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Legislative Review

2002

Final Report

Moira L. McConnell

GEF UNDP IMO

A cooperative initiative of the Global Environment Facility,
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Global Ballast Water Management Programme

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The Global Ballast Water Management Programme (GloBallast) is a cooperative initiative of the Global Environment Facility (GEF), United Nations Development Programme (UNDP) and International Maritime Organization (IMO) to assist developing countries to reduce the transfer of harmful organisms in ships' ballast water.

The GloBallast Monograph Series is published to disseminate information about and results from the programme, as part of the programme's global information clearing-house functions.

The opinions expressed in this document are not necessarily those of GEF, UNDP or IMO.

Preface

This Final Report on the Legislative Review Project of the GEF/UNDP/IMO Global Ballast Water Management Programme has been prepared by the Lead Consultant/Project Coordinator. It comprises the research and writing of the Lead Consultant and legislative Review Reports on six countries prepared by locally based Legal Consultants. The ideas, commentary and expertise of the local Consultants has also contributed to the other parts of the Report and the recommendations it contains. Their willingness to work collaboratively and on an almost completely electronic basis to address this challenging new legal issue has been invaluable to the successful completion of this Project.

The Project also included the design, coordination and facilitation of an international workshop. The successful delivery of the *1st International Workshop on the Legal Aspects of Ballast Water Management* and this Final Report would not have been possible without the cooperation and support of the Rector and members of the administrative staff at the World Maritime University, Malmö, Sweden.

Professor Moira L. McConnell
Lead Consultant.
GloBallast Legislative Review
Project

Editorial Notes

1. The full text of the comprehensive reviews carried out by the Local Legal Consultants is included in this Report in order to preserve a full record of their research. There have been some minor editorial changes to ensure overall similarity in presentation in this Report. Each Legislative Review Report has its own cover page with an independent table of contents to allow for quick reference and review. This will also enable future publication and dissemination of each Review independently of the full Report. This format was adopted on the understanding that a decision as to publication and dissemination format would be made by the GloBallast Programme Coordination Unit at a later date.

2. In order to better facilitate public access to information, a key principle in sustainable development, electronic sources for reference documents, such as conventions and reports, have been preferred.

M.L.M.

Foreword

The Global Ballast Water Management Programme is a cooperative initiative of the Global Environment Facility (GEF), the United Nations Development Programme (UNDP) and the International Maritime Organization (IMO) aiming to assist developing countries to reduce the transfer of harmful organisms in ships' ballast water. The immediate objectives of the Programme are to assist developing countries to implement the existing IMO voluntary *Guidelines for the control and management of ships' ballast water to minimize the transfer of harmful aquatic organisms and pathogens* (IMO Assembly Resolution A.868(20)), and to prepare for the anticipated introduction of an international legal instrument currently being developed by IMO Member States. This is to be achieved by providing technical assistance, capacity building and institutional strengthening to remove barriers to effective ballast water management arrangements in six initial Pilot Countries: Brazil, China, India, Iran, South Africa and Ukraine.

International shipping has been identified as one of the key pathways for the movement of species between differing ecosystems. Organisms and pathogens found in ballast water and sediments in ballast tanks have had significant economic and ecological impact on marine biodiversity in many regions. They can also pose a threat to human health from the spread of diseases and species harmful to humans. Unlike some forms of ship sourced environmental harm, the problem arises from an activity inherent to the ship's operation. Currently there are no entirely satisfactory means of preventing the transfer of species in ballast water and open sea ballast water exchange management techniques have raised some concerns about vessel and crew safety, and the limits of its environmental effectiveness. In future, changes in vessel and ballast tank design and other technological developments may effectively address these concerns.

Under the above circumstances it became obvious that prior to developing a national strategy regarding ballast water issues a country would need to identify relevant international and regional legal obligations and to review its existing national legislation and administrative arrangements.

To respond to these needs GloBallast initiated the Legislative Review Project (LRP) aimed at evaluating the existing legal regime and developing proposals regarding the legislation necessary to implement effective ballast water management and control measures in the six Pilot Countries. In order to ensure a fully informed review and to achieve the goal of local capacity building, locally based legal consultants were selected to carry out a comprehensive review and analysis of the legislative regime governing ballast water management and marine invasive species in each country. They conducted their work on a number of levels including international and regional obligations, national, provincial or municipal legislation and port regulations. The local consultants also looked at the vessel and crewing certification, emergency response plans, inspection directives and other practices including health and quarantine regulations. The LRP was carried out in consultation with, and under the supervision and coordination of a Lead Consultant, Dr Moira McConnell, Professor of Law and Maritime Affairs at the World Maritime University in Malmö, Sweden.

Once the reviews in the six Pilot Countries were completed the local legal consultants attended a workshop held at the World Maritime University to review and discuss the six national reports and the proposed recommendations. The workshop focused on elements to be considered when developing national legislation for the control and management of ships' ballast water and sediments and identified the best practices to be adopted for the implementation of such a legal regime.

The present report is the result of the collective effort of the Lead Consultant and the Legal Consultants from the six Pilot Countries and provides a comprehensive overview of the existing international legal obligations regarding ballast water. It also offers valuable information on different regulatory approaches around the world and provides a useful list of the basic elements to be addressed when drafting national legislation.

D.C. Pughiuc
Chief Technical Adviser, Global Ballast Water Management Programme

Executive Summary

The Legislative Review Project is a key component in the six pilot country part of the GEF/UNDP/IMO Global Ballast Water Management Programme's work. A review and analysis of the legal/administrative environment in the six pilot countries of Brazil, China, India, Iran, South Africa and Ukraine, is essential to ensure effective implementation of governmental policy objectives.

The Project performed a number of interdependent functions in the Programme including:

- Legal data collection;
- Analysis of strategic regulatory design options for the pilot countries to assist in the implementation of the various facets of IMO Resolution A.868 (20) *Guidelines for the control and management of ships ballast water to minimise the transfer of harmful aquatic organisms and pathogens* and to lay a foundation for the rapid implementation of a proposed International Convention for the Control and Management of Ships' Ballast Water and Sediments;
- Developing best practices recommendations and a list of elements to be considered in drafting national legislation for the pilot and other countries wishing to address the problem of the transfer of potentially harmful aquatic organisms and pathogens in ships' ballast water and sediments;
- Building legal expertise and capacity in the six pilot countries;
- Facilitating the development of networks and encouraging the exchange of ideas and collaborative problem solving through the *1st International Workshop on Legal Aspects of Ballast Water Management and Control.*

This Report concludes that the Legislative Review Project has been successfully carried out in all six countries within the proposed time frame and has met all objectives. The quality of the legislative reviews was good and will prove useful to the countries and the Programme. In some cases the recommendations are already in the process of being adopted. The legal research and the presentations at the Workshop have also been seen as useful to the IMO Marine Environmental Protection Committee (MEPC) that is working on the IMO draft Convention text.

The Final Report is divided into three Parts. Part I, Background – The Law and Policy Context, provides the international law and policy context for the issues explored in the Legislative Reviews and recommendations. Part II comprises summaries of the six country Legislative Reviews prepared by the Local Legal Consultants in each country, in consultation with their Country Focal Point and other affected agencies. An overview of a number of other domestic regulatory models purported as implementing the Guidelines is also presented for comparative purposes. Part lll sets out the conclusions of the Project. A list of recommended best practices and a list of elements to assist legislative drafters is also provided. They can be used by countries that want to take action to address the problem in the interim period leading up to adoption of an International Convention.

This Report concludes that States have existing international and other legal obligations to take action to prevent the unintentional transfer between ecosystems of potentially harmful aquatic organisms and pathogens. This obligation can be characterised in international and domestic law as either preventing marine pollution or protecting the ecosystem from some other form of harm; however, current international and national practice suggests that a ship source pollution prevention approach may be preferable. This is combined with an obligation to cooperate in the development of international rules/convention and standards. Irrespective of classification, many of the same regulatory requirements will exist. This obligation includes flag and port/coastal State action to prevent the transfer and spread of potentially harmful organisms in ships' ballast water and other related vectors. A State's legislative response to concerns about the transfer of potentially harmful aquatic organisms

and pathogens in ships' ballast water and sediments must be designed to take into account and reconcile its international, regional and domestic legal obligations.

The Report notes the importance of implementing flag State responsibilities under the Guidelines. The need for coastal States to take responsibility for reducing the riskiness of coastal waters to help prevent the export as well as the import of harmful organisms and pathogens is also emphasised. The Report and the Project highlights both the problems and the importance of developing an integrated approach to managing the interaction between human activities and the physical environment or ecosystem. The Report notes that, although the problem of organism and pathogen transfer in ships' ships' ballast water can be characterised in a number of ways in the international and domestic legal systems, the international community has endorsed placing the specific regulatory responsibility under the auspices of its specialised shipping organisation, the International Maritime Organization. Depending on the particular legal and institutional arrangements in each country, responsibility for dealing with ships' ballast water may be configured differently. This will provide some challenges and will promote greater discussion and awareness amongst affected sectors. The relative lack of scientific information about the marine ecosystem in many countries combined with the fact that there is no fully satisfactory technological or other solution to the problem at this point provides a further regulatory policy challenge. The relatively recent linkage between national and global security, human, plant and animal health security and environmental protection has also added, and will continue to add, a new dimension to this discussion. While these matters do provide some difficulty, this serious environmental concern needs to be dealt with immediately to prevent further degradation of the marine ecosystem and it must be dealt with in the context of existing and evolving administrative and legal structures. The overarching concern is to ensure the development and implementation of an effective regulatory response on an international, regional and national level to prevent further degradation of the marine ecosystem.

The recommendations presented in the Report and in the six country Legislative Reviews represent an attempt to deal with the legal problem posed by the pressing need to take action to protect the marine ecosystem at a time when the international legal regime - the most appropriate and effective way to manage international shipping/trade issues - is still developing. Uncertainties posed by the legal characterisation of the problem, diverse constitutional structures and the administrative and legal transitions currently underway in countries moving to an integrated management approach to managing coastal and ocean activities are also important factors in regulatory design. The recent uncertainties relating to enhanced security arrangements and concerns about biological warfare are also issues that may affect international and national responses.

The Report contains a large number of recommendations and considerations for effective regulatory design to implement the Guidelines and to pave the way for the future Convention. The best practices and legislative elements can be adapted to meet a variety of legal and administrative situations and concerns.

Contents

Part I:
Background –
The Law And Policy Context

1 Overview of the Legislative Review Project of the GEF/UNDP/IMO Global Ballast Water Management Programme

The Legislative Review Project is a key component in the six pilot country part of the GEF/UNDP/IMO Global Ballast Water Management Programme's work. A review and analysis of the legal/administrative environment in the six pilot countries of Brazil, China, India, Iran, South Africa and Ukraine, is essential to ensure effective implementation of governmental policy objectives. It can be understood as complementary to the marine science surveys, technological research and educational aspects of the Programme's work in each country and region.

The Legislative Review Project performed several overlapping and interdependent functions in the Programme. First and foremost it has collected data – a legal baseline -and provided an analysis of strategic regulatory design options for the pilot countries to assist in implementation of the various facets of IMO Resolution A.868 (20) *Guidelines for the control and management of ships ballast water to minimise the transfer of harmful aquatic organisms and pathogens (*the Guidelines*)*. It has also afforded each country an opportunity for reflection on changes needed nationally and regionally to fulfil existing international obligations to protect the marine ecosystem. A legislative review is also a necessary step for any country in order to effectively implement future binding international rules - likely in the form of the proposed IMO *Convention for the Control and Management of Ships' Ballast Water and Sediments (*draft Convention*)*.[1] The fact that there are parallel ongoing multilateral negotiations to formulate the terms of the international convention reinforces the need for a careful review of legislative options and strategies to ensure ecosystem protection while also enabling the rapid development and agreement on international standards – the most effective mechanism to regulate an international trade related activity such as shipping.

The Legislative Review Project also had as one its objectives building legal expertise and capacity in the six pilot countries. This was achieved through the use of locally based Legal Consultants who worked with their Country Focal Points. In the course of carrying out their research the Local Legal Consultants (LLC) also had discussions with and raised awareness of the issue with a number of other agencies and affected interests. Most Consultants had no prior exposure to the specific legal issues posed by harmful aquatic organisms and pathogen transfer in ships' ballast water, although all had expertise in international and domestic marine environmental law and/or maritime law in their countries. This Project served to develop and transfer legal knowledge and cultivate locally based legal expertise. A number of the Local Legal Consultants are also teachers and researchers affiliated with educational and scientific research institutions and will, in turn, share these ideas and information with colleagues and students.[2]

The Legislative Review Project also served to generate research and broader comparisons regarding legal and administrative systems, particularly amongst countries that are moving to an integrated coastal and environmental management model, and facilitated what will be on-going international research relationships.

This exchange and comparison began with the *1st International Workshop on Legal Aspects of Ballast Water Management and Control* at the end of the second phase of the Project. The Workshop allowed the researchers from these countries to meet and identify common issues, concerns and approaches in order to develop recommendations for other countries beginning to deal with the problem of harmful aquatic organism and pathogen transfer in ships' ballast water and sediments. This cross fertilisation

[1] IMO Doc. MEPC 46/3/2, 19 January 2001. It is noted that in the final stages of preparing this Final Report a revised draft convention text was prepared for review at MEPC 47. It was not possible to access this document in time to note any changes in this Report. Any references in this Report are to the 19 January 2001 consolidated text prepared by the United States of America.

[2] For example, the LLC from Iran organized a conference in his law faculty on this issue. The LLC from South Africa chose to involve a female post- graduate student in the research. She will now continue with PhD studies, likely in this field. This will also serve to increase the expertise and involvement of women in the maritime sector. These are just two examples of project spin off benefits.

amongst the six countries and the subsequent dissemination of these ideas will serve to improve regulatory responses to this problem and will add to the international discussions amongst Member States of IMO and States party to the 1992 *Convention on Biological Diversity*.[3] Many important topics relating to sustainable development were discussed, including the difficulty of regulatory design when science, technology and the international legal regime are in development and countries differ widely in their capacity and views on how to respond to these emerging biodiversity/biosecurity problems.

The Legislative Review Project was coordinated by a Lead Legal Consultant, Dr. Moira L. McConnell, a Professor of Law (Dalhousie University, Canada) and Professor of Maritime Affairs (World Maritime University, Malmö, Sweden).[4] Locally based Legal Consultants, selected by the Country Focal Point in their country in consultation with the Programme Coordination Unit and the Lead Consultant, carried out the legislative reviews. The Local Legal Consultants were Dr. Maria Helena Rolim (Brazil); Mr. Zhi Guanglu (coordinating the report from China); Mr. V.K. Ramahbadran (India); Dr. Mehdi Zahedi (Islamic Republic of Iran); Professor Jan Glazewski assisted by Ms. Emma Witbooi (South Africa); Dr. Alexander Vysotsky (Ukraine). Their affiliations and the full text of their Reports are contained in Part II of this Report.

Aside from the two day Workshop at the World Maritime University to present and discuss their research and proposals, the international legal team worked electronically (primarily by internet) with the Lead Consultant throughout the entire Project. The Programme Coordination Unit was responsible for the financial arrangements with the Country Focal Point offices.

The Project began in late February/early March 2001, with the hiring of the Lead Consultant, and had a proposed completion date of October - November 2001, with a Workshop planned for late September 2001. Some delay in the local hiring process resulted in the Workshop taking place in November 2001. This ensured the full participation of all pilot countries at the Workshop where the six legislative reviews were presented. Some modification of the time frame was anticipated and normal, given the differences in the situations in the six countries.

It can be concluded that the Legislative Review Project has been successfully carried out in all six countries within the proposed time frame and has met all objectives.[5] The quality of the Legislative Reviews was good and will prove useful to the countries and the Programme. In some cases the recommendations are already in the process of being adopted. The legal research and the presentations at the Workshop have also been seen as useful to the IMO Marine Environmental Protection Committee (MEPC) that is working on the IMO draft Convention text. The Programme was invited to submit an Information Document regarding the Legislative Review Project for consideration by the MEPC at its next meeting in 2002. This Final Report and the analysis and recommendations it contains are the last phase of this Project. It provides the GloBallast Programme with substantial documentation and research that can then be disseminated by the Programme following a review of options for the best format for publication.

[3] Available at: <http//www.biodiv.org/convention>

[4] The World Maritime University is a specialised post-graduate international university created by and operating under the auspices of IMO. The University has as its mandate the development of global capacity and expertise in the maritime sector.

[5] In retrospect it may have been useful to schedule a Workshop at the beginning to expedite the work of the local consultants by providing a base level of information. However, differences in hiring process and situations in each country as well as budget constraints made this problematic. This may not be necessary for any subsequent projects since researchers can easily build on this Report and the Legislative Reviews from this Project to provide a good information base for countries new to the issue.

2 Overview of the Final Report

2.1 The Structure of the Report

This Report is divided into three Parts. Part I, Background – The Law and Policy Context, including this Project and Report Overviews, provides the international law and policy context for the issues explored in the legislative reviews and recommendations. Although technical matters relating to ballast water management and treatment methods, science and ecological and commercial issues are important and affect regulatory design they have been written about in depth elsewhere[6] and are not described in detail in this Report, which focuses specifically on the legal implications of these issues. Part I includes a synopsis of the two key international legal instruments for this Project, IMO's 1997 Resolution A.868 (20) *Guidelines for the control and management of ships' ballast water to minimise the transfer of harmful aquatic organisms and pathogens* and the still developing draft *International Convention for the Control and Management of Ships' Ballast Water and Sedim*ents (consolidated text, 19 January 2001). It also provides an analysis and commentary on international obligations relevant to the problem of the unintentional transfer between marine ecosystems of potentially harmful aquatic organisms and pathogens[7] in ships' ballast water and implementation of the Guidelines and the future Convention.

Part II comprises summaries of the six country Legislative Reviews prepared by the LLCs in each country, in consultation with their CFP and other affected agencies. The full texts of the six comprehensive Legislative Reviews are available electronically and from the GloBallast Programme Secretariat. An overview of a number of other domestic regulatory models purported as implementing the Guidelines is also presented in Part II for comparative purposes.

Part lll contains the conclusions of the Project, a list of recommended best practices and legislative elements drawn from the Workshop and the Legislative Reviews. The Legislative Reviews, other research, and the list of practices and legislative elements can be used by a country wishing to develop a regulatory instrument[8] prior to IMO Member States' adoption of an international convention with internationally agreed upon rules and standards.

2.2 The Law and Policy Context for this Report

This Project - the six pilot country Legislative Reviews/case studies and the Legal Workshop - was designed to identify issues, provide legal references, facilitate discussion and develop recommendations for the best or most effective means of national implementation of the International Maritime Organization (IMO) 1997 Resolution A.868 (20): *Guidelines for the Control and Management of ships' ballast water to minimise the transfer of harmful aquatic organisms and pathogens* in the context of an emerging international IMO convention, the *International Convention for the Control and Management of Ships' Ballast Water and Sedim*ents (consolidated text, 19 January 2001[9]).

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[6] See for example: S. Gollasch, *Removal of Barriers to the Effective Implementation of Ballast Water Control and Management in Developing Countries*, (London:GEF/UNDP/IMO, 1997). This Report was available in 2000 and early 2001 at <http://www.imo.org/focus> and other related sites. It is no longer at this address and other linkages no longer function (copy on file with Lead Consultant).

[7] There is a variance in terminology regarding this issue in international documents. This reflects a substantive problem relating to the scope of the concern – i.e., is the concern all alien or nonindigenous species or only known harmful etc? The term generally used in this Report, "harmful aquatic organisms and pathogens", is the one currently found in the draft IMO Convention MEPC 46/3/2 (Article 2) and is also the term adopted in the IMO Resolution A.868 (20), which refers to and apparently incorporates many of these variations. The word "potentially" is used to indicate a key regulatory concern - the contingent nature of the designation "harmful". The word "unintentional" is used to distinguish this issue from intentional transfers, through, for example, the import of stock or seed for farming or aquaculture, a matter which is also the subject of a developing international regime.

[8] There is some variance in terminology though this Report. The term legislation, when used, should be understood to capture a broad range of law making activity. The phrase "regulatory instrument" is used to avoid distinctions between law, acts, statutes , regulations, rules etc. that exist amongst countries. It is also adopted to capture the view of some countries that an administrative notice or rule or advice may be deemed an appropriate first implementation step by some countries, i.e,. a port authority order or marine notice.

[9] MEPC 46/3/2.

The focus of the Legislative Review Project (and this Final Report) is specifically oriented to domestic implementation questions. However, a country's international and regional commitments, particularly in trade related sectors, increasingly shape the domestic regulatory regime. They must be considered in order to ensure that legal and institutional infrastructure is integrated and helps to support the country's sustainable development goals.

This Report (and the six Legislative Reviews) takes into account existing conventional and customary international obligations of States found *inter alia* in the 1982 *United Nations Convention on the Law of the Sea*[10] (UNCLOS); *Agenda 21*[11] and the 1992 *Rio Declaration on Environment and Development;*[12] the 1992 *Convention on Biological Diversity*[13] (CBD) and associated instruments; the *International Convention for the Prevention of Pollution from Ships, 1973*, 1978 as amended[14] (MARPOL 73/78); the *International Convention for Safety of Life at Sea, 1974*[15] (SOLAS) as amended and the associated *International Management Code for the Safe Operation of Ships and for Pollution Prevention*[16] (ISM Code); the *International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978* as amended in 1995 and 1997[17] (STCW Convention) and the *Seafarer's Training , Certification and Watchkeeping Code* (STCW Code); the *Convention on the Facilitation of International Maritime Traffic* 1965[18](FAL) as amended; the *International Convention on the Control of Harmful Anti-fouling Systems on Ships*[19] (N.I.F.) 2001 (Anti-Fouling Convention); the *International Health Regulations,* 1969[20] (IHR*)* and other animal and plant health security agreements*;* the *1*995 FAO *Code of Conduct for Responsible Fisheries*[21] and subsequent technical Guidelines[22]; the *General Agreement on Trade and Tariffs*, 1994[23] (GATT) and related Agreements, and the ICES *Code of Practice on the Introduction and Transfer of Marine Organisms*, 1994.[24] There are also numerous[25] regional environmental and trade agreements which affect or may be affected by the domestic legislation on this issue, well as many other international instruments such as the *Global Programme of Action for the Protection of the Marine Environment from Land- based Activities*[26] (GPA). International agreements dealing with specific concerns such as the protection of wetlands or protection of the ecosystem integrity of international watercourses may also be implicated.[27] Recommendations from non-governmental organisations such as the World Conservation Union's (IUCN) published report, *A Guide to Designing Legal and Institutional Frameworks on Alien Invasive Species,* [28] the International Tanker Owners' Association (INTERTANKO) and International Chamber of Shipping's (ICS) *Model Ballast Water Management Plan*[29] are also relevant. These documents are discussed in detail this Part of the Report in Section 4.

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[10] Available at : <http://www.un.org/depts/los>

[11] *Agenda 21, Programme of Action for Sustainable Development*, June 1992. Available at <http://www.unep.org.>

[12] Available at: <http://www.unep.org>

[13] Available at : <http://www.biodiv.org/convention>

[14] *The International Convention for the Prevention of Pollution from Ships; 1973 as modified by the Protocol of 1978 relating thereto*, reprinted in MARPOL 73/78, Consolidated Edition 2002 (London: IMO, 2001).

[15] *SOLAS,* Consolidated Edition 2001 (London; IMO, 2001).This contains the ISM Code as well.

[16] London: IMO, 1997) published as International Safety Management Code (ISM code) and Guidelines or the Implementation of the ISM Code, 1997 edition (London: IMO, 1997).

[17] STCW 95 (consolidating the Convention and Code) (London: IMO, 1996) Loose leaf publication.

[18] (1965) 4 I. L. M. 501 as amended to 2001. Consolidated versions are published by IMO.

[19] *International Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001.* Adopted by the International Conference on the Control of Harmful Anti-fouling Systems for Ships. IMO Doc. AFS/CONF/26, 18 October 2001, Annex.

[20] Available at: <http://www.who.int/emc/IHR/int_regs.html>

[21] Available at: <http://www.fao.org>

[22] *Precautionary approach to capture fisheries and species introduction.* Technical Consultation, Sweden, 1995, FAO 1996.Technical Guide No.2.

[23] GATT and all related trade agreements are available at <http://www.two.org>

[24] International Council for the Exploration of the Sea (ICES). The Code is available at: <http://www.ices.dk>

[25] A useful comprehensive reference listing regional and international agreements and relevant legal obligations invasive species is located at <http://invasive species.gov/laws/main.htm > It draws up on prior reports and studies by a number of researchers since 1993. See also reviews prepared under the auspices of the CBD: SBSTTA/6/INF/5 and by IUCN, see note 28 below.which draws upon papers from a conference: see: <http://www.iucn.org>

[26] The Global Programme of Action was adopted in 1995. It operates under the auspices of UNEP. The GPA is available at: <http://www.gpa.unep.org>

[27] Convention on Wetlands of International Importance especially as Waterfowl Habitat,1971 (Ramsar Convention) ; Convention on the Law of Non-Navigational Uses of International Water Courses, 1997;.

[28] Clare Shine, Nattly Williams and Lothar Gundling, (IUCN: Gland, Switzerland, 2000). This Report was prepared as an aspect of the Global Invasive Species Programme (GISP).

[29] International Chamber of Shipping & INTERTANKO, *Model Ballast and Water Management Plan*, 2nd ed, (London/Norway; ICS/INTERTANKO, 2000). The plan can be ordered from <http://www.intertanko.com>

This Report and the Legislative Review Project highlight both the problems and the importance of developing an integrated approach to managing the interaction between human activities and the physical environment or ecosystem. Integrated Management as the key process for achieving sustainable development, particularly in relation to ocean and coastal management, was endorsed by the international community of nations in 1992 and is the focus of many books, international development projects and international conferences. One of the objectives of Integrated Management is to approach issues in a more holistic way and avoid fragmented or compartmentalised institutional decision making and programmes that can often result in a waste of precious natural, human and economic resources. An Integrated Management approach does not necessarily mandate new administrative agencies but, rather, builds upon existing sectoral expertise to ensure that decisions are based on open discussion, review and analysis of the implications for the other sectors and interests. An integrated approach also serves to better ensure compliance with regulatory requirements that are developed.

The development of a more integrated approach to managing human activities is still in an early stage at the international level. The United Nations General Assembly Informal Open-ended Consultative Process on Oceans and the Law of the Sea (UNICPOLOS), which has as one of its main concerns better integration of international ocean management activities, was formed in last two years.[30] The UN Commission for Sustainable Development (CSD), which monitors and supports the process of integration of management and sustainable development in all sectors of activity, was only created in 1992. Discussion and activities at varying stages of development are occurring in most countries, particularly in connection with management of activities in increasingly urbanised and threatened coastal zones.

For example, one of the more important initiatives that also has implications for the problem of harmful aquatic organisms and pathogens in ships' ballast water is the November 2001 recommitment of States to implementation of the *Global Programme of Action for the Protection of the Marine Environment from Land-based Activities* (GPA). One of the main issues that States have agreed to take action on is preventing untreated sewage from entering coastal waters. If this occurs it will have the effect of reducing the likelihood of pathogens and some harmful organisms entering or growing in port or near port waters. This in turn reduces the "riskiness" of the port waters that ships' must take on board as ballast.[31] The relevance of this initiative, aside from reducing risk, is that in the long term if the problem of land-based marine pollution, the source of more then 70% of marine pollution, is not fully addressed, then eventually there will be no "clean" coastal, and possibly even any, waters. This fact raises questions about the value of focusing all regulatory and technological efforts on the carrier of "risky water" as opposed to the origin of the problem. In effect, ships will inadvertently take on the role of "sewage treatment centres" for countries that have not taken responsibility for the problem of sewage and/or other runoff that results in eutrophication. This is clearly not the objective of the international and industry action to address the problem of the transfer of harmful organisms in ships' ballast water. The point to take from this example is that domestic regulatory efforts to address the problem need to do so in an integrated manner that addresses the full range of issues in order to ensure that the response is effective.

The connection between the human health, biodiversity, economic and other security interests - biosecurity - posed by this issue provides a challenge for existing institutional structures, internationally and nationally. Although, the problem of organism and pathogen transfer in ships' ships' ballast water can be characterised in a number of ways in the international and domestic legal systems, the international community has endorsed placing the specific regulatory responsibility

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[30] It should be noted that "…protection of coastal areas from the introduction of non-native species has been prepared for inclusion on the agenda of further meetings of the Consultative Process." :see A. de Marffy, "The Maine Environment and the Implementation of the United Nations Convention on the Law of the Sea and Related Agreements", paper presented Dec 3, 2001, UNESCO conference on Oceans and Coasts at Rio+10.

[31] See also the emphasis placed on the problem of sewage and eutrophication in a recent report, GESAMP (IMO/FAO/UNESCO/-IOC/WMO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection) and Advisory Committee on Protection of the Sea, *Protecting the Oceans from land-based activities – land-based sources and activities affecting the quality and uses of the marine, coastal and associated freshwater environment,* Rep. Stud. No. 71, (GESAMP, 2001). Available at <http://gesamp.imo.org/no71/> However, it does not address the problem of transferring species between marine ecosystems thereby disrupting the biodiversity of the receiving system.

under the auspices of its specialised shipping organisation, the International Maritime Organization. Depending on the particular legal and institutional arrangements in each country, responsibility for dealing with ships' ballast water may be configured differently. This will provide some challenges and will promote greater discussion and awareness amongst affected sectors. The relative lack of scientific information about the marine ecosystem in many countries combined with the fact that there is no fully satisfactory technological or other solution to the problem at this point adds an additional regulatory policy difficulty. The relatively recent linkage between national and global security, human, plant and animal health security and environmental protection has also added, and will continue to add, a new dimension to this discussion. At the same time this serious environmental issue needs to be addressed immediately to prevent further degradation of the marine ecosystem. It must be dealt with in the context of existing and evolving administrative and legal structures. The overarching concern is to ensure the development and implementation of an effective regulatory response on an international, regional and national level to prevent further degradation of the marine ecosystem.

In many cases, the first step to a more integrated approach to management of these issues is generated by a problem that affects many sectors. Biodiversity protection and the unintentional transfer of organisms that may be harmful between ecosystems is one such issue. Responding to the problem of the transfer of potentially harmful aquatic organisms and pathogens in ships' ballast water can itself become a step, or even a catalyst in some cases, in the direction of a more integrated management approach at the international, regional, national and even subnational level. The GEF/UNDP/IMO Global Ballast Water Management Programme provides a good example including as it does maritime administrators, environmental agencies, environmental non-governmental organisations (ENGOs), the shipping industry, marine scientists, engineers and naval architects, as well as collaborative work with the World Health Organisation (WHO), Food and Agriculture Organization (FAO) and the United Nations Environment, (UNEP) and the United Nations Development Programme (UNDP) to name a few concerned international agencies.

In this Project a central problem is that of risk and risk assessment. Unlike many other sources of pollution every discharge of coastal water from one place into the coastal water of another place does not *per se* harm the marine environment, at least as we currently measure and define harm. Thus any system must be based on providing an efficient and expeditious decision-making process on the part of the potentially affected country to determine risks based on local concerns and levels of risk aversion. The problem of transfer of organisms between marine ecosystems obviously requires attention to the pathways of transfer. But it also requires knowledge of the local marine ecosystem in order to assess and advise on the potential risk of importing or exporting a harmful aquatic organism or pathogen in ships' ballast water. This places responsibility squarely on each country to assess its marine environment and determine ecologically sensitive zones or other conflicting uses that may have a lower level of risk tolerance (i.e., coastal aquaculture or shellfish fisheries). It also requires that port States take responsibility for identifying waters that may be risky for ships to take up as ballast. The difficulty many countries encounter in developing the necessary scientific information or accessing existing international information systems is a significant problem. This has created an impetus for developing an effective and environmentally safe technological solution. However, the need for port/coastal State action to protect the marine ecosystem from the possible import or export of harmful aquatic organisms and pathogens remains essential, particularly in this interim period when there is no water treatment process that is 100% reliable. Even when a technological solution is developed human error and behaviour means that there will always be some risk involved that must taken into account.

In this context it should be noted that Project Consultants recognize that other aspects of ships' operations such as ships' hull fouling can also be pathways for the transport of harmful aquatic organisms. This concern has been voiced by States in the forum of the *Convention on Biological Diversity* and will need to be addressed in the future.[32] Certainly the interaction between the increasingly stringent regulation of fungicides and pesticides and the problem of pest control is a

[32] See: Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), *Invasive Alien Species*, UNEP/CBD/SBSTTA/6/7, December 2000. Available at <http://www.biodiv.org>

matter for broader international environmental governance concerns. Although the specific focus of the Legislative Review Project is to address the question of the appropriate legal response at a national level to deal with the problem of a single unintentional pathway - ships' ballasting operations - the Report has taken into account this future regulatory concern. In order to encourage legislative efficiency and further one of the "best practices" recommendations to simplify and reduce the number of inspections in a port, countries concerned about hull fouling could incorporate this issue into the legislation dealing with ballast water and sediment management. Provisions banning the scraping of hulls or disposal of hull scrapings in national water are relatively simple to draft and implement. A requirement on the ballast or quarantine forms that ships also report on antifouling systems can be easily included within the ballast water regime at domestic levels. This may also help to implement the recently adopted IMO *International Convention on the Control of Harmful Anti-fouling Systems on Ships.*

It is also suggested that the experiences and recommendations developed in the Legislative Review Project can be extrapolated to apply to other issues not specifically within the GloBallast Programme mandate. In this sense the Legislative Review Project, and indeed the entire Programme's focus on ships' ballast water, can be understood more as a case study of the broader regulatory problem that contemporary concerns about the transfer of organisms and pathogens and protecting biodiversity and human health security poses for the international transport sector.

2.3 Effective Regulatory Design in a Time of Change

As noted earlier in Section 2.1 the pilot country aspects of the GloBallast Programme and the Legislative Review Project are primarily oriented to the effective implementation of the 1997 IMO Resolution A.868 (20) *Guidelines for the Control and Management of ships' ballast water to minimise the transfer of harmful aquatic organisms and pathogens*. However, both are carried out in the context of an emerging international IMO Convention, the proposed "International Convention for the Control and Management of Ships' Ballast Water and Sediments". The concurrency of these two documents, which vary to some degree in their regulatory focus, provides a challenge for regulatory design at two levels. The first is to develop recommendations that implement one instrument, non-binding international Guidelines, within the framework of existing international obligations, in a way that is consistent with the emerging international convention on the topic. The second is to develop a view as to the nature of the regulatory approach to adopt in this interim period when there is no fully satisfactory technological or operational solution to prevent the problem nor is there enough scientific information collected in most countries to be able to ascertain when harm may or has occurred. The fact that international law is also developing adds a further element of uncertainty. It is clear that there is a desire and, indeed, an obligation to take immediate action to prevent further avoidable transfer of harmful organisms. A review of UNCLOS and subsequent international environmental agreements provides little doubt that States have an existing obligation to take action to protect and preserve the marine environment and, in particular, to prevent the transfer of alien or new species between marine ecosystems. At the same time unilateral actions can have a significant impact on the success of multilateral negotiations to develop a solution. Shipping is an international industry that requires harmonised standards and States have an international obligation to cooperate in developing and implementing international standards. Failure to recognise the international dimension of this problem and the importance of cooperative efforts by both flag and coastal States will simply result in non compliance and conflict and will, ultimately, undermine the process of globally integrated environmental protection and sustainable development. Much of the current problem in responding effectively to the issue resides in the fact that a technological solution has not yet been developed. The alternatives, ships' operations based methods to address the problem on a precautionary basis, are not fully satisfactory in the long term from a number of perspectives, including, human safety. The fact that sensitivity to risk and the level of risk aversion required varies between countries and marine ecosystems combined with the fact that most countries are not in a position to identify the organisms in their waters that they may be exporting adds a further dimension to the problem, as a matter of administrative cost and attribution of liability.

What regulatory approach should be adopted by a country, when the international convention regime is still emerging in the midst of increasingly vocal domestic demands for a proactive response? The IMO member States recognised this problem as early as 1973 and first adopted voluntary Guidelines in 1991 (revised several times until the latest version in 1997) that were intended to immediately address the issue on the basis of risk minimisation while an international convention and technology to eliminate the problem developed. The Guidelines are voluntary in that they not binding on any State, however they adopt a proactive-prevention based approach and seek to encourage the development of an internationally harmonious approach to regulatory design. The Guidelines are an attempt to address a problem whilst encouraging technological developments to eliminate the problem. An important feature of regulatory design for environmental protection is that, as much as possible, regulation should encourage the development of economically viable and environmentally acceptable technology to eliminate a problem, rather than inadvertently freezing standards at a level less than the ecologically ideal. The current dilemma is that in some countries, concern about the intentional and unintentional import of harmful aquatic organisms and pathogens as well as concerns about biological pollution and even potential biological warfare has generated a constituency for a stronger, more defensive biosecurity regime. However, relatively little has been done at national levels to implement the correlative coastal State obligations to avoid the unintentional export of organisms and pathogens in ships' ballast water. Governments sensitive to the domestic legal and political concerns have taken action at international, national and subnational levels. The result is increasingly diverse regulations and mandatory requirements, sometimes differing even between ports in one country. Some reflect the international Guidelines: others do not. This may be contrary to existing international obligations of a State and it may also have a significant negative effect on national and global interest in economic development in safe, efficient and inexpensive transport for imports and exports.

There is a need to respond to ecosystem problems on the basis of a precautionary approach. This applies equally to regulatory design, which can often have unforeseen long term consequences. A precautionary approach requires, at a minimum, that actions that may have an impact on the environment be studied carefully to understand on a holistic basis the complex interactions and implications of activities and any actions that may be taken. This can and should include a careful evaluation of regulatory actions intended to deal with the environmental concerns. There are many examples of regulatory actions that have inadvertently transferred the problem from one aspect of the environment to another or have created other environmental problems, perhaps in another country. This does not mean that environmental issues should not be addressed proactively; rather, it argues that they must be addressed on the basis of careful consideration and balancing of the consequences of any regulatory activity. It must be recalled that scientific knowledge about the ocean is still quite limited and new information is developed regularly. For example, emerging scientific information suggests that the seabed in the international seabed area is the repository of valuable genetic resources and materials. The status and regulation of these are not yet certain. Currently it is believed that exchanging coastal ballast water in the mid ocean is a low risk activity because of differences in salinity and other conditions. However, as knowledge about these repositories, particularly those that extend high into the water column, and the international regulatory system is developed, it may come be considered a risk activity to these resources. The implications of this example indicate that in any regulatory system there should be ongoing research efforts to asses the impact of any "solution" and a willingness to review and revise any regulation that might inadvertently add to the problem by requiring an activity that is also ecologically harmful to long term sustainability.

2.4 Conclusion

Sections 1 and 2 have provided an overview of the Legislative Review Project and this Report. Section 2 has outlined some of the law, policy and regulatory design considerations that underlie this Project and Report. The next Section, Section 3, provides a synopsis of the IMO Guidelines and the draft Convention. Section 4 provides a detailed review of the main international conventions and documents that will shape domestic efforts to implement the Guidelines and to lay a foundation for the future IMO Convention.

3 Synopsis and Analysis of the IMO Guidelines and the draft Convention

3.1 The Guidelines

3.1.1 Background

In 1973 an International Conference on Marine Pollution organized by IMO passed Resolution 18 *Research into the effect of discharge of ballast water containing bacteria of epidemic diseases*.[33] In the late 1980s and early 1990s a number of IMO member States presented case study research and argued for international rules on this issue in IMO's Marine and Environmental Protection Committee (MEPC).[34] In 1991, non-binding rules entitled *Guidelines for Preventing the Introduction of Unwanted Organisms and Pathogens from Ships' Ballast Waters and Sediment Discharges*, originally drafted by Canada[35] and modified in a working group, were adopted by the MEPC.[36] These were further developed in light of more experience and adopted in 1993 by the IMO Assembly.[37] In 1994 a Working Group began to examine the possibility of legally binding regulations that tried to address the ship and human safety issues. In 1997 the IMO Assembly adopted Resolution A.868 (20), which revised the earlier Guidelines. One of the more significant features of the revision was the formal adoption of a risk minimisation management approach to the problem, as reflected in the title, *Guidelines for the control and management of ships' ballast water to minimise the transfer of harmful aquatic organisms and pathogens.* The Guidelines are important because they apportion responsibility for prevention to both ships (flag state) and port States. In April 2001, the MEPC Working Group reviewed a draft negotiating text that may become a legally binding convention at some time after 2003. It is discussed below in Section 3.2. The text of the draft Convention has adopted an approach that reflects the more traditional IMO regulatory strategy with its focus on the flag State responsibility with management /certification rules, and little or no emphasis on port State export prevention responsibilities.

