilizing species for KwaZulu-Natal.

[20] Gabions are cages, cylinders, or boxes filled with rock, soil or sand that are used in civil engineering, road-building, and military application. For erosion control caged riprap are used. See, for instance, <http://en.wikipedia.org/wiki/Gabion_basket> (visited 26 April 2009).

system, especially where such failure affects other property owners or requires that the natural environment be rehabilitated.[21]

Fifth, lost sand should be replaced. Sand used for protection measures must be sourced from the beach directly in front of the affected property; although this should only be done if sufficient sand is available and is not an option in sand poor areas. Sand may not be sourced from any dunes (vegetated or not), nor from any other relatively undisturbed area. It is important that the sand used be of a similar nature to that found on the beach; and accessing beach sand from other sources should only be considered following input from appropriate experts.[22]

Sixth, hard engineering solutions should be considered in exceptional cases only. This should happen only after detailed environmental assessments have been undertaken and authorizations obtained. As with soft engineering solutions, private property owners and municipalities should remain obliged to maintain any defence system they establish; and they do establish and should be liable for any failure of such system, especially where such failure affects other property owners or requires that the natural environment be rehabilitated.[23]

Seventh, municipalities and coastal property owners should prepare for potential coastal erosion events by purchasing and storing appropriate sand bags. Coastal property owners should constantly monitor coastal change and react accordingly in emergency situations; in other words, whenever there might be an immediate threat to human life or health, to property or to any aspect of the environment. It is useful to note here, for KwaZulu-Natal and for any country with a similar prohibition,[24] that driving on the beach is a permissible use in the case of an emergency.[25]

Eighth, it is important that reconstruction of coastal infrastructure and amenities be done appropriately. Coastal property owners, in collaboration with affected municipalities, should be responsible for the removal of rubble as a result of coastal erosion. Infrastructure that is damaged as a result of coastal erosion should not simply be replaced. The need for reconstruction should be seen as providing an opportunity to remedy existing inappropriate development. The appropriateness of reconstruction should therefore be assessed and necessary improvements made; and, in the medium- to long-term, plans should be prepared and implemented for a managed retreat of such infrastructure. Coastal amenities that have been damaged should be replaced

[21] See *supra*, note 6.
[22] *Ibid*.
[23] *Ibid*.
[24] In South Africa, any remediation or rehabilitation necessitating beach driving that does not constitute an emergency would require prior authorization from the National Department of Environmental Affairs and Tourism – driving on beaches having been generally prohibited. See the Regulations in terms of section 44 of the National Environmental Management Act, (Act No. 107 of 1998): Control of Vehicles in the Coastal Zone, available at <http://llnw.creamermedia.co.za/articles/attachments/06617_regulation.nat.env.man.pdf> (visited 26 April 2009).
[25] See *supra*, note 6.

with more appropriate 'softer' solutions; for example, existing concrete lifesaving facilities might be replaced with removable wooden lifesaving towers.[26]

Ninth, and finally, risk should be avoided and reduced. Coastal property owners should be responsible for the maintenance of storm water discharge; and should be liable for any erosion or negative impact which such discharge may have on the frontal dune or beach. Where storm water has to be discharged onto a dune, such discharge should be away from the dune face and toe; such discharge should preferably be onto a hardened area such as a rocky headland. Integration of storm water systems between neighbours should be encouraged.[27]

5 Conclusion

The above suggestions are based on Guidelines that were approved[28] on the 7th of November 2007; and in KwaZulu-Natal are proposed to be implemented along with a detailed and holistic business plan looking at short-, medium- and long-term responses to the erosion crisis. The Guidelines were distributed widely in early 2008 (in both print and digital form) and are currently in re-print due to popular demand.[29] Favourable comment has been received from far and wide in respect of their content. The Guidelines are currently being used to prepare and assess applications for rehabilitation, re-development and development of properties along the KZN coast ravaged by continued erosion.

Another impact which these Guidelines have had is that they 'started' a 'conversation' on the contentious issue of a coastal setback; which issue has subsequently been included in the drafting process toward the National Environmental Management Coastal Management Bill.[30] Assessing the costs and sustainability of defences is a process that should preferably be undertaken in a cooperative manner rather than as a top-down directive. Provincial governments with the responsibility of designating such a setback must facilitate its successful adoption and implementation. If this is to happen there must be discussions with municipalities and affected property owners to make this process less problematic in the long run and closer to the ideal of co-operative governance.

[26] *Ibid*.
[27] *Ibid*.
[28] Approved by the Head of Department, KZN Department of Agriculture and Environmental Affairs.
[29] Tandi Breetzke et al., *Living with Coastal Erosion: A Short Term, Best Practice Guide* (KwaZulu-Natal Department of Agriculture & Environmental Affairs, 2008), available at <http://agriculture.kzntl.gov.za/portal/LinkClick.aspx?fileticket=RqQFm1Pdydg%3D&tabid=269&mid=735> (visited 8 June 2009).
[30] Bill No. 40B of 2007. The Bill has now become the National Environmental Management: Integrated Coastal Management Act 24 of 2008 (see <http://www.info.gov.za/view/DownloadFileAction?id=96260>), but the Act has not yet come into force. For further discussion of the Act, see the paper by Warren Freedman in Part IV of the present *Review*.

Coastal erosion, and the impacts experienced in KZN which are described above, are not unique to the Province or to South Africa as it is an international predicament. The lesson that can be leant from this process is that KZN has actually been able to learn from past mistakes made, and lessons learnt and have devised a practical, easy to implement set of guidelines which implements international best practice and will, hopefully, prevent the same mistakes being made again and again.

Challenges of Policing Ports and Harbours

Robert Mortassagne[1]

1 Introduction

There are various challenges involved in the policing of ports which means, in the current context, the monitoring at ports and harbours. 'Port' is not defined in South Africa's relevant legislation; with neither of the Customs and Excise Act[2] or the Marine Living Resources Act[3] providing a definition. For purposes of this paper, therefore, we will rely on a dictionary definition of a 'port' as being 'a town or place alongside navigable water with facilities for the loading and unloading of ships';[4] and of a 'harbour' as being a 'sheltered port'.[5] South Africa does, of course, have other points of entry, such as airports and terrestrial entrances, but these are beyond the scope of this paper.

2 Challenges

2.1 The nature of ports

The first challenge which we have is that ports are generally very large areas – in Durban there are even areas within the port where there are mangroves growing; where there are areas to which the public has access for fishing; and areas to which vehicles other than state vehicles have access. A port is almost inherently a porous area; which makes it very easy for organized (and even not so organized) criminals

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[2] Customs and Excise Act 91 of 1964, as amended.

[3] Marine Living Resources Act 18 of 1998.

[4] *Collins English Dictionary* (3ed ed., HarperCollins Publishers, 1991) at 1212.

[5] *Ibid*. at 707.

to manoeuvre for the purpose of committing environmental crime. Ships lying at anchor waiting to go into berths in ports are a source of potential crime – once in ports they become subjects of scrutiny; but before they enter they are not. Crewmen occasionally seek to supplement their incomes with some illegal environmental contraband; in the Durban context, African grey parrots from the Democratic Republic of Congo, for instance. Contraband such as this can easily be removed from the vessel by other, smaller vessels meeting them before they even come into the harbour. A further challenge is that ports are open for 24 hours a day/365 days in each year; and a crewman who is also a criminal can operate under cover of darkness, making policing even more difficult.[6]

2.2 The need for cooperation

Organized environmental crime often straddles the jurisdictions of policing and prosecuting; straddles provinces or states within countries; and very often when an investigator discovers this kind of crime only one side of the matter is investigated – in other words, the investigation is undertaken without knowing what might have happened in the country from which the subject originated.[7] What is needed, therefore, is that networks be created so that states, or law enforcement agencies within states, are able to work together and make sure that they can share information and assist each other in combating environmental crime.

2.3 Corruption

Illegal, unregulated and unreported (IUU) fishing is a particular problem, especially when offenders can land their catch in a country which does not wish this; but which faces the problems of obviously corrupt or corruptible officials – be these police, customs officials, or fisheries control officers.

The problem of corruption naturally plagues contraband other than IUU fishing. The author recently dealt with a matter where a person had imported 20 cycad bulbs and close to 900 cycad seeds.[8] When this individual arrived in the port, a policeman

[6] As a prosecutor, some years ago the author dealt with a matter concerning a ring-tailed lemur, radiated tortoises and sea cucumbers which were brought in illegally from Madagascar on a yacht which came in at night. By the next morning, when the crew of the yacht was required to report to the immigration authorities, all of the contraband had been taken off the yacht.

[7] One matter with which the author dealt concerned a whole container of corals and giant clam shells (listed on Appendix II of the Convention on Illegal Trade in Endangered Species of Wild Fauna and Flora (CITES) (Washington DC, 3 March 1973, in force 1 July 1975, 993 *United Nations Treaty* Series 243, <http://www.cites.org>) imported from Indonesia. It was never found out who acquired these items; or whether they did so with any authority (there certainly were no CITES export permits from Indonesia).

[8] All species of *Cycadaceae* (Cycads) are listed on either CITES Appendix I or II. See <http://www.cites.org/eng/app/e-appendices.pdf> (visited 25 May 2009) under the heading 'Flora (plants)'. See also, for instance, John Finfrock, *CITES, Cycad Species and Import/Export Requirements*, available at <http://www.plantapalm.com/vce/conservation/cites-import-export.htm> (visited 25 May 2009). Cycads are an ancient plant group, occurring in 58 range states in Africa; Central, North and South America; Asia; the

immediately went to speak to some of the officials who were charged with monitoring that area. The policeman informed the customs officials that the person arriving was an informer of his and that he needed to meet him before he came through customs – it is, of course, hard to imagine what could be of such 'earth-shattering' importance that he needed to meet him at once, instead of waiting five minutes for him to clear customs. The two had apparently conspired; because when the customs officials wanted to scan the new arrival's luggage, the policeman spontaneously told them that there was nothing illegal inside it – a claim he was obviously unqualified to make, considering that he had not himself packed the bags. The policeman was, it turned out, a cycad collector.[9]

2.4 Technical difficulties

Further illustrative difficulties then arose in this case; in that there had to be an identification of the subspecies of cycad, which can only be done with certainty once leaves are present – when starting with bulbs or seeds, this might take a very long time. Sometimes the bulbs even become dormant for a period of time. All this while, the accused is entitled to a trial which starts/finishes in a reasonable time – a right which might be prejudiced by such a delay.