3.1.2 Synopsis of the Guidelines

Status

The Guidelines are a Resolution of the IMO Assembly. They are not a convention and are therefore not binding on any State. Essentially they are a recommendation by IMO Member States that countries taking national action on this issue adopt a standardised approach. This is why they are sometimes called voluntary guidelines. This voluntary nature means that a country adopting measures pursuant to it should not impose some aspects of the Guidelines' obligations on foreign flag vessels, to they extent that they affect other international obligations. For example, filing a ballast water report form is not required under the FAL convention, nor does the STCW require that crew be specifically trained regarding the Guidelines issues in order to be certified. However, the text of the Guidelines clearly recognises the existence of national legislation mandating fees, use of alternative ballast exchange zones and reporting requirements. The text of the Resolution also recognises the obligations of States under the 1992 CBD, and *Agenda 21* and the need to adopt a precautionary approach. The main concern in developing the 1997 Guidelines was to encourage States that felt the need to address this issue to do so on the basis of internationally agreed upon practices that seek to ensure ecological protection, subject to securing ship and human safety. However, it is clear that the IMO Assembly recognized the right of States to deal

[33] International Maritime Organization "Alien invaders - putting a stop to the ballast water hitchhikers", *Focus on IMO*. (London: IMO, 1998) at 15. Available at <http://www.imo.org>

[34] Canada and Australia were the earliest countries to pursue this issue as it related to species transfer. In 1988 Canada presented a study report, *The Presence and Implication of Foreign Organisms in Ship Ballast Water Discharged in the Great Lakes* 4 July 1988, MEPC 26/4, IMO.

[35] Some Australian literature suggests that they were based on Australia's domestic guidelines.

[36] Alien invaders, note 33.

[37] IMO Resolution A.774(18).

with issue at national level and in the absence of internationally binding rules. Guideline 11.2 provides that:

> *Member States have the right to manage ballast water by national legislation. However, any ballast water discharge restrictions should be notified to the Organization.*

As noted below in Section 4, this is consistent with State obligations under UNCLOS regarding provision of notice to IMO and other States regarding port entry requirements.

The Annex to the Resolution contains the Guidelines. There are two Appendices to the Guidelines, one is a sample ballast water reporting form. The other sets out procedural standards and safety related considerations for vessels conducting mid ocean exchange of ballast water as their ballast water management method.

The Guidelines

- Are directed to flag State administrations and port state government authorities authorised to administer the Guidelines and other international and national shipping control measures (Guideline 2).
- Deal with "treatment" defined as "a process or mechanical, physical, chemical or biological method to kill, remove or render infertile, harmful or potentially harmful organisms within ballast water."(Guideline 2). Ballast water management involves precautionary water uptake practices and either mid ocean exchange, use of alternative discharge zones, retention of ballast water, use of reception facilities or another approved method (Guideline 9.2) .
- Apply to "all ships" of IMO Member States, however the port State authority determines extent of application. Port authorities can exempt ships from the Guidelines in areas within their jurisdiction. However the Guidelines should apply when developing laws or procedures to restrict ballast water operations (Guidelines 3,4).
- Administrations (presumably both flag and port/coastal State, although technically it is defined as flag State in the Guidelines), are encouraged to maintain and exchange information through IMO regarding fees, alternative exchange zones, domestic laws and regulations, technical research and information, educational materials, reception facilities and contingency plans. States are also asked to notify IMO of their requirements and ships are required to obtain copies of these requirements prior to arrival. Port State authorities have an obligation to publicise treatment requirements for port entry. Conversely shipping organisations and managers should be familiar with these requirements (Guideline 5).
- Flag and crew supply States should ensure training for ships' masters and crews on ballast water and sediment management, including record keeping. MET institutions should include the requirements of the Guidelines in their curriculum and may also include these requirements for competency certificates (Guideline 6).

Ship/flag State regulatory and administrative matters[38]

Ballast Water Management Plan (BWMP): Every ship that carries ballast water should be provided with a vessel specific BWMP to ensure safe and ecological risk minimisation procedures for ballast water management. The BWMP should include: the Guidelines; approval documentation for treatment equipment (if approved); required records, and location of sampling points (Guidelines 7, 8.1.4). An officer should be appointed to be responsible for BWMP related records and reporting forms and to ensure that ballast water management is undertaken. The ship's master has a general obligation to assist with port State monitoring of ballast water by providing the ship's plans, records and identifying sampling points etc. (Guideline 11.10). When taking up or discharging ballast water, the date, geographical location, ship's tanks, cargo holds, ballast water temperature and salinity and the quantity of ballast water loaded or discharged should be recorded on the standardised form appended to the Guidelines. Where a port State requires BWMP treatment and it cannot be undertaken due to weather or other matters this must

[38] There is a natural overlap between these issues and complementary requirements that may be imposed by the coastal/port State.

reported as soon as possible and, where appropriate, prior to entering seas under the port State[39] jurisdiction (Guideline 8.1).

Precautionary Practices. These may be included in an approved BWMP. Ships should use precautionary practices when taking on ballast water to minimise the uptake of potentially harmful organisms and sediment (Guideline 9.1.1.) and tank sediment should be removed on a timely basis in mid ocean or on a controlled basis in port or dry dock (Guideline 9.1.2.). Efforts should be made to avoid discharge of ballast water (Guideline 9.1.3). Ships should use one or more of the following methods to manage ballast water: mid- ocean exchange outside coastal waters (usually outside 200nm) using either a sequential or flow through method. If neither is viable then exchange can occur in a designated zone or water can be discharged to a reception facility or other approved water treatment methods may be used. If this is not possible then ballast water release should retained or discharge minimised (Guideline 9.2). Any exchange procedure must take into account ship safety considerations set out in Appendix 2 to the Resolution.

Port/coastal State regulatory and administrative matters

1. Reception facilities, alternate exchange zones, contingency arrangements. Port authorities should provide reception and treatment facilities for environmentally safe disposal of tank sediments and water (Guidelines 7.2.1 and 7.2.2.). Port States should provide ships with: details of requirements for ballast water management; location of alternative exchange zones; port contingency arrangements and location of reception facilities, fees etc. (Guideline 8.2).

2. Precautionary practices. Port States should complement ships' precautionary uptake practices by identifying and informing ships of areas where ballast water uptake should be minimised including: areas with outbreaks, infestations or known populations of harmful organisms and pathogens; areas with phytoplankton blooms (algal blooms, such as red tides); nearby sewage outfalls; nearby dredging operations; when a tidal stream is known to be the more turbid, and areas where tidal flushing is known to be poor (Guideline 8.2.2). In deciding whether a discharge is a risk port States need to consider the information regarding the age of the ballast water (the older it is, the lower the risk, in theory - 100 days is considered as a minimum for this consideration) and the ecological conditions of the port where ballast water uptake occurred and the port of proposed discharge. Greater diversity suggests lower risk of introduction of any transferred organisms. Port States should undertake biological baseline surveys in order to make this assessment (Guideline 10).

3. National legislation, compliance and enforcement. All IMO member States have the right to manage ballast water by national legislation, however the national requirement should be reported to IMO (Guideline 11.2). When nationally consistent procedures cannot be followed (i.e.subnational requirements) this information should be given to IMO. Any requirements should be environmentally safe, practicable, designed to minimise cost and delays to the ships and as much as possible be based on the Guidelines (Guideline 11.4). These requirements apply to all ships unless exempted by port State authorities, subject to ship safety requirements. In particular port authorities should not require any action of the ship's master that might imperil the lives of seafarers or the safety of the ship (Guideline 11.3). Compliance monitoring and research sampling should be undertaken by the port State authorities by analysing water and sediment samples but in so doing the State must try to minimise delays to ships and should give as much notice and assistance to the ship as possible. Results of the samples should be made available to the ship's operator on request. Samples and analysis can be required before permitting a ship to discharge in environmentally sensitive locations. Any enforcement and monitoring activities should be applied in a fair uniform and nationally consistent manner in each port in the country (Guideline 11.7).

[39] Although it is framed only as port State, many issues relate also to Coastal State jurisdiction for coastal waters.

It can be seen then that the IMO member States foresaw national legislation, ideally adopting the Guidelines approach, requiring reporting, ballast water and sediment management/ treatment and inspection and sampling of vessels entering ports before discharging ballast water. A key feature of the Guidelines is that it is premised largely on a port /coastal State's knowledge of its own waters and the condition of water in other States in order to make a credible assessment of risk from a discharge or uptake of ballast water. Although the requirements are said to apply to every ship, with the port State determining any exemptions, the Guidelines do not appear to envisage sampling of every ship before discharge. Rather, it appears that sampling and analysis would occur for ships perceived as posing a risk, perhaps because of the origin and likely content of the water where the receiving waters are environmentally sensitive, or for compliance monitoring to ensure veracity in reporting or for research regarding the effectiveness of management methods. They also place an onus on the port/coastal State to take responsibility to prevent the spread or export of harmful organisms from its waters to other States and to warn ships of possible problems.

3.2 The IMO draft Convention

3.2.1 Background

The April 2001 meeting of IMO member States' Marine Environment Protection Committee (MEPC) considered a consolidated text of an *International Convention for the Control and Management of Ships' Ballast Water and Sediments*. This draft text was agreed to, in principle, at the April 2001 meeting, with a number of specific issues such as treatment methods and standards left for further deliberations and consideration at the next MEPC meeting (MEPC 47) on the issue in early 2002. It is important to understand that the draft Convention text discussed in this Final Report is not the final convention and changes will be made over the course of the multilateral negotiations. For example, over the 10 months of the Legislative Review Project it has become increasingly clear that mid ocean exchange – the primary ballast water management procedure advocated in the Guidelines - is now viewed by States as an interim method that will be phased out once an acceptable technological solution is developed and vessels are constructed or retrofitted with the approved equipment. Recent acts of international terrorism have heightened national defence concerns in many States, particularly in relation to the threat of biological weapons and warfare. It may be that this closer linkage of national and international security with ecological protection will also have an impact on the content and direction of the future convention.

Despite some uncertainty regarding the future direction of the international legal regime, the draft Convention text approved in April 2001 provides a good indication of the general approach that will be reflected in the final convention, scheduled for adoption by the IMO in 2003 or 2004.

3.2.2 Synopsis of the IMO draft Convention

The Preamble to the draft Convention refers to: the 1992 United Nations Conference on Environment and Development (UNCED) and its request that IMO develop rules on ballast water discharge; the need for a precautionary approach called for by Principle 15 of the *Rio Declaration on Environment and Development;* States' obligations under UNCLOS to prevent the spread of alien species; the conservation and sustainable use of marine biodiversity obligations under the *Convention on Biological Diversity* regime, and the harm caused to public health, damage to property and the environment by the uncontrolled discharge of ballast water and sediments that contain harmful aquatic organisms and pathogens. The Preamble also notes that several States have taken unilateral action,[40] which is also a cause for concern in that there is a need for globally applicable regulations and guidelines for effective implementation and uniform interpretation. This Preamble firmly connects the issue and the draft Convention to the UNEP/WHO biosecurity/state responsibility agenda and the UN

[40] Although the designation of action as "unilateral" appears questionable given the clear recognition of the right of countries to adopt national legislation that was set out in the Guidelines and endorsed by the IMO General Assembly. It should also be noted that in most cases national legislation that has been developed is presented as implementing the IMO Guidelines. See Part II of this Report.

Office for Ocean Affairs (UNCLOS Secretariat) as well as the more traditional IMO concerns about ship safety, cleaner seas and internationally agreed upon standards. It also clearly links it with the sustainable development and integrated management practices advocated at UNCED and in *Agenda 21.* At a macro-system level, this reflects the increasing integration of the various UN agencies.

The draft Convention is currently structured as a short agreement setting out general rights and responsibilities with Regulations on specific matters such as the application and exceptions to the Convention, treatment standards, BWMP, recording requirements, and designation of special areas with differing requirements and supplemental (the precautionary uptake) practices, set out in an Annex, along with two appendices comprising a sample International Ballast Water Management Certificate and a format for the on board Ballast Water Record Book.

The draft Convention text reflects the same structure and regulatory strategy as IMO's umbrella ship source marine pollution prevention instrument, MARPOL73/78, dealing with oil, chemicals, harmful substances in packaged forms, sewage, garbage and air emissions. Originally it was expected that the ballast water standards would become another annex to MARPOL however it now seems more likely that it will be a stand alone convention.

Nevertheless, much of the draft Convention text is drawn from MARPOL73/78, Annex 1, Regulation for the Prevention of Pollution by Oil, which regulates operational and other discharges of oil from ships. Like MARPOL 73/78, flag State responsibility is the locus of control and responsibility in the draft Convention, which provides for certification and recognition of an International Ballast Water Management Certificate, with port State monitoring to ensure compliance with the Certificate requirements. The Certificate will be issued by the flag State after a satisfactory survey of the ship with respect to ballast water management issues. For example, when there is a technological solution developed – likely in the form of treatment equipment and methods - then the survey will relate to ensuring that the equipment and design of each ship meets international treatment and design standards and that the supporting requirements, such as a BWMP, record book etc. are also in place. There will be a set of "existing ship or new ship" requirements for ballast tanks and other equipment design issues, with a schedule under negotiation for phasing out existing ships. As is the case with the MARPOL73/78 agreements it also requires efficient reception facilities for sediment disposal, a vessel Ballast Water Management Plan and Ballast Water Record Book available for inspection. It also provides for inspection and sampling but recognizes potential commercial consequences by providing compensation for "undue delay." Also similar to MARPOL's designated "special areas" formula found in, for example, MARPOL Annex 1 (Reg 10), the draft convention text adopts a two-tier approach to standards and operating requirements. Tier 1 will be the generally applicable standards and Tier 2 will allow a State to designate (based on internationally accepted criteria) "special requirements in certain areas" (Regulations Section C) in which more stringent requirements may be imposed. In addition the draft Convention also recognizes that States, jointly or individually, may also adopt more stringent measures as long as they are consistent with international law (Art.3(3)). It is possible that agreement on Tier 2 requirements may result in removal of this clause.

Unlike the Guidelines, the draft Convention does not specifically address the ballast water treatment or management strategy that ships must adopt, a topic that has been highly controversial. Instead, it requires that each vessel have a BWMP and focuses on the standard of effectiveness required, irrespective of the method used. As noted above it seems likely that mid ocean exchange will be segregated in the Convention and eventually phased out. There has been a great deal of debate on the treatment standard to be adopted. For example, there was at one point questions as to whether the efficacy of mid ocean exchange should be the baseline for evaluating other methods. In that case the standard may then have been a theoretical 100 percent for sequential refill in open seas exchange or 95 percent for the flow-through method. Alternatively it may be a standard based on a particular organism and the vessel type, or it may be a standard using a best available technology approach, or a biological standard based on the receiving environment.[41] The problem is more complicated because methods may differ in their effectiveness for the various organisms and pathogens. For example,

[41] *Standards and Continued Technical Development*, submitted by the USA, 14 February 2001, MEPC 46/3/3 (London: IMO).

Japan prepared a report for the April 2001 MEPC meeting examining the relative merits of several methods using the parameters of ship safety, cost, environmental impact and operational demands.[42] These issues have been the subject of research and discussion by a working group in the MEPC. At the time of writing this Report some proposals have been developed for the consideration of the MEPC at its next meeting. However, as a practical matter, the problem still remains that no equipment or method has yet been developed that has international approval, apart from mid ocean exchange – an operational rather than equipment based approach.[43]

The IMO draft Convention

- Is directed to flag /registry States and the coastal State administrations governing fixed or floating offshore platforms adjacent to the coast (Art.2).
- Applies to ships broadly defined as vessels of any type whatsoever operating in the marine environment (Art. 2) with some specific references included. All ships carrying flags of States Party or operating under the authority of a Party must comply, unless exempted. Ships that are not designed or constructed to carry ballast water, do not undertake international voyages (i.e., staying within one State's jurisdiction, or operate in one State's waters and the high seas), warships, navy or other government non-commercial vessels are exempt, although the latter are encouraged to comply (Art. 4). In addition non Party States' ships' receive no more favourable treatment (no discrimination).
- Deals with ballast water management, meaning the "mechanical, physical, chemical, biological or other processes to kill, remove, render infertile, or avoid the uptake or discharge of harmful aquatic organisms and pathogens within ballast water and sediments"(Art.2) and tank sediments. Sediments are defined as matter settled out of ballast water within a ship. Harmful aquatic organisms or pathogens are defined in Article 2 as organisms and pathogens

  > *...which, if introduced into the sea including estuaries, or into fresh water courses, may create hazards to human health, harm to living resources and aquatic life, damage to amenities, impairment of biological diversity or interfere with other legitimate uses of such areas.*

- Creates a duty to give effect to the Convention, to cooperate with other States to implement and enforce the Convention and to work towards development of Ballast Water Management and standards (Art. 3). In addition, States are required promote and facilitate individual and joint technical and scientific research regarding Ballast Water Management and standards (Art.8).
- Provides that (Article3(3)):

  > *Nothing in this Convention shall be interpreted as preventing a Party from taking individually or jointly, more stringent measures with respect to the prevention, reduction or elimination of the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments, consistent with international law.*

Flag State obligations

1. Flag state/or authority under which a ship is operating must ensure compliance with the Convention. The primary obligation in the draft Convention is on the flag State to require its ships to comply with the Convention. (Art 2(i); Art 5)
2. Legislation and enforcement. Flag States are required to develop laws to prohibit violation of the Convention and provide sanctions adequate in severity to discourage violations (Art.14).
3. Ballast Water Management Plan and related documents. Flag States are required to ensure that all vessels must have a BWMP (in either Spanish, English or French and in the

[42] *Comparison of Treatment Techniques of Ballast Water and Sediments*, submitted by Japan, 16 February 2001, MEPC 46/3/13 (London: IMO).

working language of the crew) (Reg B-1). An officer must be designated as responsible for compliance with the BWMP and for reporting to port authorities. Each ship must carry a Ballast Water Management Record Book for 2 years onboard and a further 3 years under company control, containing the ballast water operations information set out in Appendix II of the draft Convention. These records must be in the crew's language and translated into English, French or Spanish and available to authorities on the basis of a request consistent with international law (Reg B-2).

4. Crew Competence. Crew members engaged in Ballast Water Management and Supplemental Ballast Water Management practices (Reg D-1) must be trained in implementing the BWMP and the procedures specific to that ship (generic and specific training)(Art.7). This is relevant also to crew supply States.

5. International Ballast Water Management Certificate. A specific initial survey and interim surveys to ensure that the vessel is in compliance with the Convention requirements must be carried out by the flag State or nominated organisation (classification society) for vessels 400 and above gross tonnage. Appropriate procedures for other vessels (less than 400 gross tonnes) need to be developed by flag States (Article 9). These surveys will result in an International Ballast Water Management Certificate issued by the flag State which will be recognized by other States (Articles 10. 11, 12, 13) and will be valid for up to 5 years (subject to periodic surveys). Ship design and ballast water management requirements will vary depending on the date of ship construction (Reg A-1; B-3; B-4) and the discharge location (special areas). As noted above the question of discharge standards is not yet resolved as of the date of writing this Report.[44]

6. Ballast Tank Sediments. Tank sediments must also be managed, again with a variation in expectations depending on the construction date of the ship relative to the Convention coming into force (Reg B-5).[45]

Port and coastal State obligations and rights

1. Reception/dry dock facilities. Ports and terminals where ballast tanks are cleaned or repaired must have adequate facilities for sediment reception (Article 6: see also dry-dock procedures under BWMP Reg B-10).

2. Communication. States are required to report to IMO and other Parties requirements and procedures for ballast Water Management including the location of reception facilities and any requirements for ships unable to comply with the Convention (follow their BWMP) for the reasons set out in Regulation A-3 (exceptions relating to emergencies).

3. Inspection and enforcement. Defences/exceptions for not applying the ships BWMP include: the uptake or discharge necessary for ship safety or saving a life at sea;[46] accidental discharge of ballast water as result of damage to the ship or equipment providing all reasonable precautions have been taken and discharge has been minimised (unless the owner, company or officer in charge wilfully or recklessly caused the damage); uptake or discharge for the purpose of minimizing pollution incidents from the ship; or, discharge of ballast and sediment is occurring in the place it was taken up, provided that there is no mixing of the water with other water (Reg, A-3). Inspections are allowed when a ship is in any port or offshore terminal for compliance monitoring purposes. Unless there are clear grounds for believing the ship is in violation of the Convention, inspections are

[44] MEPC 46/3/2, January 19, Section E, fn.76.

[45] It should be noted that the structure of ballast tanks for double hull vessel make provide some special difficulties for sediment management.

[46] The wording of the safety exception/defence has changed from the Guidelines by adopting the usual MARPOL formula for discharges. The draft Convention provides an exception for "the uptake or discharge of ballast water and sediments necessary for the purpose of ensuring the safety of a ship or saving life at sea". As currently drafted, it no longer appears to cover the more usual situation of not discharging or exchanging water in open seas because of safety concerns. In other words, in most cases discharges or intakes will usually occur in the port or coastal waters because safety has prevented discharge/uptake outside these waters. In that case then there is no safety issue in the sheltered port waters that requires the discharge or intake. This potential narrowing of the defence appears to relate to the emerging view that a technical on-board treatment system, rather than mid-ocean exchange will become the norm.

limited to verifying the existence of a valid International Ballast Water Certificate and taking a "brief" sample. However, a ship's movements cannot be delayed to wait for the results of the sample (Art. 15 (1)). If there are clear grounds for believing a ship is in violation of the Convention or if there is a request from another State, combined with "sufficient evidence" that the ship is operating or has operated in violation of the Convention, then a thorough inspection and/or investigation can take place (Art.15(2)(3)(4)). States are required to avoid undue delay or detention and compensation may be available to the ship if delay is undue (Art 16).

4. Protected areas (Tier 2) The draft Convention sets out minimum standard requirements (Tier 1). In addition coastal States may determine that more stringent requirements are warranted in certain areas. This was discussed in detail in an earlier draft of the Convention (December 2000[47]) however the subsequent draft Convention text approved in April 2001 has left this open for further discussion.

It can be seen then that the main difference between the Guidelines and the draft Convention relates to the shift in IMO regulatory emphasis to flag State responsibility and equipment based water treatment. The Guidelines, as pointed out earlier, focus on both ship and coastal/port State actions and are premised on coastal/port State risk assessment and a balance of safety considerations with the use of mid ocean exchange - an operational ballast water management approach. The difficulty with a risk assessment approach is that its effectiveness is contingent on the capacity of the State to make a meaningful assessment based on the reporting procedures and analysis of the report forms, combined with either ballast water exchange or use of alternative discharge zones. Both can be problematic. The former, because it tends to polarise safety and ecological concerns, and the latter, because it too depends on the existence of scientific data to be able to identify appropriate zones for discharge. This information may not be available in many developing, transitional and even developed economies. Forseeably, where a State does not have sufficient capacity to make a risk assessment, there will be a tendency to either ignore the problem or adopt a blanket treatment and testing requirement for all ships. Neither is an optimal solution since in many cases the former will endanger the local marine ecology and the latter will impact negatively on both the port's administrative resources and ships visiting the port. It is therefore understandable that IMO member States appear to prefer the more familiar arena of flag State responsibility and a technological solution. To some degree this approach also tends to allocate costs of rectifying the problem to the shipping industry and shippers.

If the equipment is developed and there is a high level of flag State implementation and ship compliance, then in fact, it is a good solution. However, the equipment has not yet been developed and the hegemony of flag State regulation has been under question for some time. At the same time, there is increasing concern about ecological protection and security in many countries. It is clear therefore that many States will be taking action in this interim period to try to address the problem, with the best preventative approach available. Currently, it appears that the procedures set out in the Guidelines are not inconsistent with the Convention. However, to the extent that national legislation is adopted it needs to be formulated with these differences in mind and should seek to avoid creating future legal conflicts with the multilateral negotiations on the Convention.

4 Relevant International Legal Obligations

4.1 Introduction

The following is a synopsis of many of the existing international obligations of States that affect or maybe affected by the passage of domestic legislation to prevent the spread of harmful aquatic organisms and pathogens in ships' ballast water. It is not intended as an exhaustive list but it serves to

outline the broad range of considerations that affect State regulatory design. It also serves to highlight areas where consequential amendments at the international and national levels may be needed when an international Convention specifically regulating the issue is adopted.

4.2 The 1982 United Nations Convention on the Law of the Sea (UNCLOS).

The United Nations Law of the Sea Convention (UNCLOS) was adopted in 1982 after nearly a decade of negotiations. It came into force in 1994. As of September 2001 it is binding on 137 States, with another 20 States having signed, but not yet ratified, the Convention. There are a number of provisions in UNCLOS relevant to both State rights and responsibilities to act to prevent the spread of harmful organisms and pathogens through ships' ballasting operations. Although there are States not yet party to UNCLOS many of the provisions regarding the extent of State legislative and enforcement rights within the various maritime zones and the nature of State obligations to protect the marine environment and to cooperate are generally regarded as customary international law on the matter. Other international declarations and instruments reinforce and reiterate these obligations. The following outlines the scope of State rights and obligations regarding national legislative action to respond to the issue of unintentional transfer of organisms and pathogens that may be harmful to the marine environment in, *inter alia,* ships' ballast water and sediments.

State responsibility under UNCLOS to take action to protect the marine environment

All States have a duty to protect and preserve the marine environment (Art. 192). This includes a duty to prevent pollution of the marine environment and 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 from all sources of pollution Art. 194(1) (5)). Under Article 194(2) this includes protection of the environment of other States.

> ***Article 194 Measures to prevent, reduce and control pollution of the marine environment***
>
> 2. *States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights in accordance with this Convention. (emphasis added).*

This obligation can include regulation of the activities of all ships registered and operating under the State's flag or authority.

One of the more difficult and still debated questions is whether the transfer of organisms and pathogens from one part of the marine environment to another constitutes marine pollution or whether it is some other form of ecological harm.

Article 1(4) defines marine pollution and Article 1(5) defines dumping as it pertains to operational discharges (emphasis added).

> *1. For the purposes of this Convention: ...*
>
> *(4) "pollution of the marine environment" means the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities;*
>
> *(5) (b) "dumping" does not include:*
>
> *(i) the disposal of wastes or other matter incidental to, or derived from the normal operations of vessels, aircraft, platforms or other man-made structures at sea and their equipment, other than wastes or other matter transported by or to vessels, aircraft, platforms or other man-made structures at sea, operating for the purpose of disposal of such matter or derived from the treatment of such wastes or other matter on such vessels, aircraft, platforms or structures;*

The question is whether potentially harmful organisms or pathogens are "substances", even though the harmful effects clearly fall within the enumerated categories of likely harm.[47] This has ramifications for coastal State enforcement rights. In addition this definition, or a modified version of it, is found in the national legislation of many countries.[48]

It is not a question of whether UNCLOS contains obligations regarding species transfer: It clearly does, both indirectly, under the duty to conserve and protect the marine environment, and directly, under Article 196 which provides that (emphasis added):

> ***Article 196 Use of technologies or introduction of alien or new species***
>
> 1. *States shall take all measures necessary to prevent, reduce and control pollution of the marine environment resulting from the use of technologies under their jurisdiction or control, or the intentional or accidental introduction of species, alien or new, to a particular part of the marine environment, which may cause significant and harmful changes thereto*
> 2. *This article does not affect the application of this Convention regarding the prevention, reduction and control of pollution of the marine environment.*

The inclusion of the phrase "new species" suggests that this obligation is not necessarily limited to identified pests or harmful organisms but also includes the broader issue of the introduction non indigenous or alien species that may cause significant changes in a marine ecosystem.[49] State practice and the terminology adopted in international documents varies considerably with the terms alien species or non indigenous species often used interchangeably in the same document as harmful aquatic organisms and pathogens and invasive species and pathogens. This can be seen as supporting a more liberal and inclusive interpretation of "substances" and "marine pollution" with concern focused on the impact or nature of the harm or potential harm, as opposed to fine distinctions regarding the exact classification of the causal agent.

Similarly, the linkage of organisms with pathogens in the Guidelines and draft Convention appears initially problematic in that it is not clear that introducing a pathogen, such as *cholera,* is marine pollution, although it is clearly a "hazard to human health." However, contemporary understanding of the relationship between contamination, food chains and human food and health security increasingly link health and environment as part of biosecurity. Traditionally the spread of diseases amongst humans or animals has been dealt with under quarantine or border controls such as the International Health Regulations (IHR). However, the question of form or medium and even causation enters into this analysis in the context of the ballast water as a carrier of disease.

It is important to note that in November 2001, at the first Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land - based Activities (GPA), one of most serious concerns identified was the problem of "pathogen laden sewage pollution of bathing beaches and shellfish harvesting areas".[50] It is clear that discharge of untreated sewage is generally considered pollution of the marine environment – indeed sewage generated on board a ship is already regulated under MARPOL 73/78. In the case of ballast water, the same sewage, albeit diluted, is taken up from one port and deposited in another port. In fact,

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[47] Some scholars such as E.Molenaar, *Coastal State Jurisdiction Over Vessel-Source Pollution*, International Law and Policy Series, Vol. 51 (The Hague; Kluwer, 1998), argues that "[T]he expression 'substances' would also comprise the introduction of alien organisms in the marine environment caused by ship deballasting." at 17. Molenaar argues that deballasting is an operational discharge and is captured within the notion of operational vessel source pollution (p.20). Interestingly however, the author classifies operational discharges as intentional pollution whereas the general view is that organism transfer in ballast water is understood as an unintentional vector for species transfer.

[48] This is relevant to domestic legislation in that, if the issue is characterised as marine pollution, it may already fall under existing law governing ship source marine pollution, or may only require a minor amendment to be covered by existing laws and administrative systems. In some cases the definition of marine pollution already incorporates the broader ecosystemic concept of biodiversity protection. Alternatively, the issue of species transfer or biological contamination can be characterised as a matter of pest control/sanitary regulation or other border controls or *sui generis.*

[49] One of the difficulties that has arisen in connection with Article 196 relates to the distinction seemingly drawn in subsection 2 between this obligation and marine pollution. The negotiating history of Article 196 indicates that, in the course of developing this text, there were two distinct duties in mind, that of preventing pollution and the other, (closer to the more recent biodiversity concept) maintaining the natural state of the marine environment. See: M. Nordqvist (ed. in chief), *United Nations Convention on the Law of the Sea 1982. A Commentary,* Vol IV, (Dordrecht: Martinus Nijhoff, 1991) at. 73-76. Although it did not survive the final negotiations it is also interesting that one version of the text imposed a responsibility to restore affected environments to their pre-alien species transfer state. R. Platzöder, (ed.), *Third United Nations Conference on the Law of the Sea: Documents*, Vol X, (New York: Oceana Publications, 1986) at 453.

[50] Conclusions of the Co-chairs from the first Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land –based Activities. Available at: <http://www.gpa.unep.org>

the increase in toxic algal blooms and pathogens is, as noted earlier, a land-based pollution problem arising from the failure of coastal States to address land-based sources such as municipal sewage/wastewater, agricultural runoff (resulting in eutrophication) and aquaculture practices.[51] Ships and shipping are only one link in the chain of causation and in effect, operate as inadvertent messengers, carrying one country's polluted port water to another. However, historically States have been unwilling and unable to deal with the political, social and economic costs of addressing the source of the problem. Hence the focus on the transport link as the point of regulatory intervention and presumably, in the future, liability. [52] The *Montreal Declaration on the Protection of the Marine Environment from Land-based Activities* issued after the GPA (UNEP) meeting in November speaks to the commitment of States to implement a Strategic Plan of Action on Municipal Wastewater. As noted earlier, this should help to reduce the risk that ships face of loading and discharging polluted ballast water.

It can be seen then that the problem of ballast water transfer of harmful aquatic organisms and pathogens may be related to many regulatory regimes at the international level, as will be discussed below in reference to other international agreements.

In fact it is necessary to have a combination of approaches in order to implement a truly preventative approach that begins at the source of the problem. This requires international coordination and agency cooperation. As is the case with designing domestic regulatory systems, questions of agency expertise and sectoral responsibilities should decide the most effective and efficient location of international governance responsibilities for specific problems or activities. The fact that the States attending the 1992 United Nations Conference on Environment and Development (UNCED) called upon IMO to develop international rules on the problem is important. Subsequently Member States have pursued this issue in the forum of IMO, initially with a view to developing rules an annex to MARPOL73/78 – preventing ship source pollution. Although this can be attributed to history and matters of jurisdiction within the UN administrative system, these decisions also reflect the views of countries that have supported this approach.

All of these factors suggest that the prevailing practice and view of States favours an international standards based, ship source pollution prevention model, for dealing with ballast water transfer, at least in terms of the administration and content of rules. There is evidence suggesting that the issue was initially considered by some member States of IMO to be more analogous to risk based quarantine or border controls, a view supported in the forum of the *Convention on Biological Diversity*. However, the increasing likelihood of a technological solution to significantly reduce and possibly even eliminate the risk of transfer in ballast water appears to have shifted the international approach to one more aligned with the MARPOL 73/78 equipment-based model as a means of resolving the difficult conflict between ship and human safety concerns and minimising the impact on the economic development efforts of States.

Although, as discussed above, the wording of Article 196 (2) provides some ambiguity, Article 196 clearly falls within the obligation under Article 192 and can fairly be regarded to fall with the definition of marine pollution. When Article 196 is read with Article 194, in particular 194 (5), which sets out specific measures that States are to take to prevent, reduce and control pollution of the marine environment from any source, then it can be concluded that ballast water containing organisms and pathogens that may be harmful to or cause significant changes to a part of the marine environment is a form of marine pollution.

This then leads to the question of whether there are specific flag and/or coastal State responsibilities regarding ships ballast water operations. Article 194 is the main Article to be considered. Article 194 provides in part (emphasis added):

[51] This analysis differs however with respect to the question of transferring species from one part of the environment to another.

[52] It is not clear how the polluter pays principle will work in this context.

Article 194 Measures to prevent, reduce and control pollution of the marine environment

1. *States shall take, individually or jointly as appropriate, all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities, and they shall endeavour to harmonize their policies in this connection.*
2. *States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights in accordance with this Convention.*
3. *The measures taken pursuant to this Part shall deal with all sources of pollution of the marine environment. These measures shall include, inter alia, those designed to minimise to the fullest possible extent:*
   b) *pollution from vessels, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, preventing intentional and unintentional discharges, and regulating the design, construction, equipment, operation and manning of vessels;*
4. *The measures taken in accordance with this Part 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.*

As set out earlier a normal operational discharge is not "dumping" under UNCLOS (Art. 1(5)(b)). It appears, therefore, that ballasting operations – discharge in particular - falls within the definition of "any source" in Article 194 and under 194(3).

It should be noted that Article 194 does not distinguish between flag and coastal States. This means that all States have a specific duty to take measures to prevent pollution from ships including preventing intentional and unintentional discharges and to regulate the design, construction, operations and manning of vessels (Art. 194 (3)). However, *de facto*, a coastal State's obligation (or right) to take pollution prevention measures against foreign flag vessels travelling through its Territorial Sea is limited by the regime of Innocent Passage. This regime is found, *inter alia*, in Article 21 (2), which prohibits the application of ship design, construction, manning or equipment legislation to foreign flag vessels, unless it is giving effect to international rules and standards.

States that have a ship registry/ flag fleet, are obliged to adopt laws and regulations to protect the marine environment from pollution from vessels flying their flag or of their registry (Art. 217). There is no ceiling on the stringency of these laws and regulations, however they do have a minimum or floor: they are required to have "at least the same effect" as generally accepted international rules and standards established through the competent international organisation or a diplomatic conference (Art. 211(2)) Flag States are also obliged to ensure flag ship compliance with these rules and standards by passing laws implementing and enforcing them, irrespective of where the violation occurs (Art. 217 (1)(4)). This includes a specific obligation to ensure that flag vessels do not sail unless they comply with international standards, including those pertaining to the design, construction, equipment and manning, and carry on board any relevant internationally required certificates (Art. 217(2) (3)).

It should also be noted that although UNCLOS does not apply to government non-commercial vessels, warships etc., flag States have an obligation to "adopt appropriate measures" to ensure that these vessels operate in a manner consistent with the obligation to protect and preserve the marine environment (Art.236, Sovereign immunity).

These obligations are relevant to the draft Convention and the Guidelines and are the primary source of a State's obligations to regulate discharges and other sources of marine pollution from its flag vessels, as well as foreign flag vessels entering its waters.

There is also another important, and sometimes overlooked, duty or responsibility of States in this matter. States also have an obligation to cooperate and to develop through the competent international

organisations (such as IMO, UNEP, etc) international rules and standards and recommended practices and procedures to protect and preserve the marine environment.

> ***Article 197 Cooperation on a global or regional basis***
>
> *States shall cooperate on a global basis and, as appropriate, on a regional basis, directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment, taking into account characteristic regional features.*

There are specific obligations to establish and adopt international rules and standards reading vessel source pollution, through the competent international organisation (Art. 197). These and other related rules and standards should be based on scientific criteria, drawing from studies, research and exchange of information regarding, *inter alia,* pathways for pollution (Arts. 200, 201).

This duty to cooperate includes a related duty to notify other potentially affected States and competent international organisations of any imminent or actual damage to the marine environment (Art.198) and to develop joint contingency plans (Art.199).

These provisions may be relevant to a State's obligation to ensure that ships' masters, destination ports, and neighbouring States are warned of any known invasive or harmful organism and to develop effective regional arrangements for countries whose marine ecosystem are closely linked. There is also an obligation to assess the potential environmental impact of an activity (Art. 206) and to provide notice to others if it impacts on their marine environment. This may be relevant to the issue of locating alternative discharge and uptake zones under the Guidelines or the draft Convention.

If this analysis is correct, then States are responsible for fulfilling international obligations to protect and preserve the marine environment from the effects of ballasting operations and are required, under Article 235, to ensure that prompt and adequate compensation is available under their legal systems for damage caused by pollution of the marine environment by persons under their jurisdiction.

> ***Article 235 Responsibility and liability***
>
> 1 *States are responsible for the fulfilment of their international obligations concerning the protection and preservation of the marine environment. They shall be liable in accordance with international law.*
>
> 2. *States shall ensure that recourse is available in accordance with their legal systems for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment by natural or juridical persons under their jurisdiction.*
>
> 3. *With the objective of assuring prompt and adequate compensation in respect of all damage caused by pollution of the marine environment. States shall cooperate in the implementation of existing international law and the further development of international law relating to responsibility and liability for the assessment of and compensation for damage and the settlement of related disputes, as well as, where appropriate, development of criteria and procedures for payments of adequate compensation, such as compulsory insurance or compensation funds. (emphasis added).*

Difficulties in attributing causation, discovering an introduction of a species, the passage of time and the fact that remediation is unlikely, are all problems for the legal system. It should be noted that Article 235 (3) includes the duty to cooperate to develop international law on responsibility, compensation and liability for matters that are not yet addressed.

States' rights to take action to protect the marine environment.

Under UNCLOS States also have correlative rights to take action to protect the marine environment in all waters where the State either has sovereignty or exercises some level of jurisdiction. The regime is detailed and differs between the maritime zones outlined under UNCLOS - Internal Waters, Territorial Sea, Contiguous Zone, Exclusive Economic Zone (there are also combinations of elements

to respond to specific geographical configurations such as archipelago waters, international straits, islands, etc). For this reason the key provisions relevant to each zone or jurisdictional area are set out below. It should be noted that there is a distinction between legislative or prescriptive jurisdiction and enforcement jurisdiction, particularly in connection with foreign flag vessels. The regime governing enforcement rights is primarily under Part XII of the UNCLOS. These rights are very complex and depend on a range of factors[53] including the restrictions – safeguards – placed upon the right to inspect and detain ships to institute proceedings and impose penalties (Arts. 220,226-232). They can only be addressed in part here. The international character of the shipping industry and the tradition of flag State control and ship nationality make this activity more difficult to regulate under domestic legislation than activities over which a State has complete jurisdiction, for example, land based sources of marine pollution.

Internal Waters (landward of baselines) and ports

UNCLOS does not specifically address the scope of coastal State jurisdiction in its Internal Waters, however, in principle the coastal State has the same rights as it has on land (except for newly created internal waters). Aside from specific exceptions in UNCLOS, there is no right of Innocent Passage in most internal waters. In principle a State has a sovereign right to determine the basis of entry into its internal waters (i.e., many ports), subject to the customary practice regarding situations where human lives are in danger and commercial agreements.[54]

Article 211 Pollution from ships

3. *States which establish particular requirements for the prevention, reduction and control of pollution of the marine environment as a condition for the entry of foreign vessels into their ports or internal waters or for a call at their off-shore terminals shall give due publicity to such requirements and shall communicate them to the competent international organization. Whenever such requirements are established in identical form by two or more coastal States in an endeavour to harmonize policy, the communication shall indicate which States are participating in such cooperative arrangements. Every State shall require the master of a vessel flying its flag or of its registry, when navigating within the territorial sea of a State participating in such cooperative arrangements, to furnish, upon the request of that State, information as to whether it is proceeding to a State of the same region participating in such cooperative arrangements and, if so, to indicate whether it complies with the port entry requirements of that State. This article is without prejudice to the continued exercise by a vessel of its right of Innocent Passage or to the application of article 25, paragraph 2. (emphasis added)*

Article 25 (2) entitled "Rights of protection of the coastal State" provides that:

2. *In the case of ships proceeding to internal waters or a call at a port facility outside internal waters, the coastal State also has the right to take the necessary steps to prevent any breach of the conditions to which admission of those ships to internal waters or such a call is subject.*

Although it appears that a country may pass legislation and impose whatever conditions it wants on ships seeking to enter its ports, Article 25(2) must be read carefully in light of the provisions set out below under Territorial Sea, regarding the regime of Innocent Passage and the duty of States under Article 24 (see below) not to hamper Innocent Passage.

UNCLOS does not specifically deal with either the form of or the enforcement and compliance issues arising from port entry requirements. However, in the context of ships voluntarily in a port, it does require that a State investigating ships for potential violations of marine pollution regulations in the Territorial Sea or EEZ of the State, not delay vessels longer than is essential for purposes of the investigation. Physical inspection is limited to inspecting certificates, records and other documents required under international law (Art. 226(1)(a)). Further physical inspection can only be undertaken when there are "clear grounds" for doing so. Where a possible violation is indicated then vessels are promptly released subject to financial security (or sent to a repair yard). However, in most cases the discharge and uptake of ballast water is directly related to the cargo

[53] For example, Articles 211, 217, 218 and 219 and 220 all require a detailed consideration of the ship's location and standard of proof.

[54] R. R. Churchill and A. V. Lowe, *The law of the sea*, (3rd) (Manchester: Juris Publishing, 1999) 62-65 regarding the right to set conditions for access to the port as stated in *Nicaragua*, [1986] ICJ Rep. 14 at 111.

loading operation and would ordinary take place in port and not while the vessel is traversing the EEZ or Territorial Sea.

UNCLOS does not address the question of inspections and sampling, for example, as a port entry requirement nor does it deal with violations of, for example, a requirement for permission before discharging or taking up ballast water. However, it is clear that in that context of quarantine, inspections, before goods or personnel are discharged, are well accepted practices, as are significant sanctions for breaches of those requirements. In principle, the fact the issue is related to marine pollution or a combination of quarantine and marine pollution - biosecurity, should not alter this situation. It would seem therefore that a State could impose similar requirements, unless otherwise agreed, to ballasting operations in a port or internal waters.

However, this is a technical legal reading. The reality is that a country's response is determined by a range of factors and responsibilities relating to the need to ensure availability of efficient competitive international transport to assist in its economic development and also any resource limitations that may exist in its ability to impose these measures.

It will also be recalled that the Guidelines appear to be premised, at least in part (Guideline 11.14), on the notion that permission is required to discharge ballast with permission based on sampling and analysis of samples for environmentally sensitive locations.

The draft Convention does not deal with the question of permission to discharge in internal waters (a port), assuming permission to discharge or take up ballast water is required. However, it is based on an International Ballast Water Management Certificate system (for ships over 400 gross tonnes) or other requirements (for ship less than 400 gross tonnes). State rights are limited to inspection to check compliance with the Convention by verifying a valid Certificate and taking samples (draft Convention Art. 15) . The time required for processing the sample cannot be used to prevent the ship's movement or departure. If there are clear grounds for believing there is a violation of the Convention then there can be a full inspection of the ship. If a violation is detected then the ship can be warned, detained, dismissed or excluded from the port. However, reasonable efforts are to be made to avoid undue delay or detention and ships are entitled to compensation for delays relating to required use of reception facilities or inspections (draft Convention Art 16).

Within the Territorial sea (seaward 12nm from baselines)

The sovereignty of the coastal State in its Territorial Sea is limited by foreign flag ships' right of Innocent Passage. Relevant UNCLOS provisions include (emphasis added):

Article 2 Legal status of the territorial sea

1. *The sovereignty of a coastal State extends, beyond its land territory and internal waters and, in the case of an archipelagic State, its archipelagic waters, to an adjacent belt of sea, described as the territorial sea .*
4. *The sovereignty over the territorial sea is exercised subject to this Convention and to other rules of international law.*

Article 211(4) speaks directly to the question of legislation governing ship source marine pollution in the Territorial Sea.

Article 211 Pollution from vessels

4. *Coastal States may, in the exercise of their sovereignty within their territorial sea, adopt laws and regulations for the prevention, reduction and control of marine pollution from foreign vessels, including vessels exercising the right of Innocent Passage. Such laws and regulations shall, in accordance with Part II, section 3, not hamper Innocent Passage of foreign vessels.*

The prohibition on hampering Innocent Passage and on discrimination is repeated in several other Articles.

Article 24 Duties of the coastal State

1. *The coastal State shall not hamper the Innocent Passage of foreign ships through the territorial sea except in accordance with this Convention. In particular, in the application of this Convention or of any laws or regulations adopted in conformity with this Convention, the coastal State shall not:*
   (a) impose requirements on foreign ships which have the practical effect of denying or impairing the right of Innocent Passage; or
   b) discriminate in form or in fact against the ships of any State or against ships carrying cargoes to, from or on behalf of any State.

Article 25 Rights of protection of the coastal State

1. *The coastal State may take the necessary steps in its territorial sea to prevent passage which is not innocent.*
3. *The coastal State may, without discrimination in form or in fact among foreign ships, suspend temporarily in specified areas of its territorial sea the Innocent Passage of foreign ships if such suspension is essential for the protection of its security, including weapons exercises. Such suspension shall take effect only after having been duly published.*

The regime on the right of Innocent Passage is set out in an number of Articles in UNCLOS. They are set out below with sections that may be relevant to the problem of ballast water management underlined.

Article 17 Right of Innocent Passage

Subject to this Convention, ships of all States, whether coastal or land-locked, enjoy the right of Innocent Passage through the territorial sea.

Article 18 Meaning of passage

1. *Passage means navigation through the territorial sea for the purpose of:*
   (a) traversing that sea without entering internal waters or calling at a roadstead or port facility outside internal waters; or
   (b) proceeding to or from internal waters or a call at such roadstead or port facility.

Article 19 Meaning of Innocent Passage

1 Passage is innocent so long as it is not prejudicial to the peace, good order or security of the coastal State. Such passage shall take place in conformity with this Convention and with other rules of international law.

2. *Passage of a foreign ship shall be considered to be prejudicial to the peace, good order or security of the coastal State if in the territorial sea it engages in any of the following activities:*
   (g) the loading or unloading of any commodity, currency or person contrary to the customs, fiscal, immigration or sanitary laws and regulations of the coastal State;
   (h) any act of wilful and serious pollution contrary to this Convention;
   (l) any other activity not having a direct bearing on passage.

One of the more significant constraints on coastal State legislative activity is found in Article 21(2). The omission of "operations" from 21(2) in effect delineates areas of flag State control and international standards. This means that requiring a ballast water management plan, record book, reporting forms (although they may be contrary to FAL) and requiring the use of mid ocean exchange, an operational ballast water management method, does not fall afoul of this provision. On the face of it, requiring a designated ballast water management officer on foreign flag vessels could be seen as affecting manning.

Article 21 Laws and regulations of the coastal State relating to Innocent Passage

1. *The coastal State may adopt laws and regulations, in conformity with the provisions of this Convention and other rules of international law, relating to Innocent Passage through the territorial sea, in respect of all or any of the following:*

   (d) the conservation of the living resources of the sea;
   (e) the prevention of infringement of the fisheries laws and regulations of the coastal State;
   (f) the preservation of the environment of the coastal State and the prevention, reduction and control of pollution thereof;

(h) the prevention of infringement of the customs, fiscal, immigration or sanitary laws and regulations of the coastal State.

2. *Such laws and regulations shall not apply to the design, construction, manning or equipment of foreign ships unless they are giving effect to generally accepted international rules or standards.*
3. *The coastal State shall give due publicity to all such laws and regulations.*
4. *Foreign ships exercising the right of Innocent Passage through the territorial sea shall comply with all such laws and regulations and all generally accepted international regulations relating to the prevention of collisions at sea.*

These provisions are then further supported in Part XII of UNLCLOS, dealing with enforcement of laws and regulations against foreign flag vessels.

Article 220 Enforcement by coastal States

1. *When a vessel is voluntarily within a port or at an off-shore terminal of a State, that State may, subject to section 7, institute proceedings in respect of any violation of its laws and regulations adopted in accordance with this Convention or applicable international rules and standards for the prevention, reduction and control of pollution from vessels when the violation has occurred within the territorial sea or the exclusive economic zone of that State.*
2. *Where there are clear grounds for believing that a vessel navigating in the territorial sea of a State has, during its passage therein, violated laws and regulations of that State adopted in accordance with this Convention or applicable international rules and standards for the prevention, reduction and control of pollution from vessels, that State, without prejudice to the application of the relevant provisions of Part II, section 3, may undertake physical inspection of the vessel relating to the violation and may, where the evidence so warrants, institute proceedings, including detention of the vessel, in accordance with its laws, subject to the provisions of section 7.*
3. *Where there are clear grounds for believing that a vessel navigating in the exclusive economic zone or the territorial sea of a State has, in the exclusive economic zone, committed a violation of applicable international rules and standards for the prevention, reduction and control of pollution from vessels or laws and regulations of that State conforming and giving effect to such rules and standards, that State may require the vessel to give information regarding its identity and port of registry, its last and its next port of call and other relevant information required to establish whether a violation has occurred.*
4. *States shall adopt laws and regulations and take other measures so that vessels flying their flag comply with requests for information pursuant to paragraph 3.*
6. *Where there is clear objective evidence that a vessel navigating in the exclusive economic zone or the territorial sea of a State has, in the exclusive economic zone, committed a violation referred to in paragraph 3 resulting in a discharge causing major damage or threat of major damage to the coastline or related interests of the coastal State, or to any resources of its territorial sea or exclusive economic zone, that State may, subject to section 7, provided that the evidence so warrants, institute proceedings, including detention of the vessel, in accordance with its laws.*
7. *Notwithstanding the provisions of paragraph 6, whenever appropriate procedures have been established, either through the competent international organization or as otherwise agreed, whereby compliance with requirements for bonding or other appropriate financial security has been assured, the coastal State if bound by such procedures shall allow the vessel to proceed.*
8. *The provisions of paragraphs 3, 4, 5, 6and 7 also apply in respect of national laws and regulations adopted pursuant to article 211, paragraph 6.*

Article 226 Investigation of foreign vessels

1 *(a) States shall not delay a foreign vessel longer than is essential for purposes of the investigations provided for in articles 216, 218 and 220. Any physical inspection of a foreign vessel shall be limited to and examination of such certificates, records or other documents as the vessel is required to carry by generally accepted international rules and standards or of any similar documents which it is carrying; further physical inspection of the vessel may be undertaken only after such an examination and only when:*

(i) there are clear grounds for believing that the condition of the vessel or its equipment does not correspond substantially with the particulars of those documents;

(ii) the contents of such documents are not sufficient to confirm or verify a suspectedviolation; or

(iii) the vessel is not carrying valid certificates and records.

(b) If the investigation indicates a violation of applicable laws and regulations or international rules and standards for the protection and preservation of the marine environment, release shall be made promptly subject to reasonable procedures such as bonding or other appropriate financial security..

2. *States shall cooperate to develop procedures for the avoidance of unnecessary physical inspection of vessels at sea.*

Within the Contiguous Zone (if State has declared one, between 12 and 24nm seaward)

Not all countries claim a contiguous zone and for most purposes this zone falls within the rules pertaining to the EEZ. However Article 33 provides additional specific law enforcement (prevention and punishment) rights, but not legislative jurisdiction to the coastal State for activities that infringe or may infringe specified categories of laws that apply in the territory or territorial sea. In the context of this Project sanitary laws are the most relevant.

Article 33 Contiguous zone

1. *In a zone contiguous to its territorial sea, described as the contiguous zone, the coastal State may exercise the control necessary to:*
   (a) prevent infringement of its customs, fiscal, immigration or sanitary laws and regulations within its territory or territorial sea;
   (b) punish infringement of the above laws and regulations committed within its territory or territorial sea
2. *The contiguous zone may not extend beyond 24 nautical miles from the baselines from which the breadth of the territorial sea is measured.*

Within the Exclusive Economic Zone (seaward from 12nm to a maximum 200nm)

The Exclusive Economic Zone (EEZ) is an area in which the coastal State has exclusive or sovereign rights and responsibilities relating to exploitation of the natural resources (e.g., fish, off shore oil and gas) in that zone. This can include seeking agreement from IMO to declare specially protected areas for applying marine pollution standards other than those currently applicable under international law. It also has enforcement rights (and responsibilities) for international rules and standards or domestic laws giving effect to the international rules and standards governing ship source marine pollution. There are provisions defining the scope of coastal State jurisdiction in the EEZ in different parts of UNCLOS including a number of the Articles already referred to under the Territorial Sea comments. Articles 56 and 211 are two key Articles.

Article 56 Rights, jurisdiction and duties of the coastal State in the exclusive economic zone

In the exclusive economic zone, the coastal State has:

(a) 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, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds;

(b) jurisdiction as provided for in the relevant provisions of this Convention with regard to:
ii) the protection and preservation of the marine environment;

Article 211. Pollution from vessels

5. *Coastal States, for the purpose of enforcement as provided for in section 6, may in respect of their exclusive economic zones adopt laws and regulations for the prevention, reduction and control of pollution from vessels conforming to and giving effect to generally accepted international rules and standards established through the competent international organization or general diplomatic conference.*

6. (a) *Where the international rules and standards referred to in paragraph 1 are inadequate to meet special circumstances and coastal States have reasonable grounds for believing that a particular, clearly defined area of their respective exclusive economic zones is an area where the adoption of special mandatory measures for the prevention of pollution from vessels is required for recognized technical reasons in relation to its oceanographical and ecological conditions, as well as its utilization or the protection of its resources and the particular character of its traffic, the coastal States, after appropriate consultations through the competent international organization with any other States concerned, may, for that area, direct a communication to that organization, submitting scientific and technical evidence in support and information on necessary reception facilities. Within 12 months after receiving such a communication, the organization shall determine whether the conditions in that area correspond to the requirements set out above. If the organization so determines, the coastal States may, for that area, adopt laws and regulations for the prevention, reduction and control of pollution from vessels implementing such international rules and standards or navigational practices as are made applicable, through the organization, for special areas. These laws and regulations shall not become applicable to foreign vessels until 15 months after the submission of the communication to the organization.*

   (b) The coastal States shall publish the limits of any such particular, clearly defined area.

   (c) If the coastal States intend to adopt additional laws and regulations for the same area for the prevention, reduction and control of pollution from vessels, they shall, when submitting the aforesaid communication, at the same time notify the organization thereof. Such additional laws and regulations may relate to discharges or navigational practices but shall not require foreign vessels to observe design, construction, manning or equipment standards other than generally accepted international rules and standards; they shall become applicable to foreign vessels 15 months after the submission of the communication to the organization, provided that the organization agrees within 12 months after the submission of the communication.

7. *The international rules and standards referred to in this article should include inter alia those relating to prompt notification to coastal States, whose coastline or related interests may be affected by incidents, including maritime casualties, which involve discharges or probability of discharges.*

Conclusion

It can be seen from the foregoing discussion and extracts that if the transfer of harmful aquatic organisms and pathogens (alien species) is considered as a problem of ship source marine pollution then a web of safeguards and obligations under UNCLOS are triggered and will affect the design of a domestic regulatory regime. These interconnected rights and responsibilities should not however be understood as an impediment but rather as an attempt to reconcile the interest that all States have in ensuring economic development through international trade with the need and interest that State's have in protecting the marine environment.

The regime set out in UNCLOS can also be seen as a conflict prevention mechanism to avoid unnecessary disputes between countries that are reliant on the use of the ocean space. UNCLOS recognized that "problems of ocean space are closely interrelated and need to be considered as a whole" (Preamble), was based on a careful if not equal balancing of rights and responsibilities.[55]

UNCLOS remains the key source of State responsibility for protection of the marine environment. However, since 1982 the evolution of global comprehension of the relationship between human activities and the environment and the emergence of the concept of sustainable development has taken the next step to an even more holistic or integrated approach based on an ecosystemic view. In a sense this has simply further articulated the vision in UNCLOS. This means that any understanding of the nature of a country's obligation to protect the marine environment and solutions to problems affecting the marine ecosystem must be developed in light of the later and even more universally supported *Agenda 21* and *1992 Convention on Biological Diversity* obligations. These international documents are comprehensive and deal with a wide range of concerns. However, they do contain provisions that

[55] There is a view that there are residual rights held by the coastal State: See, E.Molenaar, note 48.

are relevant to the marine environment and, in particular, to the question of biodiversity protection and the transfer of alien species in ships ballast water. The discussion below is confined to that matter.

4.3 The Rio Declaration and Agenda 21

The *Rio Declaration on Environment and Development* and *Agenda 21: Programme of Action for Sustainable Development* were endorsed by the international community at the 1992 United Nations Conference on Environment and Development. The *Rio Declaration* is one of the key documents affiliated with sustainable development. It comprises 27 key principles supported by all States attending the Conference as a providing guidance for the future development of national and international law, decision making and actions in order to achieve both socio-economic development and environmental protection – two goals that were seen as, ultimately, inseparable. Among the better known of the 27 principles are: the precautionary approach to decisions that may affect the environment; the polluter pays principle (internalisation of costs and use of economic instruments); and, the need for environmental impact assessment. These principles are now reflected in and inform most modern domestic regulatory systems, although the political process of balancing economic and environmental priorities in any one case is never simple.

Agenda 21 is also not an international convention, rather it is a comprehensive global management plan to achieve sustainable development in the 21st Century. Accordingly it is not binding *per se* as a legal instrument of international law, however its influence on subsequent legal and institutional development at all levels and in all sectors has been substantial. The document covers almost all sectors of human activity and environmental interaction. It identifies fragmented or sectoralized governmental decision making as one of the main problems impeding the ability of countries to achieve sustainable development. It is predicated on achieving integrated management of human activities affecting the environment including trade policies, population growth, and resource management, at all levels of governance – international, regional, subregional, national and subnational, including civil society.

Chapter 17 of *Agenda 21* deals with the protection of oceans and coastal areas. Much of it is specifically focused on coastal State responsibility to carry out integrated management of activities affecting the ecological health of oceans and seas. In particular it notes that coastal States should protect marine biodiversity and habitats and conduct surveys, gather and disseminate data, identify fragile areas or areas in need of special protection and carry out environmental impact assessments. Many of these activities overlap with those that are fundamental to effective implementation of the risk assessment based Guidelines that are the concern of this Project.

With respect to sea based activities – shipping – *Agenda 21* primarily calls upon all States to better implement existing conventions and to support the work of IMO and other agencies to develop a international regime to protect the marine environment from shipping related pollution. It also contains a provision directly related to States' international, regional and national commitments to develop international rules governing ballast water discharges to prevent spread of non-indigenous organisms.

> ***Section 17.30 provides that:***
>
> *States, acting individually, bilaterally, regionally or multilaterally and within the framework of IMO and other relevant international organizations, whether subregional, regional or global, as appropriate, should assess the need for additional measures to address degradation of the marine environment:*
>
> *a. From shipping, by:*
>
> *vi. Considering the adoption of appropriate rules on ballast water discharge to prevent the spread of non-indigenous organisms;*

International progress on achieving the goals set out in Agenda 21 will be assessed at the World Summit (a review of progress after 10 years- "Rio +10") an international meeting in September 2002.

4.4 The 1992 Convention on Biological Diversity (CBD) and associated instruments

The 1992 *Convention on Biological Diversity* (CBD) adopted at the same time as *Agenda 21*[56], came into force several years later. As of September 2001, 182 States have declared themselves bound by its provisions.

The CBD sets out States' obligations to protect biological diversity, which includes marine biodiversity. The CBD is based on a systemic or ecosystem view. It can be understood as an elaboration of the holistic approach to understanding and managing the relationship between human activity and the environment, which was articulated in the Preamble to UNCLOS. The focus is on understanding, managing and protecting the interdependence amongst parts of the system as well as the parts themselves. Humans and human activities are understood as a part of, rather than outside, this system.

The CBD defines biological diversity and ecosystem as,

> ***Article 2***
>
> *"biological diversity " means the variability among living organisms from all sources including , inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of they are part; this includes diversity within species, between species and of ecosystems.*
>
> *"Ecosystem" means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.*

The marine ecosystem was also the subject of a specific Ministerial Declaration in 1995, the *Jakarta Mandate on Conservation and Sustainable Use of Marine and Coastal Biological Diversity.*[57]

To the extent that it deals specifically with marine biodiversity the Convention itself must be regarded as building upon and elaborating the State obligations set out in UNCLOS concerning conservation and preservation of the marine environment. Article 22 (2) of the CBD specifically notes this relationship:

> *Contracting Parties shall implement this Convention with respect the marine environment consistently with the rights and obligations of States under the law of the sea.*

Article 8 of the CBD reiterates, on a broader level the obligation found in UNCLOS Art. 196 regarding the introduction of alien or new species. Article 8, In-Situ Conservation, requires, *inter alia,* that:

> *Each Contracting Party shall, as far as possible and as appropriate*:
>
> *h) Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species;*

It important to note that these obligations apply not only to biodiversity in the party State's territory but also to effects on biodiversity elsewhere.

Article 4, Jurisdictional Scope, provides:

> *Subject to the rights of other States, and except as otherwise expressly provided in this Convention, the provisions of this Convention apply, in relation to each Contracting Party:*
>
> *(b) In the case of processes and activities, regardless of where their effects occur, carried out under its jurisdiction or control, within the area of its national jurisdiction or beyond the limits of national jurisdiction.*

It is clear then that most States already have an international obligation to address the problem of alien species transfer, to the extent that it occurs within their territory or because of an activity under their control. This can be understood to include the role of flag States and ship-owning and operating States. It is clearly relevant to the question of State international responsibility to prevent both the

[56] The CBD implements on an international level Chapter 15 of Agenda 21.

[57] (COP Decision II/10)1995. Available at <http://www.biodiv.org.> See also the Recommendations to which it refers: UNEP/CBD/SBSTTA/1/8. 4 August 1995.

export and the import of alien species and pathogens in ships' ballast water. The emergence of rules dealing with ballast water are, therefore, simply the rules designed to deal with one specific pathway or vector amongst others to be addressed by each State.

The development of this Convention does, however, generate some regulatory difficulties in States where differing agencies are responsible for the administration of a particular sector or activity. It should be noted that the CBD is a Convention under the auspices of UNEP, although aspects of it relate to the work of other agencies such as IMO, FAO and UNESCO. The situation will be replicated at a national level because biodiversity protection inherently crosses a number of administrative boundaries relating to, *inter alia*, natural resources, agriculture, urban planning, transport, economic development and environmental protection. In many cases state responsibility for biodiversity obligation are located in the relevant environmental protection agency in each State. This can mean that aspects of some activities such as shipping, which have traditionally been regulated as a discrete sector may now come under the purview of the environmental departments, which often have practices for regulating discharges that are different from those adopted in the international shipping conventions. For example, many countries require an environmental impact assessments or licensing or permits for activities or discharges that may affect the environment. [58] The international ship source pollution prevention agreements have evolved on the basis of ship design and equipment standards and internationally recognized certificates for expedited inspections and rapid transport of goods. The risks of harm have usually been addressed through compensation schemes.

It should also be noted that in a report on Invasive Alien Species, the CBD's, SBSTTA pointed that,"[t]here are several gaps in the regulatory framework associated with transport. These include ship-associated vectors, not covered by IMO Guidelines, such as hull fouling and anchor chains."[59] The same Report also emphasised the key role that pest control/quarantine border control agencies play in implementing measures to prevent alien species introduction.[60] This "biosecurity" border control approach has been adopted in several countries (i.e. Australia and New Zealand) with ballast water transfer, although it is not the approach currently in place under the IMO draft convention.

It is clear that this is a period of transition as governments deal with ideas of integrated management to deal with the issue of biodiversity and with new linkages between security and environmental protection. Irrespective of the particular legal characterisation placement of the issue, it is important that the national and global interest in ensuring accessible, efficient and expeditious transport of goods as an aspect of sustainable development for all countries not be overlooked.

4.5 International Convention for the Prevention of Pollution from Ships, 1973 as amended to 1978 (MARPOL 73/78)

Initially it was understood that the international rules governing ballast water and sediments would be another annex under MARPOL 73/78, which already has international standards for six other forms of ship source pollution: oil, noxious liquid substances in bulk, harmful substances carried by sea in packages, sewage from ships, garbage and air emissions. It now appears that a future convention will be a stand alone instrument, although that may change. The adoption of a format similar to Annex 1 (oil) of MARPOL for the draft Convention would allow for either outcome. Certainly if it was an annex to MARPOL then national level legislative implementation would be simplified, at least with respect to administrative placement and adoption of regulations.

MARPOL is a general or umbrella agreement that has been amended by Protocols in 1978 and in 1997 (NIF), with substance specific regulations set out in Annexes. The Premabular statement to

[58] For example, a court challenge has been filed against the United States Environmental Protection Agency decision to exempt ballast water discharge from permit requirements under the National Pollutant Discharge Elimination system set up under the Clean Water Act. For a good overview of the regulatory issues: see U.S. Environmental Protection Agency Office of Water, *Aquatic Nuisance Species in Ballast Water Discharges: Issues and Options. A Draft Report for Public Comment*, September 10, 2001. Available at <http://www.epa.gov/owow/invasive_species>

[59] CBD, SBSTTA, *Invasive Alien Species,* UNEP/CBD/SBSTTA/6/7, 20 December 2000, p.7. Available at: <http://www.biodiv.org>

[60] Ibid, p. 9.

MARPOL 73 indicates that the original intent of MARPOL was to respond to marine pollution from the "deliberate, negligent or accidental release of oil and other harmful substances from ships…" and to eliminate "intentional pollution of the marine environment by oil and other harmful substances and the minimization of accidental discharges of such substances." Harmful substances are defined inclusively in Article 2 (1) as;

> *"harmful substance means any substance which, if introduced into the sea, 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, and includes any substance subject to control by the present Convention."*
>
> *"Discharge, in relation to harmful substances or effluents containing such substances, means any release howsoever caused from a ship and includes any escape, disposal, spilling or leaking, pumping, emitting or emptying."*

As is the case with UNCLOS discharge is distinguished from dumping.

MARPOL is relevant to the implementation of the Guidelines and the draft Convention even if the draft Convention is not an annex to MARPOL. This is because some States may characterise the issue in their national legislation as ship source marine pollution and amend the MARPOL implementation legislation to include this issue. This will import the basic administrative infrastructure adopted in these countries for MARPOL 73/78.

The draft Convention and MARPOL73/78, especially Annex 1, adopt much the same regulatory formula: an international certificate based on multiple flag State surveys for specified ships; accommodating existing ships and new ship design requirements through a phase in process; ship and human safety defences; a tiered system of discharge standards to deal with marine areas needing additional environmental protection; and, reception facilities. As is the case with the current draft Convention, under Article 5 of MARPOL 73, when a ship is required to hold a certificate then, absent clear grounds, inspection is limited to inspecting the certificate for validity. However, it should be noted that Articles 5 (3) and (4) of MARPOL 73/78 envisage a situation where a ship may be denied entry or subject to other action for breach of the Convention. As with the draft Convention non party States do not get more favourable treatment.

The Guidelines may also be implemented in part under national MARPOL73/78 implementation legislation, however it is important to recall that there are coastal/port State responsibilities in the Guidelines that are not part of MARPOL.

4.6 International Convention for Safety of Life at Sea, 1974 (SOLAS) as amended including the ISM Code

The SOLAS Convention is a comprehensive code that sets international standards for minimum equipment and other requirements for ensuring safety in ship operations, including ship stability. These standards are implemented and enforced through national legislation. It is relevant to the question of ballast water management, in that any treatment or management system must meet these requirements. For example, concerns have been expressed that using mid ocean exchange or even sequential exchange for ballast water management may put a ship's master in contravention of SOLAS Chapter II-1, Regulation 22 (part of intact stability) which requires that the vessel's master be supplied with information permitting him or her to quickly and easily calculate the stability of the vessel under varying conditions of service (and of the parts of SOLAS). Given the multiple variables affecting stability in a ballast exchange while the vessel is enroute, compliance may prove difficult. It is not within the scope of this Report to evaluate each of these technical requirements however, it is clear that the existing SOLAS requirements will need to form part of the overall assessment of safety and vessel stability and strength.[61] In addition when a future Convention is adopted, parts of SOLAS and relevant national legislation may need to be amended. The current relevance of SOLAS from the perspective of domestic regulatory design is that a ship's master should not be forced by law to carry

[61] Lloyd's Register, "Practical solutions to new ballast-water legislation," *The Naval Architect* (January 2001) 24-26.

out operations that place him or her in a position of non compliance with the international technical standards for ship safety. The emphasis on the overriding interest in ship safety is reinforced in the ballast water Guidelines. Guideline 11.3 provides:

> *... Port States should not require any action of the master which imperils the lives of seafarers or the safety of the ship.*

Although it is an aspect of SOLAS (Chapter IX), the International Management Code for the Safe Operation of Ships and for Pollution Prevention, or more usually the International Safety Management Code (ISM Code) is often discussed separately. The ISM Code is essentially a set of Guidelines for international standards for management practices to implement SOLAS and the IMO pollution prevention conventions. It also provides an internationally recognized Certificate attesting to ships' and companies safety practices and compliance with mandatory rules and regulations. The Code itself is intentionally vague in its wording to allow for changing requirements and rules and would not necessarily require amendment to implement a future Convention or the Guidelines. However, the safety management manuals for evaluating practices would need to be changed to include ballast water and sediment management when these requirements become mandatory.

In connection with ensuring better implementation of safety standards the IMO has also developed tools such as the Formal Safety Assessment (FSA). A recent study tried to apply this tool to ballast water management. It concluded that the FSA could be

> *...usefully applied to the issue of the transfer of non-native species though ship's ballast water in order to clarify the costs and benefits of alternative management options [although] [i]t is unlikely to provide simple guidance about the most effective control option.*[62]

4.7 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 as amended in 1995 and 1997 (STCW Convention) and the Seafarer's Training, Certification and Watchkeeping Code (STCW Code)

The STCW Convention and Code set out the international standards for seafarer training and competency. These are the minimum standards (mandatory in 2002) required for a seafarer to obtain an internationally recognized certificate for the position he or she holds on the ship. These requirements, *de facto*, also set the minimum content for the curricula in Maritime Training and Education (MET) institutions. They are implemented in domestic legislation and are integral to the efficacy of the IMO ship safety/pollution prevention regulatory system. They are relevant to implementation of both the Guidelines and the draft Convention in that both require an officer/crew to be responsible for the documentation and safe implementation of the ship's Ballast Water Management Plan and precautionary ballast uptake practices. The STCW requirements, in particular the detailed Code, will need to be altered to take into account ballast water and sediment management practices when an international convention is adopted.

With respect to immediate implementation of the Guidelines, however, it is important to realize that the STCW requirements are only minimum requirements. A State can put in place additional requirements for education, training and even competency certification with respect to its MET institutions, seafarers and fleet, although these additional national requirements would not be applicable to foreign flag vessels undertaking Innocent Passage in the State's waters. This means that a State can easily be proactive in laying a foundation for the draft Convention, which appears likely to focus on flag State implementation. In fact, if each flag State voluntarily implemented and enforced the Guidelines with respect to its own vessels, the problem would be reduced and many of the concerns about port/coastal State regulatory activity would be eliminated.

[62] Maritime and Coastguard Agency, *Research Project 471: Scoping Study for a Formal Safety Assessment of Ballast Water Management*, MCA (UK). Available at: <http://www.mcagtency.org.uk/min/min0105.htm > Det Norske Veritas carried out the Study (May-July 2000).

4.8 Convention on the Facilitation of International Maritime Traffic, 1965 (FAL) as amended

The FAL Convention came into force in 1967 and has been amended a number of times with the most recent amendments in 1999, coming into force in 2001. The Convention sets out standards and recommended practices for entry related documents and procedures for ships, cargo, crew and passengers travelling from one country to another. The FAL standards are in addition to the Universal Postal Convention and the International Health Regulations requirements. The purposes of FAL are multiple and relate in part to the inherent value in any system with multiple actors, of uniform and consistently applied procedures, which each country can assume have been carried out by the others. This is an important matter for an international industry such as transport that can raise concerns about the movement of unapproved immigration and cargo. The Convention also seeks to avoid a proliferation of differing documentation (forms) and information requirements that can delay the movement of ships and their cargo. It also serves to avoid overburdening ships' masters with a plethora of paper work requirements that may distract from his or her full attention to navigational concerns. The IMO States have developed a number of standardised forms relating to the maximum information requirements that port States are to impose. Recent amendments have dealt with specific issues such as commercial samples, electronic data management processing, stowaways, and illicit drug trafficking etc. Countries are expected to report on any variance from the FAL standards.

Cooperation in reporting on requirements also relates to States' obligations under UNCLOS to report port entry requirements to an international organisation. There is an obvious value in, and need for, an easily accessible international Clearinghouse for this information to support rapid and efficient transport.

Currently, ballast water reporting requirements and procedures as a precondition to port entry appear to be a variance to the international standards under FAL.[63] The FAL Convention would need to be amended when a Convention is adopted. In the interim, countries wishing to implement the Guidelines will need to review their legislation implementing FAL and report any national information requirements and forms to the IMO as a variance on FAL standards. It should be noted that recent FAL documentation encourages electronic filing where possible. It is foreseeable that recent enhanced security requirements and procedures will require revision of FAL standards.

4.9 International Convention on the Control of Harmful Anti-fouling Systems on Ships 2001 (NIF) (Anti-Fouling Convention)

The Anti-fouling Convention is a newly adopted IMO Convention aimed at preventing the introduction of toxic chemicals in the aquatic system, and ultimately the human food chain. The Anti-fouling Convention regulates the chemical content of paint that is used on ships' hulls to prevent aquatic organisms from attaching to it (fouling). Vessel fouling is also an important pathway for the transfer of aquatic species between parts of the marine environment. Paints have been developed that are very effective in preventing fouling, thereby reducing the risk of transfer posed by this pathway. However the most effective paints are also highly toxic and, once the Convention comes into force, are prohibited. This in turn means that ship fouling may once again pose a risk of species transfer. It was pointed out earlier the *Convention on Biological Diversity's* SBSTTA Committee has called for action with respect to this pathway. It also noted the problem that,

> *[t]he conflict between effective chemical and biological control for aquatic species (e.g., molluscs) and the desired reduced pollution to these environments seriously hampers control through existing measures... Gaps in prevention tools are being created by the elimination of fumigants and pesticides due to environmental concerns...The same loss of tools is true in marine systems, in which hullfouling is a major vector of maritime organisms along shipping routes.*[64]

[63] It may not be the case if it is framed as an aspect of the International Health Regulation requirements, however the IHR also do not necessarily have this requirement either.

[64] Note 6 at 13

4.10 International Health Regulations 1969 (IHR) and plant and animal health agreements

The *International Health Regulations* (IHR) were developed by the World Health Organization to support global health security by preventing the spread of listed highly infectious diseases such as plague and cholera, through border controls measures (quarantine). More recently, efforts have been devoted to eliminating the sources of these diseases. The IHR are currently under revision to " provide a new framework for assessing and containing urgent public health risks of international importance" including non infectious risks such as toxins and chemicals.[65]

The IHR require that the master of a vessel making an international voyage assess the state of health on board and file the standardised Maritime Declaration of Health with the first port of call in a territory (unless not required by the country) (Article 77). It will be recalled that IHR requirements are explicitly recognised under FAL. If satisfied, the relevant health inspection authority of the port will grant the vessel "free pratique" that is, permission for the ship to enter the port, disembark and commence operations. The IHR are intended to protect health security with a minimum of interference with world traffic. This means that there are also limitations on the health related requirements that can be imposed. For example,

> ***Article 81***
>
> *No health document, other than those provided for in these Regulations, shall be required in international traffic.*
>
> ***Article 23***
>
> *The health measures permitted by these Regulations are the maximum measures applicable to international traffic, which a State may require for the protection of its territory against the diseases subject to the Regulations.*
>
> ***Article 28***
>
> *Except in case of an emergency constituting a grave danger to public health, a ship or an aircraft, which is not infected or suspected of being infected with a disease subject to the Regulations, shall not on account of any other epidemic disease be refused free pratique by the health authority for a port or an airport; in particular it shall not be prevented from discharging or loading cargo or stores, or taking on fuel or water.*
>
> ***Article 29***
>
> *A health authority may take all practicable measures to control the discharge from any ship of sewage and refuse which might contaminate the waters of a port, river or canal.*
>
> ***Article 30***
>
> *1 The health authority for a port or an airport or for the area in which a frontier post is situated shall take all practicable measures:*
> *(a) to prevent the departure of any infected person or suspect;*
> *(b) to prevent the introduction on board a ship, an aircraft, a train, a road vehicle, other means of transport, or container, of possible agents of infection or vectors of a disease subject to the Regulations.*
>
> ***Article 32***
>
> *1. No health measure shall be applied by a State to any ship which passes through waters within its jurisdiction without calling at a port or on the coast.*
> *2. If for any reason such a call is made, the laws and regulations in force in the territory may be applied without exceeding, however, the provisions of these Regulations.*

The *International Plant Protection Convention* (IPPC) came into force in 1952.[66] It was developed to create an international framework and standards to prevent the introduction of pests of plants and plant products though international trade. It is administered by FAO at the international level. At the domestic level it is usually administered by agencies dealing with issues such agriculture, forestry or

[65] See: <http://www.who.int/emc/IHR/int_regs.html>
[66] See: <http://sedac.ciesin.org/entri/register/reg-009.rr1.html>

fisheries, or in one case a specialized biosecurity agency. There are similar standards developed for animals[67], including the *International Aquatic Animal Health Code* 2001[68], which addresses diseases and disease control in aquatic animals.