A further difficult aspect which arises is that of recognizing environmental contraband. When the customs official in the cycad case saw the cycad seeds, the policeman and the importer both said that the seeds were beads. The seeds were then returned to the importer – the bulbs were held back. Only on the following day were the seeds recovered. The problem illustrated is one that often confronts customs officials, who can sometimes not identify contraband items. Ivory is fairly easily passed off as plastic; and rhinoceros horn as pieces of wood.

A further challenge is the commission of fraud. To give an example, in September 2006, a vessel named the *Don Wong 619* arrived in Durban with 53 tonnes of fish.[10] The purpose for which the ship purported to come into harbour was to take on bunkers after repairs were done to the ship. The owners then applied to customs officials for authority to remove the fish while the ship was being repaired; and to have the fish placed in a bonded warehouse, meaning that effectively the fish were not landed for sale in South Africa. To have sold the fish locally they would have had to have imported them under a bill of entry; and would have had to have a

Caribbean; and Oceania. Approximately half of all species are threatened in the wild, due to habitat destruction and the trade in plants collected in the wild. See CITES, 'Review of Significant Trade: Cycads', PC14 Doc. 9.2.2 (2003), available at <http://www.cites.org/eng/com/pc/14/E-PC14-09-02-02-A1.pdf> (visited 25 may 2009).

9 In this matter, after the importer had pleaded guilty, there was an apparent reluctance from within the police force to continue investigating the policeman.

10 See, for instance, Tania Broughton, 'Huge fines for fish importer', *Independent Online*, 18 September 2006, <http://www.iol.co.za/index.php?set_id=1&click_id=14&art_id=vn20060918020830223C947715> (visited 25 May 2009).

permit from the Marine and Coastal Management Division (MCM) of South Africa's Department of Environmental Affairs and Tourism.[11] In this case, however, the fish were never sent to a bonded warehouse, as they ought to have been, but were instead sold. This was discovered only by chance when, near Cape Town, on the other side of the country from Durban, the road traffic inspectorate stopped a refrigerated truck – it turned out that the 53 tonnes from Durban had included three-quarters of a tonne of shark fin. Had the truck not been stopped, it would never have been known about and the whole cargo would have been sold undetected. It was ultimately found that the bulk of the 53 tonnes of fish had been sold, mainly in the Durban area.

There are further challenges such as the problem of so-called 'lookalike species' and the further problem of species that cannot be identified. Hippopotamus teeth, for instance, look very similar to young elephant tusks; and, as another example, fish which have been partially processed are very difficult to identify. To deal with these problems, South Africa has begun to build up a DNA database for identification purposes.

Another sort of environmental crime that occurs in ports is marine pollution. When it comes to marine pollution, it can be very difficult to prove, for instance, that the original polluting substance came from a particular vessel – there are so many chemicals that to prove beyond a reasonable doubt[12] is difficult unless an actual stream coming down the side of the vessel is observed.

2.5 Poorly drafted legislation

Another challenge is legislation which, when it is drafted, does not cover every eventuality – in the case of cycads discussed *supra*, the relevant legislation only covered indigenous cycads as 'specially protected indigenous plants' and it was not certain that the plants in issue were indigenous (in fact, it was fairly certain that they were exotic[13]). As a prosecutor, the author then had to 'look for the back doors' to ensure a successful prosecution – the alternative would have been to give up the prosecution and complain that 'the legislation had let me down'. Instead, the author brought the prosecution under the Agricultural Pests Act[14] as the accused did not have a permit to import plants; which plants could have brought in agricultural diseases. Further use was made of the Customs and Excise Act[15] as the accused had failed to declare the cycads.

[11] See, generally, <http://www.mcm-deat.gov.za/about/structure.html> (visited 25 May 2009).
[12] The standard of proof required for conviction in a South African criminal court.
[13] In this case it was suspected that the particular cycads had originated in Zambia, and had traveled to South Africa via Mozambique.
[14] Agricultural Pests Act 36 of 1983.
[15] *Supra*, note 2.

The lesson to be drawn from this is that in order to address environmental crime, one quite often has to use other legislation, which was not originally intended for an environmental purpose, if one is to achieve a successful prosecution.

Legislation is very often poorly drafted. In the author's view, poor drafting *can* be avoided; the best way to achieve this being that the legislation needs, at an early stage in the drafting process, to be made available for scrutiny by appropriately experienced, skilled and qualified individuals – by persons who work with the issues 'at the coal face'.

The South African Marine Living Resources Act[16] has been a classic example – parts of it are almost unenforceable unless a prosecutor can find back doors. For example, somebody who is fairly compliant with the law might obtain a permit for an activity such as recreational fishing. Under a recreational fishing permit, there are some things which the holder cannot do – such as exceed certain bag limits, or fish in a period that is a closed season. The legislation will state explicitly that 'a permit holder may not' do something, and if the holder does commit one of these offences it will be relatively easy to prosecute. If the person is, however, *not* a permit holder, he might ironically therefore be better off than if he *were* a permit holder.

2.6 Further problems with enforcement

Different government departments have varying capacities to enforce the legislation – with some in South Africa, for example DEAT/MCM,[17] doing a good job. Fisheries patrol officers throughout the country generally do a good job. However, we then have another government department like the Department of Water Affairs and Forestry (DWAF)[18] – where many officials who are required to enforce legislation have not even been appointed. Posts are vacant.

Stemming from the problems of undercapacity, customs officials very often do not know what the objects imported are – in the case of the cycads discussed above, an expert from the Department of Agriculture was needed to give advice, and a botanist was needed to identify the cycads as far as possible. A multidisciplinary approach is needed to be able to put a reasonable docket together to take to court. This is all complicated by customs officials often not being trained law enforcement officers; not knowing how to put dockets together, and having to rely on an investigating officer.

One of the other challenges faced in the monitoring of ports is the sophisticated communication techniques used by organized criminals – particularly in the days of cellphones which, when within range of towers, makes criminals' communication

[16] *Supra*, note 3.
[17] *Supra*, note 11.
[18] See, generally, <http://www.dwaf.gov.za>.

easy. From seaborne vessels, criminals can communicate with people on land using the internet and Voice Over internet Protocol (VOIP), and so forth.

Also, there is ultimately no end to the ingenuity with which criminals devise ways to evade law enforcement systems. In South Africa, there have been a number of cases involving false holds built into vessels; or the use of dedicated purpose craft to convey contraband inconsistent with the purpose for which the vessel was designed – for instance, a recreational vessel actually conveying rhinoceros horn to an oceangoing vessel; or an official, marked police vehicle being used (as in the example above) to convey cycad bulbs and seeds, with a police vehicle being unlikely to be stopped and searched.

Some ideas can be suggested for improvement. For one thing, there needs to be greater cooperation between government departments to create multidisciplinary networks, where knowledge and skills can be pooled. In South Africa, some departments do not have officers with experience, and some have only one or two. What is needed to be done, in the circumstances, is create little 'pockets of excellence' where these experienced people work with inexperienced people to whom they can transfer skills. There are too few investigating officers and prosecutors who have the capacity to handle the more complex matters. On the other side, judicial officers need to be sensitized and their capacity developed to hear these matters. Many judicial officers, unfortunately, have too casual an approach to dealing with these matters – they become complacent with common law crimes which they become used to dealing with, and when they have to do some real research they avoid the matter, or it goes to one of a few who have shown an ability to deal with such cases. This latter situation can, however, play into the hands of the defence; when portrayed as a case of being the 'regular tag team' of prosecutor/magistrate, instead of as a neutral umpire situation as required by the judicial process in the Anglo-American legal tradition.

Further compounding judicial shortcomings, in an environmental matter statutes have to be considered carefully; and some magistrates do not have the appetite for that. Better awareness needs to be created amongst judicial officers; and for prosecutors to be trained more extensively to get them up even to entry level – in 2007 a course was held for three days, too short a period to do more than scratch the surface of the knowledge needed. The scope of legislation is wide – in South Africa there are probably in the region of 120 national statutes which an environmental prosecutor needs to be aware of, together with another 22 Provincial Ordinances; before one even gets to 33 global, and ten regional, multilateral environmental Agreements. Overall, a massive body of knowledge is required; and very few government officials have significant understanding of this. Signs for the future are mixed – about ten years ago there were very few prosecutors interested, but fortunately many more are now coming on board. Many of these do, however, fall by the wayside – either not being allocated environmental work by their supervisors, or there being too great a gap between their training and the use of the skills gained. Probably the best way

forward would be via a mentoring system where prosecutors work together in groups, moving on from the 'pockets of excellence' idea mentioned above; especially with the drafting of charge sheets. This should be complemented by international donors, NGOs and the private sector becoming involved to fund training.[19]

When properly trained prosecutors are involved, it is possible also to be fairly innovative and to seek solutions to problems which will be of more benefit to the environment than the traditional fine or prison term.[20]

3 The importance of monitoring ports for disease reasons

One of the reasons why it is so important to be extremely vigilant about the way in which we police ports and ensure that laws are observed is the high risk of diseases being imported. Two examples of cases with which the author has dealt give an idea of the potential dangers, and also of the kinds of experts needed to give input.

The author prosecuted a German national, and his Austrian girlfriend, for the illegal importation into South Africa of 43 snakes. The accused's operational technique was to go to one country, buy apparently commonplace snakes and breed them in Germany. He would then go to a second country where these species were scarce and trade them for the apparently commonplace snakes of that country – on an upward spiral. The snakes he imported into South Africa were mainly American (copperheads, and diamondback rattlesnakes); and he would then collect local indigo snakes (which are rare in other countries). Prosecuting, the author received advice from an expert from the Department of Agriculture, a state veterinarian, who testified that snakes from the East and the West potentially carry a disease called equine encephalitis.[21] Because of this disease risk, snakes can be imported, but must then go into lifelong quarantine in an insect-free facility for the first two generations – the next two generations must also remain in quarantine, although this does not need to be insect-free. To be certified as 'insect-free' a facility is required to have double doors and double glazing; with every vent covered over with gauze or mesh, as the disease

[19] As an example of the need for training, a vessel in was recently found in Durban harbour by border police, on a routine check, to have 120 fish on board – the police, however, never seized or measured the fish. After laying charges of possession of undersized fish, the investigating police sought to rely on photographs they had taken of the fish to show that they were undersized – however, no proper measurements had been taken. Had the police been properly trained, proper measurements would have been taken.