The IHR, IPPC and other standards related to animal health security, are relevant to the this Legislative Review project because ships' ballast water and sediments can be a pathway for the transport and introduction of human health diseases (pathogens) such as various strains of *cholera* and pests and diseases that can affect plants and animals. None of the existing agreements fully addresses the range of concerns, particularly those related to biodiversity and ecosystem protection, that are posed by ballast water transfer of aquatic organisms. However, the international and national human and plant and animal health security regime offers an alternative regulatory framework at a domestic level to the ship source marine pollution regime. For example, a border control-quarantine framework has been adopted to deal with ballast water discharge in several countries, such as Australia and New Zealand. It is also the approach recommended by the SBSTTA under the CBD. Many of the regulatory measures such as self reporting by vessels prior to entry and certificates are similar to the IMO/UNCLOS marine pollution regime. However, differing institutional actors are involved at both a domestic and international level with differing mandates and approaches to balancing risk management and prevention. For example, unlike ship source marine pollution, *post facto* compensation for harm to health security does not figure large in these regulatory systems. The convergence of human and animal health security and environmental protection means that the relationship between the various regimes and actors needs to be considered in order to ensure efficient and effective responses to these issues.

4.11 1995 FAO Code of Conduct for Responsible Fisheries and subsequent Technical Guidelines

Fisheries are one of the sectors most affected by the introduction of harmful aquatic organisms. This is the case for both capture and aquaculture fisheries. The impact on fisheries relates not only to changes in biodiversity but also to the significant impact on domestic economic[69] and food security. The latter is particularly the case with aquaculture where species are often more vulnerable to fish diseases and blooms that can be toxic to humans. There is also a broader issue of long term food security, since the world fisheries are forecast to be the primary source of protein, especially in developing economies, in the next 20 years.[70] The regulatory responses have focused primarily on intentional transfer of aquatic organisms. For example, the 1995 Food and Agriculture Organization of the United Nation's, *Code of Conduct for Responsible Fisheries* requires, as an aspect of responsible aquaculture that:

> *9.2.3 States should consult with their neighbouring States, as appropriate, before introducing non-indigenous species into transboundary aquatic ecosystems.*

However, FAO's Technical Guidelines for Responsible Fisheries 2, *Precautionary Approach to Capture Fisheries and Species Introductions*,[71] notes that:

> *The numbers of unintended introductions, for example by means of ballast water, greatly outnumber those purposefully introduced for capture fisheries... The difficulty in reversing an introduction and its adverse effects should figure prominently in the decision process on whether to allow an introduction ... Unintended introductions are inherently unprecautionary because they can rarely be*

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[67] The Office International de Epizooties is responsible for developing international standards on preventing the growth and spread of pest and animal diseases. These standards are found in the *International Animal Health Code for Mammals, Birds and Bees* and the *International Aquatic Animal Health Code.* There are a number of other agreements which also deal directly and indirectly with this issue, more usually in connection with procedures regarding intentional introduction of alien species.

[68] See: <http://www.oie.int/eng/normes/fcode/A_00014.htm>

[69] GESAMP (IMO/FAO/UNESCO-IOC/WMO/WHO/IAEA/UN/UNEP Joint Group of Experts on Scientific Aspects of Marine Environmental Protection) *A Sea of Troubles*, Rep. Studies. GESAMP No.70, (Rome: GESAMP, 2001) 13.

[70] Ibid, at 10.

[71] FAO:Rome, 1996. These Guidelines were "Elaborated by the Technical Consultation on Precautionary Approaches to Capture Fisheries (Including Species Introductions) Lysekil, Sweden, 6-13 June 1995". Available at: < http://www.fao.org > under Fisheries / Code of Conduct.

evaluated in advance. A precautionary approach would aim at reducing the risk of such unintended introductions and minimise their impact. [72]

FAO Technical Guidelines 2 also makes the following specific recommendations for implementation in connection with unintended introductions (emphasis added):

117. Although unintended introductions may arise from several sources, such as fouling organisms, removal of natural barriers and aquarium fish trade, ballast water is probably the most significant and troublesome for the fishery sector and, therefore, emphasized here. In the case of ballast water and sediment, desk studies may be undertaken to determine (1) main ballast water sources, (2), volumes of ballast introduced, and (3) likely "hot spots" as sources of introductions.

118. Active research should take place and continue on:

- *a. practical methods for treating organisms in ballast water and sediment;*
- *b. study of dynamics of target species in voyage;*
- *c. study of algal cysts in ships ballast sediment and in port areas;*
- *d. effectiveness of reballasting activities;*
- *e. design changes to ballast water tanks to kill or control harmful species in ballast water, and*
- *f vessel design that will facilitate the treatment and handling of ballast sediments and water*

130. In order to reduce the risk of introductions of organisms in ballast water on capture fisheries in or near deballasting areas, the following methods of prevention include, as recommended by the IMO (1994, Annex B)[NB this refers to the 1994 version of the Ballast Water Guidelines] : (a) non-release of ballast, (b) ballast water exchanges) in or near approved areas; (c) preventing or minimizing uptake of contaminated water or sediment (in shallow water, near dredging operations, during algal blooms); (d) special ballasting facilities on shore; (e) education of crews about ballast-water management procedures, and (f) treatments of ballast water, including changes in temperature and salinity and use of biocides (chemicals).[73]

This Legislative Review Project is not dealing with intentional transport and introduction of organisms, but a State's obligation to manage, protect and conserve fisheries is also triggered by unintentional introductions that have the same and probably even more impact on marine ecosystem biodiversity and fish stocks and their habitat. This means that one option for a regulatory framework at the domestic level is to place it under or otherwise connect it with fisheries protection and conservation legislation and institutional arrangements. FAO Technical Guidelines 2 also comments on this point that:

131. Although the issues of ballast-water transport, fouling organisms and other unintentional introductions may fall outside the mandate of fishery ministries, the fishery sector could contribute to the management of such introductions, which impact upon the industry. This could be accomplished by promoting the establishment and maintenance in the appropriate institution, of an accessible database on ballast or fouling organisms that have a demonstrated impact on fisheries, by promoting a network of experts who would identify problems, assist with species identification, and delimit areas of impact. The fishery sector may be well placed to detect the spread of harmful ballast/fouling organisms and should, therefore, contribute to such databases and networks once established, and may take a lead in instigating action on environmental management.

4.12 General Agreement on Trade and Tariffs 1994 and related Agreements

All States party to the World Trade Organization (WTO) and the agreements it administers, need to consider the scope and operation of legislation and procedures, particularly border control measures for ballast water, that may directly or indirectly have a discriminatory impact on international trade.[74] The WTO and the main trade agreement it administers, the General Agreement on Trade and Tariffs 1994 (GATT) are core elements in the complex international economic regime. The regime comprises numerous sector specific agreements, protocols and understandings that have been negotiated in a

[72] Ibid at pp. 29-30 at paras 106, 108, 110.

[73] Ibid at pp. 31 -34

[74] The full text of all WTO and earlier agreements and helpful commentary describing these texts and their relationship to each other are available on the WTO internet site at: <http://www.wto.org>

series of rounds amongst a growing number of countries (as of December 2001, China was the 144th State party). The general objective of the WTO regime is to facilitate the development of an open, equitable and non-discriminatory multilateral trading system, particularly in goods (now including some services) by reducing domestic barriers to the free movement of goods and services. Initially the GATT was focused on reducing tariffs, many of which were designed to protect domestic industries, on imported goods. Increasingly the scope of inquiry under the trade regime has deepened and it now considers a range of regulatory measures that may negatively impact on the competitiveness of traded goods and services. The GATT has long recognized the validity of non discriminatory domestic measures to protect and conserve, *inter alia*, a State's natural resources and human, animal or plant life and health (Art.XX (b) (g)), however there is no specific environmental agreement. Nevertheless the relationship between environment and trade and sustainable development has become a very important part of the international trade agenda with the establishment of the WTO in 1994, as reflected in the preambular Statements in the Agreement that established it (emphasis added).

> *Recognizing that their relations in the field of trade and economic endeavour should be conducted with a view to raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand, and expanding the production of and trade in goods and services, while allowing for the optimal use of the world's resources in accordance with the objective of sustainable development, seeking both to protect and preserve the environment and to enhance the means for doing so in a manner consistent with their respective needs and concerns at different levels of economic development.*

There is now a specific Committee in the WTO on Trade and Environment that focuses on the "greening" of the trade regime. There are provisions in the WTO trade agreements are specifically relevant to environmental concerns and recognize environmental objectives.

Two important Agreements affecting the design of domestic legislation to protect human health and environment are the 1995 Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) and the Agreement on Technical Barriers to Trade (TBT). The SPS agreement is the more obviously relevant of the two but it is possible that both may be implicated. For example, the SPS Agreement is relevant to concerns about alien species that are classified as pests or diseases. However, this categorisation is linked to work of the international standard setting bodies and Agreements such as the IHR or the IPPC discussed above. The following extracts from the SPS Agreement illustrate the impact of trade agreements on domestic legislative activity in this sphere (emphasis added).

> ***Article 1***
> ***General Provisions***
>
> 1. *This Agreement applies to all sanitary and phytosanitary measures which may, directly or indirectly, affect international trade. Such measures shall be developed and applied in accordance with the provisions of this Agreement.*
> 2. *For the purposes of this Agreement, the definitions provided in Annex A shall apply.*
> 3. *The annexes are an integral part of this Agreement.*
>
> ***Article 2***
> ***Basic Rights and Obligations***
>
> 1. *Members have the right to take sanitary and phytosanitary measures necessary for the protection of human, animal or plant life or health, provided that such measures are not inconsistent with the provisions of this Agreement.*
> 2. *Members shall ensure that any sanitary or phytosanitary measure is applied only to the extent necessary to protect human, animal or plant life or health, is based on scientific principles and is not maintained without sufficient scientific evidence, except as provided for in paragraph 7 of Article 5.*
> 3. *Members shall ensure that their sanitary and phytosanitary measures do not arbitrarily or unjustifiably discriminate between Members where identical or similar conditions prevail, including between their own territory and that of other Members. Sanitary and phytosanitary measures shall not be applied in a manner which would constitute a disguised restriction on international trade.*

4. *Sanitary or phytosanitary measures which conform to the relevant provisions of this Agreement shall be presumed to be in accordance with the obligations of the Members under the provisions of GATT 1994 which relate to the use of sanitary or phytosanitary measures, in particular the provisions of Article XX(b).*

Article 3
Harmonization

1. *To harmonize sanitary and phytosanitary measures on as wide a basis as possible, Members shall base their sanitary or phytosanitary measures on international standards, guidelines or recommendations, where they exist, except as otherwise provided for in this Agreement, and in particular in paragraph 3.*
3. *Members may introduce or maintain sanitary or phytosanitary measures which result in a higher level of sanitary or phytosanitary protection than would be achieved by measures based on the relevant international standards, guidelines or recommendations, if there is a scientific justification, or as a consequence of the level of sanitary or phytosanitary protection a Member determines to be appropriate in accordance with the relevant provisions of paragraphs 1 through 8 of Article 5. Notwithstanding the above, all measures which result in a level of sanitary or phytosanitary protection different from that which would be achieved by measures based on international standards, guidelines or recommendations shall not be inconsistent with any other provision of this Agreement.*

Article 5
Assessment of Risk and Determination of the Appropriate Level of Sanitary or Phytosanitary Protection

1. *Members shall ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations.*
2. *In the assessment of risks, Members shall take into account available scientific evidence; relevant processes and production methods; relevant inspection, sampling and testing methods; prevalence of specific diseases or pests; existence of pest- or disease-free areas; relevant ecological and environmental conditions; and quarantine or other treatment.*
3. *In assessing the risk to animal or plant life or health and determining the measure to be applied for achieving the appropriate level of sanitary or phytosanitary protection from such risk, Members shall take into account as relevant economic factors: the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease; the costs of control or eradication in the territory of the importing Member; and the relative cost-effectiveness of alternative approaches to limiting risks.*
4. *Members should, when determining the appropriate level of sanitary or phytosanitary protection, take into account the objective of minimizing negative trade effects.*
5. *With the objective of achieving consistency in the application of the concept of appropriate level of sanitary or phytosanitary protection against risks to human life or health, or to animal and plant life or health, each Member shall avoid arbitrary or unjustifiable distinctions in the levels it considers to be appropriate in different situations, if such distinctions result in discrimination or a disguised restriction on international trade. Members shall cooperate in the Committee, in accordance with paragraphs 1, 2 and 3 of Article 12, to develop guidelines to further the practical implementation of this provision. In developing the guidelines, the Committee shall take into account all relevant factors, including the exceptional character of human health risks to which people voluntarily expose themselves.*
6. *Without prejudice to paragraph 2 of Article 3, when establishing or maintaining sanitary or phytosanitary measures to achieve the appropriate level of sanitary or phytosanitary protection, Members shall ensure that such measures are not more trade-restrictive than required to achieve their appropriate level of sanitary or phytosanitary protection, taking into account technical and economic feasibility.*
7. *In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of available pertinent information, including that from the relevant international organizations as well as from sanitary or phytosanitary measures applied by other Members. In such circumstances, Members shall seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary or phytosanitary measure accordingly within a reasonable period of time.*

8. *When a Member has reason to believe that a specific sanitary or phytosanitary measure introduced or maintained by another Member is constraining, or has the potential to constrain, its exports and the measure is not based on the relevant international standards, guidelines or recommendations, or such standards, guidelines or recommendations do not exist, an explanation of the reasons for such sanitary or phytosanitary measure may be requested and shall be provided by the Member maintaining the measure.*

Article 7
Transparency

Members shall notify changes in their sanitary or phytosanitary measures and shall provide information on their sanitary or phytosanitary measures in accordance with the provisions of Annex B.

ANNEX A
DEFINITIONS

1. *Sanitary or phytosanitary measure - Any measure applied:*
   (a) to protect animal or plant life or health within the territory of the Member from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms; ...
   (c) to protect human life or health within the territory of the Member from risks arising from diseases carried by animals, plants or products thereof, or from the entry, establishment or spread of pests; or
   (d) to prevent or limit other damage within the territory of the Member from the entry, establishment or spread of pests.

   Sanitary or phytosanitary measures include all relevant laws, decrees, regulations, requirements and procedures including, inter alia, end product criteria; processes and production methods; testing, inspection, certification and approval procedures; quarantine treatments including relevant requirements associated with the transport of animals or plants, or with the materials necessary for their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment; and packaging and labelling requirements directly related to food safety.
3. *International standards, guidelines and recommendations*
   (b) for animal health and zoonoses, the standards, guidelines and recommendation developed under the auspices of the International Office of Epizootics;
   (c) or plant health, the international standards, guidelines and recommendations developed under the auspices of the Secretariat of the International Plant Protection Convention in cooperation with regional organizations operating within the framework of the International Plant Protection Convention; and
   (d) for matters not covered by the above organizations, appropriate standards, guidelines and recommendations promulgated by other relevant international organizations open for membership to all Members, as identified by the Committee.

ANNEX B
TRANSPARENCY OF SANITARY AND PHYTOSANITARY REGULATIONS

Publication of regulations

1. *Members shall ensure that all sanitary and phytosanitary regulations which have been adopted are published promptly in such a manner as to enable interested Members to become acquainted with them.*
2. *Except in urgent circumstances, Members shall allow a reasonable interval between the publication of a sanitary or phytosanitary regulation and its entry into force in order to allow time for producers in exporting Members, and particularly in developing country Members, to adapt their products and methods of production to the requirements of the importing Member.*

Enquiry points

3. *Each Member shall ensure that one enquiry point exists which is responsible for the provision of answers to all reasonable questions from interested Members as well as for the provision of relevant documents regarding:*

(a) *any sanitary or phytosanitary regulations adopted or proposed within its territory;*
(b) *any control and inspection procedures, production and quarantine treatment, pesticide tolerance and food additive approval procedures, which are operated within its territory;*
(c) *risk assessment procedures, factors taken into consideration, as well as the determination of the appropriate level of sanitary or phytosanitary protection; ...*

Notification procedures

5 *Whenever an international standard, guideline or recommendation does not exist or the content of a proposed sanitary or phytosanitary regulation is not substantially the same as the content of an international standard, guideline or recommendation, and if the regulation may have a significant effect on trade of other Members, Members shall:*
(a) *publish a notice at an early stage in such a manner as to enable interested Members to become acquainted with the proposal to introduce a particular regulation;*
(b) *notify other Members, through the Secretariat, of the products to be covered by the regulation together with a brief indication of the objective and rationale of the proposed regulation. Such notifications shall take place at an early stage, when amendments can still be introduced and comments taken into account;*
(c) *provide upon request to other Members copies of the proposed regulation and, whenever possible, identify the parts which in substance deviate from international standards, guidelines or recommendations;*
(d) *without discrimination, allow reasonable time for other Members to make comments in writing, discuss these comments upon request, and take the comments and the results of the discussions into account.*

The TBT Agreement was originally developed in the 1970s. It is primarily concerned with technical requirements, such labelling, testing and certification procedures that are applied to products. These requirements can operate in manner that discriminates directly or systemically against a specific product from another member State. Annex I of the TBT Agreement defines a technical requirement as:

1. Technical regulation

Document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.

The Agreement recognizes the legitimacy of national actions to protect the environment or human, animal and plant health but encourages countries to adopt international standards such as those developed by the International Standards Organization (ISO). Since the Agreement specifically deals with products and ballast water is not a product *per se*[75] it may appear irrelevant. However, the primary trade impact of national ballast water legislation will be experienced by a cargo owner in that delays or refusal of entry to vessels will negatively impact on the goods being carried. If the legislation does not fall within the SPS agreement then, arguably, technical requirements which indirectly create a barrier to the movement of a product may in some cases be captured.

The need to consider the international trade regime, as well as relevant regional economic agreements, when developing regulations that affect commercial trade is now well accepted. The relationship between the international environmental concerns and agreements and the trade agreements is not yet clear but it is the focus of public attention. The two Agreements referred to above indicate that adoption of international standards will tend to support the *bona fides* of domestic legislation. This is further support for the importance of ensuring that national legislation follows the IMO Guidelines and the Convention that will adopted.

[75] Although, Australian quarantine legislation defines it as a "good". The TBT Agreement does not apply to measures covered by the SPS Agreement.

4.13 The ICES Code of Practice on the Introduction and Transfer of Marine Organisms, 1994

The International Council for the Exploration of the Sea (ICES) is an intergovernmental agency, primarily directed at scientific research and protection of the ocean. In 1994 ICES developed a Code of Practice on the introduction and Transfer of Marine Organisms, 1994. The Code is not binding however Member Countries have helped to develop its provisions. Although it is primarily directed at the intentional introduction of marine organisms, it includes the following Section III:

> *Regulatory agencies of all Member Countries are encouraged to use the strongest possible measures to prevent unauthorized and unapproved introductions.*

Introduced species are defined in the Code as

> *(=non-indigenous species, =exotic species)*
>
> *Any species intentionally or accidentally transported and released by humans into an environment outside its present range.*

The introductory notes to the Code from the ICES Working Group Chair refers specifically to Section III in connection with other vectors, in particular ship's ballast water.

The Code set out a number of assessment issues to be considered before permitting any introductions including the need to have a prospectus (assessment) considered by the Council for advice.

The Code is of relevance to this Legislative Review Project in that it represents international opinion as to the need for the strongest possible prevention measures. Although not discussed in the Code it is arguable that designating ballast water discharge zones for high risk water or as an alternative to open seas exchange constitutes intentional introduction of marine organisms. However, part of the difficulty in addressing the problem of ballast water discharges resides in the fact that in many cases no organisms will survive the discharge. Thus it does not fit neatly into the developing rules governing intentional introductions.

4.14 Other

There are many other multilateral, regional and bilateral agreements that may affect or be affected by this issue. It is not within the mandate of this Report to attempt a comprehensive description, however where relevant they should also be considered when designing national legislation.[76]

Research and recommendations from non governmental organisations such as the World Conservation Union's (IUCN) published report, *A Guide to Designing Legal and Institutional Frameworks on Alien Invasive Species*, as well as industry initiatives such as the International Chamber of Shipping (ICS), International Association of Independent Tanker Owners (INTERTANKO), *Model Ballast Water Management Plan* and electronic database of national ballast water legislation, the Shipping Federation of Canada's, *Code of Conduct*, as well as the work of classification societies such as Lloyd's and Det Norske Veritas, to name but a few, also play an important role in shaping the international regimes.

The ICUN publication has been highly influential in the development of ideas to address the overall problem of alien invasive species at a national level. It provides a comprehensive overview of the problem and identifies considerations for developing a domestic regulatory framework to deal with invasive species. It emphasises the importance of integrating alien species issues into strategic planning and the need to adopt an ecosystem approach to avoid the more traditional fragmented approach to management of natural living resources. With respect to ship's ballast water as a transport pathway for alien species it advocates adoption of international standards and recommends that national legal frameworks should be consistent with the IMO Guidelines. Several possible regulatory strategies for dealing with alien invasive species in general are suggested. They range from a new

[76] C. Shine, N. Williams and L. Gundling (Gland Switzerland; IUCN, 2000) at 61.

comprehensive alien species law with new institutional arrangements to minor modifications within existing domestic legislation and agency arrangements. While the former is, perhaps, ideal, the latter is seen as the strategy that "realistically" most countries will adopt. As is the case with the recommendations developed in connection with the CBD, a border control-quarantine system based approach seems to be preferred, although an environmental assessment- permitting process is recommended for intentional introductions.

The importance of prevention and development of the law on state responsibility and liability (private and public) is also emphasized. It is noteworthy that the IUCN publication points out:

> *Many introductions of alien species occur, intentionally and unintentionally, in the context of international trade, transport, travel and tourism. Control measures in this situation may be applied at the point of origin (export), destination (import) or both.*[77]

The issue of point of origin (export) responsibility is dealt with, to some degree, in the IMO Guidelines' requirement that port States warn vessels of any risky areas for ballast uptake (sewer outlets etc), however as noted in an earlier section this is not the focus of the draft Convention. The GPA, which was referred to above in Section 4.2 on UNCLOS, may assist in preventing some aspect of this problem at the place of origin by reducing sewage and other runoff into coastal waters and ports. This suggests that a country's legislation implementing its obligations to prevent the spread of harmful aquatic organisms in ships' ballast water should be coordinated with domestic GPA initiatives. The question of liability for introduction of harmful aquatic marine organisms and pathogens is also an issue that is not yet addressed.

4.15 Conclusion

Section 4 of this Report has identified and outlined the major international agreements and other recommendations that are relevant to effective domestic implementation of the IMO Guidelines and the forthcoming international convention. The discussion in Section 4 illustrates some of the complexities associated with this Legislative Review Project. Many of these complexities are the result of the shift to an ecosystemic integrated management approach to addressing the impact of human activities on the environment. The intersection of health security, economy, environmental protection and national security concerns presents a challenge for coherent governance at the domestic and international levels. The fact that the international convention addressing the issue of ballast water management is under development with no fully satisfactory solution yet identified to prevent the problem, adds another level of difficulty to the task of regulatory design. The nature of the legal and institutional challenge is further illuminated in the six comprehensive Legislative Reviews, summaries of which are found in the next Part, Part II, of this Report. The research and recommendations found in each country Review and the discussion and recommendations in Part III attempt to address this challenge and present options for the best course of national action at this time, to address the problem of the transfer of harmful aquatic organisms and pathogens in ships' ballast water and sediments.

[77] Ibid., p. 49.

Part II:
Project Legislative Reviews

5 The Demonstration Project: Six Countries

5.1 Introduction: The Six Legislative Reviews

Part I of this Report has provided an overview of the Legislative Review Project, this Report and an introduction to the international law and policy context of this Project. Part II comprises a summary of each of the comprehensive Legislative Reviews carried out by Local Legal Consultants (LLC) in Brazil, China, India, Iran, South Africa and the Ukraine. The full texts of the Reviews are available separately from the GloBallast Programme.[78] In carrying out their Reviews the LLCs were guided by and responded to a research framework developed by the Lead Legal Consultant/Project Co-ordinator. The research framework and the Reviews are organised in three Sections: The first two Sections are primarily descriptive and respond to the research areas identified by the Lead Consultant. The third Section of each Review presents the opinion and recommendations of the Consultant based on her or his analysis of the legislative and administrative system in his or her country. Section 3 of each Country Review also presents suggestions for draft legislation that could be adopted in each country to implement the Guidelines and lay a foundation for the future IMO Convention. It must be noted that the draft legislation and comments constitute the legal opinion of the Local Legal Consultants only and does not represent the view of the governments or the Country Focal Points (CFP). However, the CFPs selected the LLCs and had an opportunity to review and comment on a preliminary and final draft of the Legislative Review. The CFPs also presented oral commentary on the recommendations of the LLC at the Legal Workshop at the end of Phase 2 of the Project.

It will be noted in the Summaries of the six country Reviews in the next Section (Section 5.2) of this Report that the Local Legal Consultants' recommendations vary in both the approach and the breadth of their suggestions. These differences, particularly in connection with the institutional recommendations, relate to differing agency configurations and responsibilities, the constitutional structure in each country and the extent to which it has moved towards an integrated approach to ecosystem management.

Section 6 of Part II of this Report also contains a brief summary of legislative models adopted in four other countries, all purporting to implement the Guidelines. Section 6 was prepared for comparison and discussion by the international legal team at the Workshop. This summary is the result of a desk study only and does not represent an in depth legislative review and examination of the operation of the models in the four countries. Section 7 of this Part of the Report provides a conclusion and indication of the implementation related issues that will are addressed in detail in Part III.

5.2 Summaries of the Six Pilot Country Legislative Reviews

The six country summaries in this Section draw upon the comprehensive Legislative Reviews prepared by the Local Legal Consultants. The summary for each country is not intended to replace the full text of the Reviews and readers are referred to the Reviews for a detailed description of the situation in each country and the Local Legal Consultants' analysis and recommendations, including his or her recommended legislation. The summaries in this Section are intended to provide an overview of the range of legal and administrative considerations that countries will encounter when seeking to implement the IMO Guidelines and lay a foundation for the draft Convention. The six countries (Brazil, China, India, Iran, South Africa, Ukraine) in this Project have very different legal and administrative systems and histories. To the extent that there is uniformity in the recommendations and the Reviews, it is largely a result of the extensive international efforts and the long tradition of encouraging international standards and practices in the international shipping - trade related sectors. The internationalising of domestic resource management and environmental standards

[78] A decision was made to make the full text of the six Reviews, which are quite lengthy, available in their entirety, for the purpose of future research efforts. They can be obtained on request to the GloBallast office and are also available online at: <http://globallast.imo.org >

and practices is of more recent origin and is still relatively less developed. It is more problematic because of the potential for a much deeper incursion into States' socio-economic policy making.

5.2.1 Brazil

Summary of Local Legal Consultant Observations

Brazil is a long standing federation comprised of a Federal government, a Federal District, 26 States and numerous Municipalities. Under the Brazilian Constitution political and administrative jurisdiction is divided amongst these levels of government. The Constitution also provides for a separation of power between the executive, legislative and judicial branches of government at the Federal and State level, with Municipalities holding executive and legislative powers only. In some matters authority is exclusive to one level of government, while in others legislative authority operates concurrently, with the Federal government providing general rules on the issue and more specific legislation enacted at the State level. The Federal government has exclusive authority to legislate on *inter alia*, maritime law, navigation services, waters, the port regime, national sanitary measures (quarantine), navigation in lakes, rivers, seas, civil law, criminal law, civil and criminal procedural law and foreign and interstate commerce. It also has exclusive authority to enter international agreements, although domestic legislation must be adopted before the international obligations can be implemented. The Federal government has concurrent authority with the States to legislate on environmental and economic matters. The State governments have concurrent authority to legislate with respect to, *inter alia,* environmental protection, pollution control, liability for environmental damage, conservation of nature, fisheries, fauna and some health matters. Effective environmental protection action initially began at the State level with the adoption and implementation of legislation and the creation of specialised institutions to address environmental issues, including laboratories and training of personnel. These early State laws were based on the concurrent State authority over some aspects of public health. The Federal District (the Capital) is *sui generis* and holds State and Municipal levels of power. Municipalities have authority to legislate on matters of local interest and supplement Federal and State laws. Depending on how an issue is characterised, it can be the subject of legislation at all levels of government. This has given rise to uncertainty in some areas of activity – particularly in cross cutting concerns such as environmental protection and health or questions as to when an issue is of "local interest".

In the Brazilian legal system, a law is a normative act in which general and abstract rules are laid down by the legislative branch. However, specific subjects related to technical and scientific issues (e.g., alien invasive species) must be governed by way of a Decree, which stands for an action taken by the executive branch to regulate the provisions of the respective law to ensure its implementation.

Brazil has been active in ensuring marine (and other) environmental protection and is party to the Convention on Biological Diversity, UNCLOS and MARPOL 73/78 (Annex I, II) and has enacted national legislation implementing most obligations. It is actively developing a modern ecological protection regime modelled on integrated management principles.

Brazil has been developing its integrated coastal management practices at a national level since 1988, when a law was adopted creating the National Coastal Management Plan as part of the National Policy on Sea Resources and the National Environmental Policy. It also created a National Council for the Environment. There is also an inter agency coordination process under the Office of the Inter-Ministerial Commission for the Resources of the Sea. Many of the activities of this Commission are concerned with ensuring a coordinated legislative and administrative response to matter affecting the coastal area, including integrated management of ocean resources and activities.

The national Environment Ministry is responsible for facilitating the process of integrated coastal and marine management, a mandate that includes concerns about marine biodiversity and the

impact of harmful aquatic organisms that are transported in ships' ballast water. The CFP for the GloBallast Programme is located in the Ministry of the Environment.

Under Brazil's national Naval Policy, a number of Ministries have responsibility for safety, marine environmental protection, training and other maritime transport activities. However, the two agencies with primary responsibility for monitoring and enforcement of the legislation are the Brazilian Navy and the Ministry of the Environment.

The Ministry of Health is responsible for dealing with public health and, in particular, quarantine and sanitary surveillance (border control measures) through the Brazilian National Sanitary Surveillance Agency (ANVISA). Under Brazilian law health concerns are not confined to human health.

A number of government Ministries may be implicated, to some degree, in a response to the problem of harmful aquatic organisms and pathogens. However, the Ministry of Health, the Ministry of the Environment and the Brazilian Navy are identified as the agencies with the primary legal responsibility for developing an effective national regime to deal with the flag State, port State and coastal State and health concerns associated with the problem.

Ballast water reporting and inspection requirements are already in place in Brazil under a Directive (sanitation law) issued by ANVISA. The Directive requires ships (ships' agents) on national or international voyages to file a Ballast Water Information Form (based on the IMO Guidelines form) with the relevant ANVISA agency prior to entry to the port. This Form is part of the application for a certificate of *free pratique*, which includes other quarantine matters. Fraudulent reporting is an offence. Any discharge in Brazilian waters of ballast water taken up in a place that may pose a risk to human health or the environment requires permission from the sanitary Authority, after advice from the Environment Ministry and the Maritime Authority. Inspection (water sampling) and laboratory testing of "risky" ballast water may occur or, alternatively, *free pratique* may be issued by radio, without an inspection. The Ministry of Health has also issued a policy statement regarding its approach to implementing the IMO Guidelines, noting that the Guidelines have been provided to the Coordinators of the Sanitary Inspections in each of the States and the related port agencies. The Ballast Water Information Form is said to be required in the 44 sanitation control outlets (ports and terminals). In addition ANVISA is engaged in cooperative research with the Ministry of the Environment to assess the health risk of ballast water discharges and is training 100 port technicians to deal with sampling of ballast water. ANVISA and the Navy are both involved in the work of the IMO MEPC Working Group to develop the international Convention.

Potential authority for ballast water reporting and management requirements is also found under the laws relating to ship source marine pollution, however there is no specific regulation dealing with ballast water, other than oil and toxic substance discharges and general obligations relating to ecological protection. Currently there is no legislation dealing comprehensively with ballast water management, beyond the port entry reporting requirements, under either the marine environmental protection or health law regimes.

Summary of Local Legal Consultant Recommendations

1. Recommendation on Administrative Matters

There should be a national system for integrated management among the agencies (Ministry of Environment, Ministry of Health, Ministry of the Navy, and Ministry of Finance) with responsibility for this issue. This will ensure that flag State (education, training on Brazilian flag ships, etc) and port State enforcement obligations are met, as well ensuring that Brazilian environmental and health protection responsibilities regarding the ecological/health impacts of the discharge of potentially harmful organisms are fully addressed.

It is important to establish a Brazilian Ballast Water Management Plan under the Ministry of Environment, in conjunction with other competent authorities, and without prejudice to the rules

already in effect. There should also be a national policy for the management of ballast water stored and discharged by Brazilian ships into Brazilian territorial waters and on the high seas.

2. Legislative Approach

Brazilian environmental laws reflect a modern ecosystem based approach that is focused on recognizing the relationship between economic activity and environmental concerns. Ballast water issues should not be circumscribed within such a specialised context as international shipping rules; instead, these discussions should be held within the broader realm of environmental rules. The more stringent rules ensuing from this approach, however, should not be seen as an obstacle to maritime transportation activities, but rather as an effective tool for sustainable development.

Legislating on this issue is a very complex task because the Brazilian legal system provides for concurrent jurisdiction of the Federal government, States and Municipalities over environmental protection issues. It is recommended that a new Federal law and environmental rules be adopted to address the major environmental concerns and principles including the need for harmonization of Brazilian law on the issue. More specific rules to implement the law should be issued as a Decree by the executive. It is proposed that "stand alone" comprehensive legislation be adopted (see LLC draft) that addresses the full range of State responsibility under the Guidelines and the future Convention. These specific rules and the federal law would be linked to the proposed Brazilian National Ballast Water Management Plan and other national policies.

Brazilian legislation — following international standards and based on the works developed by multidisciplinary and interdisciplinary groups of study — must clearly set a classification for alien species and typify alien invasive species accordingly. (NB: This recommendation is tied to the initial view of the LLC that an approach based on an Environmental Impact Assessment process and environmental licensing/permitting for untreated discharges be adopted. The Review and the LLC's draft legislation retain some of these elements however the licensing/permitting aspect is no longer emphasized.) The proposed legislation would apply in Brazilian waters including the EEZ and to all ships that use ballast water except warships and government non-commercial ships.

The penalties and legal mechanisms that may apply to ballast water pollution, as well as to aggravating circumstances in the event of alien invasive species, should be reviewed. Strict and direct liability could be prescribed for the polluter, in addition to indirect liability for the flag State.

Summary

Country Concerns: fisheries, shipping, marine biodiversity, human health, integrated coastal management

Proposed Regulatory Characterisation: ecosystem protection and human health

Proposed Legislative Response: Federal – integrated environmental law and specific comprehensive "stand alone" regulation (Law and Decree) to address flag, port and coastal State concerns.

Proposed Administrative Responsibility: joint responsibility - Ministry of Health, Navy, Environment and Finance.

5.2.2 China

Summary of Local Legal Consultant Observations

China's coastline is 18,000 kms long with 126 ports open to international trade. Most big ports are seaports, while some are situated in the river mouths with brackish water. China has flag State (approx. 3.4% of the world tonnage), port State (approx 36,000 vessel from 100 regions visit per

annum) and important coastal State concerns (fisheries, etc.) China has recently experienced an increase in harmful algae blooms ("red tide") and also has concerns about the transfer of epidemic diseases.

China is in a period of significant law reform including adoption of integrated management approaches to environmental protection. Environmental protection is one of its two Basic Policies (the other is Population Control). The Constitution of China states " the State protects and improves the living environment, controls and prevents pollution and other things which cause harms to public." Dozen of laws and regulations have been promulgated for this purpose. As an IMO Member State and Category A Council Member, China is party to most IMO legal instruments relating to maritime safety and marine environment protection. China is also party to UNCLOS and the Convention on Biological Diversity. The China Maritime Safety Administration (MSA) is a member Authority of the MOU of Port State Control in Asia-Pacific Region.

China's has a unified constitutional system with various levels of implementing authority. The constitutional and legal framework of the People's Republic of China comprises the constitution, laws, administrative regulations, local and ministerial regulations or provisions, which are promulgated or amended by the National People's Congress or its Standing Committee, the State Council, the Ministries and Departments under the State Council, and the Provincial or Municipal People's Congress and the Government respectively. The legislative framework of China consists of three levels: laws promulgated by the National People's Congress or its Standing Committee; regulations promulgated by the State Council, and; regulations or provisions promulgated by the Ministries and Provincial People's Congress or local government. In order to implement the relevant laws, the State Council issues regulations or rules, which provide for more detailed and specific requirements. This means that various levels of government and administrations are often involved in implementing national legislation, to varying degrees of specificity.

All the national laws and regulations promulgated by the National People's Congress or the State Council are applicable nationwide. Laws often provide that in the event of inconsistency between the law or regulation and a later international treaty that China is party to, in the absence of a reservation preserving the domestic regulation, the international treaty applies.

Several government organisations are involved in marine environmental protection with national laws and regulations defining their responsibilities and authority. There are numerous national environmental laws that may be relevant to the transfer of harmful organisms and pathogens in ships' ballast water including: The Law of Protection of Environment of the People's Republic of China; The Law for Protection of Marine Environment of the People's Republic of China; The Frontier Quarantine Law of the People's Republic of China; The Law for Prevention of Pollution to Water; The Fishery Law; The Law for Prevention of Pollution by Solid Wastes. There is also a draft Law on the Management and Use of the Sea, which sets in place a licensing system for uses of the sea except anchorage and ports. Some of these instruments, like the Law for Marine Environment Protection, are general and some are specifically related to one or two issues. There are also provincial or municipal provisions, which are locally applicable. National Environment Standards (GB) have been established under these instruments to provide for specific standards in this respect, including environment quality, discharge of pollutants, sampling and methodology. National Standards are an important part of the legal system. Under Chinese law, the National Standards are mandatory and violations are considered offences.

At present there is no detailed environmental law, regulation or standard dealing specifically with ballast water management to prevent the transfer of harmful aquatic organisms, although it is addressed in part under the legal regime dealing with health matters (the Frontier Quarantine Law) and is referred to in the recently amended Law for Marine Environment Protection. Under the Frontier Quarantine Law (since 1987) the sanitary Authority is required to apply sanitary supervision to in and outbound vessels, including supervision of ballast water. Ships are required to declare to the maritime Authority and the quarantine Authority how much ballast water is on board, how much will be discharged and where the water originated. The quarantine Authority can require ships to file a ballast water report form that is similar to the IMO Guidelines Ballast

water report in form. Under specific regulations ships can be required to use to use quarantine anchorage and ships coming from WHO listed infected areas are not allowed to discharge ballast water without disinfection. Breach of the law causing the spread or risk of spread of disease can result in a 3 year prison term or detention and may result in penalties. Because the quarantine formality is the first to be completed when a ship arrives, the quarantine Administration receives ships ballast water report before other relevant Authorities.

Ballast water reporting is also in place for the demonstration port of Dalian and three other ports in the Bohai Sea for research purposes, as an aspect of the GloBallast Programme project work to implement the Guidelines. It is believed that the quarantine Form (ballast water) and the IMO Guidelines' Ballast water reporting form will be combined when China implements the IMO Guidelines.

The national law most relevant to this issue is the Law for Marine Environment Protection, which has regulations dealing with ballast and bilge water discharge in connection with oil pollution. The Law sets out general principles and prohibits, *inter alia*, discharge of ballast water in waters under the jurisdiction of China contrary to regulations and requires that ships report to and obtain permission from the Administration before undertaking activities such as discharging ballast water. Although it does not refer to harmful aquatic organisms the wording is broad enough to provide the basic legal foundation for regulating ballast water discharge. The Regulation for the prevention of marine pollution from ships implements MARPOL 73/78 and refers also to the quarantine requirements. This Regulation is in the process of amendment to conform to the amended Law for Marine Environment Protection. The draft under consideration contains a an article that deals specifically with implementing the IMO Guidelines in order to protect the marine ecosystem and marine biodiversity by minimizing the transfer of harmful aquatic organisms and pathogens through ballast water and tank sediments. Draft Article 33 requires reporting before entry to port and no discharge will be allowed without approval. It also requires filing of the information with quarantine authorities when water is taken WHO listed infected areas. Ships will be required to have a Ballast Water Management Plan, relevant personnel to implement it and carry out recording. Tank sediment must be removed and delivered to shore based facilities and discharge is prohibited in coastal water. Ships are required to take precautionary measures in the uptake of ballast water. It is believed that the Regulation will be adopted in the near future.