[20] It is possible to be innovative. In a case with which the author dealt, a commercial fisherman caught a brindle bass – which is highly endangered and which is legally required to be returned to the sea forthwith, dead or alive – and gave it to his staff. After arguing that the fisherman had had a higher duty of care as a commercial fisherman, the eventual sentence was R200 000, suspended for five years on condition that there was no re-offence and that a R20 000 payment was made to the Oceanographic Research Institute (ORI) in Durban, to be used for research and public indication on the conservation status of the species.

[21] See, for instance, 'Equine encephalitis', available at <http://medical-dictionary.thefreedictionary.com/equine+encephalitis> (visited 25 May 2009). It appears that the virus is mosquito-borne, with horses as the primary hosts and humans as the secondary hosts.

is spread by mosquitoes. If the disease were ever to get into our indigenous equines (zebras), we would probably never be rid of the disease. Concerning horses, at one stage South Africa's horseracing industry was arguably worth more than was the gold mining industry to the economy, and the potential would be there for a so-called 'double whammy' – first have to pay to fix the disease; and then for some time after that be unable to trade. This shows the risk of economic disaster posed by the illegal activity of this particular environmental criminal – and therefore of other, similar criminals.

Another example concerned the illegal importation across Provincial boundaries of a lion into the Province of KwaZulu-Natal (the lion was imported internally from Polokwane in South Africa, from parents which had been legally imported from Zimbabwe). Lions are regular carriers of bovine tuberculosis, which is a zoonotic disease – meaning that it can travel from one animal to another, and from animals to humans and vice versa. It is a highly infectious airborne disease; and, if an infected animal drinks water, then that water can infect another animal 8–10 days later; or if an infected animal defecates, then its faeces can infect another animal for 10 days thereafter. If the disease finds its way into a herd of cattle the entire herd must be slaughtered by the Department of Agriculture. There are even some unexpected, but dire, consequences – such as that the owner is entitled to partial compensation for the lungs, but since some of rest of the animal can still be consumed the owner does not receive compensation for that part.[22] The cost of infection of otherwise healthy animals can be huge. In 2001, the province of KwaZulu-Natal suffered an outbreak of foot and mouth disease; which was believed to have come from pigswill from ships. The direct cost, to slaughter the infected animals, was nearly R6-million;[23] while further costs are immeasurable, with tuberculosis generally (in humans) costing South Africa about R250-million a year just for the treatment. When one considers also the loss of productivity, and lost employment, losses can run into billions of Rands as beef can then not be traded for two years. The ultimate point of this explanation being to show how much can be at stake from the illegal internal importation of just one lion, with or without exotic ancestry.

4 Methods for monitoring ports

Methods used to stifle the actions of environmental criminals range from the recruitment of informers, to whom informer fees are paid; and the use of undercover agents who might be introduced to the syndicate by informers; to the monitoring and interception of landline and cellular telephone calls. These hone calls can be monitored and intercepted with the authority of a specially designated High Court judge.[24]

[22] Animal Diseases Act 35 of 1984, as amended; and Regulations framed under the Act.
[23] One South African Rand equating to US$ 0.120482 as at 25 May 2009.
[24] In terms of the Regulation of Interception of Communications and Provision of Communication-related Information Act 70 of 2002.

Ultimately, methods range from the highly technological; to the use of sniffer dogs – for instance, dogs have been trained to sniff out edible (and potentially endangered) crustaceans such as east and west coast rock lobster.

Use is also made of scanning through metal containers – which are then stopped and searched when customs officials suspect that something is not right. In the Cape, on occasion law enforcement officials use an unmanned spotter plane with video capacity to follow abalone[25] poachers, who operate on the surface with small boats. They are difficult to reach on the surface as the boats drop off men with wetsuits, who swim to alcoves while the boats are washed down with strong chemicals so that even if they are found transgressing samples/evidence cannot be produced from the boat. For a successful prosecution to result, the 'chain of custody' must remain unbroken – one cannot, for example, seize evidence and then leave it unattended on the back of vehicle for any period. One case was prosecuted unsuccessfully because of this technical glitch; after all the 'high-tech' use of equipment. As it was not possible to prove that the abalone analyzed by a scientist was the same abalone as the accused had been found in possession of, the chain had been broken.

These are examples of some examples of factors about which one must be extremely careful in prosecution. The point is that preparation needs to be extremely thorough.

5 Diplomacy and cooperation

It is both possible and important to use mutual legal assistance – in South Africa there is a formal process which can be engaged in with most other countries, through diplomatic channels, whereby one can obtain assistance from the services of law enforcement agencies in other countries. As an example of how necessary this is, it can be pointed out that in South Africa every police official is also a Commissioner of Oaths and so entitled to certify to the validity of certain documents, or to attest to the validity of an affidavit signed before him or her – a status which disappears when that official is in another country. For an official to conduct investigations in another country would potentially be a breach of the sovereignty of that second country. Those statements which could normally be taken by a commissioner of oaths would therefore need to be taken by officials from the second country.

Unfortunately, however, international cooperation is not always possible; or reliable. As one example, in a matter with which the author dealt, in May 2006 a fishing vessel from Mozambique – the *Twanano* – was arrested in a Marine Protected Area (MPA)[26] near Kosi Bay, off the north of KwaZulu-Natal's coastline. Some MPAs even

[25] An endangered shellfish.
[26] In terms of s 43 of the Marine Living Resources Act, *supra*, note 3.

have specially protected areas within them (sanctuaries), which this MPA did, and this vessel was fishing even within that area. In the area in which the vessel was found, it is forbidden even to take photographs without a permit – but the *Twanano* crew had put out an anchor and were smashing corals. The vessel was apprehended by MCM/DEAT, using a highly specialized coastal protection vessel (the *Sarah Baartman*, which has the ability to launch smaller boats at speed and is equipped with a helicopter).[27] The owner and 15 crew members were arrested. The Mozambican government then intervened, as it was worried about the possibility of the crew languishing in prison, abandoned by the owner, and made various undertakings to provide transport. The captain was required to pay R100 000 bail; but only R500 was required for each crew member – and that was the last that was seen of the crew. The captain returned for trial, as his boat was in South Africa, but the Mozambican government did not live up to its promise to ensure the return of the crew members.

6 Conclusion: the relevance for international environmental law-making and diplomacy

It is important to recognize that the difficulties faced by people working 'on the ground' need to be understood by international law-makers and negotiators; and need to be kept in mind both when international diplomacy is called for, and when multilateral environmental agreements are drafted. International environmental problems are complicated by nature; and efforts to combat them will probably never be successful without the full integration of local, national and international expertise.

[27] See, for instance, 'Sarah Baartman hauls in suspected poachers', *The South African Navy & Marine and Coastal Management – Unofficial Site*, 19 May 2006, available at <http://navy.org.za/articles/tag/twanano.html> (visited 25 May 2009); and 'Sarah Baartman and Sister Vessels Strike Again as Vessels Arrested and Poaching Prevented', DEAT, 18 May 2006, available at <http://www.deat.gov.za/NewsMedia/MedStat/2006May19/18052006.html> (visited 25 May 2009).

Part V

Interactive Exercises

Negotiating Procedures: A Multilateral Simulation Exercise Based on the Compliance Procedure under the 1996 Protocol to the London Convention on the Prevention of Marine Pollution[1]

Cam Carruthers[2] and Marko Berglund[3]

1 Overview

This paper sets out the elements and structure of a simulation exercise for the Fifth University of Joensuu – UNEP Course on International Environmental Law-making and Diplomacy. The exercise scenario focused on negotiating the outstanding issues of language of work and conflict of interest. The scenario placed the participants at the first meeting of the Compliance Group under the Compliance Procedures and Mechanisms pursuant to Article 11 of the 1996 Protocol to the London Convention

[1] The materials for this simulation exercise are for educational purposes only and are entirely hypothetical. They may not be used, reproduced, revised or translated in whole or in part, by any means, without written permission of the authors. They are not intended to represent any official policy, positions or views of any state, organization, legal entity or individual. Any views expressed in these materials are solely those of the authors.

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on the Prevention of Marine Pollution by Dumping of Wastes and other Matter (as amended in 2006).[4]

1.1 Importance of procedures and rules of procedure

Procedures and/or rules of procedure (rules) are set up to govern activities of decision-making bodies under multilateral environmental agreements (MEAs). They generally regulate subjects such as officers, conduct of business, decision-making, agendas, secretariat functions, languages and amendments to the rules. Among other things, the rules reflect fundamental principles of transparency and procedural fairness, the latter of which is based largely on the principle of equality of sovereign states. Another principle reflected in the rules is that, in international law, authority is ultimately derived from states. While the fundamental principles are common, each set of rules is adapted to its specific context. A good knowledge of the rules of procedure of the forum in which a negotiator works is invaluable. Knowing the rules means knowing what one can do to advance or protect one's position, and how to do it.[5]

All too often negotiators in multilateral environmental fora have only a limited awareness of the rules that define the arena in which they operate. The rules and related issues may seem either mundane or arcane, and only incidental to the more compelling questions of substance. Negotiators are often more concerned with strategy or technical priorities. Some may not even be aware of the influence of the rules on the process, which can be subtle. Even when no reference is made to the rules they have a profound influence on outcomes. A key example is decision-making: votes are generally avoided, but whether and how consensus is obtained on a given issue may depend to some degree on the understanding of how Parties would vote if they did vote. Negotiators who fail to understand the underlying dynamics on such issues can make serious strategic errors.