Under the amended Law on Marine Environment Protection the following government agencies have responsibility for implementation and would also be involved in ballast water management and organism transfer, on a cooperative basis:

1. The State Administration of Environment Protection (responsible for the general environment protection and pollution control of the country including coordination, supervision in aspects of marine environment protection of the country under the Law for Marine Environment Protection. It is also responsible for the country's implementation of the Convention on Biological Diversity).

2. The China Maritime Safety Administration (MSA) under the Ministry of Communications. (main responsibilities include: flag and port State obligations regarding ships' safety and prevention of pollution from ships under relevant IMO conventions (SOLAS, MARPOL, STCW etc), registration of ships and certification of seafarers and pilots. It does not deal with fishing or military vessels. MSA representatives participate in most IMO meetings and the GloBallast CFP is located in the China MSA).

3. State Administration of Oceanography (responsible for environmental protection issues in connection with offshore oil exploitation, dumping and also for assessments connected to marine environment protection. It may be involved in the ballast water management by participating in the research and monitoring, and assessment and possible licensing (under the Draft Law of Management of Use of the Sea) of possible alternative ballast water exchange zones.)

4. State Administration of Inspection and Quarantine (responsible for implementation of the Frontier Health and Quarantine Law and the Quarantine Law for Import and Export Plants and Animals. It regulates ballast water taken from those infected areas listed by WHO and requires that that it be treated by biocides before discharge.)

5. The Fishery Administration under the Ministry of Agriculture (responsible for the implementation of the Fishery Law, including registration of the fleet and crew. Most fishing ports are separated from the commercial ports).

6. The Provincial and Local Governments (the Provincial People's Congress and Government can promulgate regulations concerning environment protection, transportation and fishing management. But all the local legislation has to be in accordance with the National Law and Regulations. Port Authorities are under the local government. Although Port Authorities are closely related to ships, their main responsibilities are onshore management.)

It can be seen that several government bodies (Administrations) are potentially involved in ballast water management concerns, however the Maritime Safety Administration and the State Administration of Inspection and Quarantine are most directly involved in the ships' ballast water control and management.

Summary of Local Legal Consultant Recommendations

1. Recommendation on Administrative Matters

Under China's legal system a number of agencies can be responsible for differing aspects of an effective response to the problem of the transfer of harmful aquatic organism and pathogens in ships' ballast water. However the administrations that are primarily concerned with the IMO Guidelines (and the future IMO Convention) are the Authorities dealing with Quarantine Inspection (for purposes of health and disease) and the China MSA for all other ship related matters, including flag and port State responsibilities. Other cooperating agencies with responsibilities under the Guidelines are the Ministry of the Environment, the Fishery Administration, the State Administration of Oceanography and the State Administration of Environmental Protection. These agencies would undertake related obligation regarding land based disposal of sediments, fishing vessels and the designation of alternate discharge zones.

2. Legislative Approach

There are already general principles in the law of China dealing with protection of the Marine Environment that provide the legal authority and responsibility for taking action to deal with ballast water management to protect marine biodiversity and prevent pollution of the marine environment. However, there is a need for specific regulations to implement these principles.

There should be a two step process of legislative implementation, which necessarily entails allocation of administrative authority. The best way to implement the IMO voluntary Guidelines for ballast water management is to:

1. Adopt regulations at a State Council level and include an Article (now draft Article 33) in the amendments to the Regulations governing Prevention of Pollution from Ships, which implement Chapter 8 of the Law for Marine Environment Protection. This Article will be dedicated to ballast water management to provide general requirements under the law (as set out above under Observations) regarding: reporting and requirements for approval of discharge of ballast water onboard by ships; record keeping for ballast water operations; ships ballast water management; other measures, as appropriate, to minimize introduction of aquatic harmful organisms and pathogens.

2. Develop provisions at a Ministerial level to include the detailed and more specific requirements, which are recommended by IMO Guidelines. These would be specific Regulations, perhaps developed jointly by the MSA in the Ministry of Communications

and the State Quarantine Administration. These regulations are already under development by both administrations and are likely to include the following: reporting procedures and reporting form, record making and record keeping onboard; measures taken by ships to minimize the introduction of aquatic harmful organisms and pathogens; ballast water management plan on board; control and inspection (including sampling); education and training.

Regulations or amendments to respond to the other issues such as land based disposal of sediments, fishing vessels and designation of alternate discharge zones would be undertaken by the relevant administrations.

Under Chinese law any changes to STCW, the FAL Convention and other IMO conventions (such as the future International Convention on Ballast Water and Sediment Management, if a stand alone Convention or as MARPOL, Annex VII) will automatically become part of the existing national law on these matters.

Summary

Country Concerns: marine ecosystem and diversity protection, fisheries, shipping, human health

Proposed Regulatory Characterisation: human health, marine ecosystem and biodiversity protection

Proposed Legislative Response: general law already exists under the Law of Marine Environment Protection. Regulations to deal with ballast water management should be promulgated at the State Council level with further implementing and detailed regulations issued at the Ministerial level and by administrations responsible for specific aspects (i.e., designation of alternate discharge zones, fishing vessels)

Proposed Administrative Responsibility: joint responsibility for primary obligations - State Administration of Inspection and Quarantine and the Maritime Safety Administration in the Ministry of Communications.

5.2.3 India

Summary of Local Legal Consultant Observations

India is a federation with a constitution that divides power between the Union (Central government) and the States. The subjects on which the Union and the States are competent to legislate are clearly set out in the Schedule of the Constitution. The Union Government controls, *inter alia*, shipping and navigation, port quarantine, fisheries beyond territorial waters and ports, designated as Major Ports. Article 48A of the Constitution also mandates Parliament (Union) to take suitable measures to protect the environment. Ports, other than Major Ports, are the subject of concurrent jurisdiction by virtue of which both the Union and the States can legislate. In the event of inconsistency the law made by the Parliament (Union) prevails.

The Union Government has exclusive authority to enter into treaties and agreements with foreign countries. Parliament has the power to make laws to implement treaties. In order to have force of law domestically any international convention ratified by India has to be specifically incorporated by domestic legislation. However, there is a generally recognized principle that, in the event of doubt, the national law is to be interpreted in accordance with the country's international obligations. India is party to MARPOL 73/78 (Annex I, II), STCW, UNCLOS and the Convention on Biological Diversity.

There are several national Ministries involved in protection of the marine environment. The Ministry of Environment and Forests has overall responsibility for environmental matters and national legislation such as the Environment Protection Act, 1986 and the Wild Life (Protection) Act, 1972. A Wild Life Advisory Board is constituted in every State under the Wild Life Protection Act, 1972, to advise the State Governments on the protection of wild life, conservation

of parks, sanctuaries, and protection of species. Several environmental pollution laws, such as the Water (Prevention and Control of Pollution) Act and the Environmental Protection Act could perhaps deal with the issue of harmful aquatic organisms but both Acts exclude matters within port limits and are not applied to ship source pollution. Every State Government has a State Pollution Board under The Water (Prevention and Control of Pollution) Act, 1974 which has jurisdiction to take such steps as they deem fit in case of any pollution occurring in sea or tidal waters, subject to notification in the Official Gazette. The laws made by the States are applicable within the territorial limits of each State including the coastal waters up to a distance of twelve nautical miles from the coast. However, the jurisdiction of the Pollution Board does not extend to the port limits although it does appear that the discharge of ballast water, which may result in the establishment of harmful aquatic organisms, and pathogens would fall within the definition of "pollution" under the Act.

The Union government has laid down broad parameters regulating various activities in the coastal zone. Indian States that have coasts have an obligation to prepare a Coastal Management Plan for approval by the Ministry of Environment and Forests. There are also Union as well as legislation in several States relating to fisheries protection.

The quarantine laws are administered by the Ministry of Health pursuant to the Indian Ports Act, 1908 and The Indian Port Health Rules 1955. The Indian Port Health Rules are applicable to all ports. However, these are focused on human health and diseases.

The Coast Guard, appointed under the Coast Guard Act 1978, are mandated to take measures to preserve and protect the marine environment, to prevent and control marine pollution and to enforce the laws that apply to India's maritime zones. The Coast Guard works under the supervision of the Director-General of Coast Guards.

The Ministry of Surface Transport has overall responsibility for all legislation relating to surface transport, i.e., Indian Ports Act, 1908, Major Port Trusts Act, 1963 and Merchant Shipping Act, 1958 . The Director-General of Shipping is part of this Ministry and is the authority responsible for implementing the various provisions contained in the Merchant Shipping Act, 1958. The GloBallast Programme CFP is located in the Directorate of Shipping.

The Ministry of Surface Transport has overall responsibility for ensuring that all legislation pertaining to surface transport is complied with. The Merchant Shipping Act, the Indian Ports Act and Major Port Trusts Act all have provisions dealing with ship source pollution. The Merchant Shipping Act implements MARPOL 73/78 with respect to oil pollution and regulates registration of ships and crew competency as well as International Safety Certificates.

The Indian Ports Act, 1908 and the Major Port Trusts Act, 1963 deal with all activities within the port limits, including regulating the movement of vessels, prescribing the procedures of the vessel's call at the ports, prescribing procedures for loading and unloading of the cargo, levy of rates including the power to penalise the erring vessels. The Deputy Conservator is the authority entitled to enforce the Act. Similarly, the Port Officer (Conservator) is the Authority that is responsible for ensuring that the Indian Ports Act, 1908 and related rules and regulations are complied with. The Indian Ports Act, 1908 contains older provision prohibiting the discharge of ballast (from the period when ballast was solid) if it is likely to form a bank or shoal or the same is detrimental to navigation. Similarly, under the Major Ports (Prevention and Control of Pollution) Rules, 1991 discharge of ballast or oil mixture is prohibited within port limits if the oil content exceeds 15 parts per million. The Central government has framed regulations applicable to Major Ports to prevent and control pollution from oil or oil water mixtures related to ships operations.

To date there is no comprehensive legislation governing the discharge and management of ballast water as it relates to the transfer of harmful aquatic organism and pathogens by ships. The Merchant Shipping Act, 1958 applies to all the Indian ships wherever they are and to all foreign flag vessels when they are within territorial waters, continental shelf, exclusive economic zone and other Indian maritime zones. If regulations are made under the Merchant Shipping Act,1958, the Director-General of Shipping, the Principal Officer, Mercantile Marine Department and the

Surveyors are the authorities to enforce and/or implement all issues concerning ballast water exchange. There is a draft amendment to the Merchant Shipping Act, 1958 now with the Ministry of Surface Transport, that combines the regulations contained in other annexures to MARPOL 73/78 and also, possibly, regulations relating to ballast water management. However, the amendments relating to ballast water management assume that an International Convention on Ballast Water Management will be ratified by India and come into force. This means the legislation would, in principle, become enforceable so far as the ballast water management is concerned, only if there is an International Convention.

Summary of Local Legal Consultant Recommendations

1. Recommendation on Administrative Matters

Once an International Convention (and the proposed amendments to the Merchant Shipping Act are in force) the Directorate of Shipping under the Ministry of Surface Transport should have primary responsibility for the issue. This would then apply to India's flag vessels, crew and foreign vessels. The Coast Guard appointed under the Coast Guard Act, 1978 already have adequate powers to protect the maritime environment and to prevent and control marine pollution in the maritime zones.

In the interim, the IMO Guidelines as they relate to reporting, research and discharge questions for harmful aquatic organisms and pathogens can be dealt with by officials appointed under the Major Port Trusts Act, 1963 and the Indian Ports Act, 1908. The Ministry of Health will also have a role to play with respect to requiring reporting of ballast water that may contain pathogens.

India is undergoing changes in its structural arrangements for ports as well as implementing integrated coastal zone management. Both these factors must be taken into account in responding to this issue.

2. Legislative Approach

The Merchant Shipping Act, 1958 is the most appropriate law to address flag and port State obligations on this issue. However, changes to national legislation take a long time. Therefore, it is recommended that changes to the Merchant Shipping Act, 1958 take the form of implementation of an International Convention on ballast water and sediment management, once it comes into force for India.

However the IMO Guidelines as they relate to reporting and ballast water discharge and concerns regarding pathogens could be implemented by amendments and regulations under the Indian Ports Act, 1908. The proposed amendments would also cover the ships engaged in coasting trade, an issue that is not addressed in the draft Convention or the proposed amendment to the Merchant Shipping Act. Since India has an extensive coastline that is rich in biodiversity it needs to address this issue.

The Ballast water reporting form prescribed in the IMO Guidelines should be included as one of the mandatory forms handed over by the Master to the Pilot or Boarding Officer or the other officer of the Port, before *free pratique* is granted by the port authorities. It is desirable that appropriate amendments are made in the "Indian Port Health Rules, 1955", to that effect and to ensure that *free pratique* is not granted to the vessel if the Master of the vessel fails to comply with this requirement.

Summary

Country Concerns: shipping, fisheries, marine environmental protection, and human health

Proposed Regulatory Characterisation: ship source marine pollution, primarily, with related reporting for quarantine matters.

Proposed Legislative Response: Union government, amendments to the Merchant Shipping Act when an International Convention is in force; interim adoption of the IMO Guidelines with respect to reporting and research under Union and State ports legislation.

Proposed Administrative Responsibility: Directorate of Shipping (when an international Convention is adopted) in cooperation with the Coast Guard and Ministry of Health; port officials in the interim period.

5.2.4 Iran

Summary of Local Legal Consultant Observations

Iran is bordered on the north by the oil and biodiversity rich enclosed Caspian Sea and on the south by the Persian Gulf and the Oman Sea, a major international transit route, particularly for oil tankers picking up oil for export from the region. With the development of the Caspian oil resources vessel traffic through the Volga Channel is increasing. The introduction of the predatory Comb Jellyfish (*Meiosis leidyi*) in the Caspian and neighbouring Black Sea has drastically affected the kilka fishing industry (kilka fishing in the Caspian Sea in 2001 decreased by 60% over the prior year resulting in $50million damage to the Iranian industry). Because the seas bordering Iran are shared by other geographically close countries, regional action is essential to the success of any efforts to deal with marine protection issues.

Iran has a unified constitutional structure. Legislative power is exercised by the Islamic Consultative Assembly (Parliament), consisting of representatives of the people. Approvals from this body are ratified by the Guardian Council and implemented the Executive and the Judiciary. Parliament is not allowed to enact laws contrary to the principle and rules of the official faith of the country or the Constitution. Aside from these restrictions the Islamic Consultative Assembly may enact laws on all matters. The Council of Ministers is authorized to pass by-laws and decrees for the purpose of carrying out administrative functions, ensuring implementation of adopted laws, and regulating administrative institutions. Individual Ministers may also draw up regulations and issue circulars within the limits of their duties and the approval of the Council of Ministers.

International conventions, protocols, treaties, and pacts must be formally approved by Parliament. The President is authorised to sign treaties, conventions, agreements and contracts concluded by the government of Iran after ratification by the Parliament. Under the Iranian Civil Code, international treaties and conventions enter into force as a national law, after approval by the Parliament. Iran has acceded to a number of regional and international conventions regarding environmental or marine environmental protection, including the Kuwait Convention (a regional seas agreement among the coastal States of the Persian Gulf and the Sea of Oman) and the Convention on Biological Diversity. The process of accession to MARPOL is underway and it is expected that this Convention and Annex I, II, V will soon be ratified by the Parliament. Many provisions under MARPOL73/78 are already found in national law. Iran has signed but has not become a State party to UNCLOS for reasons relating to transit rights. It is, however, party to the four 1958 Conventions on the Law of the Sea.

Iran has developed a National Biodiversity Strategy and Action Plan (NBSAP), based on integrated management principles, and a supporting Secretariat to implement the provisions of the Convention on Biological Diversity. The Secretariat works with a Steering Committee that includes representatives of the Department of the Environment (DOE), Department of Administration and Planning, Ministry of Science, Technology and Research, Ministry of Jehad-e Keshavarzi (Construction and Rural Development), Ministry of Oil, Ministry of Interior, Ministry of Foreign Affairs, Ministry of Energy, Biodiversity sub-committee of the National Committee for Sustainable Development (NCSD), University of Tehran, the Environmentalists Association (an Iranian NGO) and UNDP.

There are a number of domestic rules and regulations regarding environmental pollution, which the DOE is responsible for, that might relate to harmful aquatic organisms. For example, the Fishing and Hunting Act covers pollution from non-oil substances affecting marine life or the environment. There is also a Water Proper Use Law that includes seas, rivers and other public water resources and requires permits etc for use. There is also a Code of Environmental Protection

Against water Pollution. There are also Codes dealing with any exploration and exploitation from seabed or subsoil of the Iranian maritime zones and any scientific studies being carried out in those areas. There is also an important Fisheries Resources Law administered by the Fisheries Department, which regulates effluents and discharges affecting fisheries. The Health and Medical Education Ministry administers a Code of Environmental Health as well as Quarantine rules. There are quarantine health inspectors that check on board ships for potential diseases. These rules do not deal with harmful aquatic organisms in ballast water and testing of ballast water for disease carriers. The Islamic Penal Code provides imprisonment and penalties for crimes against public health and the environment.

The Ports and Shipping Organization (PSO), which is affiliated with the Ministry of Roads and Transportation, is the Authority that supervises shipping activities in the Iranian waters. It is vested with the responsibility for preventing marine pollution, particularly ship source pollution (i.e. MARPOL and OPRC implementation). The GloBallast Programme CFP is located in the PSO. A Supreme Council, Managing Director and Board of Directors govern the PSO. The Supreme Council includes the Ministries of Roads and Transportation, Economic and Finance Affairs, Defence, the Head of the Budget and Planning Organisation and the Chief Commander of Naval forces. The PSO administers the Oil Pollution Protection Law (Act 1975) in cooperation with DOE, Navy, Air force, oil industry and fisheries. This law covers MARPOL issues relating to oil pollution. There are also Port By-laws administered by PSO that specify the powers and duties of port staff, including controlling the seafarers competency certification, ship survey, ship registration, supervising the implementation of health, quarantine and customs inspections and regulations. The PSO is the responsible authority for the registration of ships and issuance of their nationality certificates. The PSO has also developed a number of directives for inspections relating to international certificates.

There is a 24 hour ETA notice requirement for ships coming to port and within 24 hours of arrival masters must submit relevant documentation under the Facilitation of International Marine Traffic Convention. There is a centralized Harbour Coordination Centre in each major port for filing of documents etc. An R form as well as a quarantine form is filed in order to get berthing facilities. Ships that arrive for provisioning and ballasting purposes only need to submit the original of the last port clearance. Although there is no coastal zone law, there has been an effort to undertake Integrated Coastal Zone Management (ICZM). A department within the PSO is responsible for coordinating coastal zone planning. It is expected that an action plan will be completed in near future.

Summary of Local Legal Consultant Recommendations

1. Recommendation on Administrative Matters

Due to unique characteristics of the Caspian Sea, Persian Gulf and Oman Sea topography and ecology and the water circulation pattern, the implementation of IMO Guidelines by one nation alone cannot prevent the negative impacts of ballast water in these regions: the only solution to the problem is a uniform regional action by all the countries bordering each of these water bodies. The agency that implements and administers the Kuwait Convention is ROPME. It should deal with this issue at the regional Level. Efforts to develop regional arrangements to respond to this issue in the Caspian Sea should also be undertaken.

At the national level the Ports and Shipping Organization affiliated with the Ministry of Roads and Transportation is best placed to implement the majority of the flag, port and coastal State responsibilities under the IMO Guidelines.

2. Legislative Approach

The best way to implement the IMO Guidelines and to minimize the transfer of harmful aquatic organisms and pathogens is, first, a uniform regional legal response all countries bordering the Persian Gulf and Oman Sea, through an agreement which could be an additional protocol to the existing Kuwait Convention. A similar agreement may be reached in the Caspian Sea.

Secondly, national regulations should be adopted by amendment to existing national legislation.

The most practical and immediate approach to implementing the IMO Guidelines is to amend the Act of Protection of the Sea and Internal Water Bodies Against Oil and Oil Products Pollution (1975) administered by the PSO, to include the IMO Guidelines. This Act presently reflects the many of the mandatory regulations of MARPOL and, with some modification and additions, can include the ballast water management regulations and the future International Convention, when it is in force. It is recommended that the PSO review the existing regulations with the aim of making modifications to the benefit of ballast water management. Alternatively the draft regulations proposed by the LLC can be enacted as an independent Act before reaching an agreement at the regional level.

The Act of 1975 should be retitled, perhaps as, the "Act of Protection of waters under the jurisdiction of the Islamic Republic of Iran against oil pollution and discharge of ballast water".

Ballast water reporting forms are already being collected in connection with the GloBallast demonstration site, Khark Island Port. This procedure should also be followed in the Caspian Sea.

Summary

Country Concerns: focus on regional action, fisheries, shipping, marine biodiversity, human health

Regulatory Characterisation: ship source marine pollution

Proposed Legislative Response: amend the current ship source marine pollution legislation or create stand alone regulation under the current law; take corresponding regional action under the regional arrangements

Proposed Administrative Responsibility: Ports and Shipping Organization and relevant regional seas organisations

5.2.5 South Africa

Summary of Local Legal Consultant Observations

South Africa's coastline is bordered by two oceans, with ready access to a third. Its coastline is rich in biodiversity, with a number of sensitive estuaries and associated wetlands. An important aspect of South Africa's response to the problem of ship related transfer of harmful aquatic organisms relates to the fact it has differing ecosystems along its lengthy coastline, which may pose a challenge for setting a single national standard (if such an approach is adopted internationally). It is also situated on a busy international navigation route and is in the process of increasing its waterborne export trade as well as diversifying its economic base to promote activities such as aquaculture and tourism. South Africa is also in the process of legislative and administrative implementation of integrated management of coastal and marine activities.

South Africa is a quasi-federal state in which administration takes place at national, provincial and local levels of government. The basis of the South African legal system is the Roman Dutch common law, as elaborated by the Constitution of the Republic of South Africa, which also includes a Bill of Rights. Together with international law (including a number of environmental and marine related conventions) and innumerable statutes, they comprise the country's legal system.

With the transformation to democracy in 1994, South Africa moved away from the Westminster system of parliamentary sovereignty to one where legislative and executive authority is subject to a Bill of Rights, which includes environmental rights.

> *Everyone has the right— (a) to an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that— (i) prevent pollution and ecological degradation;*

(ii) promote conservation; and (iii)secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

As a result of the inclusion of this right in the Constitution, environmental protection concerns have been given far greater emphasis generally: the Supreme Court of Appeal has stated that

The Constitution, by including environmental rights as fundamental justiciable human rights, by necessary implication requires that environmental considerations be accorded appropriate recognition and respect in the administrative process in our country.

Customary international law is automatically law in South Africa (unless it is inconsistent with the Constitution or an Act of Parliament) however, under the Constitution, international agreements become law only when they are enacted by national legislation. Conventions of a "technical, administrative or executive nature, or an agreement that does not require either ratification or accession" are binding without requiring the approval of the National Assembly and National Council of Provinces, as long as they are tabled in Assembly and the Council 'within a reasonable time'. South Africa is party to UNCLOS, the Convention on Biological Diversity and MARPOL73/78 (but has not ratified Annex IV, VI).

Under the Constitution legislative authority is divided amongst the national, provincial and local levels of government. Some fields of responsibility are exclusive to one level of government: others are concurrent, with residual power in the national government. Areas of concurrent national and provincial legislative competence that are relevant to the management of ships' ballast water release include the broad areas of the environment and nature conservation as well as the more specific areas of pollution control and trade. However, national parks and marine resources are matters of exclusive national competence, dealt with by the Department of Environmental Affairs and Tourism (DEA&T). Health services are also subject to concurrent competence, although health concerns per se are a matter of national competence. For example, quarantine matters are under the authority of the national Department of Health. If there is a conflict between national and provincial legislation in fields of concurrent competence, national legislation prevails where specified conditions are met – these include circumstances where national legislation is necessary in order to protect the environment. None of the listed areas of local government competence appear potentially relevant to the control of ballast water release.

The regulation of international and national shipping and related matters are specifically excluded from local competence and since it is not the subject of concurrent powers is exclusively within the domain of national government, and regulated by the Department of Transport (DoT).

The constitutional situation and the related administrative structure mean that the question of legal characterisation of an issue plays an important role in determining the administrative arrangements and legislative options. For example, if the transfer of harmful organisms and pathogens in ships' ballast water is characterised as either a marine resources and/or a shipping matter, then it is the subject of exclusive national level legislative competence, albeit located in two differing departments. However if it is understood as marine pollution, the matter is less clear, as 'pollution control' is clearly a matter of concurrent provincial and national competence (DOE&T and Provincial agencies). It may be that both national and provincial levels of government have a significant administrative role to play in the regulation of ballast water release. This is a matter best solved by reference to the relevant provisions of the Constitution promoting co-operative governance.

There are a number of Departments of the national government that are potentially involved in effective implementation of the IMO Guidelines.

The national Department of Environmental Affairs and Tourism (DEA&T) and its Directorate of Aquatic and Marine Pollution Control is responsible for coastal and marine water quality as well as the regulation and control of the introduction and elimination of alien organisms throughout South Africa including its marine waters. The GloBallast CFP is located in this Directorate. Depending on the approach adopted under the proposed international Convention on ballast water management, this Department may be responsible for setting water quality standards with which ballast water will have to comply before it is released into SA waters and any special areas where

release may be altogether prohibited. The DOE&T is responsible for a number of existing and forthcoming laws which could be used to regulate ballast water management, including: the National Environmental Management Act (1998); Environment Conservation Act (1989) (provides the legislative basis for environmental impact assessment in South Africa); Marine Living Resources Act (18 of 1998)(provides for the establishment of fishing harbours and their administration); National Coastal Management Bill (Act pending) which provides for Integrated Coastal Management in South Africa and includes a chapter on marine pollution; and, the National Biodiversity Bill (Act pending) which will give domestic effect to South Africa's international rights and obligations under the Convention on Biodiversity. It will include sections on the control and elimination of alien organisms and could also be a possible vehicle for the implementation of the ballast water regulations into South African law and provides for a National Biodiversity Institute for South Africa.

The Department of Transport (DoT) or one of it related agencies might also be involved. Historically the DoT was charged with all aspects of maritime transport including domestic implementation of international maritime conventions but in 1998 the implementation of these was assigned to the South African Maritime Safety Authority (SAMSA), a statutory authority established under the South African Maritime Safety Authority Act (1998). The DoT still retains law-making power in this area but has assigned the implementation of the various laws, especially marine pollution, to SAMSA. SAMSA is primarily concerned with implementing the IMO mission of 'safe clean seas'. It administers and implements most of the shipping related marine pollution control laws, including the Marine Pollution (Prevention of Pollution from Ships) Act (1986), the Marine Pollution (Control and Civil Liability) Act (1981), the Merchant Shipping Act (1951) and the Marine Traffic Act (1981).

Another agency that may be involved is Portnet, an arm of Transnet, a parastatal (similar to a crown corporation or statutory corporation) that took over operation of the DoT's transport services. Portnet and Transnet are under the authority of the Department of Public Enterprise, and are charged with the management and administration of all South Africa's commercial harbours (controls 7 out of 16). Portnet administers the Harbour Regulations for some ports, however it has no authority to prosecute breaches of the law, a function that is handled by the Department of Public Enterprise. The Harbour regulations contain several historical provisions regulating ballast dumping (related to the period when ballast was solid) in the harbours.

Quarantine is dealt with by the Department of Health (DoH), which administers the Health Act (63 of 1977) and the International Health Regulations Act (28 of 1974), however perhaps for reasons of institutional capacity, it does not appear to have a large administrative role in international shipping matters.

Summary of Local Legal Consultant Recommendations

1. Recommendation on Administrative Matters

The legal situation and administrative situation in South Africa is complex and in transition. The fact that South Africa is in the process of implementing an integrated management approach to coastal uses, as a well as biodiversity initiatives, suggests that efforts must be made to develop a coordinated administrative response irrespective of the legal response. The division of administrative and legal authority for port management adds a further level of complexity.

Although a number of administrative agencies could potentially implement or which have an interest in implementing the IMO Guidelines, of these, SAMSA, Portnet and the DEA&T appear to be the key players in implementing a ballast water regime.

SAMSA, whose enforcement jurisdiction covers the territorial sea and the EEZ and whose ship surveyors administer the bulk of the shipping related legislation, and Portnet (port authorities) whose jurisdiction covers only ports, including roadsteads within port limits, but whose officials would play a central role in enforcing any ballast water control measure which may emerge are the other key agencies. Within ports SAMSA also plays an important role, and there is an overlap

between their respective jurisdictions. The DoH plays a peripheral role, but could play a more central role, particularly with respect to co-ordinating inspection functions. It is evident that much room exists for co-ordination and integration of the various inspection functions of the various departments involved.

A broad distinction can be made between two administrative, regulatory and implementation fields involved in addressing this issue: international shipping operations and ecological protection for the receiving environment. . At the same time the legal response should aim to ensure integration and coordination in these two fields. A regulatory regime needs to differentiate between (a) technical/engineering controls which apply while ballast water is on board (under the purview of the DoT/SAMSA) and (b) controls which determine the biological quality of ballast water when it is (about to be) released into marine and/or coastal waters (DEA&T). For this reason a bifurcated approach is recommended with either DEA&T or DoT (SAMSA) as the lead agency in implementing the regulatory regime and various roles assigned to other governmental and non-governmental agencies regarding the implementation of the draft regulations proposed by the LLC. The draft regulations in the LLC's Review are premised on the development of national and port specific Ballast Water Management Strategies. The DEA&T is, in principle, more appropriate as the lead agency, since such an approach fits more closely with its broader policy making role and responsibility for coastal use management and protection. However, the legislative vehicle that is most immediately viable, particularly in light of the flag state controls emphasised in the draft International Convention, is an Act administered by the DoT and SAMSA. The Acts that be most viable under the DEA&T are only pending and the administrative infrastructure yet to be developed.

Apart from commercial harbours, the possibility of ballast water being discharged in fishing harbours referred to above needs to be considered. In such cases the DEA&T is the appropriate authority to implement the Guidelines.

2. Legislative Approach

Questions relating to legal characterisation of the problem of the transfer of harmful organisms in ships' ballast water are key in determining the nature of the regulatory regime. This is particularly the case with respect to the issue of ballast water discharge and whether water quality standards would apply.

There are a number of legislative options possible, however, for practical purposes, ballast water release should be treated as a pollution matter and ballast water management and on board operations as shipping/ship source pollution prevention matter. In light of the current priorities of the South African legislature, the most pragmatic option for rapid implementation of the IMO Guidelines, taking into account the likely direction of the proposed International Convention, is to develop regulations on ballast water management under an existing Act rather than to enact new dedicated legislation. The Regulations would need to reflect an integrated management approach. Either the Marine Pollution (Prevention of Pollution from Ships) Act (1986), or the National Coastal Management Bill (NCMA), which is currently being prepared and which is expected to become law in 2002 or a draft Biodiversity Bill (the latter option is not recommended, as the process through which the Bill is yet to go is a complex one).

Give the range of both flag, port responsibilities under the IMO Guidelines and the draft International Convention, it is recommended that that the appropriate legislative home for the proposed regulations is the Marine Pollution (Prevention of Pollution from Ships) Act. It is primarily intended to give domestic effect to South Africa's obligations under MARPOL 73/78, but specifically provides for further pollution related regulations to be included under its ambit.

This Act is administered by the Department of Transport and implemented by the South African Maritime Safety Authority (SAMSA). It is recommended that the Minister of Transport make the regulations, as SAMSA has the infrastructure in place for their implementation. However, provision needs to be made to accommodate DEA&T's ecosystem and biodiversity protection responsibilities by ensuring that ballast water release meets acceptable environmental water quality standards and that any response also fits with the coastal management policy. The issue of

water discharge standards (national or international) could also be the subject of separate but complementary regulations. In addition, provision will have to be made accommodate other DEA&T's interests by: (a) the inclusion of fishing harbours in the ambit of the regulations; and (b) the declaration of Special Areas where no ballast water/sediment release at all is permitted given South Africa's perilous coastline.

Alternatively, if it is decided that DEA&T is to be the main implementing agency, then essentially the same draft regulations can be enacted under either National Environmental Management Act, which specifically provides for giving domestic effect to international conventions, or either the envisaged National Coastal Management Act or the Biodiversity Act, provided these include authorisations wide enough to allow the Minister of Environmental Affairs and Tourism to enact such regulations.

The draft regulations recommended by the LLC reflect the view that, although open-sea exchange is theoretically possible, it is practicable only in limited cases because of South Africa's perilous coastline. Ballast water is most commonly treated within port limits. But it is not practical to deal with the problem by relying on traditional reception facilities, as is the case with oil given the tonnages involved. However, reception facilities could be used to deal with sediment.

The South African regulatory regime is likely to adopt a combination of treating ballast water on board, along with setting discharge standards for ballast water release into designated receiving water environments. Although discharge standards are recommended it is noted that it is not practicable to carry out a comprehensive environmental impact assessment (EIA) for every release of ballast water: a notice, survey and authorisation procedure is suggested in each case. The LLC's draft regulation would apply to South African ships (no geographical limitation) and require that they have a Ballast Water Management Plan, when available, an International Ballast Water Management Certificate, and designated personnel. All ships entering South African waters, which includes the EEZ, would be required to notify the Administration regarding its ballast water and any intent to discharge ballast water in South African waters. A permit must be obtained before discharging ballast water although the permit is not based on a formal EIA process, but rather an assessment of whether the vessel has a ballast water management plan, has complied with it and any other risk related factors.

Summary

Country Concerns: fisheries, shipping, marine biodiversity, human health, constitutional right to environmental protection, ecosystem variations along its coastline

Regulatory Characterisation: ship source marine pollution, marine resources and ecosystem protection, human health

Proposed Legislative Response: preferred is regulation under the Department of Transport's (DoT) legislation implementing MARPOL or, alternatively, regulation by the Department of Environmental Affairs and Tourism (DEA&T) under either its marine resources /pollution prevention or its integrated management legislation

Proposed Administrative Responsibility: multiple - with a lead regulatory agency, the DoT's South African Maritime Safety Authority (SAMSA) in consultation with DEA&T, Portnet and Health or, alternatively, with DEA&T as the lead regulatory agency, in cooperation with the others.

5.2.6 Ukraine

Summary of Local Legal Consultant Observations

The Ukraine is one the States bordering the Black Sea, a body of water that falls within the UNCLOS definition of a semi-enclosed sea and is a special area under MARPOL 73/78. The Black Sea is involved in regional seas cooperative activities under UNEP's Regional Seas

programme. The regional factor shapes and will determine the effectiveness of any Ukraine (or any other Black Sea State's) effort to protect the marine environment. The Black Sea is well known as a marine ecosystem that has suffered extensive ecosystem and economic damage as a result of the transfer of a harmful aquatic organism (an invasive jelly fish).

The Ukraine has a unified constitutional structure based on its 1996 Constitution which established individual rights, a constitutional basis for democracy and sets out the structure and status of the legislative, executive and judicial bodies in the Ukraine.

Legislative power in Ukraine is exclusive to the national Parliament - the Verkhovna Rada of Ukraine, a one-chamber parliament, which consists of 450 National Deputies of the Ukraine who exercise their authority on a permanent basis. The Verkhovna Rada of Ukraine has competence over more than 40 matters including key adopting legislation and exercising control over the government of Ukraine. The Constitution contains a list of issues that are determined exclusively by laws of the Ukraine, including economic matters, health care, ecological safety etc. The President of the Ukraine, the National Deputies, the Cabinet of Ministers and the National Bank of the Ukraine have the right to initiate legislation

Under the Constitution, executive power is held at two levels, the Cabinet of Ministers of the Ukraine and the local State administration. The Cabinet of Ministers is the highest body in the system of bodies of executive power. It is responsible to the President and is under the control of and accountable for the Verkhovna Rada. It deals with matters relating to, *inter alia*, state sovereignty and economic independence, the implementation of domestic and foreign policy, human and citizens rights and freedoms, national programs of economic, scientific and technical, and social and cultural development as well as implementing policies relating to the economy, social welfare, education, science and culture, environmental protection and ecological safety etc. Executive power is also exercised by local State administrations in oblasts, districts and in the cities of Kiev and Sevastopol. Heads of the local national Administrations are appointed by the President of the Ukraine and are accountable to the highest bodies of executive power, as well as district or oblast councils (part of their authority is delegated by these councils).

The Ukraine is in the process of altering its legal system, which until independence, reflected early Soviet law. There are extensive legislative reform and codification efforts underway to reflect the shift to a market economy and the Ukraine's obligations in connection with its relationship with Europe. The system of law in the Ukraine is very elaborate and highly specific, with numerous legal instruments having differing kinds of validity depending on the subject matter. The Verkhovna Rada and State authorities are able to issue legal instruments, which are considered to be orders of law, in their areas of competence. The President of the Ukraine can pass Decrees and Directives on some matters while the Cabinet of Ministers can issue Resolutions and Orders, again within its sphere of competence. Individual Ministries, State agencies and committees are also able to issue Resolutions, Directives, Regulations, Instructions, and normative Orders, within their jurisdiction. There are also legal instruments such as Resolutions, Orders and Decisions issued by local State administration and self-government bodies to implement specific areas of responsibility.

International law has a special place in the Ukraine, which has a long history of involvement in international lawmaking. The 1990 Declaration on the Sovereignty of Ukraine states that the Ukraine recognizes the priority of generally recognised norms of international law over norms of national law. The Constitution provides that "International treaties in force, the consent of Ukraine to be bound by which was given by the Verkhovna Rada of Ukraine, are part of national legislation of Ukraine". This principle is reflected in relevant domestic laws such as the law "On the Protection of the Natural Environment", which reads: "If an international treaty concluded by Ukraine contains rules other than those of national legislation of Ukraine on protection of natural environment, then the rules of international treaty shall be applied". Similar provisions are contained in the basic and framework laws of the Ukraine, the Decrees of the President, Resolutions of the Cabinet of Ministers, such as the Law of Ukraine on the marine Exclusive Economic Zone. Article 7 of the Merchant Shipping Code of Ukraine stipulates that: "International treaties of Ukraine on trade navigation shall be applied in Ukraine according to the

Law of the Ukraine "On International Treaties of Ukraine" (which reiterates the primacy of international law and conventions in the Ukraine).

The implications of this situation for domestic implementation of an international legal instrument is that, although the process of adoption of new law or regulations is normally a lengthy process in the Ukraine, if a Convention is ratified then legislative process is simplified and may in fact be dealt with administratively. The legal obligation is *de facto* in existence and any legislative activity is simply to bring the domestic legal system into conformity with the International obligations of the Ukraine.

Under the Ukraine's legal system responsibility for implementation of international treaties and enforcement mechanisms is usually imposed on relevant departments and institutions, whose activities are closely connected with the subject matter of the convention or the law, rather than any single administration. The coordination of administrative responsibilities for implementing international agreements falls within the competence of the Ministry for Foreign Affairs.

The Ukraine is party to numerous conventions including UNCLOS, the Convention on Biological Diversity and MARPOL 73/78. Although these broader international obligations are important, a core issue for ensuring an effective domestic response to marine environmental protection arises as result of the 1992 Convention on the Protection of the Black Sea Against Pollution, and its protocols. This regional agreement implements the UNCLOS obligations of States bordering enclosed and semi-enclosed seas to cooperate with other States of the region in coordinating ocean use management activities. The Convention is associated with a Commission and a regional strategy, the 1993 Black Sea Ecological Program (BSEP), as well as specific measures on the protection and rehabilitation (restoration) of the environment of the Black Sea, as set out in the Ministerial Declaration on Protection of the Black Sea, 1993, and a the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea, 1996.