Indeed, ignorance of the rules can lead to major failures and frustrations with the process, especially since problems may be discovered only after key decisions have been taken. It is difficult, if not practically impossible, to undo multilateral process decisions once these have been taken. It is, therefore, important to consider strategic issues about decision-making processes and relevant rules at an early stage of any multilateral endeavour. Once a process is under way, it may result in a proliferation of sub-processes based on a set of interrelated decisions. While these processes are susceptible to congestion and inertia, it is also possible that they can move toward

[4] Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, London, 17 November 1996, in force 24 March 2006, 36 *International Legal Materials* (2006) 1.

[5] For an analysis of the importance of the rules of procedure in the UNFCCC context, see Joanna Depledge, *The Organization of Global Negotiations: Constructing the Climate Change Regime* (EarthScan, 2005) particularly at 80–102.

an unexpected direction or conclusion very quickly, with major outcomes in the balance.

The presented simulation was designed to open up the procedural issues so that participants could strengthen their knowledge and understanding of the procedures and rules as tools for more effective and efficient negotiation of individual and common objectives. The idea is for participants to negotiate conceptual ownership of procedures while they negotiate practical textual solutions. The premise is that the procedures and rules constitute a code which reflects the values and interests of Parties; and which informs the way negotiators work together to take decisions. The rules frame what happens, who can make it happen, and when, where and how. The higher the level of common understanding and agreement of the rules in any given body, the more efficiently and effectively that body can operate and attain common objectives.

1.2 Simulation objectives

This simulation exercise focused on the negotiation of procedures for a multilateral environmental body: the Compliance Group of the Protocol to the London Convention. The general objectives were to promote among participants:

1) understanding of the principles and practices of multilateral negotiation and appreciation of the value of rules of procedure;
2) familiarity with specific substantive and drafting issues related to rules of procedure; and
3) discussion and appreciation of different perspectives on the issues and principles involved in the rules of procedure.

Within the exercise, the objective of the Compliance Group was to produce agreement on the outstanding issues of language of work and conflict of interest under the Procedures and Mechanisms on compliance. The exercise was not intended to focus on the particulars of either the London Convention[6] or the Protocol to the Convention.

1.3 Scenario

The scenario was set at the first meeting of the Compliance Group of the London Protocol. The last meeting of the Ad Hoc Working Group on Reporting and Compliance had developed procedures that were subsequently approved by the 29th Meeting of the Contracting Parties in London in late 2007. The scenario drew on, but modified slightly, the text on Compliance Procedures and Mechanisms.

[6] Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, London, 13 November 1972, in force 30 August 1975, 11 *International Legal Materials* (1972) 1294, <http://www.londonconvention.org/>.

The Compliance Procedures and Mechanisms (as adopted) and the Rules of procedure of the Protocol were applied mutatis mutandis to the work of the Compliance Group. The Compliance Group had before it for consideration outstanding issues of language of work and conflict of interest under the Procedures and Mechanisms (see below). It was suggested that the Chairman of the Group divide the Compliance Group into four drafting groups, each with a facilitator and a rapporteur. Each group was asked to address one set of specific issues:

- Group A: Working language of the group (paragraphs 3.10–3.13 of the Procedures and Mechanisms);
- Group B: Conflict of interest (oath – paragraph 3.14);
- Group C: Conflict of interest (declaration of interests – paragraphs 3.15 and 3.16); and
- Group D: Conflict of interest (removal of members – paragraphs 3.17 and 3.18)

Participants were provided with a list of countries or institutions (non-governmental organizations, NGOs, or intergovernmental organizations, IGOs) which they were asked to represent. Certain participants were also given specific roles, including those of Chairman, Vice-Chairman, Compliance Group member, NGO, IGO and secretariat. The Chairs' negotiating text was included in the simulation materials. Participants were also given individual instructions.

1.4 Introduction to the exercise

Participants were encouraged to play their part in the overall scenario for the simulation, following general and individual instructions. It was also suggested that they develop alliances and coordinated strategies to intervene in support of others, or to take the lead on certain issues. Some participants, including the Chairman and Vice-Chairman and the secretariat officials, were also encouraged to play a coordinating and resource role and work for a positive outcome.

Participants were asked to keep in mind their interests and positions with respect to all four issues, but to focus on the issue assigned to their drafting group. The groups were to narrow their focus as quickly as possible to identify issues to be addressed, and to dispose of issues quickly where possible. Participants were to work hard to obtain their objectives, keeping in mind the applicable decision-making rules, and the possible consequences of being identified as the cause of failure to reach agreement by the Meeting of the Contracting Parties.

Participants were encouraged to follow their instructions and to elaborate interventions with a compelling rationale to advance their positions; but also to take the initiative and to be inventive and intervene in drafting groups and in plenary, even if they had no specific instructions on a particular issue. Participants were also asked

to think about issues for discussion in the 'post-mortem' discussion following the exercise.

The simulation was designed to focus on the negotiation process more than on the substantive issues; and was designed to be difficult, with failure to reach agreement being a real possibility. Finally, the scenario was entirely hypothetical, and not intended to reflect specific positions of particular Parties or the views of individuals.

Individual delegates often face situations similar to the simulation exercise, where they have a limited opportunity to prepare, but should still define objectives and develop a strategy. Among other things, it was highlighted that the agenda can be a key tool to structure a meeting in a certain way to obtain certain results.

It was suggested to participants that:

- Informal diplomacy is where most progress toward agreement on concepts is made, while drafting group and plenary discussion is often required for agreement on specific text.
- Drafting often involves a fine balance between accommodation and clarity.
- Decision-making in plenary may be pro-forma, but there can be surprises.
- Decisions in the plenary are critical and can sometimes move very quickly, at times moving back and forth on the agenda, so that being prepared with an effective intervention at any moment is essential.

It was emphasized that the Chairman and Vice-Chairman, drafting group facilitators and the secretariat play important roles; in setting up and managing the process – and managing time – to produce agreement. They were encouraged to consult whenever they felt it was appropriate. The key to success is often found in thoughtful organization of the work of the groups, including strategic management of how smaller drafting groups and the plenary sessions function and are linked.

2 Instructions

2.1 General instructions

The following general instructions were provided to all participants:

- At a minimum, please review the general and individual instructions, the backgrounder and the draft rules of procedure.[7]

[7] See also Cam Carruthers (ed.), *Multilateral Environmental Agreement Negotiator's Handbook,* University of Joensuu – UNEP Course Series 5 (2nd ed. 2007, University of Joensuu) at 3-56/7; in particular, sections 3.1, 3.2, 3.3, 3.6, 2.4, 4.3 and 5.

- Please do your best to achieve the objectives in your instructions. Develop a strategy and an integrated rationale to support your positions. Do not share your individual instructions with other participants. Do not concede to a fall-back position without a serious effort to achieve your primary objective. It is a good idea to consult with others before the session and to identify and coordinate with those who have similar instructions. You should try to support anyone with a similar position who is out-numbered. At any time, you may receive supplementary instructions.
- You have been assigned a role with specific instructions as the representative of a government, IGO or NGO. You are to participate under your own name but in the role and nationality of another participant, with whom you have been 'twinned'. You should consult that person and draw on their perspectives and experience as much as possible – and with respect.
- Please use only the materials provided, as well as advice and information from other participants, and don't be distracted by internet resources or use any precedent found there or anywhere but in the simulation materials (even though this is often a good idea in real life!).
- The Compliance Group will work in plenary to organize itself and decide what to recommend to the Contracting Parties. It will break into drafting groups to work on text. The first task of the Group is to elect a Chairman and a Vice-Chairman. The usual MEA practice is that one is from a developing country and one is from a developed country. For this exercise, selection should be based on informal consultations, and decided by consensus, or a vote by show of hands if needed.
- In the plenary, the Chairman and Vice-Chairman sit at the head of the room, with the secretariat officials. Participants will be provided with a 'flag': a country or organization nameplate (to use, fold it twice, so the name is in the mid panel). If you are in the role of a government participant, select the flag of the country of origin of your 'twin'. If it has been taken, select the flag of a country from the same region or negotiating group (if known). To speak, please raise your 'flag' and signal the secretariat official who keeps a speakers list.
- When the plenary breaks into drafting groups, please join the group identified in your individual instructions. The group will operate much like an informal drafting group (see the MEA Negotiator's Handbook).
- Drafting groups should be run on an informal basis, with reference to participants by name, not country. As in the plenary, the first task is elections, but in this case for both a facilitator and a rapporteur. The rapporteur records textual proposals (see the *MEA Negotiator's Handbook*, on drafting, especially on the use of brackets).
- Please follow the rules of procedure of the Protocol, mutatis mutandis. Note the rules related to language, and provisions of the procedures on characteristics of the Compliance Group voting and conduct of business. IGOs and NGOs are to be treated as observers (who can provide input through members).

2.2 Individual instructions

The key to the simulation was set out in confidential individual instructions. They were one page each in length and provided very brief positions and fall-back positions on each of the four issues under discussion; but provided no rationale or strategy (as these were to be developed by each participant). It was noted that in some cases the instructions may have seemed contradictory – this happens in real life, and is interesting to watch! Instructions were provided in a simplified form rather than that of official delegation instructions. In some cases, individual instructions stipulated that a position could not be abandoned for a fall-back without consulting a designated senior official in the state's capital. Participants were referred to the *MEA Negotiators' Handbook* for further guidance in dealing with procedural and strategic issues.

2.3 Roles and twinning

Participants were cast in the roles of a government, IGO or NGO delegate. Participants representing Parties had the opportunity of being elected to the role of Chairman or Vice-Chairman of the Compliance Group or as facilitator of a drafting group. Two participants were asked to play the role of an official of the secretariat. With the exception of the plenary Chairman and Vice-Chairman and the secretariat officials, all participants were assigned to one of the four drafting groups. Government, NGO and IGO delegates were all bound to follow their instructions and represent their constituencies according to their own internal rules. IGO and NGO participants had the status of observers only (though observers could make suggestions through Compliance Group Members).

Participants had specific instructions representing a particular government, IGO or NGO with consultative status or the IMO secretariat. State representatives were considered as elected to the Compliance Group and participated as Members. NGOs with consultative status were to provide information or expert advice. Secretariat officials were to support the group.

Participants also played a personal role based on the background and experience of a co-participant with whom they were 'twinned'. Participants were encouraged to consult their 'twin', in order to draw on each other's actual perspectives to develop the rationale of their interventions and put their negotiation instructions in the context of the government they represented. Twinning was also intended to promote general understanding of how different perspectives may affect approaches to substantive issues and to the negotiation process – and to add some dramatic interest to the scenario.

Participants were encouraged to draw on a cultural reference, local saying or an anecdote from their twin to illustrate a point related to the substance or process of the Compliance Group discussion, as negotiators often do. Participants were asked to be

respectful of each other's views and background. Each participant was twinned with another whose background or experience was different. For example, as many developing country participants as possible took on a developed country role and perspective; and those with government experience had the opportunity to play the role of an NGO or IGO representative, or vice-versa. Instruction sets and roles were adjusted for regional, gender and sectoral balance but otherwise assigned randomly. The simulation facilitators (Cam Carruthers and Marko Berglund) acted in limited roles as Deputy Secretary-General; and/or a specific senior government official in a state's capital as needed.

3 Informal documents provided

3.1 Backgrounder: the 1972 London Convention and its 1996 Protocol

The Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972, the London Convention for short, was one of the first global conventions to protect the marine environment from human activities and has been in force since 1975. Its objective is to promote the effective control of all sources of marine pollution and to take all practicable steps to prevent pollution of the sea by dumping of wastes and other matter. Currently, 85 states are Contracting Parties to this Convention.[8]

In 1991, Parties agreed to apply the 'precautionary approach in environmental protection' within the framework of the London Convention.[9] In 1990, Parties to the London Convention decided to phase-out sea disposal of industrial waste, with effect from 1 January 1996.[10] In 1992, Agenda 21[11] encouraged Parties to complete this new orientation. The year after this, Parties began a detailed review of the London Convention. As a first step, a few crucial amendments to Annexes I and II to the London Convention were adopted. These amendments consolidated in a legally binding manner the prohibition on dumping all radioactive wastes or other radioactive matter and industrial wastes (the latter as per 1 January 1996); as well as the prohibition of incineration at sea of industrial wastes and sewage sludge.[12]

The London Dumping Convention was adopted in 1996 to modernize the Convention and, eventually, to replace it Under the Protocol all dumping is prohibited,

[8] See 30th Consultative Meeting of Contracting Parties to the London Convention, 'Status of the London Convention and Protocol', Report of the Secretary-General on the status of the London Convention 1972, Doc. LC 30/2 (2008).

[9] 'The application of a precautionary approach in environmental protection within the framework of the London Dumping Convention', Resolution LDC.44(14).

[10] 'Phasing out sea disposal of industrial waste', Resolution LDC.43(13).

[11] The 'global blueprint' for sustainable development; which was adopted at the United Nations Conference on Environment and Development (UNCED), Rio de Janeiro, 1992.

[12] See Resolutions LC.49(16); LC.50/16); and LC.51(16).

except for possibly acceptable wastes on the so-called 'reverse list'. The Protocol entered into force on 24 March 2006 and there are currently 36 Contracting Parties to the Protocol.[13] The IMO has 167 Member States, three Associate Members, 68 NGOs with consultative status[14] and 42 IGOs which have concluded Agreements of Co-operation.[15]

Implementation of the 1972 London Convention and the 1996 Protocol is interlinked with finding solutions for land-based sources of marine pollution and proper waste management in general. Nowadays, when a regulatory authority is confronted with a waste problem, seeking an overall net benefit involving all environmental compartments is preferred over a sectoral approach. With regard to an industrial activity, the industry concerned will in many cases benefit from this approach through reduced use of raw materials leading to lower costs, or even through the marketing of the technologies or processes it developed to solve an environmental problem.

Under Article 11 of the Protocol, the Meeting of the Contracting Parties was to establish Procedures and Mechanisms on Compliance within two years of the entry into force of the Protocol; or before 28 March 2008. This meant that they had to be adopted at the 29th Meeting of the Contracting Parties in November 2007. Based on the work of the Ad hoc Working Group on Reporting and Compliance, which first met in 2003, the Procedures and Mechanisms were adopted at the second meeting of the Contracting Parties to the Protocol.

3.2 Informal note by the secretariat: conflict of interest

A broad definition of a conflict of interest is where a person is in a position of trust that requires him or her to exercise judgement on behalf of another person or institution; but also has an interest or obligation that might interfere, or appear to interfere, with the exercise of judgement with respect to that position of trust.[16]

Dictionary definitions often use the term in connection with public officials and their relationship to matters of private interest or gain to them.[17] In some contexts, a conflict of interest is defined solely with respect to a financial benefit. These definitions do not cover a situation where a public official may have a professional, political or private interest that is not financial. It is, therefore, useful to distinguish between a private interest competing with a public interest, and a public interest clashing with

[13] See '1996 Protocol to the London Convention 1972, Overview of Contracting Parties (Status: 31 October 2008)', available at <http://www.imo.org/includes/blastData.asp?doc_id=7541&type=body> (visited 1 March 2009).

[14] See 'Non-Governmental Organizations which have been granted Consultative Status with IMO', available at <http://www.imo.org/home.asp?topic_id=315&doc_id=851> (visited 1 March 2009).

[15] See 'Inter-Governmental Organizations which have concluded Agreements of Cooperation with IMO', available at <http://www.imo.org/home.asp?topic_id=315&doc_id=846> (visited 1 March 2009).

[16] Based on the definition of the Online Ethics Center at Case Western reserve University (2006), available at <http://www.onlineethics.org> (visited 22 May 2006).

[17] *Black's Law Dictionary* (6th ed, 1991, West Group).

another, distinct, public interest. Another useful distinction is between pecuniary and non-pecuniary interests.

A pecuniary interest which clashes with a public interest or duty is the most discussed form of conflict of interest. A pecuniary interest is of a monetary nature, such as owning shares in a company. Non-pecuniary interests often involve relationships, such as interests related to family, or a member of an international decision making body being a citizen of the country appearing before that body.

4 Official text and precedent

4.1 Compliance procedures

Below is an extract from the London Protocol Procedures and Mechanisms on Compliance used for the negotiation part of the exercise. It is based on the actual text, with modifications to support simulation objectives and issues.

> 3 CHARACTERISTICS AND OPERATIONS OF THE COMPLIANCE GROUP
>
> 3.1 The Compliance Group shall be limited in size to [30] members.
> 3.2 The Compliance Group shall be composed of individuals selected on the basis of their scientific, technical or legal expertise.
> 3.3 Members shall be nominated by Contracting Parties, based on equitable and balanced geographic representation of the five Regional Groups of the UN, and elected by the Meeting of Contracting Parties.
> 3.4 The Compliance Group shall elect its own Chairman and Vice-Chairman.
> 3.5 The Compliance Group shall meet as necessary at least once a year and when specifically requested to do so by the Meeting of Contracting Parties. In determining the dates of the meetings, due consideration should be given to the meeting schedules of the Meeting of Contracting Parties and other relevant bodies under the Protocol.
> 3.6 Any party or any non-party observer may attend meetings of the Compliance Group, except that when individual situations of compliance are under consideration by the Compliance Group, the meeting shall be closed if the party whose compliance is in question so requests.
> 3.7 The members of the Compliance Group shall make every effort to reach agreement on all matters by consensus. If all efforts to reach consensus have been exhausted and no agreement has been reached, the Compliance Group shall act, as a last resort, by a three-quarters majority vote of the members present and voting. Where consensus cannot be reached, the report shall reflect the views of all members of the Compliance Group.

3.8 Two-thirds of the members of the Compliance Group shall constitute a quorum.

3.9 In carrying out its functions, the Compliance Group may seek, or receive, and consider relevant information from any source it considers being reliable.

[3.10 Without prejudice to [the rules of procedure of the Protocol], the working language of the Compliance Group shall be English.]

[3.11 A representative of any contracting party taking part in the proceedings may speak in a language other than the working language of the Compliance Group if the party provides for interpretation into English.]

[3.12. Recommendations of the Compliance Group that are final shall be made available in all official languages of the IMO, taking into account the provisions of [TBD].]

[3.13 Members shall serve objectively and in the interest of promoting compliance with the Protocol.]

[3.13 bis. Each member shall serve in his or her individual capacity and, with respect to any matter that is under consideration by the Group, act in an independent and impartial manner, without regard for national interest or instructions or any attempt at influence from any government, and avoid real or apparent conflicts of interest.]

[3.14 Each member shall take and agree to respect a written oath of service before assuming his or her service. The oath of service shall read as follows:]

['I solemnly declare that I will perform my duties and exercise my authority as member of the Compliance Group honourably, faithfully, impartially and conscientiously.']

['I further solemnly declare that, subject to my responsibilities within the Compliance Group, I shall not disclose, even after the termination of my functions, any confidential information coming to my knowledge by reason of my duties in the Compliance Group.']

['I shall disclose immediately to the Secretary-General any interest in any matter on the agenda of the Compliance Group which may constitute a conflict of interest or which might be incompatible with the requirements of independence and impartiality expected of a member of the Group and I shall refrain from participating in the work of the Group in relation to such matter.']

[3.15 Where the Secretary-General receives any disclosure made in accordance with paragraph 3.14, he or she shall forthwith notify the Chairman. The Chairman shall inform the Compliance Group that the member will refrain from participating in the work of the Group in relation to the matter that is the subject of the disclosure.]

[3.16 Where the Secretary-General receives evidence from a contracting party on circumstances which may indicate a conflict of interest or which might be incompatible with the requirements of independence and impartiality expected of a member of the Compliance Group, he or she shall forthwith

notify the Chairman as well as the member concerned. The evidence shall be submitted to the group for its consideration, unless the member informs the Chairman that he or she will refrain from participating in the work of the Group in relation to the matter to which the evidence relates. The Chairman shall inform the group that the member will refrain from participating in the work of the Group in relation to the matter that is the subject of the disclosure. Otherwise, the Group may decide to excuse the member from consideration of one or more submissions and from the elaboration and adoption of a recommendation to the Meeting of the Contracting Parties, after having provided a reasonable opportunity for the member to be heard.]