The problem of harmful organisms and pathogens in ship's ballast water is not local problem and its solution is connected with the initiatives of both the government of Ukraine as a whole and its separate ministries, departments and organizations. Because of the specific and complex nature of the domestic legislative regime the development of a comprehensive response to a particular issue or even amending existing instruments can entail action by many authorities and different levels and forms of legal instruments. For example, seventy-seven legal instruments (issued by the Verkhovna Rada, the Cabinet of Ministers and Ministries and Departments) are potentially relevant or affected in responding to the problem of transfer of harmful aquatic organisms and pathogens in ships' ballast water. Of these, the Law on Environment Protection, the Aquatic Code, the Merchant Shipping Code and various rules dealing with internal and territorial waters of the Ukraine, as well as the Wastes and health related laws appear to be the most relevant to addressing the issue.

The following national and local State administrative bodies are identified as having a potential interest in this issue: the Ministry of Ecology and Natural Resources; the Ministry of Transport of Ukraine and its Department of Sea and River Transport and even more directly – the Shipping Safety Inspectorate of Ukraine The Ministry of Health of Ukraine; the Ministry of Ukraine of the Problems of Emergency Situations and of the Affairs of the Defence of the Population from the Chernobyl Catastrophe Consequences; the State Committee of the Affairs of State Border Protection; the Ministry of Agricultural Policy; the National Coordination Council on the Problems of Transport, Health and Environmental Protection; the State Committee of Water Economy; the local state administrations of Odessa, Mariupol, Kherson, Nikolayev, Ilichevsk, Yalta, etc; and the national research institutions (e.g., Institute of Biology of Southern Seas, Ukrainian Scientific - Research Antiplague Institute, Scientific - Research Institute of Transport Medicine, etc.) The CFP for the GloBallast Programme is located in the Ministry of Transport Shipping Safety Inspectorate.

There are already administrative level regulatory activities underway in the Ukraine to implement the IMO Guidelines. An Instruction issued by the State Sea and River Transport Department (Order of the Ministry of Transport No 62 March 11, 2001) states that the Instruction is aimed at

laying the ground for the enforcement of IMO Guidelines standards and rules with regard to control and management of ships' ballast water with the purpose of minimising the transfer of harmful aquatic organisms and pathogens (Resolution A 868/20/) into Ukraine's regulatory practices for maritime activities. The Instruction also has as its objective the improvement of the marine environment. In addition Orders have been issued that require Harbour Masters of the merchant shipping ports to ensure data collection on ships' water ballast, in accordance with the standard IMO Guidelines' Ballast water reporting form (filing and reporting). The Harbour Masters are responsible for registering the information and storing it for 10 years. The data is to be studied and loaded into the system, with the results submitted to the Shipping Safety Inspectorate of Ukraine.

Summary of Local Legal Consultant Recommendations

1. Recommendation on Administrative Matters

There are a number of administrative agencies identified as potentially involved in ensuring an effective response to this problem. Rather than assigning a particular department with responsibility, it will be more effective to nominate a legal entity that can work at an interagency level. This legal entity should be charged with coordination and supervision responsibilities. In light of the flag and port State requirements under the IMO Guidelines and the proposed International Convention, the body best equipped to deal with these obligations is the Shipping Safety Inspectorate of the Ukraine (under the Ministry of Transport).

Institutional action should also occur under the regional seas regime under the Convention for the Protection of the Black Sea Against Pollution.

2. Legislative Approach

National Level Recommendations

The IMO Guidelines are based on the requirements in the marine environmental protection Conventions to which the Ukraine is party (UNCLOS, the Convention on Biological Diversity, MARPOL 73/78). Accordingly they are, in principle, acceptable for implementation in the Ukraine's legal system.

The Ukraine's approach to legal regulation of environmental issues has a complex (integrated) nature: not only does the regulatory process cover current problems, but it also includes laws aimed at preventive and long-term effect (preventive measures to be taken by sanitary and epidemic services, quarantine measures, health care, systematic monitoring, supervision, collection and dissemination of information, etc.). The IMO Guidelines reflect a similar precautionary and preventative approach. It is of crucial importance, therefore, that the activities undertaken to harmonise the current legislation with the requirements in the Guidelines should embrace all of these domains of environmental, health, shipping and safety regulation.

The complexity and length of time required to develop a new domestic legal instrument that has the status of a law suggests that the best approach is to amend provisions in the existing legislation relevant to Guidelines, even though a considerable amount of work is yet to be done to bring them into compliance with standards and rules set by the Guidelines. When a Convention is adopted and ratified by the Ukraine it will easily become part of the law of the Ukraine and any consequential amendments or legislation can be adopted accordingly.

It is recommended that amendments should be made to these following instruments:

- The Aquatic Code of Ukraine, in particular Article 21 regulating water quality evaluation, should have a provision related to ballast water. Similar additions shall be made to Articles 30 and 39 of this Law.
- The Merchant Shipping Code of Ukraine, by adding to Article 35, which enumerates mandatory ship documents, a list of documents directly related to ballast water management including the ballast water record book and ships' ballast water management plan.

- The Resolution of February 28, 1996 of the Cabinet of Ministers of Ukraine should have a statement or reference regarding new regulations on protection of internal waters and territorial sea of Ukraine from pollution caused by ballast water discharge from ships that will be put into force with a separate national legislative act.
- The basic norms for payment for environmental pollution (No 157 of December 25, 1996) have to be amended to include ballast water management concerns.
- All other national acts on marine environment pollution prevention should be amended to reflect the special regime regarding ballast water management and control (new terms, definitions, and conditions of use).

Regional Level Recommendations

There must also be legal development at the (multilateral) regional level amongst the Black Sea States. One of the Black Sea's features is the absence of a "high sea" in the classical sense, since once each coastal State declared its exclusive economic zone, there was no open marine space left. Coastal states have each established national norms on protecting marine environment from pollution from vessels within "their" zones. Due to the Black Sea's closed nature and relatively small size, with territorial waters and exclusive economic zones adjacent to each other, actions aimed at preventing the spread of harmful aquatic organism in the marine environment can only be effective with concerted efforts undertaken by all the coastal States. For this reason, tangible results for the Ukraine in complying with IMO Guidelines can only be achieved if there is harmonisation of national legislation on this issue in each Black Sea State.

The 1992 Black Sea Convention regime should be reviewed with consideration given to explicit regulation of ship source marine pollution concerns (harmonised with existing international law on the issue), including the issue of harmful aquatic organism and pathogen transfer by ships. It may also useful to consider whether the EEZ areas of the Black Sea could be considered as "special areas subject to national standards under the UNCLOS (211(6)) regime.

Under MARPOL 73/78 the Black Sea is a "special area", which means that ships operate under stricter standards (than the international standards) for the discharge of regulated substances. However, UNCLOS also addresses the question of special areas in the EEZ in a different way that may provide an opportunity for higher standards (as compared to existing international norms and standards), provided that such measures and requirements are approved by the IMO. In addition, under the UNCLOS EEZ "special areas" concept coastal States may adopt their own laws and rules preventing pollution from vessels, subject to the same restrictions that apply to territorial sea regulation of passage.

These are matters that can be explored in connection with a discussion on a regional response and a possible addition/amendment, or even a new protocol, to the Black Sea Convention.

Summary

Country Concerns: regional action and cooperation, fisheries, shipping, marine biodiversity, human health

Proposed Regulatory Characterisation: ecological protection, merchant shipping, health

Proposed Legislative Response: multiple amendments to Ukraine's legislation and further development of the legal regime under the regional sea (Black Sea) Convention

Proposed Administrative Responsibility: Shipping Safety Inspectorate (Ministry of Transport) as the lead institution for coordination of the responses of various other agencies with relevant responsibilities.

6 Other Domestic Regulatory Approaches

6.1 Summary

A number of countries have already developed a regulatory framework for addressing the problem of invasive species and pathogens transported in ships ballast water. [79] In some cases the response is aligned with the development of the IMO Guidelines and the contemporary concerns about biodiversity/biosecurity. In other cases there is legislation linked directly to the *International Health Regulations* regarding quarantine and preventing the spread of communicable human diseases. In still other cases there is older legislation, often in the form of port regulations, which was initially developed to deal with the problem of unloading solid ballast in the port or port waters. Cohen and Foster comment on the experience in the USA as follows:

> *Ballast dumping came under regulatory control during the 19th century, as harbor masters barred ships from dumping rock, sand, mud and miscellaneous debris carried as ballast into harbors and channels, to prevent shoaling. In many areas, ballast dumping was banned by statute, both to protect channel depths, and in some cases, to prevent the fouling of waters. "Ballast grounds" were set up where ballast could be legally disposed of, and professional "ballast haulers" and guilds of "ballast heavers" serviced the merchant shipping industry. Even on America's wild frontier, laws and regulations prohibited the dumping of ballast into harbors, although ... ships on the California coast frequently violated them*[80]

In addition, in many countries legislation exists regulating the discharge of ballast or oily water mixtures. It was developed in response to MARPOL 73/78, Annex 1 (particularly oil tankers without segregated ballast tanks) but could, arguably, apply to also regulate the discharge of ballast water for reasons relating to harmful organisms and pathogens (if defined as pollution). This mixture of situations is evident in the six Legislative Reviews in this Project.

Attempts have made by various individuals and agencies to develop a comprehensive list of all port reporting requirements. This is an important part of IMO's function as an international focal point for the dissemination of shipping related information. There is an ongoing effort, in connection with the FAL Convention, to collect data on documentation requirements for port entry and any domestic variances from the Convention.[81] There is also a combined effort on the part of the shipping industry through the activities of the International Chamber of Shipping (ICS) and the International Association of Independent Tanker Owners (INTERTANKO) to gather this information. INTERTANKO has kept a database since 1990 and in 1999 and again in February 2000, in cooperation with ICS, published the *Model Ballast Water Management Plan* for use on board ships.[82] The publication also contains a description of known ballast water reporting and management requirements, and, where possible, sample port entry forms.

INTERTANKO records 17 places as having "quarantine requirements for ballast water management". The places identified as having these requirements are Argentina, Australia, Brazil, Canada, Chile, Israel, New Zealand, Orkney Islands (UK), USA (including also Puerto Rico, US Virgin Islands, American Samoa, US Trust Territory of the Pacific Islands), California, Port of Oakland (USA), Great Lakes (USA) and the Port of Vancouver (Canada).[83] It is noteworthy that the term quarantine is used

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[79] The problem as it relates to transfer in ballast water was documented as early as 1903 in the North Sea: see S. Gollasch, *Removal of Barriers to the Effective Implementation of Ballast Water Control and Management Measures in Developing Countries* (London: GEF/UNDP/IMO, 1997). NB: This Report was available in 2000 and early 2001 at <http://www.imo.org/imo/focus> and other IMO related sites. It is no longer at this address and several other linkages are no longer function (e.g. UNEP).

[80] A. Cohen and B. Foster "The Regulation of Biological Pollution: Preventing Exotic Species Invasions from Ballast Water Discharged Into California Coastal Waters" *Golden Gate University Law Review* 30 (Spring 2000) 787 at p. 787. NB. Citations in the original text have been omitted. See also comments in the Reviews of India and South Africa.

[81] See for example: The list of reported domestic variances in the consolidated publication: *FAL Convention. Convention on Facilitation of International Maritime Traffic, 1965, Consolidated* (London: IMO 1998) Appendix 6, at 87ff. Interestingly in 1998 only Australia is reported as having a variance with respect to ballast water reporting

[82] ICS/INTERTANKO (Consolidated), 2000. It can be purchased from <http://www.intertanko.com>

[83] However a news article also posted on the INTERTANKO website, Nov. 2, 2001 indicates industry awareness of concern about alleged Ukranian ballast water exchange regulations and problems relating to the veracity of ballast water sampling under these environmental regulations: See ""Suspect Ballast Regulations in Ukranian Ports", Port Issues WN 44/01 available at <http://www.intertanko.com>

since the IMO draft Convention appears to be premised on a ship source pollution prevention model rather than a quarantine approach.

Gollasch also prepared an inventory of international, regional, national and subnational regulatory practice in late 1997, in a comprehensive report preparatory to the GloBallast Programme entitled, *Removal of Barriers to the Effective Implementation of Ballast Water Control and Management Measures in Developing Countries.*[84] This Report is interesting when compared to the later INTERTANKO /ICS database, in that Gollasch, using port surveys and the work of other researchers, identified significantly more ports as having requirements or soon to be implementing requirements adopting the IMO Guidelines. Those reporting existing requirements not included in the INTERTANKO database were: UK - voluntary compliance with the IMO Guidelines in 10/66 ports with national quarantine applied to ballast water in 4/66 ports;[85] Odessa - the port of Odessa is reported as requiring ballast water exchange and logging immediately upon entering the Black Sea, a practice which has implications for the regional maritime protection arrangements.[86] Panama is reported as prohibiting discharge of ballast water in the canal.[87] China is also reported as having restrictions on ballast water discharges under both its quarantine (International Health Regulations) and ship source pollution legislation (only in relation to oil contamination). In addition to the international shipping quarantine requirements Australia is reported as having specific and more stringent interstate and coastal shipping regulations. In 1997, Sweden, Spain, Ireland (Bantry Bay) and the Netherlands (Rotterdam) had reported that they would soon be developing requirements based on the IMO Guidelines.

The differences between these various list indicates that the extent of national legislation that either does or could regulate ballast water and sediment discharge is uncertain. Even within a country, as the Legislative Reviews in this project illustrate, there are often a variety of instruments that could be applied to regulate ballast water discharge. Absent significant research resources it is very difficult to obtain a full inventory of existing or potential legal requirements. This points to the value of an international convention that will facilitate more uniformity in practice relating to ballast water discharge requirements. It also demonstrates the increasingly important function of international agencies as global Clearinghouses (information collection and dissemination centres) and underlines the importance of State's fulfilling their obligation under UNCLOS and other conventions to report on national requirements and to share information with other states.

The key point that emerges from these and other research studies is that there are an increasing number of countries that are already regulating ballast water discharges in order to protect their economic, ecological and health security. The extent to which these national regimes shape the practice and direction of an international industry such as shipping is largely a function of the State's economic leverage. The requirements and practices of countries that have a large amount of international waterborne trade will necessarily affect practices elsewhere.

This Project and Report is not intended to provide comprehensive data on national legislation, but rather to examine in detail the experiences and issues in six pilot countries that are beginning to respond to this issue. The goal is to begin to develop, through these country case studies and an examination of a number of other existing national regulatory models, recommendations for best regulatory practices in this matter to address the problem.

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[84] S. Gollasch, *Removal of Barriers to the Effective Implementation of Ballast Water Control and Management Measures in Developing Countries* (London: GEF/UNDP/IMO, 1997). NB: This report was available in 2000 and early 2001 at <http://www.imo.org/imo/focus> and other IMO related sites. It is no longer at this address and several other linkages are no longer function (e.g. UNEP). This report was part of the documentation leading to creation of the GloBallast Programme.

[85] The data reported is not totally clear in that Gollasch reports 10/66 ports requesting compliance with the IMO Guidelines but also reports the results of a survey of 127 ports in England and Wales. Out of 111 responses 13 had safety related ballast discharge rules and only 5 requested compliance with the IMO Guidelines. Also of interest is the fact that the port of Scapa Flow (Orkney Islands) is not listed as a port requesting ballast water management although INTERTANKO reports these as in place prior to 1998.

[86] Although no reference is provided for this requirement and the Ukraine case study does not refer to this . It may have been a port survey document.

[87] No reference for this data. It may be from a port survey.

Section 6.2 - 6.5 outlines in more detail several different regulatory approaches currently adopted by four countries to implement the Guidelines. However, a review of the requirements of the countries currently reported by INTERTANKO as having requirements allows for some general observations about existing national requirements.

- The majority of the requirements apply at a national level to all ports, however a number are at a single port level or other subnational level. In cases where there is national level legislation, the subnational legislation usually operates as a supplemental requirement for the jurisdictional area. In one or two cases the national requirements are specifically related to human health and disease prevention, but could apply more broadly.
- The legislation varies amongst countries on some specific points, including regulatory characterisation of the issue. Examples include quarantine/pest control, human health, fisheries, ship source pollution. However this characterisation does not necessarily determine the agency charged with administration of the requirements.
- In most, but not all, cases the national level legislation is administered by a maritime administration (the location of this function varies between countries, i.e., the Navy, the Coast Guard). At a subnational level the legislation is often under an entity dealing with land rights/governance in the jurisdiction or a port authority, where ports are operated autonomously (i.e., government corporation or privatised).
- From the perspective of administrative efficiency and cost, the differences in the reporting forms and specific reporting requirements among jurisdictions is a serious problem that impacts on the administrative agencies, ships and shippers. Differences in terminology and report requirements will also create more difficulties for effective risk assessment and discourage compliance. This will generate additional monitoring and enforcement costs for the public. The import or export industries operating in highly competitive or time sensitive international markets also bear the costs of administrative inefficiencies in their home State or the State of the trading partner in that the cost of transporting goods may increase to reflect any increase to the carrier's operating costs.
- The underlying regulatory requirements are similar among countries and are generally consistent with IMO Guidelines. In fact many purport to be implementing the Guidelines and note that evidence of compliance with IMO Guidelines will be accepted for the purpose of discharge regulation. Most require a ballast water report form (either as a specific report or as a quarantine report) prior to port or entry into territorial waters. This is usually combined with a requirement for management or treatment of the water. The main difference amongst countries relates to the latter issue. In some cases mid ocean exchange is mandatory, in others it is voluntary for all ports or some ports only, or an alternative method is required or allowed and in some cases the discharge is dependent on an assessment of the level of risk posed by a vessel. In most cases it applies to all ballast carrying ships in the particular geographic location, which will include ballast carrying ships in the national flag fleet. However, these requirements, which relate to entry to ports or national waters, do not necessarily require ballast water management reporting for their flag vessels if they are not operating in that country's waters.

The four regulatory models described in the following sections reflect differing characterisations of this issue, often for reasons related to constitutional concerns and administrative developments in each State although, as noted above, the underlying approach is similar. This overview is not intended as detailed case study of each of these countries but rather it provides a synopsis of examples of several existing regulatory frameworks. As noted earlier these overviews are based on a desk study and actual practice may vary from the documentation reviewed.

6.2 Australia

Observations

Australia was one of the first countries to seek international action this issue through the IMO. Australia, as an island continent, is heavily dependent on international waterborne transport for its international trade.[88] It has a small flag fleet and relies on foreign shipping services for 95% of its trade. It has a fragile marine ecosystem with important coral reefs and rare species. Australia also has a marine capture fishery and a coastal aquaculture industry with a particular focus on shellfish. Concern about invasive species in ballast water and on ships hulls was triggered by its impact on the aquaculture industry and the human health risk posed by toxic organisms transported to Australia in ships' ballast water and entering the human food chain. Australia's Ballast Water Management Strategy deals with ballast water/sediment and hull fouling. Australia implemented Guidelines in 1990, which are said to be the model for the 1991 IMO Guidelines. In 1994 Australia adopted a coordinated national approach to this problem, including support for research into management techniques. In addition, a computer based decision support system (DSS) for targeting high risk vessels was designed to avoid unnecessary inspections. A Ballast Water Research Development Levy on ships was introduced to help support these activities. There are also cost recovery fees for inspection and documentation services.[89] Coastal ballast water management guidelines were also developed on a pilot project (3 port) basis. The Australian Ballast Water Management Requirements were mandatory as of July 2001. They are understood to be consistent with the IMO Guidelines and the developing international regime.[90] They are premised on advance reporting, use of the DSS and coregulation using negotiated compliance agreements with industry.

It should be noted that Australia has conducted extensive research efforts and devoted significant resources to this issue. It is generally regarded as leading country in research in this field. For example, a method for verifying the accuracy of ballast water exchange reporting called the "New Castle method" was developed in Australia. Australia also began a programme of port biological surveys in 1996 and has developed standardised survey and port sampling protocols and ships ballast water sampling protocols. These have been adapted for use in the GloBallast pilot countries. There is on going research into standards for exchange (95% is current standard), discharge standards using the DSS and a target species approach, development of contingency plans for deballasting. These are all important aspects of a comprehensive response.

Constitutional Structure: federal system with both differing and concurrent heads of power.

Legal System: common law.

Level of Regulation: national for international shipping and complementary subnational (State and Territory) level legislation for coastal shipping.

Regulatory Characterisation: pest control – quarantine.

Legislative responsibility: Department of Agriculture, Fisheries & Forestry-Australia

Administrative responsibility: national level. Australian Quarantine Inspection Service (within the Department) as an aspect of the Australian Ballast Water Management Strategy.

Legislation: *Quarantine Act 1908*, Act. No.3 as amended to Act No. 137 of 2000. *Quarantine Regulations 2000*, No.129 as amended.[91] The ballast water reporting requirements are not a single chapter or a separate regulation but are simply one aspect of quarantine inspection system.

Legislative objectives: avoid adverse economic, environmental and public health impacts of unwanted marine organisms by reducing the risk of introduction from international ships' ballast water without unduly impeding trade or compromising ship safety.[92]

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[88] Approximately 97% of the volume of trade is moved by sea: Caring-Sharing-Understanding (1997/98) <http://www.oceans.gov.au/aop/develop/issues/chapter5_1_6>

[89] Seaports fees and charges (quarantine only). Available at <http://docs/quarantine/border/seaports.htm>

[90] New Ballast Water Management Arrangements for International Shipping visiting Australia. Australia submission. MEPC 46/3/5, 16 February 2001, para. 3, para.8.

[91] Quarantine Amendment Regulations 2001 (No.1) 2001 No.154 Schedule 1 amendments.

Rationale for implementing mandatory domestic legislation: voluntary approach insufficient and unduly burdensome to low risk vessels, non compliance with true and accurate reporting requirements, slow rate of progress in IMO to develop mandatory international ballast water arrangements.[93]

Application: all ports, all ships on international voyages.[94]

Description of requirements

- The amended Quarantine Act of 1908 now defines ballast water as "goods" (s.5). Under s. 29 people are not to leave or remove goods (now including ballast water) from a vessel or installation that is subject to quarantine. Effectively this prohibits discharge without permission. This will be given following AQIS review of the pre arrival forms and the DSS risk analysis - if the vessel has made use of it.
- 12 - 48 hours before arrival in Australia vessels must file a QPAR (and a ballast water pre arrival report form) with the AQIS Quarantine pre arrival report that deals with all quarantine questions including a part that requires that the vessel indicate; 1. intent to discharge ballast water; 2. submission of the mandatory ballast water reporting form (to be sent with this form); 3. existence of a compliance agreement.[95]
- Vessels must manage ballast water by either: 1. Filing information with the DSS (internet,[96] Inmarsat-C or through a shipping agent) from the last port of call or not later than 5 days before arrival in Australia. The information is analysed using computer software that assesses biological risk on a tank by tank basis. Vessels are then given a risk assessment number (RAN) which is entered on the QPAR files before arrival for use of inspectors. This system is available on the internet.
- Two other forms are also required but kept on board for two years. An AQIS ballast water uptake/discharge log (also to be given to a shipping agent to be fed into DSS) and an AQIS Ballast Water Management Treatment/exchange log to record all treatment/exchanges at sea.
- There are several approved management options: 1. no discharge or where the DSS analysis has categorised the vessel as low risk; 2. tank to tank transfer of high risk ballast water to avoid discharge in Australian waters; 3. full ballast exchange using one of the three IMO methods at sea, beyond 12nm in water deeper then 200metres. Other comparable treatment methods are considered on a case by case basis.
- Compliance agreements are available to vessels that regularly visit Australia with a good history of quarantine compliance.
- Where ballast exchange does not take place because of safety concerns this must be reported on prearrival forms and prior to entry into Australian waters.
- Discharge of tank sediment is prohibited. Tank stripping not allowed if it involves sediment discharge into Australian waters (promotes land-based reception of sediment). Approval must be obtained to conduct stripping or removal operations.
- Vessel masters must provide access to safe ballast water sampling points.
- Sections 74, and 78A of the *Quarantine Act of 1908*, as amended, provides quarantine officers with the right to give directions to the master to take measures with respect to the vessel or

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[92] New arrangements for ballast water management by international shipping: *Regulation Impact Statement* December 2000. Available at:<http://www.affa.gov.au/> Search under Regulation Impact Statement to obtain a copy and a copy of mandatory ballast water requirements (NB.The website is complex in its structure).

[93] Ibid p.3

[94](Australian) Quarantine Regulations 2000.

Reg 22A Ballast water information (1)This regulation applies to an overseas vessel or oversea installation if it is capable of carrying ballast water while it is in Australia, the Cocos Islands or Australian waters.

[95] Regulation 10 is a list of mandatory prearrival information. The master must report the last 3 ports of call, the mass of ballast water taken in each on a tank specific basis, the amount that may be discharged and whether treatment has taken place in accordance with the IMO Guidelines.

[96] <http://www.aqis.gov.au/shipping>

the goods if the officer thinks it is necessary to prevent the introduction, establishment or spread of the disease or pest. This includes requiring treatment of "the goods". These sections also authorise quarantine officers to direct a vessel under quarantine or likely to be carrying diseases or pests to undertake a specific process on ballast water including storing, removing or treating it.

- Compliance monitoring: verification of AQIS log books and vessel deck and engineering logs (approximately 30 minutes to complete) carried out at the same time as the routine vessel inspection; documentation (New Castle method); Sampling is only done to ensure compliance or for further research. Delays are avoided when possible. Failure to file or complete prearrival forms results in withholding quarantine clearance to enter the port. False reporting can result in a 1 year imprisonment under the Quarantine Legislation. Where ballast is deemed unacceptable for discharge the vessel is required to proceed to a designated area or open sea to conduct exchange.

6.3 Canada

Observations

Canada and Australia were the earliest countries to raise concerns about ballast water in connection with invasive species. In 1988 Canada presented a study report to IMO entitled "The Presence and Implication of Foreign Organisms in Ship Ballast Water Discharged in the Great Lakes".[97] As was the case in Australia, Canadian concern was triggered by the significant economic impact of the introduction and spread of a non native mussel species in the St Lawrence Seaway and Great Lakes. Parts of this water system are shared the United States of America with the result that a cooperative approach was developed to deal effectively with the problem.[98] In 1988 the Shipping Federation of Canada, an industry association, was one of the first to take action to encourage the development of a ballast water exchange regime to prevent the further spread of harmful aquatic organisms to the Great Lakes.[99] In 1989 the "Voluntary Guidelines for the Control of Ballast Water Discharges from Ships Proceeding to the St. Lawrence River and Great Lakes" were developed by the Canadian Coast Guard. These Guidelines require that the ship's master file a Ballast Water Exchange Report on entering the St Lawrence. The Guidelines also provided for a designated alternative discharge zone where deep water exchange was not possible for reasons of safety or the voyage route. The main concern was to ensure that the ballast water had high salinity – a fact that made it unlikely that species could survive in the freshwater of the Great Lakes. In all cases, ship and crew safety were declared paramount. Despite the early and long history of concerns about this issue in Canada there has been relatively little relatively less research activity or resources devoted to this topic when compared to Australia or the USA.

The 1989 region specific Voluntary Guidelines were rescinded in September 2000 when they were replaced by "The Canadian Ballast Water Management Guidelines", as amended to June 8, 2001.[100] The Canadian Guidelines are explicitly intended to implement the IMO Guidelines, with regional annexes setting out specific additional requirements.[101] One of the main changes is that the Canadian Ballast Water Management Guidelines apply to "all vessels entering Canada's exclusive economic zone from seaward."

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[97] MEPC 26/4, 4 July 1988.

[98] As early as 1954 a bilateral *Convention on Great Lakes Fisheries Between the United States and Canada* was adopted. This created the Great Lakes Fisheries Commission which was set up to control the introduction and eradication of the non native highly invasive Atlantic Sea Lamprey that had spread in the waterways of both countries.

[99] *Submission of the Shipping Federation of Canada to The Senate of Michigan Natural Resources and Environmental Affairs Committee In respect of Senate Bill No.955*, Lansing, Michigan, Sept. 18, 2000. Available at: <http://www.shipfed.ca>

[100] Transport Canada, Guidelines for the Control of Ballast Water from Ships in Waters Under Canadian Jurisdiction, as amended to 8 June 2001, TP 13617 E. Available at: <http://www.tc.gov.ca/marine safety/directorate/tp/Tp131617> The amendments mainly related to clarifying the Guidelines' application from the earlier version which defined application on the basis of ships governed by the VTS systems on each coast. That may have caused uncertainty in that the regional VTS applies on one coast (ECAREG) to vessels 500 gross tonnage and greater while on another coast, vessels 300 gross tonnes and more (NORDREG). 24 hour notice prior to entry is required, including listing of relevant IMO international Certificates. As of October 1, 2001 all ships 500 gross tonnes and above are required to seek clearance 96 hours before entering Canadian waters (consistent with USA enhanced security requirements).

[101] One of the Regional Annex relating to the St. Lawrence Seaway will be adopted as a regulation in mid 2002.

These Guidelines are not considered law in Canada, although they do provide indirectly for sanctions. For example, they provide for inspection, sampling and reporting (Guidelines, 7.3, 7.4) and note that failure to provide environmental protection information or providing false information to a marine communications and traffic services offices is an offence under the *Canada Shipping Act*, s.562.19. The Guidelines were developed by the Canadian Marine Advisory Council (CMAC), a consultative body with a Secretariat in the Coordination and Consultation Directorate of Transport Canada. CMAC is jointly chaired and coordinated by Transport Canada (which deals with shipping) and the Canadian Coast Guard (which is located in the Department of Fisheries and Oceans). CMAC has both national and regional consultations and includes representatives from parties (government, industry, environmental groups) with an interest in navigation, shipping and marine pollution. It is believed that these Guidelines may become Regulations in September 2002. There is already legislative authority to adopt such regulations under the *Canada Shipping Act,* a comprehensive national law that governs most aspects of shipping in Canada.[102] Section 657.1 of the *Act* states that: "The Governor in Council may make regulations respecting the control and management of ballast water". This *Act* is in the process of a major revision, however the version currently being considered by Parliament, Bill C-14, retains the same regulatory authority (s. 190(1)(f)) for ballast water. It also provides that the Minister of Transport can develop regulations prescribing pollutants and the circumstances under which they can be discharged. Under s.187 of Bill C-14 no prescribed pollutant can be discharged except according to the regulations or under a permit issued under the *Canadian Environmental Protection Act, 1999.* [103] It is not known whether ballast water and sediment will be a prescribed pollutant under the regulations or, even if it is, which regulations will govern its discharge.

Transport Canada also, in part, regulates ports, however under the Canadian constitution, Provincial Governments have power over property rights. In 1999 the Province of Ontario heard second reading of Bill 15, "An Act to regulate the discharge of ballast water in the Great Lakes."[104] The Act would, if adopted, (and not considered unconstitutional), not permit ships to dock in Ontario if they had not complied with ballast water management guidelines. It also prohibits anyone from allowing their docks or wharves to be used. The penalty for an offence is CND$20,000 (and on a repeat CND$50,000 or 1 year in prison). The Port Authorities of Vancouver, Nanaimo and Fraser River (Harbour Master Standing Order) also issued supplemental requirements in 1998 requiring compliance with the Transport Canada Guidelines and mandatory ballast water management for vessels discharging more than 1000 metric tonnes or from specified areas. These comprise Annex I of the Canadian Guidelines.

The Guidelines provide for alternative ballast exchange zones and one, in particular, has been designated as such since 1989 by the Canadian and US Coast Guards. It is located near the entry to the St Lawrence. This may prove to be controversial in the future as recent studies indicate the ocean currents may wash this water onto the shores of two provinces that have fisheries (New Brunswick and Quebec) It may be that future designations will require an EIA.[105]

In Canada, quarantine is regulated by a federal law, the *Quarantine Act*[106]. The *Quarantine Regulations*[107] (Regs.12-18) implement the *International Health Regulations* relating to maritime entry. These require 24 hour advance radio notice of ETA to a designated Quarantine Station for enumerated human health concerns relating to a person on board or any voyages that the vessel has made within a specified number of days to a country that has or is suspected of having the plague or smallpox. The main prohibition relates to persons leaving the vessel. Arguably regulations 24 and 25(6) dealing with unloading of goods, and cleaning of conveyances by disinfecting, disinfesting and

[102] R.S.C. 1985, C.S-9. Available at: < http://www.laws.justice.gc.ca/en/S-9/18177.html>

[103] S.C .1999, c.33.

[104] 1st Session, 37th Legislature, 49 Elizabeth II, 2000. at http://www.ontla.on.ca/documents/StatusoflegOUT/b015rep.pdf

[105] An email exchange with personnel at Environment Canada regarding proposed chemical treatment trials and use of an EIA suggests that although Environment Canada has been part of a Working Group, it has not been involved as a lead agency with this issue. Additional discussion with Transport Canada staff indicates that scientific research is being undertaken in cooperation with DFO but no formal EIA process has yet been contemplated. There is a lack of resources to respond fully to some of these issues, as well as some uncertainty as to administrative roles relative to other departments in the emerging integrated management approach.

[106] R.S.C. 1985, Q-1. Available at < http://www.laws.justice.gc.ca/en/S-9/18177.html>

[107] Quarantine Regulations, C.R.C. c. 1368.

de–ratting, including chlorinating contaminated waters might apply. However this framework does not appear to have been considered as means of dealing with discharge concerns relating to harmful aquatic organisms or pathogens in ballast water.

Finally, it should be noted that Canada has formally adopted and is in the process of implementing integrated ocean management in Canada. The Minister responsible for this activity is the Minister of Fisheries and Oceans.

Constitutional Structure: federal system with both differing and concurrent heads of power.

Legal System: common law (except for Quebec which also follows a civil law system)

Level of Regulation: national. Although there is power to make regulations none have been adopted yet. The Canadian Guidelines 2000 are not a regulation. They adopt regional and port specific variations.

Regulatory Classification: not yet a regulation*. Currently treated as a ship source marine pollution and ship safety issue. (* some sanctions exist for non compliance).

Legislative responsibility: currently. Transport Canada with Coast Guard cooperation (Department of Fisheries and Oceans)

Administrative responsibility: not fully settled – currently Transport Canada and the Department of Fisheries and Oceans (Coast Guard). For reporting: Marine Communication and Traffic Services Centre.

Legislation: authorising only, but no regulations, except for Port Authority requirements in one region relocating to port entry.

Legislative objectives: protection of waters under Canadian jurisdiction from non-indigenous aquatic organisms and pathogens[108] that can be harmful to existing ecosystems; minimise the probability of future introductions of harmful aquatic organisms and pathogens from ships' ballast water while protecting the safety of ships. Other objectives include allowing for ecosystemic and trade activity differences in the various regions. Protection of the neighbouring country's ecosystem is also an objective.

Rationale for implementing mandatory domestic legislation: n/a - unstated

Application: Guidelines apply all ships entering Canadian waters (200nm zone from seaward to the land). All vessels[109] bound for Canadian ports must report. The proposed amendment to the *Canada Shipping Act*, Bill C-14, exempts Canadian and foreign military vessels. The *Act* and regulations under it appear to apply to Canadian ships everywhere unless inconsistent with the applicable law of the foreign country.

Description of requirements

- The Canadian Guidelines require that every ship that carries ballast water should be provided with a ballast water management plan to provide safe and effective procedures for ballast water management. The ballast water management plan must be included in the ship's operational documentation. The Model Ballast Water Management Plan developed by the International Chamber of Shipping (ICS) and the International Association of Independent Tanker Owners (INTERTANKO) is suggested as an appropriate reference document when developing the plan.
- All vessels bound for Canadian ports are required to file a ballast water report form (IMO format) with the appropriate Marine Communication and Traffic
- Services Centre (VTS) prior to entry into waters under Canadian jurisdiction. The VTS requires filing 24 hours prior to arrival (96 hours prior if over 500 gross tonnes). This does not appear to be cross referenced to the quarantine reporting system.

[108] Although the term is different it adopts almost the same definition as the draft Convention

[109] NB. The Guidelines vary in usage between the terms ship and vessel. The *Canada Shipping Act* amendment uses the term vessel.

- Vessels that have not filed a form or filed an incomplete form "will be requested" to answer questions (NB. Failure to provide information is on an offence under *The Shipping Act*) as to: whether a ballast water reporting form signed by the master has already been filed with the appropriate agency (i.e. Transport Canada Marine Safety, port authorities or the U.S. Coast Guard); whether ballast water is being carried and, if so, whether the vessel has a Ballast Water Management Plan which has been reviewed by a classification society or flag administration; whether ballast water management procedures have been performed prior to entering Canada's Exclusive Economic Zone; the reason for not doing so and remedial options proposed by the vessel prior to discharge.
- Ballast water taken on in areas outside waters under Canadian jurisdiction "should not" be discharged in waters under Canadian jurisdiction, unless one of the ballast water management options has been successfully performed. There are four options provided: ballast exchange (usually in water 2000 metres deep or more, unless in a designated discharge zone); retain on board; reception facilities, if available; an alternative method approved by Transport Canada Marine Safety that is "at least as effective as exchange". Any method used must not compromise the safety of ship or crew and must minimise the potential of introduction of harmful aquatic introductions. In all cases the ship's Master is responsible for safety and ship stability.
- In exceptional circumstances (ship safety- weather or the voyage does not go into deep water) exchanges can take place, on notice to the authorities, in the designated alternative exchange zones (there are specified zones in most regions set out in the regional annexes - except for the East Coast).
- In addition, vessels transiting waters under Canadian jurisdiction bound for non-Canadian ports and subject to other national ballast water regimes should complete any ballast water exchange outside waters under Canadian jurisdiction (or in a designated alternate exchange zone).
- Samples may be taken to further research into the effectiveness of ballast water management; vessels may also be boarded and samples of ballast water may be collected for scientific analysis. Sampling also occurs to verify veracity in the reporting.
- Disposal of sediments as a result of routine cleaning of ballast tanks should be carried out in mid ocean outside Canada's Exclusive Economic Zone in accordance with the ship's ballast water management plan. In waters under Canadian jurisdiction, sediments from the ballast tanks of ships trading on foreign voyages should be disposed of in land dumpsites approved for that purpose in accordance with the appropriate legislation or at sea. The Guidelines provide that "Records shall be maintained of sediment removal".
- There are regional variations to respect the fact "ecosystems are different within Canada" to take into account differences in trade, ship type, geography, specific exotic species introduction risk, etc. Regional ballast water management procedures take precedence. For example, vessels entering the Ports of Vancouver, Nanaimo and Fraser River are governed by the Harbour Master Department Standing Operating Procedures which state that for vessels wishing to discharge more then 1000 metres (or exempted because of voyage route) of ballast water, compliance with ballast management procedures is mandatory; inspection will occur in port "to see one of the following: 1) Log book entry (in English); 2) Abstract of log book entry 3) Company or other administration form; 4) Ballast Water Reporting form as per Appendix 1 giving details of the ballast water management procedure carried out." The details must include the following information: position of ballast water exchange - if utilised - giving latitude and longitude; place where ballast water was originally taken on board; amount of ballast water; ballast tanks which have had ballast management performed; details if ballast water management not performed. The Harbour Master's Order provides a defence against not performing a ballast exchange (if that is the ballast management procedure utilised) at sea for the following reasons: 1) Stress or weather, 2) Stability or hull stress concerns – safety is paramount and the master is only to carry out the procedure if it is safe to

proceed. Failure to supply the required information means that no ballast water are allowed to be discharged until samples of ballast water will be drawn and analysed. Where ballast water does not meet the test standards, the officers will require the vessel depart the port and exchange ballast water in a specified area. All charges for the movement and delay to the vessel are for the vessel's account. Verification procedures are also provided for all exempted vessels.

- Vessels transiting waters under Canadian jurisdiction bound for Great Lakes ports in compliance with the mandatory ballast water regime of the United States fulfil the requirements of the Canadian Guidelines.