[3.17 If the Compliance Group considers that a material violation of the requirements of independence and impartiality expected of a member of the Group has occurred, it may decide to suspend the membership of any member concerned or recommend to the Meeting of the Contracting Parties serving as the meeting of the Parties to revoke the membership of any member concerned, after having provided a reasonable opportunity for the member to be heard.]

[3.18 All decisions of the Compliance Group taken under paragraph 3.17 of these rules shall be noted in the annual report of the Group to the Meeting of the Contracting Parties, [including the name of the relevant member of the Group.]

4.2 Precedent

Some relevant precedents from the World Trade Organization[18] and the Executive Board of the Clean Development Mechanism of the Kyoto Protocol[19] were provided to participants. The relevant text from the Rules of Procedure of the Compliance Committee of the Kyoto Protocol[20] was used as the basis of the proposal before the Group. The texts of the International Criminal Court Rules of Procedure and Evidence[21] and the International Court of Justice Rules of Court (ROC),[22] Part I, Section A, Article 4, were also referred to.

[18] See <http://www.wto.org>.

[19] Kyoto Protocol to the United Nations Framework Convention on Climate Change, Kyoto, 11 December 1997, in force 16 February 2005, 37 *International Legal Materials* (1998) 22.

[20] See 'Compliance Committee', decision 4/CMP.2 (2007), Annex.

[21] Doc. ICC-ASP/1/3 (Part.II-A) (2002), available at <http://www.icc-cpi.int/NR/rdonlyres/F1E0AC1C-A3F3-4A3C-B9A7-B3E8B115E886/140164/Rules_of_procedure_and_Evidence_English.pdf> (visited 1 March 2009).

[22] From 1978, available at <http://www.icj-cij.org/documents/index.php?p1=4&p2=3&p3=0> (visited 1 March 2009).

5 Evaluation

5.1 Evaluation questionnaire

After the simulation exercise, participants were asked to respond to the evaluation questions below, and to return completed questionnaires to the organizers following the evaluation session on the last day of the course.

1) What is your nationality or UN regional group (see the MEA Handbook for Negotiators' for UN regional group country listing)?
2) What is your profession/education?
3) What is your current position/occupation?
4) Please briefly indicate what experience you have had in an MEA negotiation(s), if any:
5) Please indicate on a scale of 1-10 the level of your knowledge on issues related to rules of procedure for MEAs before this exercise (1 being very little, 10 being complete understanding):
6) Please indicate on a scale of 1-10 the level of your knowledge on issues related to rules of procedure for MEAs after this exercise (1 being very little, 10 being complete understanding):
7) What role (number) did you play in this simulation?
8) Do you have any comments or suggestions on the instructions for the role?
9) Did you have the opportunity to read the materials before the exercise?
10) Do you have any comments or suggestions on the materials?
11) Do you have any comments or suggestions on the facilitation of the exercise?
12) Do you have any other comments or suggestions on the simulation or the *MEA Negotiator's Handbook*?

5.2 Review of the exercise

The following is a brief summary of the proceedings and analysis based on observations made by the facilitators during the simulation; as well as on the 'post-mortem' discussion conducted immediately following the simulation. Feedback was provided by the participants in the form of written evaluations and verbally after the exercise. There were 33 official participants not including the facilitators and other resource people who engaged in the simulation. Key issues raised included:

- the level of detail and internal coherence of the instructions;
- perspectives and issues of different types of roles (government, IGO and NGO representatives), as well as chairing; and
- the 'twinning' of roles.

Participants overcame many of the numerous challenges in the scenario and were able to reach agreement on a full agreed text. This is the third time that a simulation

exercise based on the same basic model of negotiation techniques has been run on the annual University of Joensuu/UNEP Course, and was the first time when full agreement was reached. This result was achieved largely based on the creativity of participants, though it was also related to the fact that facilitators controlled final instructions 'from capitals'. Each working group was able to come up with a revised text to present to the plenary, and, eventually, to secure consensus in the plenary.

This result was considered a success by the facilitators and by all of the participants who provided feedback. Indeed, it should be emphasized that the simulation was explicitly designed to produce a situation where agreement was very difficult; where participants would be confronted with results that would be untenable within the terms of their instructions; and where they would be forced to grapple with the constraints of the rules of procedure, as well as the frustrations of being unable to reach agreement. The underlying objective was to highlight the importance of knowing the rules of procedure in the very rare instances where participants could be involved in actual negotiations with such serious difficulties. It should be noted that this kind of situation does not reflect the reality for most negotiators in most MEA fora, most of the time.

However, it is relatively common for a few Parties to have serious difficulties at some point in any MEA meeting, often having to consider the possibility of blocking consensus. In these situations, the importance of the rules of procedure increases, as Parties may seek procedural solutions. The assumption behind this objective is that many negotiators are ill-prepared to deal with such challenges. It should be noted that some instructions, and the roles of some groups were somewhat exaggerated in order to give these participants stronger roles, and to contribute to the inter-locking sets of challenges confronting participants.

Most of the challenges facing participants were based on actual experience, all were based on real issues, and only a few of the instructions were somewhat unrealistic. One of the main concerns raised by participants was the lack of detailed explanations for positions, some of which were apparently contradictory. Apparent internal contradictions appear to be relatively common in MEA fora, and were purposefully included in the simulation. There may be room to improve the way these contradictions are organized and presented in future exercises.

In response to feedback from a previous simulation exercise, participants were not given detailed substantive background to their instructions, nor were they provided detailed rationale for the linkage – or lack of linkage – between their positions. Instead, participants were encouraged to develop their own rationales. Feedback indicated that participants were generally pleased to have flexibility and room for creativity; although some, particularly those representing IGOs, indicated that they would have preferred to have some more detail on both the substance and the strategic

context of their roles. In future exercises, it may be useful to seek a balance with relatively more detail.

Specific comments were received that highlighted the importance of being confronted with a demanding and frustrating situation. Such situations helped participants recognize the importance of abstract-sounding rules and they appreciated being pushed. While the objective of the simulation was not to explore the IMO per se, some participants also indicated an interest in having more substantive background information.

Participants agreed overwhelmingly that the twinning of roles and the mutual mentoring between roles was a particularly useful way of exploring and learning about different perspectives; and of initiating further discussion on issues, on regional and country-specific views, and of having the social consequence of enabling participants to get to know fellow participants. In this simulation, it was clear that those in Chairing roles were working hard on both substantive and procedural issues, so that keeping track of the real and simulation names of all participants became a concern.

Based on comments from previous simulations, the Chairman and Vice-Chairman in this simulation were given greater flexibility to design the process and respond to developments in the simulation. This was particularly challenging, and increased the intensity of the simulation. However, the Chairs were well supported by the participants in secretariat roles; and effectively used their time between sessions and during sessions to consult with each other. To add an extra dimension to the simulation, the Chairs were confronted with a particularly challenging situation involving an allegation of improper conduct,[23] which affected their own ability to manage the process and to work together. Ultimately, they dealt with the situation effectively. The Chairs of the Working Groups likewise faced different challenges which they also dealt with effectively.

The simulation materials were introduced one day before the exercise, and the simulation continued for one full day. Many participants indicated that they would have benefited from more preparation time, and from more time for the exercise itself. Some suggested that a two-day or one-and-a-half-day format would be preferable. A few suggested that more time be allotted for debriefing and 'post-mortem' discussion. An introductory presentation on rules of procedure, and terminology would have been appreciated. Some materials could have been provided prior to the course. Lack of time appears to have become a chronic challenge for such negotiation exercises, given the number of substantive and procedural issues involved.

[23] One of the co-Chairs was implicated in a conflict of interest situation based on information supplied by an NGO. This situation required the co-Chairs to address additional substantive and procedural questions related to their own functions, while continuing to manage the negotiation process.

Given more time, participants could be encouraged to use the rules of procedure to make more effective interventions, to set up procedural hurdles, and to raise points of order to question the Chairs on process. While some participants did so engage from their own initiative, based on instructions or suggestions from facilitators, there is the potential further to explore these aspects of rules of procedure.

Participants strongly agreed that the simulation exercise achieved its objectives with respect to promoting engagement and familiarity with the principles of multilateral negotiation and related issues within the context of negotiation on rules of procedure; putting the rules and principles into practice in a simulation context. Above all, participants strongly agreed that the exercise met its objectives with respect to promoting discussion of the issues from different perspectives. Many participants ultimately suggested that the exercise was one of the most useful components of the agenda of the Fifth University of Joensuu – UNEP Course on International Environmental Law-making and Diplomacy.

Negotiating an Impasse: A Multilateral Simulation Exercise Based on the International Whaling Commission

Ed Couzens[1]

1 Introduction

This paper presents a multilateral simulation exercise intended to replicate the experience of negotiating fine points of textual interpretation, in a fairly hostile atmosphere. The forum chosen was the International Whaling Commission (IWC); a body which is arguably dysfunctional, given the impasses over both substantive and procedural issues which have bedevilled it for decades.

2 Instructions and materials

Each participant was assigned to represent a country (a Contracting Government to the International Convention for the Regulation of Whaling (ICRW)[2]). Where possible, each participant was assigned to a country with a view opposed to that of the country which the participant normally represents. Each participant was then given an Opening Statement (OS). This was, in each case, a genuine, and recent, OS which had been submitted in writing to an IWC Meeting.[3] The idea was that using genuine Statements would give a feel of authenticity to the exercise. Each OS represented the

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[2] International Convention for the Regulation of Whaling, Washington D.C., 2 December 1946, in force 10 November 1948, 161 *United Nations Treaty Series* 72.

[3] The author had collected many of these while doing archival research at the headquarters of the International Whaling Commission in Impington, Cambridge, UK. They are not available electronically.

core instruction from which the participant had to negotiate; and ought therefore not to have been deviated from significantly.

The initial instructions were given to the participants on Tuesday 8 July – the exercise itself took place on Thursday 10 July. Participants had the opportunity, using Internet resources, to inform themselves as to their allocated country's position in order to supplement their OS. In addition, it was suggested to the participants that they might make the effort to inform themselves as to other countries' positions; in order potentially to strengthen their negotiating positions. Participants were warned that if they did not fully inform themselves as to their own (allocated) countries' positions, then they might find themselves embarrassed by other participants knowing more about the first participant's (allocated) country.