6.4 United States of America

Observations

Legislation regulating the intentional introduction of plant and animal species has been in place in the USA since the turn of the century.[110] Concern about invasive aquatic species transfer in ships' ballast water developed in the USA at the same as Canada when the zebra mussel invasion of the Canadian and US Great Lakes was discovered in 1986. In 1990 *The Nonindigenous Aquatic Nuisance Prevention and Control Act*[111] (NANPCA) was adopted setting in place voluntary guidelines for ballast water management (modelled on the then IMO Guidelines) for ships entering the Great Lakes from outside the US EEZ. A Task Force was also created. These requirements became mandatory in 1993.[112] Concern was increased when *cholera* bacteria was detected in ships ballast water in this period. In 1996 the *National Invasive Species Act*, 1996[113] (NIS), which established a ballast water management programme administered by the US Coast Guard was passed. This Act amended and modifies the *Nonindigenous Aquatic Nuisance Prevention and Control Act, 1990.* The NIS continued the Great Lakes requirements and extended the guidelines to vessels "with ballast tanks" (as opposed to vessels that carry ballast water) and directed the Coast Guard to develop voluntary guidelines on a national basis.[114] A special programme was also set up under the NIS to create, in cooperation with other agencies and IMO, ballast water management programmes for all Department of Defense and Coast Guard vessels.

The NIS also set in place a research programme and a Clearinghouse mechanism as well as education and technology development programmes. The national guidelines were to be voluntary, unless it was determined that compliance was insufficient. In October 2000 a Report (Interim) "Results of the First Year of Data Management and Analysis: Shipping Industry Compliance with Mandatory Ballast Water Reporting Requirements. Shipping Industry Compliance with Voluntary Ballast Water Management Guidelines"[115] found that reporting compliance on a national basis was very low – ranging between 15.4 -31% of vessels over the year. However, California had an increase of 75% after introducing mandatory reporting with penalties for non-compliance and active boarding targeting

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[110] E. Biber, "Exploring Regulatory Options for Controlling the Introduction of Non-Indigenous Species to the United States"(1999) 18 *Virginia Environmental Law Journal* 375, notes that the Lacey Act was originally passed in 1900, Act of May 25, 1900, ch. 553, 31 Stat. 187(1900) and was substantially amended n 1981, now in 18 U.S.C. §41(1994). Biber explores, *inter alia,* possible questions of liability and private law alternatives for addressing this issue.

[111] 16 U.S.C. §§4701-4751 later amended by the *National Invasive Species Act* of 1996

[112] Ballast Water Management for Vessels Entering the Great Lakes, 58 Fed.Reg. 18.330.18,334 (Apr. 8, 1993). Cohen and Foster, note 80, point out that this regulation allows the USCG to prohibit vessel operations on the Great Lakes. Violations carry fines of USD$25,000 per day with a possibility of up to 12 years in prison and fines between USD250,000 (individual) and $500,000 (for a company). C.F.R. § 151.1506(2000) and 33 C.F.R. §151.1508 (2000).This regulation was extended in 1995 to north of the Hudson River.

[113] Public Law 104-332, 110 Stat. 4073. See also: Aquatic Nuisance Prevention and Control 16 U.S.C.A c.67 s. 4701- 4751. Volume 16 of the United States Code, Annotated, contains all laws of a general and permanent nature including amendments up to Sept. 22, 2000. Ballast water management is found under chapter 67 "Aquatic Nuisance Prevention and Control" of this heading. An online version of the United States Code (not annotated) is available at <ww4.law.cornell.edu>

[114] On June 13, 2001 a Bill, proposing the "Great Lakes Ecology Act" was introduced in the US Senate, S1034 107th Congress, 1st Session. It is designed to strengthen the Great Lakes regime with proposed amendments to the NANPCA requiring that the Secretary of Transport develop more stringent regulations and refer to equipment requirements.

[115] Prepared by the staff of the Smithsonian Environmental Research Center and members of the USCG published through the National Ballast Information Clearinghouse.

20-30% of arrivals. The Report found that the records were not sufficient to be able to estimate compliance with the voluntary exchange regime, however it was believed to be low. The US federal legislation is to scheduled for a reviewed in mid 2002 and it is possible that the enhanced security concerns will affect the overall regulatory approach.

It may also be that provisions of the 1972 *Clean Water Act,*[116] which requires a permit to discharge a pollutant into any navigable water in the USA, will be found to apply to ballast water in that the *Act* includes biological materials as pollutants. Congressional history suggests that this was the intent in adopting the NANPCA and NIS that it would be covered by this requirement. However the US Environmental Protection Agency adopted regulations to exempt ballast water from the permit requirements of the *Clean Water Act*. This is now being challenged in the courts. In September 2001, the Office of Water, Office of Wetlands, Oceans and Watersheds, Office of Waste Water Management of the U.S. Environmental Protection Agency issued a comprehensive "Draft Report for Public Comment" entitled *Aquatic Nuisance Species in Ballast Water Discharges: Issues and Options*. [117] The Report is in response to the call for elimination of the exemption for ballast water under the *Clean Water Act*. This thorough review examines a number of the complex regulatory and constitutional issues as well as proving a comprehensive listing of all current U.S. legal requirements. It notes that the current exemption made in 1973 relates to "discharges incidental to the normal operation of a vessel". This is combined with other definitions, which exclude vessels from the permitting regime. Currently the discharge permits are administered by many State governments. The draft report comments that extending discharge permitting to vessels "would present a significant challenge to EPA and authorised States". In particular the time frame for extending the permitting to "thousands of previously unregulated sources" is estimated to be 2-3 years to revise the exclusion and then several years to implement it.

There are also a number of States, such as California, Michigan, Washington, Oregon that have adopted or are in the process of adopting regulations. This is largely in response to public concerns about the ecological impact of this issue and the apparent lack of efficiency in the national regime. Like Canada and Australia, the US Constitution is based a division of powers with concurrent and, at times, overlapping areas of jurisdiction, depending on how a concern is characterised. This has added another dimension to the problem of differences between country models in that it provides another layer to the reporting requirements and agencies involved. It is not within the scope of this overview to review all the subnational requirements.

Constitutional Structure: federal system with both differing and concurrent heads of power.

Legal System: common law (and civil law –state level).

Level of Regulation: national and state level

Regulatory Classification: Under U.S.C. – Conservation- Nuisance control and prevention. Later as unintentional introduction of nonindigenous species. Mixture of pest control and fisheries, biodiversity protection.

Legislative responsibility: Fisheries and Transport (also a Task Force-integrated management approach).

Administrative responsibility: at national Level, USCG. State level varies for e.g., Washington - Fish and Wildlife; California - State Lands Commission.

Legislation: *Nonindigenous Aquatic Nuisance Prevention and Control Act, 1990 as amended and regulations; National Invasive Species Act, 1996*. Subnational not listed here, largely supplemental.

Legislative objectives: prevent unintentional introductions and spread of nonindigenous; co-ordinate federal research; develop and encourage environmentally sound methods to prevent, monitor and control introductions, minimise economic and ecological impacts, establish research and technology and assist state governments, international cooperation NAFTA partners and IMO.

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[116] See Cohen and Foster, note 80, at 13 -14 for a discussion of this issue.
[117] See <http://www.epa-gov/owow/invasive_species/ballast/report/reg.htm1>

Rationale for implementing mandatory domestic legislation: national level - address serious concern about issue but also meet concerns about ship safety. Voluntary exchange preferred for safety reasons however it may be mandatory if there is a lack of compliance. Subnational legislation based on a concern about lack of compliance with national programme.

Application: mandatory management for Great Lakes and Hudson River destinations, for all vessels with ballast tanks. Mandatory reporting and voluntary exchange (safety allowance) all vessels with ballast tanks coming from outside 200nm. Some exemptions apply for the crude oil coasting trade and for passenger vessels with equipment "no less effective than ballast water exchange."

Description of requirements:

- "All vessels with ballast tanks on all waters of the US" are asked to use precautionary ballast water loading practices (listed as per the IMO Guidelines) and avoid ballast operations in or near marine sanctuaries, coral reefs etc, clean tanks regularly, discharge minimal amounts of ballast in internal and coastal waters, address the problem of other ship vectors of organism transfer (i.e., rinse anchors and anchor chains during retrieval, remove fouling organisms from hull, piping and tanks on a regular basis).
- Vessels are asked to maintain vessel specific ballast water management plans and train vessel personnel in ballast water and sediment management and treatment procedures.
- All vessels that carry ballast water into the USA after operating beyond 200nm (EEZ) are asked to carry out ballast water management by: 1) exchanging with water more then 200nm from any shore in water more than 2000 metres; 2) keep the ballast on board; 3) use an alternative environmentally sound method that has been approved by USCG in advance; 4) discharge to a reception facility; 5) exchange waters approved by the USCG Port Captain (alternate discharge zone).
- Ballast water management is mandatory for vessels travelling to the Great Lakes and Hudson River areas.
- Vessel and crew safety is paramount and determined by the ship's master. In the Great Lakes Hudson River alternative arrangements prior to entry must be made with USCG.
- Filing a ballast water reporting form is mandatory and must be filed 24 hours before arrival in port for Great Lakes and Hudson River voyages. There is a variation in the format for foreign flagged and US/Canadian flag vessels. (NB*: There may a change to the filing process and times with enhanced security requirements for 96 hour notice)*. Originally vessels in other US waters had to file the Report before leaving the first port of call. Recently this has been altered to require filing before entering the port.
- There are a number of supplemental State level requirements. For example, the Port of Oakland [118](including San Francisco Bay) requires compliance with the USCG Guidelines for all ships arriving from beyond the US or Canadian EEZ. A copy of the USCG form must be filed with the Chief Wharfinger at the Port of Oakland. There is also is also an additional Coastal Ballast Water Reporting form for ships in the west coast coasting trade or with water taken on within 200nm of the coast. Water that has not been treated or exchanged cannot be discharged unless it is required for safety reasons. If no Report is filed with the Chief Wharfinger then ballast water is sampled and if it is not acceptable discharge is not allowed. The State recognises one other management methods that is not in the USCG Guidelines-proven compliance with the uptake control (precautionary measures) in the IMO Guidelines (9.1.1 and 9.1.2 of the Annex). All owners or operators of ships that use the Port must provide the Port with a copy of the ship's current ballast water management policy on an annual basis. There was a phase in period of mandatory reporting for one year followed by the imposition of mandatory ballast water management in 2000. Another State, the State of Washington

[118] See: <http://www.intertanko.com/tankerfacts/environmental/ballast/ >

passed a law in 2000[119] that includes a form of negotiated compliance with specific industry members ((through the Puget Sound Marine Committee).[120] According to this arrangement members will be sampled on a random basis with all other vessels sampled on arrival in State waters. The legislation makes the USCG Guidelines mandatory in Washington and also requires vessels involved in coastal trade to report and to conduct a ballast water exchange at least 50 miles offshore and file a ballast water management report (USCG form is accepted) 24 hours prior to discharging ballast in state waters. The safety exception is also recognized however Section 4(2) provides that:

> *After July 1, 2002, discharge of ballast water into waters of the state is authorized only if there has been an open sea exchange or if the vessel has treated its ballast water to meet standards set by the department. When weather or extraordinary circumstances make access to treatment unsafe to the vessel or crew, the master of a vessel may delay compliance with any treatment required under this subsection until it is safe to complete the treatment.*

The State is also developing standards, consistent with the Federal *Clean Water Act,* to determine whether ballast water can be discharged.

6.5 New Zealand

Observations

New Zealand, like Australia, is an island nation that is heavily dependent on regional and international shipping for its economic survival. [121] It also has a small Merchant Navy. Also like its neighbour and trading partner, Australia, New Zealand has a long history of ecological concern and concerns about loss of its biodiversity.[122] In addition NZ policies and laws specifically seek to protect the interests of the Maori people of NZ. Invasive species can and have had a negative impact on the Maori's traditional foods.

In 1989, concurrent with Australian concerns the Government created a Working Group to develop a strategy to minimise the risk of introduction of exotic species in ballast water. Given the close regional ties with Australia it is not surprising that the Australian approach to the issue has been influential, particularly in the characterisation of the issue. In 1992 voluntary guidelines consistent with the IMO Guidelines[123] were put in place, while the Government carried out research and developed its strategy and carried out public consultation. In 1993 regulatory authority was put in place with the *Biosecurity Act, 1993*[124], a comprehensive border control law to prevent the unintentional introduction of invasive species from any source, by providing standards for imports, controlling movement across the border and post entry quarantine. Much like the US NANCPA and NIS is also provides for eradication and management measures at regional (regional councils) and national levels and provides a foundation for research and dissemination of information.

The lead agency is the Ministry of Fisheries, however implementation is carried out by multiple agencies. The Ministry of Fisheries is responsible for implementing ballast water discharge policy. The Quarantine Service of the Ministry of Agriculture and Forestry (MAF) has within it a Biosecurity Authority and its quarantine services provides front-line services, including checking of ships' logs and interviewing ships' masters, under an agreement with the Ministry of Fisheries. The Maritime Safety Authority (MSA) a crown corporation, is responsible for ship safety. MSA advises other departments on the practicality of proposed measures, helps to promote awareness within the shipping

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[119] Washington Department of Fish and Wildlife. New Ballast Water Rules in Effect. <http://www.wa.gov./wdfw/fish/nuiscance/ballast.htm>

[120] <http://www.marineexchangesea.com/ballwtrleg.html>

[121] More than 90% of its imports and exports are waterborne: Ministry of Fisheries, *Ballast Water and Ships' Hull Defouling-A Government Strategy* (undated). Available at <http://www.fish.govt.nz.sustainability/bllast/ballast-strategy.htm>

[122] M. Chistensen, Focus Country Report. (undated) Global Invasive Species Project. Available at <http://www.iucn.org/themes/law/elp_invasives_NZ.htm>

[123] Gollasch, note 84 at 141, Comments that the Australian voluntary controls on discharge were modified and adopted as an interim and immediate response to allow NZ to collect information, reduce the amount of ballast water discharged and send a message to the international community about NZ concerns.

[124] *Biosecurity Act, 1993* (NZ.) No. 95 available (see also: Biosecurity Acts1993-1998 - a consolidation of all amendments) at <http://www.govts.nz > follow links to legislation.

industry, and its officers are available to assist MAF officials at ports if a question arises about ballast water discharge. The Department of Conservation and Ministry for the Environment works with the Ministry of Fisheries to examine options for policy regarding hull de-fouling and cleaning, the disposal of hull scrapings to the marine environment, and possible protection for special marine areas. There are also Regional Council that are responsible under the *Resource Management Act, 1991* for monitoring local conditions and would necessarily be implicated in any emergency and management response.

Under the *Biosecurity Act, 1993* ballast water is comes with the definition of "risk goods" in Section 2:

> *"Risk goods" means any organism, organic material, or other thing or substance, that (by reason of its nature or origin) it is reasonable to suspect to constitute, contain, or otherwise pose a risk that its presence in New Zealand will result in:*
>
> *a) Exposure of organisms in New Zealand to damage, disease, loss, or harm; or*
>
> *b) Interference with the diagnosis, management, or treatment, in New Zealand, of pests or unwanted organisms;..:*

The Act is premised on the use of a specific "Import Health Standard" which is defined as "a statement approved under section 22 (1) of this Act by a chief technical officer on the condition that must, if an import is to be made, be met in the country of origin or export, during transit, during importation and quarantine, and after introduction:" In 1998 the *Import Health Standard for Ships' Ballast Water From All Countries* was promulgated.[125]

This Standard prohibits discharge of ballast water in NZ waters that does not meet the conditions in the standard (s.2, s.4.1). Sediment must be taken to an approved landfill. It should be noted that NZ waters are defined to mean territorial seas (12nm) and internal waters. Emergency discharge situations are not covered by the Standard. "Ballast water" is broadly defined to include sediment settled in tanks, sea chest, anchor locker and plumbing etc. Permission to discharge is only given when a quarantine inspector is satisfied that the master has met one of three criteria: 1. Demonstrate that water has been exchanged enroute or the water is fresh; 2. Ballast has been treated using an approved shipboard treatment system (none approved yet), or 3. Discharged at an approved area or on shore facility (none yet). Exemptions are available when a combination of weather and the vessel's construction precludes safe exchange and the ballast water does not come from a listed area (2 currently listed) or the construction of the vessel precludes ballast exchange and the water is not from any listed place. The cost of inspections, analysis and delays are the responsibility of the owner or charterer. The Standard does not apply to water that will not be discharged in NZ. Penalties are provided under the *Biosecurity Act, 1993* for providing incorrect information –12 months imprisonment and/or fine up to 15,000NZ$ or for a company up to 75,000NZ$.

The underlying authority for "craft" inspections are found the *Biosecurity Act, 1993*. The inspector is not allowed to give a biosecurity clearance unless

> ***Sect. 27. Inspector to be Satisfied of Certain Matters***
>
> *An inspector shall not give a biosecurity clearance for any goods unless satisfied that the goods are not risk goods; or satisfied:*
>
> *a. That:*
>
> *i. There is in force an import health permit in respect of the goods (or goods of a kind or description to which the goods belong), and the goods comply with the requirements of that permit and the associated import health standard; or*
>
> *ii. The goods comply with the requirements of an exemption under section 24 of this Act; or*
>
> *b. The goods comply with regulations made under this Act providing for the importation without an import health permit of goods of a kind or description to which those goods belong; and*
>
> *c. That there are no discrepancies in the documentation accompanying the goods between that documentation and those goods) that suggest that it may be unwise to rely on that documentation; and...*

[125] Its legal status is similar to a regulation. Available at: <http://ww.fish.govt.nz/sustainability/ballast/ballast/ballast_health.htm>

The *Act* also provides wide ranging authority for the inspector to direct a number of actions including posting a bond.

Constitutional Structure: unitified.

Legal System: common law and traditional (Maori).

Level of Regulation: national for all shipping.

Regulatory Classification: biosecurity- quarantine -pest control.

Legislative responsibility: Ministry of Fisheries.

Administrative responsibility: Multiple – Ministry of Agriculture and Forestry (MAF)-Quarantine Services - BioSecurity Authority - inspectors, Maritime Safety Authority (MSA)- safety and maritime communications.

Legislation: *Biosecurity Act, 1993*; *Import Health Standard for Ships' Ballast Water from All Countries, 1998.*

Legislative objectives: prevention based measures adopting a risk assessment approach, consistent with IMO resolutions, risk minimisation. Controls to be environmentally acceptable, practicable to implement and cost effective compared to alternatives. Impacts on trade are to be explicitly considered; avoid compromising ship and crew safety, regulatory controls to be enforced where there is risk from specific species.

Rationale for implementing mandatory domestic legislation: Establishment of invasive species in Tasmania posed a specific threat.

Application: all ships entering to NZ territorial seas and internal waters.

Description of requirements:

- 12 hours in advance of arrival all small craft (yachts) and vessels must contact the Ministry of Agriculture and Forestry Quarantine Services (by radio). Entry Clearance occurs on arrival. All ships arriving from overseas with ballast tanks must fill out a 2 part Ballast Water Report Form. This is examined by the Quarantine Inspector on arrival and if the Inspector is satisfied permission to discharge may be given. Form 1 has to be completed before discharge can occur. Form 2 has to be completed and filed before leaving NZ by all vessels discharging ballast water in NZ. It requires details of all tanks and the origins of the water and amount discharged.
- Form 1 also requires information regarding cleaning and hull fouling and sediment disposal.
- Subject to safety concerns, vessels are required to conduct deep water exchange or use another treatment method. If the ballast is from a specifically identified high risk area, then exchange or treatment is mandatory.

7 Conclusions & Issues

The six Legislative Reviews in Section 5 and this overview of other legislative models leads to several key observations about effective domestic regulatory design to address the problem of transfer of harmful aquatic organisms and pathogens in ships' ballast water.

- International obligations generally provide the outside parameters of domestic legislative responses in that they establish internationally acceptable norms of State action. International law often serves as a mechanism for reducing or preventing conflicts between countries through the use of mutually agreed-upon practices. This is particularly the case with industries such as international trade and shipping. Shipping inherently involves an international

relationship between, at a minimum, the flag State and coastal State. In the context of control over ships' ballast water, the issue requires an evaluation of the extent to which a port or coastal State can legitimately regulate activities on a foreign flag vessel, in the absence of an existing international agreement on the matter. At the same time the activity is not confined only to the ship since discharge of water necessarily engages the jurisdiction of the receiving state. It also requires an evaluation of States' responsibility to take action to prevent environmental and other harm by exercising control over individuals and activities under their jurisdiction. The international nature of shipping and environmental protection means that States have an obligation to cooperate to develop international rules in order to ensure effective protection of the environment and avoid unnecessary economic and social conflict.

- The need for cooperation is exacerbated in the case of countries that have closely linked seas where marine activities occur within a regional framework on protection of the marine environment. Communication and cooperation amongst port States is particularly important in terms of international accountability.

- The attribution of liability is difficult and not resolved in international law. In many cases the receiving port has not developed an ability to assess the level of risk or to determine where there has been an impact on its biodiversity. The passage of time between a discharge and the discovery of a harmful organism or pathogen may be significant. A discharge of ballast will usually occur when the vessel is picking up goods or commodities from the country in which the ballast is deposited. Thus the question of who should bear responsibility as a "polluter" is open in that ships are usually in the port discharging ballast in order to meet the requests of a local shipper.

- The constitutional structure of a country will have a significant impact on regulatory design. The Guidelines recommend that responses be operative at a national level. This also makes sense in terms of reducing commercial and administrative uncertainty and duplication of efforts. In countries with a federal structure and divided or concurrent jurisdictions there may be more difficulty achieving national rules or practices. This is often the case in matters relating to environment or property. It may therefore be easier to characterise the issue as international or shipping or transport or quarantine to ensure a national standard. In countries where the legal system is more centralised, with multiple layers of laws and regulations at differing levels of specificity which are the responsibility of multiple agencies then the characterisation of the issue, and regulatory and administrative placement, may tend to be a shared responsibility with questions of efficiency determined more by administrative resources and expertise. There is no obviously better characterisation of the issue, although in the six case study countries the quarantine legislation concerns did not appear to provide broad enough coverage for this issue. However, the need to develop a cooperative approach to the process of quarantine and ballast water documentation and efficient use of resources was recognized because of the dual nature of the problem. The determination of which personnel would carry out inspections turns more on question of relative agency resources. Interestingly, although the most significant economic impact of harmful aquatic organisms would appear to be on marine capture and aquaculture fisheries, aside from New Zealand, indirectly through fisheries administration of the Biosecurity Act, and the USA, where it is designated a fisheries agency responsibility administered by the USCG as its enforcement agency, fisheries regulation does not seem to be the approach adopted in most countries. Thus it seems that a linkage with potential impact and the regulatory placement does not appear to be present, except perhaps in relation to designation of discharge zones.

- Depending on the situation in each country, the level of integration and cooperation will vary. For example, in Brazil there has already been a move to create a tripartite agency to deal with this issue.

- The majority of the six country Legislative Reviews have classified the issue as ship source marine pollution, perhaps because shipping tends to be a national or federal level matter and

does not *per se* create a problem of concurrent jurisdiction. From an administrative point of view it appears that a maritime administration may be better placed to deal with some aspects of the issue, for example, certification of crew and flag State responsibilities. However maritime administrations are not well placed to deal with issues relating to designating discharge zones, a process that should in principle require consultation with other States and other affected users/stakeholders (i.e. fishing) likely in countries where there is an EIA process.

- Irrespective of how legislation is characterised, it seems reasonable that one reporting centre be identified for all documents required by the port.
- Most legislative models set in place some level of State control over discharges through reporting and requiring a ballast water management plan. The question of flag State responsibilities seems markedly less advanced, although there is no reason for countries to fail to implement this aspect of the Guidelines.
- Although the international convention will only apply to ships on international voyages countries should consider the problem of transfer between ecosystems within the State through the coasting trade from an international to domestic port. States should take action to regulate their coasting trade vessels as well as international ships as a matter of international responsibility to protect the marine environment as a strategy of containment for any possible introductions.
- In the Legislative Reviews there are differing views regarding the need to incorporate environment law standards and practices relating to permitting for discharges. This issue may be linked to larger questions regarding the interface between shipping/ ports and environmental practices for regulating domestic industries.

The next part of the Report, Part III, discusses these issues in more detail and provides recommendations and a list of elements to be considered when drafting national legislation.

Part III:
Conclusion & Recommendations

8 Legal Issues, Conclusions and Regulatory Recommendations

8.1 Introduction

This Part of the Report sets out a number of key issues, conclusions and recommendations relevant to national implementation of the 1997 IMO Resolution A.868 (20), *Guidelines for the control and management of ships ballast water to minimise the transfer of harmful aquatic organisms and pathogens (*the Guidelines) and the proposed IMO *Convention for the Control and Management of Ships' Ballast Water and Sediments (*draft Convention)[126]. They were developed through the six Legislative Reviews, other research in this Project and discussion at the "*1st International Workshop on Legal Aspects of Ballast Water Management and Control*". The analyses and the recommendations set out in the following sections are not intended to be definitive, rather they are presented as factors to be considered by any country seeking to design a regulatory regime to respond to the problem of ballast water or other ship source pathways of harmful aquatic organism and pathogen transfer. The ideas, draft legislation and recommendations presented here and in the six country Legislative Reviews represent an attempt to deal with the legal problem posed by the pressing need to take action to protect the marine ecosystem at a time when the international legal regime - the most appropriate and effective way to manage international shipping/trade issues - is still developing. Uncertainties posed by the legal characterisation of the problem, diverse constitutional structures and the administrative and legal transitions currently underway in countries moving to an integrated management approach to managing coastal and ocean activities are also important factors in regulatory design. The recent uncertainties relating to enhanced security arrangements and concerns about biological warfare are also issues that may affect international and national responses. These issues were explored in detail in Part I and in the Local Legal Consultant Reviews in Part II. The six country Legislative Reviews in Part II provide a foundation for the ideas presented below. They identify concerns and issues that will be present for most countries and, in particular, those with transitional or developing economies.

The recommendations, the "best practices" list and the list of suggested elements to be considered when drafting national legislation, also found in this Part, reflect a precautionary approach[127] to regulatory design. Legislation and administrative actions can also have unforeseeable and unintended negative consequences for the environment. One of the lessons of sustainable development is that we still know relatively little about the complex interactions within and between the socio-economic and ecological systems. In the face of still developing knowledge and uncertainty, the best regulatory approach is one of caution. This must be combined with continuing research to monitor the effects of any administrative action in order to make better informed decisions and a commitment to ongoing evaluation of regulatory approaches and a preparedness to change direction if necessary.

8.2 Legal Issues, Conclusions and Regulatory Design Recommendations

The following section sets out a series of issues, commentary and conclusions discussed at the International Workshop.

[126] IMO, MEPC, Consolidated text 19 January 2001. This text has been revised somewhat after the completion of Project research. The same general framework is retained. As noted earlier a diplomatic conference to adopt this instrument is provisionally scheduled for 2003.

[127] This is discussed in more detail in Part I, Section 2.3.

Issue 1.

Do States currently have an international legal obligation to take action to prevent the unintentional transfer of potentially harmful aquatic organisms and pathogens between parts of the marine ecosystem. If so, how is this obligation characterised in international law and does it extend to preventing the transfer in ships' ballast water?

Commentary

The analyses set out in Parts I and II of this Report makes it clear that all States party to the *United Nations Convention on the Law of the Sea (UNCLOS),* the *Convention in Biological Diversity* (in particular, the Jakarta Mandate), MARPOL 73/78 and other international regional marine protection agreements, as well as national law and practice, have an obligation to protect and preserve the marine environment (See Art. 192 UNCLOS). This obligation is also supported in customary international law found in many resolutions of the United Nations General Assembly and documents such as *Agenda 21* and the *Global Programme of Action for Protection of the Marine Environment from Land-based Activities*. The obligation extends beyond source specific marine pollution and relates also to protection of fragile habitats and endangered species (see for e.g., Art. 194, UNCLOS and the *Jakarta Mandate* under the *Convention on Biological Diversity*). This general obligation specifically includes preventing the transfer of alien or new species that may be harmful between parts of the marine environment (Art. 196 UNCLOS, *Agenda 21*, *(Article 8(h)) Convention on Biological Diversity*) and encompasses both intentional and unintentional transfers and introductions.

The question of legal characterisation of the problem – that is, whether the risk of introduction of potentially harmful aquatic organisms and pathogens is pollution or some other form of ecosystem harm - is both important and unimportant. It is important for classification in national legal and administrative systems and in considering any international legal constraints on State action. As demonstrated in the Legislative Reviews, this determination interacts with questions of constitutional and agency responsibilities in many countries, especially those that operate as a federation. In addition, it can bring into place differing regulatory norms. For example, in many countries the domestic environmental regime regarding pollutant discharge requires mandatory discharge permits and possible environmental impact assessments. In contrast, the international and domestic regulatory regimes for shipping have relied on international standards and technological solutions and take into account the serious practical and trade implications of a ship-by-ship environmental impact assessment or even a permitting or licensing process for international shipping.

At the same time, irrespective of classification of the problem, the administration, implementation and content of regulations may in fact be similar in operation and impact on the industry. For example, in countries that have adopted quarantine or biosecurity or another approach, the requirements for ship reporting, ballast water and sediment management and treatment and arrangements where ballast water management has not been possible, are the much the same as those under the traditional ship source pollution regulation regime. This is likely to be case until an international legal convention combined with an environmentally acceptable technological solution is developed.

While there is some uncertainty generated by the text of UNCLOS, the analyses in Parts I and II of this Report suggests that the definition of pollution of the marine environment in Article 1(4) (UNCLOS) can be understood to include human activity that introduces new or alien species into a part of the marine environment which results or may result in a number of deleterious effects. This is supported by the broader preservation of ecosystem obligations referred to in Articles 192, 194(5) 196(1) of UNCLOS.

In the event that the transfer of alien species (harmful aquatic organisms and pathogens) in ships' ballast water is <u>not</u> considered pollution of the marine environment under UNCLOS, it is clearly a threat to marine biological diversity. Therefore, States' obligations to act to prevent this problem are also implicated under the 1992 *Convention on Biological Diversity* (Art 8(h)). The close to universal

ratification of the Convention combined with other State commitments, suggests that the obligations under this Convention are generally accepted by the international community.

The more specific obligation to prevent the transfer of species specifically through the medium of ships' ballast water operations (including sediments) is clearly recognized in soft law under *Agenda 21*, section 17.30, and the development since 1973 of international guidelines on this matter endorsed by the Assembly of the IMO. The recommended national regulatory approach to managing ships' ballast water operations currently endorsed by IMO member States is set out in IMO Resolution A.868 (20), the Guidelines. It notable that the Guidelines explicitly recognize the right of States to enact national legislation (consistent with international law) on this matter.

The fact that the States attending the United Nations Conference on Environment and Development (UNCED) participated in the adoption of *Agenda 21* and called upon the International Maritime Organization to develop international rules on the problem is important. Subsequently member States have pursued this issue in the forum of IMO, initially with a view to developing rules as an Annex to MARPOL73/78 which is dedicated to preventing ship source pollution. Although this assignment of responsibility to IMO can be attributed to agency expertise and jurisdiction within the UN, this decision also reflects the views of countries that have supported this approach. There is also an international obligation on States to cooperate and, in the context of the marine environment, develop international rules and standards, research and contingency plans to protect the sea (e.g., Arts. 197, 198,199, 200, 201 UNCLOS). All of these factors indicate that the prevailing practice and view of States favours an international standards based, ship source pollution prevention model, at least in terms of the administration and content of rules. There is evidence suggesting that the issue was initially considered by some Member States to be more analogous to risk based quarantine or border controls, a view supported in the forum of the *Convention on Biological Diversity*. However, the increasing likelihood of a technological solution to significantly reduce and possibly even eliminate the risk of transfer in ballast water appears to have shifted the international approach to one more aligned with the MARPOL 73/78 ship source marine pollution prevention equipment-based model.

It can be concluded that there is an existing legal obligation on States to respond to prevent the spread of harmful aquatic organisms and pathogens in ships' ballast water and sediments and to cooperate with the IMO in the development of international and regional rules and practices to ensure that State actions to prevent this problem are effective. There is, therefore, a dual obligation to act now to protect the marine ecosystem and to cooperate in the development of international rules, standards and research to deal with the issue, which, in the context of shipping, is a shared responsibility of coastal and flag States. The introduction and adoption of an international convention to provide a uniform framework for State action will build upon this obligation.

Conclusion

States have existing international and other legal obligations to take action to prevent the unintentional transfer between ecosystems of potentially harmful aquatic organisms and pathogens. This obligation can be characterised in international law as either preventing marine pollution or protecting the ecosystem from some other form of harm. However, current international and national practice suggests that a ship source pollution prevention approach may be preferable. This is combined with an obligation to cooperate in the development of international rules/convention and standards. Irrespective of classification, many of the same regulatory requirements will exist. This obligation includes flag and coastal/port State action to prevent the transfer and spread of potentially harmful organisms in ships' ballast water and other related vectors.

Issue 2.

Do States have any legal obligations that constrain or otherwise shape their national response to the problem of preventing ballast water transfer of potentially harmful aquatic organisms and pathogens?

Commentary

As pointed out above in Issue 1 the IMO Guidelines recognise the right of States to enact national legislation (consistent with international law) on this matter. However, the scope of a State's legislative activity is determined by both its national constitutional obligations to its citizens and by its international legal commitments. Many States' constitutional commitments include, expressly or implicitly, an obligation to secure the environmental and economic welfare of its citizens.[128] In the short term there may appear to be a conflict between these interests, requiring a decision as to which interest or activity is to be given priority and how best to achieve a balance that does not sacrifice any interest. This is often the case where a country may be both a flag or crew supply State and may have a high level of economic dependency on the international ocean transport of goods. The same country may also have a significant capture and/or culture fishery and other economically and socially important coastal activities and as well as a vulnerable coastal ecosystem because of increased coastal population. A decision to further regulate shipping operations to prevent the introduction and spread of harmful aquatic organisms species and pathogens will have an impact on each of these activities and may result in costs or restrictions imposed on one sector to better protect another sector. Whilst governments are obliged, domestically and internationally, to take action to ensure that these differing, but equally important, national concerns are all taken into account and addressed to the fullest extent possible, the particular balances struck and choice of priorities will vary between States. This is the challenge of sustainable development.

A State's constitutional or governance framework also shapes the particular form of its legal response to these issues and international obligations. In many countries there are often multiple levels of government with differing legislative and administrative jurisdiction. This is particularly the case in countries that have adopted federalism (or some form of federalism), where legislative jurisdiction is shared between levels of government in the country. Problems involving environmental protection often cross traditional jurisdictional boundaries, a fact that can affect a State's ability to implement its international commitments. In countries that have a unitary system of government there are often multiple levels of regulatory authority to assist in the administration and implementation of national laws, which may result in less inter agency conflict regarding regulatory goals. However, it may also result in unevenness in implementation practices and a high level of complexity for ascertaining the applicable regulations in any one case.

At the international level, a State's action is constrained by its international commitments affecting the exercise of State sovereignty. In the context of shipping there is international conventional law (UNCLOS) generally reflecting customary law that delineates both States' rights and obligations regarding the sea. As discussed in Part 1, convention obligations under conventions such as Facilitation of MaritimeTraffic, 1965 (FAL), SOLAS, MARPOL73/78, the International Health Regulations (IHR) and the World Trade Organization (WTO) rules further delineate or constrain the scope of States' regulatory activity.

The international obligation to cooperate and to assist in developing international rules, research and contingency plans to prevent the spread of harmful aquatic organisms and pathogens was discussed above in Issue 1. The duty to cooperate reflects the international understanding, particularly in environmental and economic issues, that there is a high level of interdependence amongst countries. This means that States cannot operate with disregard for the impact of its national actions on other States.

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[128] More recently these objectives are in turn linked to obligations to protect the security of the State and its citizens. The concept of security is now expanding to include national defence activity to secure the health (including food chain and ecological) security of the country and its people.

Under UNCLOS, States are confined to legislative activity that does not, *de facto* or *de jure*, hamper Innocent Passage through their territorial sea (Art.24 (1)). There is some debate regarding the question of residual or discretionary prescriptive jurisdiction in various matters, however Article 24 and related Articles dealing with Innocent Passage are generally accepted as setting out a core principles on this question. Enforcement rights against foreign flag vessels such as inspections etc. are also subject to UNCLOS and MARPOL, FAL and in some cases port State MOUs. For example, although UNCLOS does not specify a limit, beyond notice, on port entry requirements relating to preventing, reducing and controlling pollution (Art. 211) the range of legislative action possible by the port/coastal State is determined by the complex interaction of State legislative sovereignty with the regime of Innocent Passage and the requirement that a State's national legislation cannot affect the construction, design, equipment or manning on board foreign flag vessels (unless giving effect to international standards) (Art.21(2)). Passage (Innocent) includes proceeding to or from internal waters, ports or roadsteads (Art. 18), although a State can take action to prevent a breach of port entry conditions (Art. 25(2)).

In addition, although not the focus of this Report, the development and increasing influence of this International trade regime under the WTO, as well as related regional trade agreements, also provides a constraint on regulatory design for States party to these agreements. As a practical matter, even without these agreements, trade relationship and trading partner concerns will have an impact on regulatory design and industry response. As indicated in the Legislative Reviews in Part II, there are also a number of regional marine and other environmental protection agreements that will affect the form and efficacy of a country's legal/administrative response. (see for e.g., Ukraine, Iran).

Conclusion

A State's legislative response to concerns about the transfer of potentially harmful aquatic organisms and pathogens in ships' ballast water and sediments must be designed to take into account and reconcile its international, regional and domestic legal obligations.

Issue 3.

If a State takes regulatory action to deal with the transfer of potentially harmful aquatic organisms and pathogens in ships' ballast water, what principles and goals should inform its strategy?

Commentary

States now operate within the framework of *Agenda 21*, the principles set out in the *Rio Declaration on Environment and Developmen*t and the imperative of sustainable development. The issue of harmful aquatic organism and pathogen transfer in ships' ballast water, when a technological solution to eliminate the problem has not yet been found, provides a challenge for principled regulatory design. For example, in the context of ship source pollution, in most cases, a country will have both economic and ecological security needs that overlap for some sectors (fishing) and provide conflict for other sectors (shipping). The question of ballast water management is particularly difficult because mid ocean exchange, the operational treatment method currently viewed as the most effective, has raised concerns about ship and human safety. At the same time, if a harmful organism is introduced, it may cause irremediable harm to health, economic/property and ecological interests. Governments have an obligation to protect all of these interests. In the absence of globally endorsed technological solution[129] an approach based on minimising risk and balancing these interests has been adopted. There is a need to consider the principles that should inform national regulatory design to address these problems.

The international community has already developed some guidance in this respect. The IMO Guidelines are premised on precautionary, preventative and cooperative risk minimisation practices to

[129] There is a growing consensus, expressed most recently at an International Ballast Water Conference in Singapore, October 2001, that mid ocean exchange can only be viewed as an interim solution.

accommodate concerns about ecological protection and ship and human safety, with primacy in all cases given to ship and human safety. The Guidelines can also be seen as respecting the principle of subsidiary in that the final decision as to the level of acceptable risk, both on board ship and in the coastal State, are decided by the authority most affected by and in the best position to assess the risk. This approach is consistent with ideas articulated in *Agenda 21* and the principles found in the 1992 *Rio Declaration on Environment and Development*.

Fifteen "guiding principles" were recommended by the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) to the Conference of the States Party to the *Convention on Biological Diversity*. These Principles are entitled *Alien species: guiding principles for the prevention, introduction and mitigation of impacts*.[130] All are relevant to a national strategy to combat the introduction of harmful aquatic organisms, however some are particularly relevant to legislative activity. These are set out in full below (emphasis added).