Each participant was given a copy of the 1946 International Convention for the Regulation of Whaling; and also a copy of the Schedule[4] thereto. Each participant was instructed to be conversant with these texts by the time of the exercise. This was important, as the exercise was essentially an exercise on the interpretation of treaty provisions.

Both a Chair and a Vice-Chair were appointed. These corresponded to the current (at the time of the exercise) Chair and Vice-Chair of the IWC – i.e. the US as Chair; and Japan as Vice-Chair. It was thought advisable to select fairly experienced participants for these roles, as these parties had difficult positions – being both office-bearers and representing their countries. The choice of Chair/s needed also, however, to take account of those who had taken leadership roles in the first exercise in the previous week of the Sixth University of Joensuu/UNEP Course.[5]

Participants were encouraged to form alliances – some of which suggested themselves naturally.[6] Others arose which might not have been realistic had this been the real IWC. Participants ought to have recognized that they could get better results if united.

Each participant was also given a given a mock Proposal, and a mock Resolution, put forward by countries recognized as being in favour of renewed commercial whaling. The Proposal was to amend a provision of the Schedule.[7]

[4] The Schedule to the ICRW contains amendments which the Contracting Governments have made to the operation of the Convention. The ability so to amend operating procedures arguably gives the Convention an inherent degree of flexibility; however, a 75 percent majority is required to carry an amendment, if consensus is not reached.

[5] See Cam Carruthers and Marko Berglund, 'Negotiating Procedures: A Multilateral Simulation Exercise Based on the Compliance Procedure under the 1996 Protocol on the Prevention of Marine Pollution' in Part V of this *Review*.

[6] Certain Opening Statements were put forward as joint OS by groupings of countries.

[7] In total, each participant was given a copy of the ICRW text; a copy of the Schedule to the ICRW; an Opening Statement pertaining to his/her allocated country; a name plate for that country; a mock (draft) Proposal; and a mock (draft) Resolution. Participants were also each given a page indicating the normal

It is important to note that within the IWC there is a significant difference between a proposed Schedule amendment and a Resolution, in that a Schedule amendment can be passed only with a three-quarters majority while a Resolution can be passed by a simple majority. This meant that while it was unlikely that the Schedule amendment would be passed; there was a good chance, with appropriate alliance-building, that the Resolution would be passed.

The actual exercise, then, was for the participants to deal with both the mock Proposal, and the mock Resolution – and for them to choose to take one or both off the table; to drive one or both to a vote; to adopt one or both by consensus; or to amend either and to choose one of the above options in respect of the amended version. Given that there were 31 participants, four were allocated arguably 'middle-of-the-road' Contracting Governments;[8] leaving the balance roughly 13 for and 14 against whaling. The intention was that it would be uncertain what result would follow should there be a vote on any issue.

The central issue chosen was deliberately stark, so as to keep the exercise simple and within the time available there for. However, there were deliberate clues[9] provided within the documents given to enable participants to raise other issues if they wished to.

3 The Proposal

Paragraph 10(e) of the Schedule to the ICRW reads as follows:

> **Classification of Stocks**
>
> **10.** All stocks of whales shall be classified in one of three categories according to the advice of the Scientific Committee as follows:
>
> (e) Notwithstanding the other provisions of paragraph 10, catch limits for the killing for commercial purposes of whales from all stocks for the 1986 coastal and the 1985/86 pelagic seasons and thereafter shall be zero. This provision will be kept under review, based upon the best scientific advice, and by 1990 at the latest the Commission will undertake a comprehensive assessment of the effects of this decision on whale stocks and consider modification of this provision and the establishment of other catch limits.[10]

voting patterns of each country, which was intended to assist them in forming alliances – given the short time frame available for the exercise. Finally, each participant was given several blank voting sheets – these being adapted from genuine IWC voting sheets.

8 Denmark; Rep. of Korea; the Russian Federation; and the United States.

9 Such as mentions of the Precautionary Approach; whale numbers; or the sanctuary issue.

10 It is this paragraph which has had the effect of preventing commercial whaling from being renewed since 1986; and which has caused the most controversy within the IWC since that date.

The mock Proposal to amend paragraph 10(e) of the Schedule, as put forward by Japan, read as follows:

> PROP/IWC/SM7/1
>
> **Japan proposes as follows:**
>
> **This proposal is co-sponsored by Norway.**
>
> **That paragraph 10(e) of the Schedule to the International Convention for the Regulation of Whaling be amended to read as follows:**
>
> Notwithstanding the other provisions of paragraph 10, catch limits for the killing for commercial purposes of whales from all stocks *with the exception of the Antarctic/Southern Ocean stock of minke whales* for the 1986 coastal and the 1985/86 pelagic seasons and thereafter shall be zero. *The commercial taking of minke whales from the aforementioned stock shall be permitted for a trial period of three seasons commencing with the 2008/09 season; and shall be limited to the number of 1 000 specimens landed per season. This number of 1 000 shall be the maximum take permissible by all ICRW members combined, the take to cease as soon as the figure is reached; and there will be no carryover of specimens permitted between seasons. The proposed three-season trial period will then be followed by a two-season period with no commercial whaling; during which period the Commission, advised by the Scientific Committee, will investigate the impacts on overall stocks of the three-season take and shall undertake a comprehensive assessment, based upon the best scientific advice, of the effects on whale stocks (and on the Antarctic/Southern Ocean ecosystem generally) of the three-season trial period. The three-season take of minke whales shall not derogate from the rights of any Contracting Governments where such Governments hold reservations over specific stocks, either of minke whales or of other species.*

The text in italics contains the proposed amendments.

4 The Resolution

Antigua and Barbuda proposes a Resolution:

> **RES/IWC/SM7/1**
>
> **Antigua & Barbuda, Dominica, Grenada, St Lucia, and Suriname propose as follows:**
>
> That the Contracting Governments to the International Convention for the Regulation of Whaling:

ACKNOWLEDGE that Japan's proposed Schedule amendment (PROP/IWC/SM6/1) is not incompatible with the objectives and purposes of the Convention; as contained in Articles V:1 and V:2 and the Preamble of the Convention.

Further, that the Contracting Governments:

ACCEPT that Japan's proposed Schedule amendment (PROP/IWC/SM6/1) is not incompatible with the Precautionary Approach to sustainable management of natural resources, as this Approach is understood in international law generally; and

RESOLVE to work with other Contracting Governments, in a spirit of openness, toward full implementation of the objectives and purposes of the Convention; and to adopt the Precautionary Approach to sustainable management of natural resources, as this Approach is understood in international law generally.

5 Expectations from the exercise

The intention was that the participants would, from the beginning of the actual negotiating, run the exercise themselves – under the direction of their Chair, and possibly also the Vice-Chair (both of whom were be given some extra instructions on procedural issues, and suggestions as to how to manage their roles). The originator of this negotiation exercise played the role of the Secretary of the IWC – not involved in the negotiations, but sitting alongside the Chair and assisting with procedural issues.

It was entirely uncertain whether the parties would succeed in reaching consensus (on an issue on which the real contracting governments of the IWC have been unable to agree for decades); or whether the session would end in the impasse which the IWC currently finds itself in.

The exercise would then be followed by a lecture from the originator, including an assessment of the exercise, explanation of how the results of the exercise differed from or were similar to what would probably have happened in reality – given the history of the IWC. In this respect, groupings and alliances would be investigated; and a short account of the history of the 'numbers race' in the IWC will then be given.[11]

[11] See Ed Couzens, 'How the Whale Got its Impasse', in Part II of this *Review*.

6 Results from the exercise

6.1 General

In the result, the exercise ran smoothly. Initially, some participants went off course – particularly by reading inappropriately from the Opening Statements which they had been supplied with. This had not been the intention. However, the Chair then suggested to the room that as it was only new Contracting Governments that had traditionally been accorded the right to make oral Opening Statements, Commissioners representing their governments should refrain from doing so.

Initially, participants were slow to enter into the debate. The participant representing Japan played his part well, however, and – with the right mixture of cynicism and reason – provided enough ammunition to set the scene for later argument. Japan called initially for a secret ballot to be held on the Schedule Amendment, but the decision on this – which point the Chair and the Secretariat determined would be decided by way of normal open ballot – was held over as debate was entered into on the substantive points raised by the proposed Schedule amendment.

Debate did not initially flow, being somewhat disrupted by delegates who were vague, talked around issues at length, read from prepared statements that were not always germane, and missed the point. This provided, however, a realistic flavour to the exercise – as this can, and often does, happen in real negotiations.

6.2 The secret ballot issue

After some time, the Russian Federation, Japan, St Kitts and Nevis, and Mongolia pushed for a vote on the secret ballot question. The Republic of Korea came out surprisingly firmly against the wording of Japan's proposed Schedule amendment, but hinted that it might be willing to vote in favour were the wording amended. Australia asked Japan to explain why it wished to see a secret ballot. Japan replied that a secret ballot would allow all parties to express their views openly. Australia replied that it was putting no pressure onto other parties. Grenada, the Russian Federation, Suriname and Norway spoke in favour of the secret ballot; as did Nicaragua, which suggested that the Western World uses international law to attack the developing world. Ecuador argued that parties must be accountable to their constituents; and demanded that, if there were to be a secret ballot, then Ecuador's opposition to this be recorded.

The vote on the secret ballot went 12 for (Antigua and Barbuda, Côte d'Ivoire, Dominica, Grenada, Guinea-Bissau, Japan, Mauritania, Mongolia, Nicaragua, the Russian Federation, St Kitts and Nevis, Suriname); 17 against (Australia, Austria, Brazil, Denmark, Ecuador, Germany, India, Italy, Kenya, Rep. of Korea, Mexico,

New Zealand, South Africa, Spain, Tuvalu, the UK, and the US); with one abstention (Norway). The proposal therefore failed.

This result largely mirrored reality. For many years Japan has, at the outset of each annual IWC meeting, put forward a proposal that voting be conducted by way of secret ballot. Each year that the proposal has been made it has been defeated. As the decision to proceed by way of secret ballot would require only a simple majority to pass, however, there is often some tension – the balance of power being fairly delicately poised.

6.3 The proposed Schedule amendment

The participants then went into debate on the proposed Schedule amendment.

One surprise was that Côte d'Ivoire returned after a tea break and indicated that, since the earlier session and vote, it had changed its mind – the suspicion was great amongst certain participant groupings that the party had been contacted by Japan during the recess. The Russian Federation suggested that Japan ought to withdraw the proposal; Spain agreed, suggesting that future generations 'might not know what a whale was' if the proposal was allowed. Kenya pointed out that whale watching is increasing on the Kenyan coast; the UK suggested that the time for the proposal was inappropriate and that Japan should withdraw it; and Denmark supported the withdrawal suggestion. The Rep. of Korea also supported withdrawal, at least on the proposal as it stood. Nicaragua, on the other hand, argued that the interests of whales are being allowed to take precedence over those of humans; and, giving the example of elephants being out of control in Zimbabwe, asked whether we 'want the same thing to happen in the oceans'. Japan then consulted with Norway, which had co-sponsored the proposal, and elected to proceed.

Opposed to the proposal, Italy argued that biological knowledge remains poor; and Ecuador suggested that the amendment, if adopted, would bring devastation and that there would be 'blood on our hands'. Norway, however, explained that the number to be taken represented only 0.5 percent of the total population of a non-endangered species; and the Commissioner appealed to culture – explaining that, from his personal perspective, even his father's mother had been a fisherman. Tuvalu responded to Norway to explain that the country was tired of listening to developed nations and that the issue was not about whales but about saving humans. Norway responded, somewhat facetiously, by suggesting that removing whales from the sea might assist Tuvalu by reducing sea level.

Australia then argued that the discussion was about endangered whales, not about fisheries. Austria argued that the science is uncertain. Kenya suggested somewhat cryptically that, just as whaling occurs on the surface and not underground, so

Kenya would like to see transparency. Mauritania pointed out that the problem was one of food security, and that the country had received no support from the North – and then referred to 'underhand recruitment' without making it clear quite what point was being made.

A vote was then held on the proposed Schedule amendment; running 13 in favour, 14 against, with two abstentions – thereby failing to reach the required three-quarters majority. Parties voting in favour were Antigua and Barbuda, Côte d'Ivoire, Dominica, Grenada, Guinea-Bissau, Japan, Kenya (surprisingly, given the country's usual stance and its anti-whaling Opening Statement), Mauritania, Mongolia, Nicaragua, Norway, St Kitts and Nevis, and Suriname. Parties voting against were Australia, Austria, Ecuador, Germany, India, Italy, the Rep. of Korea, Mexico, New Zealand, South Africa, Spain, Tuvalu (surprisingly, for the same reasons as for Kenya), the UK, and the US. Denmark and the Russian Federation abstained.

6.4 The issue of the proposed Resolution

At the start of the 3rd session, Japan explained that it had forced the vote not because it had expected it might be successful; but in order to show the inability of the International Whaling Commission to meet its mandate. Japan then questioned whether there were any benefits to remaining within the body. Ecuador thanked those parties which had voted against the proposal.

Debate then turned to the proposed Resolution. Much haggling ensued, with Australia requesting that there be no motion for a vote; and then calling for a vote on whether to have a vote. Antigua and Barbuda called for tolerance and respect toward its initiative; the US suggested that the Resolution, in its opinion, could 'stand on its own legs'; the UK suggested that it was satisfied with the vote on the Schedule amendment and that the Resolution had now become superfluous; and Spain supported this by arguing that the Resolution was strongly linked to the proposed Schedule amendment. St Kitts and Nevis and Nicaragua then spoke in support of the Resolution, with the latter arguing that Article V affords every sovereign nation the right to bring forward a Resolution. Antigua and Barbuda then hinted that it might be open to amendments of its proposed Resolution. Dominica said that it was unfortunate that the Schedule amendment had not been accepted; but suggested that it might one day be revisited. Denmark then referred to the St Kitts and Nevis Declaration of 2006[12] and suggested that the Resolution would be acceptable to it if the paragraph beginning 'ACCEPT …' were removed. Australia requested that Antigua and Barbuda table a new text for consideration. The Rep. of Korea, perhaps surprisingly given its usual fairly neutral stance (which the participant might have gleaned

[12] See Resolution 2006-1, 58th annual meeting of the IWC, St Kitts and Nevis, available at <http://www.iwcoffice.org/meetings/resolutions/resolution2006.htm> (visited 4 March 2009).

from Internet research beforehand), said that it could not support any new proposal as long as the first paragraph referred to Japan's proposed Schedule amendment.

Debate, and argument, then ensued over the contents and wording of amendments to the Resolution. Support for an amended text came particularly from Guinea-Bissau, Denmark, Nicaragua, Mauritania, Mongolia, Rep. of Korea, St Kitts and Nevis, Tuvalu; concerns were, however, raised by Australia, Brazil, Ecuador, Kenya, and the UK. Japan expressed its disappointment; and stated that any inability to reach agreement, even on a non-binding Resolution, shows the dysfunctional nature of the IWC.

With rather odd timing, the Russian Federation stated that it wished to establish a new multilateral, international research institute for whales. The Chair, however, suggested that that was a proposal that should go to the next meeting.

Kenya suggested a wording change to introduce a 'science-based' criterion, which met with a mixed response from other parties. Tuvalu, supported by Nicaragua, opposed the introduction. Mongolia suggested simply, and with a touch of weariness, that it would 'submit to the tyranny of the masses'. The parties then debated whether to retain the words 'Precautionary Approach'. Ecuador, Kenya and Nicaragua had small amendments to suggest.

After contributions from most of the parties present, wording was eventually agreed upon that was acceptable to all – and the Resolution was passed by consensus; partly, perhaps, reflecting the exhaustion of many of the parties to the debate. This, of course, is not an unrealistic factor.

6.5 The final wording of the Resolution

As amended, the final Resolution read (with amended text in italics):

> **RES/IWC/SM7/1**
>
> **Antigua & Barbuda, Dominica, Grenada, St Lucia, and Suriname propose as follows:**
>
> That the Contracting Governments to the International Convention for the Regulation of Whaling:
>
> ACKNOWLEDGE that *a science-based* Schedule amendment *regarding sustainable whaling* is *com*patible with the objectives and purposes of the Convention; as contained in Articles V:1 and V:2 and the Preamble of the Convention.
>
> Further, that the Contracting Governments:

> RESOLVE to work with other Contracting Governments, in a spirit of openness, toward full implementation of the objectives and purposes of the Convention; and to adopt the Precautionary Approach to sustainable management of natural resources, as this Approach is understood in international law generally.

7 Conclusion

In the end, the exercise yielded a result not out of kilter with what might have happened in real life. An unsuccessful attempt was made by Japan to have a secret ballot proposal adopted; followed by an unsuccessful attempt to re-open commercial whaling on a restricted basis; and finally there was the adoption, by consensus, of a watered-down Resolution, which would nevertheless have heartened its proponents.

The exercise was well-handled by the designated Chair – who, representing the US, had a difficult task as both Chair and interested party. This participant did particularly well to follow the debate whilst keeping careful track of the order of speakers.

It appeared, from informal reactions afterward,[13] that the exercise achieved its purpose. Participants researched an issue with which only a few were familiar; many successfully argued from positions which would not have reflected their countries' usual positions;[14] debate became vigorous; and the participants were required to engage with difficult questions both of procedure and of substance in the course of two votes and the adoption of a revised Resolution. Even more importantly, perhaps, the exercise gave many of the participants a taste of international negotiation.

Informal feedback after the exercise indicated that participants had found the exercise valuable both as to substance and as to procedure. It was apparent, during the exercise, that many of the participants had made the effort to research their designated

[13] Although feedback on the simulation exercise was requested from participants by email afterwards, too few responded for a meaningful analysis. In the Evaluation Report of the Course, which was compiled from participants' responses immediately after the Course, this exercise was rated 4.6 of 5 on the scale 'very poor' to 'very good'.

[14] Antigua and Barbuda was represented by Ana Almeida from Portugal; Australia by Javad Khoei from Iran; Austria by Trang Tran from Vietnam; Brazil by Johanna Peitz from Sweden; Côte d'Ivoire by Niko Urho from Finland; Denmark by Ida Edwertz from Sweden; Dominica by Kwame Frimpong from Ghana; Ecuador by Ignatius Priambodo from Indonesia; Germany by Rasa Matusevičiūtė from Lithuania; Grenada by Khady Sane from Senegal; Guinea-Bissau by Ximena Alcavaga from Chile; Hungary by Jose Guambe from Mozambique; India by Danko Aleksic from Serbia; Italy by Helena Pavese from Brazil; Japan by Ewan McIvor from Australia; Kenya by Jorge Ojeda from Colombia; Rep of Korea by Cathrin Zengerling from Germany; Mauritania by Stevenson Mkhulise from South Africa; Mexico by Keke Mokgwasa from South Africa; Mongolia by Herman Oosthuizen from South Africa; New Zealand by Soazara Ranivoarivelo from Madagascar; Nicaragua by Luther Rangreji from India; Norway by Georg Maue from Germany; the Russian Federation by Jarrah Al'Zubi from Jordan; St Kitts and Nevis by María Ricoy from Mexico; South Africa by Vladimir Shevchenok from Belarus; Spain by Papa Diouf from Senegal; Suriname by Ivan Rodina from Slovakia; Tuvalu by María Ortiz from Spain; the UK by Sami Järvinen from Finland; and the US by Leon Jordaan from South Africa.

countries' positions; and also those of other Contracting Governments. The participants appeared to take the exercise seriously; which may reflect the fact that they were all selected for the Course initially as being persons either already involved in international environmental negotiation, or with the potential to become so involved.

A number of participants did suggest that the IWC's actual Rules of Procedure might have been provided; but this would have been difficult given the time constraints under which the exercise was run.

Informal feedback also from resource persons on the Course, many of whom are experienced international negotiators, showed that the exercise had been successful.