> ***Interim Guiding Principles for the Prevention, Introduction and Mitigation of Impacts of Alien Species***
>
> *It should be noted that in the interim guiding principles below, terms are used for which a definition has not yet been developed, pending a decision by the Conference of Parties on the development of a standardised terminology on alien species, as mentioned in paragraph 5 of recommendation V/4. In the interim and for the purpose of these interim principles, to avoid confusion the following definitions are used: (i) "alien" or "alien species" refers to a species occurring outside its normal distribution; and (ii) "alien invasive species" refers to those alien species which threaten ecosystems, habitats or species.*
>
> ***A. General***
>
> ***Guiding principle 1: Precautionary Approach***
>
> *Given the unpredictability of the impacts on biological diversity of alien species, efforts to identify and prevent unintentional introductions as well as decisions concerning intentional introductions should be based on the precautionary approach. Lack of scientific certainty about the environmental, social and economic risk posed by a potentially invasive alien species or by a potential pathway should not be used as a reason for not taking preventative action against the introduction of potentially invasive alien species. Likewise, lack of certainty about the long-term implication of an invasion should not be used as a reason for postponing eradication, containment or control measures.*
>
> ***Guiding principle 2: Three-stage hierarchical approach***
>
> *Prevention is generally far more cost effective and environmentally desirable than measures taken following introduction of an alien invasive species. Priority should be given to prevention of entry of alien invasive species (both between and within States). If entry has already taken place, actions should be undertaken to prevent the establishment and spread of alien species. The preferred response would be eradication at the earliest possible stage (principle 13). In the event that eradication is not feasible or is not cost-effective, containment (principle 14) and long-term control measures (principle 15) should be considered. Any examination of benefits and costs (both environmental and economic) should be done on a long-term basis.*
>
> ***Guiding principle 3: Ecosystem approach***
>
> *All measures to deal with alien invasive species should be based on the ecosystem approach, in line with the relevant provisions of the Convention and the decisions of the Conference of the Parties.*
>
> ***Guiding principle 4: State responsibility***
>
> *States should recognize the risk that they may pose to other States as a potential source of alien invasive species, and should take appropriate actions to minimise that risk. In accordance with Article 3 of the Convention on Biological Diversity, and principle 2 of the 1992 Rio Declaration on Environment and Development, States have the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction. In the context of alien invasive species, activities that could be a risk for another State include:*

130 Recommendation V/4 of the SBSTTA. Full text available at: <http://www.biodiv.org/recommendations>

(a) *The intentional or unintentional transfer of an alien invasive species to another State (even if it is harmless in the State of origin); and*
(b) *The intentional or unintentional introduction of an alien species into their own State if there is a risk of that species subsequently spreading (with or without a human vector) into another State and becoming invasive.*

Guiding principle 5: Research and monitoring

In order to develop an adequate knowledge base to address the problem, States should undertake appropriate research on and monitoring of alien invasive species. This should document the history of invasions (origin, pathways and time-period), characteristics of the alien invasive species, ecology of the invasion, and the associated ecological and economic impacts and how they change over time. Monitoring is the key to early detection of new alien species. It requires targeted and general surveys, which can benefit from the involvement of local communities.

Guiding principle 6: Education and public awareness

States should facilitate education and public awareness of the risks associated with the introduction of alien species. When mitigation measures are required, education and public-awareness-oriented programmes should be set in motion so as to inform local communities and appropriate sector groups on how to support such measures.

B. Prevention

Guiding principle 7: Border control and quarantine measures

1. *States should implement border control and quarantine measures to ensure that:*
   (a) *Intentional introductions are subject to appropriate authorization (principle 10);*
   (b) *Unintentional or unauthorized introductions of alien species are minimised.*
2. *These measures should be based on an assessment of the risks posed by alien species and their potential pathways of entry. Existing appropriate governmental agencies or authorities should be strengthened and broadened as necessary, and staff should be properly trained to implement these measures. Early detection systems and regional coordination may be useful*

Guiding principle 8: Exchange of information

States should support the development of database(s), such as that currently under development by the Global Invasive Species Programme, for compilation and dissemination of information on alien species that threaten ecosystems, habitats or species, to be used in the context of any prevention, introduction and mitigation activities. This information should include incident lists, information on taxonomy and ecology of invasive species and on control methods, whenever available. The wide dissemination of this information, as well as national, regional and international guidelines, procedures and recommendations such as those being compiled by the Global Invasive Species Programme should also be facilitated through, inter alia, the clearing-house mechanism.

Guiding principle 9: Cooperation, including capacity-building

Depending on the situation, a State's response might be purely internal (within the country), or may require a cooperative effort between two or more countries, such as:

(a) *Where a State of origin is aware that a species being exported has the potential to be invasive in the receiving State, the exporting State should provide information, as available, on the potential invasiveness of the species to the importing State. Particular attention should be paid where exporting Parties have similar environments;*
(b) *Agreements between countries, on a bilateral or multilateral basis, should be developed and used to regulate trade in certain alien species, with a focus on particularly damaging invasive species;*
(c) *States should support capacity-building programmes for States that lack the expertise and resources, including financial, to assess the risks of introducing alien species. Such capacity-building may involve technology transfer and the development of training programmes.*

C. Introduction of species

Guiding principle 10: Intentional introduction

No intentional introduction should take place without proper authorization from the relevant national authority or agency. A risk assessment, including environmental impact assessment, should

be carried out as part of the evaluation process before coming to a decision on whether or not to authorize a proposed introduction. States should authorize the introduction of only those alien species that, based on this prior assessment, are unlikely to cause unacceptable harm to ecosystems, habitats or species, both within that State and in neighbouring States. The burden of proof that a proposed introduction is unlikely to cause such harm should be with the proposer of the introduction. Further, the anticipated benefits of such an introduction should strongly outweigh any actual and potential adverse effects and related costs. Authorization of an introduction may, where appropriate, be accompanied by conditions (e.g., preparation of a mitigation plan, monitoring procedures, or containment requirements). The precautionary approach should be applied throughout all the above-mentioned measures.

Guiding principle 11: Unintentional introductions

1. *All States should have in place provisions to address unintentional introductions (or intentional introductions that have established and become invasive). These include statutory and regulatory measures, institutions and agencies with appropriate responsibilities and with the operational resources required for rapid and effective action.*
2. *Common pathways leading to unintentional introductions need to be identified and appropriate provisions to minimise such introductions should be in place. Sectoral activities, such as fisheries, agriculture, forestry, horticulture, shipping (including the discharge of ballast waters), ground and air transportation, construction projects, landscaping, ornamental aquaculture, tourism and game-farming, are often pathways for unintentional introductions. Legislation requiring environmental impact assessment of such activities should also require an assessment of the risks associated with unintentional introductions of alien invasive species.*

D. Mitigation of impacts

Guiding principle 12: Mitigation of impacts

Once the establishment of an alien invasive species has been detected, States should take steps such as eradication, containment and control, to mitigate the adverse effects. Techniques used for eradication, containment or control should be cost-effective, safe to the environment, humans and agriculture, as well as socially, culturally and ethically acceptable. Mitigation measures should take place in the earliest possible stage of invasion, on the basis of the precautionary approach. Hence, early detection of new introductions of potentially invasive or invasive species is important, and needs to be combined with the capacity to take rapid follow-up action.

Guiding principle 13: Eradication

Where it is feasible and cost-effective, eradication should be given priority over other measures to deal with established alien invasive species. The best opportunity for eradicating alien invasive species is in the early stages of invasion, when populations are small and localised; hence, early detection systems focused on high-risk entry points can be critically useful. Community support, built through comprehensive consultation, should be an integral part of eradication projects.

Guiding principle 14: Containment

When eradication is not appropriate, limitation of spread (containment) is an appropriate strategy only where the range of the invasive species is limited and containment within defined boundaries is possible. Regular monitoring outside the control boundaries is essential, with quick action to eradicate any new outbreaks.

Guiding principle 15: Control

Control measures should focus on reducing the damage caused rather than on merely reducing the numbers of the alien invasive species. Effective control will often rely on a range of integrated techniques. Most control measures will need to be regularly applied, resulting in a recurrent operating budget and the need for a long-term commitment to achieve and maintain results. In some instances, biological control may give long-term suppression of an alien invasive species without recurrent costs, but should always be implemented in line with existing national regulations, international codes and principle 10 above.

As noted above, all of these Principles are relevant to implementing the IMO Guidelines. The work of this Legislative Review Project is specifically relevant to Guiding Principle 1, the precautionary approach; Guiding Principle 2 's first level of response, prevention; Guiding Principle 4, state

responsibility; Guiding Principle 5, border control to prevent entry and Guiding Principle 11, development of legislation to prevent unintentional introductions.

In the context of the marine ecosystem, these principles are informed by the principles and obligations found on the 1992 Rio Declaration and UNCLOS. Principles such as, pollution pays, prevention of harm, precaution, international cooperation, responsibility and the prohibition on transboundary pollution are especially important. The overarching duty under UNCLOS Art. 192, to protect and preserve the marine environment is fundamental to legislative action regarding the marine environment. [131]

Other international obligations and regimes such as the international trade regime also provide guidance on principles such as avoiding measures that may be considered unfairly discriminatory.

Conclusion

International principles for sustainable development found in *Agenda 21*, the *Rio Declaration on Environment and Development* and documents affiliated with the *Convention on Biological Diversity* as well as other international agreements should be explicitly considered when designing a regulatory system and any legislation within that system. The obligation of States to protect and preserve the marine environment and to cooperate in this endeavour articulated in the 1982 *United Nations Convention on the Law of the Sea* is fundamental. A domestic regulatory response to prevent the transfer of harmful aquatic organisms and pathogens in ships' ballast water using a principled and sustainable approach should reflect the following:

- Responses to an ecological problem in the context of an international activity, such as shipping, should be based on an approach that seeks to fulfil international responsibilities to protect the global environment, integrates economic and ecological protection concerns and is based on international cooperation to develop rules and technological or other solutions to environmental problems arising out of the globalisation of the economic system.

- A precautionary approach should be adopted for both regulatory design and implementation. For example, all regulatory determinations must, as much as possible, be based on scientific research and an analysis of both local and global ecological implications of any action, with preference given to measures designed to ensure either no, or the least possible, long term negative impact on the environment.

- Minimise risks to the ecosystem[132] by designing and adopting measures that are commercially and practically viable and that encourage compliance rather than avoidance and conflicts.

- Allow for and explicitly encouraging continuous technological and operational improvement to better protect the marine ecosystem.

- Ensure transparency, sustainability and integration of agency responses.

- Encourage the involvement of all parties affected by the issue (and any decisions about regulating the issue), including the regulated sectors and other sectors, in helping to develop a solution.

- Make use of a range of modern regulatory as economic incentives and voluntary compliance agreements to encourage compliance.

- Focus on measures to prevent the uptake of harmful organisms and pathogens at source as well as preventing their introduction.

[131] Detailed discussion of these provisions is found on Part I, Section 4.

[132] This includes the environment or ecosystem of the enacting State and other States and common areas as noted in Guiding principle 4.

- Develop local and regional contingency responses and compensation plans for all those negatively affected by the activity, based on a polluter pay model.
- Develop requirements that are environmentally safe, practicable, designed to minimise cost and delays to the shipping industry and as much as possible are based on the internationally accepted standards such as the IMO Guidelines and the future Convention.
- Ensure that requirements are operate at a national level but also take into account ecosystems differences within each country, and are applied in a fair uniform and consistent manner in each port.
- Ensure that there is on going review and monitoring to evaluate the impact of any action that is taken.

Goals to be achieved in designing a regulatory system, including legislation, might include:

- Preventing the problem at the earliest possible point and with the highest level of effectiveness possible;
- Maximising opportunities for risk assessment and prevention;
- Maximising administrative efficiency and cooperation through holistic approaches and integrated management;
- Reducing unnecessary costs to the public and the regulated industry;
- Avoiding unnecessary conflicts between shipping and other coastal zone users and amongst regulatory agencies;
- Minimising uncertainty for all affected parties;
- Transparency;
- Accountability - internationally, regionally and nationally;
- Flexibility, (a) in order to respond to and incorporate developments in scientific information, technology or the development of new related concerns, and (b) to accommodate local ecosystem conditions and requirements in a harmonised manner.

Issue 4.

At what level of governance should a State's regulatory response to the problem of transfer potentially harmful organisms in ships' ballast water be developed?

Commentary

There are three key levels of governance required: international, regional and national (including subnational). As noted under Issue 1 a response based on international rules and cooperation is mandated in UNCLOS, *Agenda 21* and other international instruments. Where States are in geographically close proximity, then protocols and amendments to existing regional marine environmental agreements must also be developed to ensure that preventative action by one international State does not harm the environment of a neighbouring State.

The IMO Guidelines (Guideline 11.7) mandate a national level response by States, if possible. Consequently this issue overlaps with Issue 5, below, and the earlier discussion on constraints on the scope of State legislative responses. Constitutional considerations may require a particular characterisation of the issue in order to achieve a uniform national standard or approach. In countries with a form of federalism this can be difficult in that subnational levels of government may have a constitutional right to also act on this issue (see for eg., the problems in the USA outlined in Part II, section 6). Every effort should be made to cooperate to ensure harmonized requirements. It may be

that the issue is not relevant to some ports; conversely, some ports may be more sensitive. In addition some countries, such as South Africa and China, have vastly differing ecosystems along their coastlines. However, standard national requirements for all ports, if designed with sufficient scope for a risk-based exercise of administrative discretion by relevant port authorities, will meet industry concerns about certainty and national concerns about ensuring that ecological concerns are addressed. In addition, implementing flag State responsibilities under the Guidelines and the draft necessarily requires a national level response. This is consistent with the IMO Guidelines (3, 4, 6, 11.7) and the draft Convention. Subnational requirements may also be appropriate for specially sensitive areas and are consistent with Guidelines (11.14) and the draft Convention's Tier II, "Special Requirements in Certain Areas" (Annex Section C).[133]

The question of the level of governance also includes the nature of the legislative response. In some cases a country may prefer to begin with a voluntary reporting and research related sampling of ballast water perhaps though a Marine Notice. In other cases there may well be an immediate adoption of mandatory regulations. The approach will vary depending on a number of factors relating to public concerns, awareness and so on. It is notable that, in many countries now developing mandatory requirements, legislative development followed a pattern of an initial period of voluntary guidelines combined with sampling and monitoring to obtain data for risk assessment. This was then followed by mandatory requirements and legislative enactment as a regulation or some form of law. The advantage of an incremental approach is that it allows for development of the State infrastructure to manage the process and develop a database for decision making with relatively little commercial impact. However this may not provide sufficient protection in some countries and mandatory requirements may be the first step. This strategic determination is relevant to both flag and port/coastal State responsibilities.

Conclusion

There are three levels of governance required: international, regional and national. Additional subnational requirements may also be appropriate for especially sensitive areas of the marine ecosystem or to meet local ecosystem or economic concerns that maybe affected. A strategic decision is also needed as to whether legislation is developed on a voluntary or pilot port basis or on a mandatory basis as first step in the regulatory process.

Issue 5.

How is the problem of aquatic species and pathogen transfer best characterised in national systems in order to achieve the principles and goals in Issue 3 and which agency should be charged with administrative responsibility?

Commentary

The question of characterising this issue at the international level has been discussed under Issue 1, above. That discussion is related to and remains pertinent, although not determinative at the domestic level as well. There are a number of regulatory models that have been adopted nationally to characterise the problem of harmful aquatic organism and pathogen transfer through ships' ballasting operations. These include ship source marine pollution, port specific regulations, biosecurity, human health-quarantine/pest control. The Legislative Reviews in the six pilot countries have also recommended a range of responses including amending or creating new regulations under existing MARPOL implementation legislation, usually cross referenced to human health quarantine requirements, and creating comprehensive environmental regulations to support newly created integrated administrative arrangements combining environment/biodiversity, maritime administrations and quarantine. The issue of harmful organism and pathogen transfer in ships' ballast water can be defensibly characterised a number of ways. In many cases factors relating to administrative agency expertise and competence, resources and questions of efficient port-ship interaction tend to place the

[133] See also: IMO Secretariat, MEPC, Identification and Protection of Special Areas and Particularly Sensitive Sea Areas, IMO doc. MEPC 46/6, 11 January 2001.

issue within existing ship source pollution control systems. But this is not necessarily the case, as the existing effective regulatory framework in Australia and New Zealand, based on pest control and quarantine demonstrates. These factors will differ among countries and any determination will depend on the constitutional and legislative framework as well as the particulars of agency strength and competence in each country.

Rather than recommend a specific agency or a legal characterisation it is more useful to explicitly recognise that this is a period of transition in many countries as new management approaches such as integrated management of coastal and ocean activities and port privatisation are adopted. There will be a high level of diversity among countries and a need to respect State autonomy in this matter. It is more fruitful instead to focus on key questions that should be considered in the process of characterising the issue and providing a regulatory home for any legislation implementing the Guidelines and the future IMO Convention.

The paramount concern is to find a way to achieve harmonisation and standardised legislative and administrative requirements to better ensure the development of internationally binding standards to implement the goals and principles set out above. In order to implement the key elements of the Guidelines and to pave the way for the developing IMO Convention the following considerations are important:

- A regulatory response level should be at a national level, even if there is accommodation of specific local ecosystem conditions. An administrative agency or agencies that can operate at a national level and interact, if appropriate, at a regional and international level should hold primary responsibility.

- Irrespective of the primary legislative responsibility, the agency identified for ship - port interaction such as document filing and communication must be in a position to do so efficiently with a minimum of delay or other administrative burden on ships and shippers. In particular, reporting to multiple agencies should be avoided. For example, consolidated or comprehensive reporting, ideally electronically, for quarantine, ballast water and other FAL documents may be a solution.

- The agency (or agencies) should have administrative responsibility (or the ability to direct another agency) for flag State implementation obligations and, if and when, an International Ballast Water Management Certificate is adopted, administering the survey in order to issue the Certificate. The agency (or agencies) must also have administrative responsibility for, or control over, crew training and competency training and certification standards.

- The responsible agency (or agencies) designated to carry or to supervise the administration of inspections and other enforcement activities should seek, as much as possible, to do so on a whole ship basis with either multi-skilled inspectors to check for quarantine, ballast water, MARPOL related inspections, anti-fouling system monitoring and related inspections for other ship vectors such as hull and equipment fouling or, where this is not possible, as coordinated teams in order to minimise delay and costs to ships and shippers.

- The responsible agency (or agencies) need to have or to develop a National Framework as well as port specific Strategic Plans managing and responding to the problem of harmful aquatic organisms and pathogen transfer. This should include a process for baseline port surveys, designation of environmentally acceptable alternative ballast exchange zones, sediment reception facilities and other contingency arrangements. The agency (or agencies) should have the ability to carry or otherwise access marine scientific research and laboratory services and carry out or administer environmental impact assessments, when appropriate.

Conclusion

Rather than recommend a specific domestic administrative agency or a legal characterisation it is more useful to explicitly recognise that this is a period of transition in many countries as new

management approaches, such as integrated management of coastal and ocean activities and port privatisation, are adopted. There will be a high level of diversity among countries and a need to respect State autonomy in this matter. It is more fruitful instead to focus on key questions that should be considered in the process of characterising the issue and providing a regulatory home for any legislation implementing the Guidelines and the future IMO Convention.

The paramount concern is to find a way to achieve harmonisation and standardised legislative and administrative requirements to better ensure the development of internationally binding standards to implement the goals and principles set out above. A number of considerations to implement key elements of the Guidelines and to pave the way for the developing IMO Convention are set out above in the commentary.

Issue 6.

What can be recommended to countries as a means of implementing the IMO Guidelines, fulfilling existing international and national obligations, that also paves the way for binding international rules to respond to the problem on a global basis?

Commentary

The Guidelines endorsed by the IMO Assembly in 1997 are premised on immediate port/coastal and flag State activity to address the problem of ballast water transfer of harmful aquatic organism and pathogens, ideally in accordance with the practices recommended in the non binding Guidelines. The draft Convention is still in the early stages of development and it is difficult to forecast the final outcome however, it is likely to focus primarily on flag State responsibility through an International Ballast Water Management Certificate regime. If a technological solution is found it will significantly reduce the need for coastal/port State risk assessment. In effect, this approach will shift the majority of the costs for preventing the problem and, presumably, liability to the shipping industry. The main issues under the proposed Convention regime will be notification to vessels of problematic uptake areas, compliance monitoring of the proposed Certificates and procedures for vessels that not have a Certificate or are unable to apply the ballast water management plan. Questions relating to standards of treatment effectiveness, in part the basis for issuing the Certificate, are currently the subject of multilateral international negotiations. In addition recent terrorist incidents have lead to increased concerns about biosecurity in many States. This may have an effect on the international convention and national responses. These are issues that will develop and evolve over a longer period of time. The question is therefore posed as to what can or should be done in terms of domestic legislation to protect the marine ecosystem from further depredation during this interim period.

As pointed out in Issue 1 above, States have a legal obligation to take steps to prevent the spread of alien species (harmful aquatic organisms and pathogens) in the marine environment. In the context of international shipping this is combined with the duty to cooperate and develop international standards and rules to respond the international character of global trade and shipping activities. In addition to the international practices found in the Guidelines, some States have already taken action, largely within the general framework of the Guidelines, at the national or subnational level. However, there is now an increasing level of variation in requirements between and even within some States, which causes uncertainty and conflict: It also encourages non-compliant behaviour and may undermine the important process of developing international binding standards and approaches to address the problem.

In addition to the objective of carrying out research and case studies in the form of Legislative Reviews in the six pilot countries, this Project has as one of its objectives the development of a list of best practices and elements to be considered when drafting national legislation, that could be adopted by a State wishing to implement the IMO Guidelines. The first objective is not controversial and will assist the international negotiation and awareness raising process. However, the question can fairly be

asked: Is it appropriate to implement the Guidelines in national legislation when an international convention is in development? Is it more efficient from a legislative perspective to wait until there is an international convention and then implement the convention? Is there a risk that encouraging the development of national legislation may inadvertently hamper the international negotiations if States feel compelled to stay faithful to their domestic legislation, which may differ from the convention? What can be done to implement the Guidelines and lay a good foundation for a future convention?

These are important questions. Certainly States have an obligation to take steps to prevent the further loss of biodiversity and protect the marine ecosystem. Whether any or all of those steps need or should be in the form of legislation is a different question.

This Report takes the view, first, that not all aspects of the Guidelines need legislation in order to be implemented. Secondly, it takes the view that some form of regulatory action, putting place minimum requirements is needed in this interim period. This should be largely oriented to encouraging ships' reporting and ballast water and sediment management and put in place State authority to regulate the problem and collect information. This may well be on a voluntary basis initially or on a mandatory basis, depending on the situation in each country. Until there is technology developed to fully prevent the problem, rapid risk assessment appears to be the most viable option for managing discharge questions. This necessarily requires accurate reporting and information about the origin of ballast water and whether it has been treated in any way before entering the port. In addition, domestic regulatory action should focus first on implementing flag State responsibility and secondly on fulfilling port/coastal State responsibility to assess the status of its marine biodiversity – a step that is important under the *Convention on Biological Diversity* - and develop its capacity to make decisions based on risk assessment. This Report suggests that it is possible to do this in a way that does not counteract but, rather, lays a firm foundation in existing State practice for the rapid implementation of the future International Convention for the Control and Management of Ships´ Ballast Water and Sediment.

In Parts I, Section 2.3, the various factors affecting effective regulatory design for the Project were outlined. These included:

- the problem of developing an adequate transitional or interim domestic response before a Convention is adopted;
- the technical standards and a technological solution upon which the future convention is based are not yet developed;
- port/coastal States encounter economic difficulties in obtaining sufficient scientific information and training personnel to apply it and in providing alternate environmentally safe discharge facilities or zones;
- the likelihood that the recent spate of terrorist and other attacks have heightened global concerns about maritime security, a fact which may affect international regime design.

Not all countries will choose to respond to this issue in this interim period in the same way for these and other reasons. It is important therefore, to consider a range of legislative options from the perspective of domestic implementation of the IMO Guidelines. The following are only three options for implementation of the Guidelines. There are many other alternatives that combine all or elements of these three.

Option 1. New regulations under, or amendments to, existing ship source pollution prevention legislation.

A State may choose to adopt legislation as either a new regulation under or as an amendment to existing ship source pollution prevention legislation (usually the law implementing MARPOL 73/78 in the State) and administrative systems. It could be implemented on a phased-in basis with mandatory reporting and use of voluntary ballast water exchange or other treatment methods and research oriented inspections to start with. A country that also has flag State responsibilities can

require its ships to carry a ballast water management plan, record book and reporting forms. IMO regulations for ships only provide minimum standards: a country can always require better standards for its flag vessels. In addition, MET institutions can be asked to include this topic in their curricula by requiring that, in addition to the STCW certification, crew, or at least relevant crew members, and the master, in particular, must be trained to deal with ballast water management and be familiar with Guidelines. In all cases it is clear that ship and human safety must be a paramount concern, particularly while mid ocean exchange is the primary ballast water management method, under both flag and port/coastal State requirements. Where the constitutional structure requires, it may also be necessary to develop complementary subnational legislation to govern the coasting trade to prevent the spread of any harmful organisms or pathogens that may be introduced.

This basic regulatory system will require very little adjustment to shift to the Certificate based approach proposed under the draft Convention. The concerns will then focus on evaluating the Certificate and compliance with the ship's ballast water management plan, rather than evaluating ballast water reports, for vessels that will carry the Certificate. For vessels less than 400 Gross Tonnes the other requirements may remain applicable.

Each country will need to develop an overall strategy or National Framework, as well as port specific Strategic Plans (or perhaps even a Biosecurity Management Strategy to deal also with hull and equipment fouling and intentional introductions or other pathways) for compliance monitoring and water assessment, sediments discharge, and water discharge alternatives for cases where an approved ballast water management method was is not used or where the water is found to be "high risk".

This general approach can apply equally to a quarantine based approach for matters relating to discharge. However, it may be less viable if the international convention adopts a Certificate/technology based approach, since the quarantine inspectors may not be best placed to assess the state and use of on board equipment. In addition, supplemental requirements would be needed to implement flag State responsibilities for vessels operating outside the State's waters.

The primary advantage of this approach is that it builds upon existing administrative expertise and efficiency regarding inspection and communications between the ship and port. It does not require the development of new administrative relationships nor does it demand significantly more resources. However, such an approach may create difficulties for ensuring effective processes to deal with newer cross cutting inter-agency issues such as the designation of ballasting operations zones or marine scientific research or dealing with land based sources of marine pollution which may bring organisms and pathogens into the port and coastal waters (i.e., municipal sewage outlets, aquaculture waste, agricultural run off etc).

Option 2. Take administrative action without legislation

A country may choose not to embark on any formal legislative action until the international convention is open for signature or even in force. However, it may still implement many aspects of the Guidelines by carrying out port baseline surveys and requesting ships, on a voluntary basis, to submit ballast water reports and samples. In addition MET institutions in the country can be encouraged to include ballast water management issues in their curriculum. Flag States and Classification Societies can also work with industry associations to encourage ships to develop and implement ballast water management plans. The fact that a number of economically significant countries have developed laws requiring ballast water management will mandate this industry response in any event. For a country that is party to a regional marine protection agreement, legislative activity can be focused on developing a regional response to the problem, perhaps through a "first port of call" documentation and inspection process. If this course of action is adopted it may be that Harbour or Marine Notices can be developed requesting ships to undertake ballast water management and otherwise comply with the Guidelines. The advantage of this approach is that it puts in place some of the necessary data collection and administrative structures and develops greater local expertise and research capacity. This will make implementation of a future convention much easier. The disadvantage is that it is likely that the necessary studies, research and monitoring will not be

done, absent a legislative imperative and the associated budget. Failure to respond proactively may conflict with State obligations to protect the marine biodiversity and human health, create risks to the environment of the State and its trading partners and cause harm to other coastal water users. Failure to take action may also impact negatively on the competitiveness of products or ships travelling with ballast water from the State in that they may be subject to greater scrutiny or even be prohibited from entering ports or discharging ballast in some countries.

Option 3. Adopt comprehensive environmental/ biodiversity protection legislation

A country may also choose to adopt legislation that addresses the issue comprehensively within the larger framework of biodiversity or environmental protection under biodiversity/security/or other border control-quarantine legislation. Such an approach has some advantages in that it may generate new administrative arrangements and will allow for comprehensive implementation of rules pertaining to both the unintentional import and export of harmful aquatic organisms and pathogens, exchange or other operations based treatment, mandate coasting trade and all flag Ships to comply and will provide for appropriate ecological and scientifically appropriate procedures for identifying zones or areas for safe ballasting operations and other contingency arrangements. In some cases this may involve adopting a permitting or licensing process for untreated ballast water discharge. In countries where the administrative structure has developed to include integrated management this may be appropriate and easily developed (except perhaps for permitting or licensing issues). Such legislation would, therefore, constitute either one chapter within a comprehensive invasive species legislative framework or a regulation under such a law. The disadvantage of this approach is that it needs a high level of inter-agency cooperation in order to ensure an efficient and coherent ship-port interface. It may also result in some uncertainty as to how to align this process with existing ship entry approvals. Depending on the administrative structure in each country it may also require significant resources and training of personnel. Some difficulty, largely for reasons of agency expertise, may also be encountered in the implementation of flag State responsibilities if the international convention survey/certificate requirements are adopted. The law or regulations adopted under this approach would need to be designed to ensure that they are not in conflict with the State's other international trade and shipping related obligations and any future obligations that it may enter into.

Proposal: At this stage in the development of the international regime the focus should be on promoting, at a global level, broadly accepted minimum practices designed to ensure the ability of the port/coastal State to assess risks to its marine environment, to prevent risks to other marine environments and to implement flag State responsibility. In order to achieve this it is necessary to put in place a basic requirement to give a State the opportunity to obtain information about ships' ballast water and make an assessment of risks posed by ballasting operations. The coastal/port State should require that a ballast water management report be filed by ships with ballast tanks prior to entering State waters and prohibit the discharge and uptake of ballast water in its internal waters, ports and territorial sea without permission, subject to emergency and safety related exceptions. Where relevant this may extend to prevention related actions within the contiguous zone if the country has claimed one, if for example, the legislation is characterised as a quarantine or sanitary regulation. Subject to other regional and international obligations, it might be possible to also design legislation that requires that ballast water management occur outside the EEZ, however in the absence of generally accepted international rules and standards, such legislation and particularly its enforcement is questionable under UNCLOS. It should be noted that there is varying State practice on this matter.[134]

[134] See: E. Molenaar, *Coastal State Jurisdiction Over Vessel-Source Pollution*, International Law and Policy Series, Vol 15. (The Hague: Kluwer, 1998) 361-399 , where the author provides a useful list of examples of variance with respect to legislative claims and a good discussion of the problem in interpreting the extent of coastal State prescriptive and enforcement jurisdiction. The question of what constitutes "generally accepted" rules or standards is open to some debate, however it appears that any such legislation should relate to implementation of rules developed at the international level. In theory it may be possible, if legislation was framed as fisheries protection, as opposed to marine pollution. Where an area of the EEZ requires special pollution prevention protection, Article 211(6) of UNCLOS allows for such claims, subject to IMO approval.

This simple requirement for permission to conduct ballasting operations will enable port/ coastal State officials to exercise some administrative review, based on the ballast water report, of each ship's situation and provide warnings regarding harmful organisms or fragile areas in some parts of the marine ecosystem. Although it may be seen as providing some additional uncertainty for vessels, in the majority of cases this question is primarily relevant to ballasting operations within the port. Where vessels are not conducting ballasting operations, for example, if only transiting the territorial sea, then this should be stated on the relevant form – and permission would not relevant. For ships planning to take up or discharge ballast the question of permission will turn on whether the vessel has employed or will employ an approved ballast water management practice. These ships may still be subject to compliance monitoring or audit, but, in general, permission could be assumed on filing the form. Vessels that have been unable, for safety reasons if mid ocean exchange is used, to apply or do not apply ballast water management or do not file a report will not be given permission to discharge and will be subject to inspection and considered a risk. Depending on the voyage route, sampling and water analysis may be required before permission to discharge would be given. This approach provides an economic incentive for vessels to comply with both reporting requirements and ballast water management treatment but does not impose an unfair safety risks or undue burden on all vessels. Ships that raise concerns as "high risk" because of the origin of the water to be discharged or ships that do not have the appropriate documentation regarding ballast water will, therefore, be the only ships potentially subject to inspection and sampling. Ships that carry and file documents and have engaged in some form of ballast water management or are otherwise considered low risk by port State authorities would then be subject only to compliance monitoring. Legislation that requires filing of a ballast water report prior to entry into the port or territorial waters, carrying and using a ballast water management plan, trained crew, and requiring permission to discharge or take up ballast are essential in any prevention oriented regime at this time. If an International Ballast Water Management Certificate and technology is developed then this regulatory framework will easily support a Certificate based system. In principle holding a valid Certificate would be sufficient basis for granting permission to conduct ballasting operations, subject to compliance monitoring. It is important to understand that a risk based system may need to operate in tandem with a Certificate based system because the Certification process, as currently proposed, will not apply to all ships: there is also likely to be a transitional period once the Convention comes into force to accommodate older ships that cannot meet design or equipment requirements.

This approach will also provide the basic legislative framework for marine ecosystem protection, in that the coastal State administrative authorities will have the ultimate responsibility, and perhaps also the liability, for the decision to permit the discharge or uptake of ballast water. Such an approach also places responsibility squarely on the port/coastal State to develop interagency relationships to evaluate, consistent with its international responsibility, its biodiversity status, and to determine areas and activities under its jurisdiction requiring special protection or where vessels should be warned not take up ballast water. This also reinforces States´ commitments to implement the *Global Programme of Action for the Protection of the Marine Environment from Land based Activities (GPA)*. Port authorities or the relevant maritime administration in each country should be required to develop national consistent Strategic Plans for handling this issue in each port, including, if possible, reception of sediments, contingency planning, access to laboratories for any testing that may be necessary and inspection of ballast water and other sources of vessel transfer of harmful aquatic organisms or pathogens. Neither IMO nor the shipping industry is in a position to do this nor can IMO mandate it. However, it is a key component to an effective response. States are responsible for managing this aspect of preventing the transfer of harmful aquatic organisms and pathogens.

The co-management approach adopted in, for example, Australia and the State of Washington, (USA) that uses government- industry negotiated compliance agreements with regular port clients may also be a useful regulatory tool to provide greater economic certainty for reliable and responsible ship operators.

The current debate over ship safety, the viability of mid ocean exchange and the standards for discharge measures suggests that national level responses should avoid entrenching any particular treatment or management method in legislation or, at least, provide for future alternative equally

acceptable practices. Given the possibility that ballast water exchange outside a State's coastal waters may impact on other States activities (e.g., fisheries) any legislation requiring or endorsing this approach should only be done on the basis of consultation with other neighbouring countries that may be directly affected. This is particularly crucial in Regional Seas or closely linked ecosystems, for example, the Black Sea and the Mediterranean. In addition, in Part I it was pointed out the environmental acceptability of mid ocean exchange may need to be revisited as scientific information about deep ocean genetic resources is developed.

States should, however, be encouraged to take action to require that vessels over which they have control (flag state) carry and apply a ship specific ballast water management plan, use a ballast water record book and have crew trained to deal with the plan and prepare and provide documentation to designated port authorities using the IMO endorsed ballast water reporting form.

A ship wishing to discharge ballast water considered to be "high risk" because the ship lacks documentation or has not applied its ballast water management plan (or does not have or is unable to use appropriate equipment when internationally accepted equipment is developed) would then be subject to testing. If required, it may have to comply contingency arrangements including the use of designated ballasting operation zones or other contingency measures determined by the coastal State according to its national environmental procedures and standards, taking into account the impact of any discharge on the marine environment and other users. This may provide an economic incentive to ships to voluntarily comply with report filing and, if possible, ballast water treatment. States that wish to adopt this approach should do so for all vessels under their control that have ballast water tanks, if these vessels enter more than one port in the country.

States should also consider regulating their non-commercial government ships and warships, although under international law it may not be able to enforce these requirements with respect to foreign flag, military and government vessels.

In specially sensitive areas of the marine environment where any level of risk is intolerable, then irrespective of reporting or use of a ballast water management, or later, if it comes into place, certification, all vessels should be subject to stricter scrutiny before water can be discharged. These areas may be listed with IMO under the future convention for Tier II designation (or through other processes). Similarly, ports with a high level of contamination or high-risk organisms such as red tide etc. will need to designate special uptake areas for ballast water or provide or ensure treatment of the water before the ship leaves the port.

Conclusion

There are a number of different options a country might adopt to implement the Guidelines while an international convention is developing. These range from taking administrative action but not adopting any domestic legislation to adopting a comprehensive legislative regime. This determination has to rest with each country and its assessment of its trade, environment and administrative concerns, particularly in connection with the discharge related regime. In all cases however, the approach recommended in the Guidelines for reporting, recording, training, port surveys, precautionary practices and continuing scientific research to ensure better informed risk assessments should be adopted. States should avoid entrenching any particular method of ballast water management in legislation, rather this should be part of the ship specific Ballast Water Management Plan. There is, however, relatively little extra cost imposed nor is there a potential conflict with the future convention created by putting in place requirements that begin to implement flag State responsibilities before the convention. These would include requiring vessels to develop and apply a ballast water management plan that can be adjusted, as appropriate, for the ship, if and when new technology becomes available, and relevant ballast water documentation and reports, crew training and precautionary uptake (called supplementary practices in the draft Convention). It is recommended that countries new to the issue consider beginning by adopting the Guidelines or legislation on a voluntary basis for a stated period of time in order to familiarise port and ships with the requirements and routines. This would then be followed by mandatory legislation prohibiting the discharge or uptake of ballast water.

This approach will also be consistent with the draft Convention's Certificate based approach, in that a ship with the valid certificate would be given permission to conduct ballasting operations, subject to compliance monitoring inspections, as provided in the draft Convention. A more detailed proposal and various options for a regulatory response are found in the commentary on this issue. Examples of draft regulations are also found in the six pilot country Legislative Reviews in Part II. Section 8.3 and 8.4 of this part of the Report draws on these and other examples and sets out recommended best practices and a list of elements that should be considered when developing national legislation.

8.3 Summary of Best Practices for National Implementation of IMO Resolution A.868 (20) (that will also lay a foundation for rapid implementation future International Convention on the Control and Management of Ships´ Ballast Water and Sediments).

The following is not intended as an exhaustive list. It is a starting point, developed following a review of the six Legislative Reviews, the legal Workshop discussion and other research.

- At this stage in the development of the international regime the focus in each country should be on promoting broadly accepted minimum practices at a global level. Countries should be encouraged to fulfil their duty to cooperate in the development and implementation of international standards and to provide information to the relevant IMO secretariats and shipping industry databases (such as INTERTANKO and the International Chamber of Shipping) on their practices and requirements regarding ballast water, sediments and other ship vectors of organism or pathogen transfer.

- Use of standardised international reporting forms and documentation, and reporting on these requirements to relevant IMO[135] Secretariats, should be encouraged. The existing IMO Ballast Water Reporting Form should be adjusted to include: questions relating to the existence of an International Ballast Water Management Certificate (when this becomes relevant); whether the vessel is planning to conduct ballasting operations in the country's waters; the existence (where applicable) of any industry compliance agreements; and allow for a collection of relevant data by countries that may also be concerned about the transfer of organisms through fouling. Reporting should be done electronically where possible.

- Legislation (or another form of regulatory action) should be developed that is designed to create an ability on the part of port/coastal State to exercise control and to assess risks to its marine environment and prevent risks to other marine environments from aquatic organisms and pathogens that may be carried in ships' ballast water and sediment.

- Where a country is new to the issue or has not yet developed the administrative and other infrastructure to respond to the problem of harmful aquatic organisms in ships' ballast water it may be useful to begin with voluntary guidelines requiring reporting and allowing for research related inspections while administrative and scientific risk assessment capacity is developed. Legislation and mandatory requirements can then be brought into place based on this experience. This approach may also be appropriate for countries where constraints within the legal system mean that it is difficult to develop legislation before an international agreement is in place.

- If legislation is adopted it should be sufficiently flexible in its wording to easily incorporate the emerging international convention and any possible future conventions dealing with harmful aquatic organisms transfer through hull and equipment fouling.

- Port/coastal States should consider prohibiting discharge and uptake of ballast water in internal waters, ports (where not in internal waters) and the territorial sea, subject to

[135] In particular the Marine Environmental Protection Committee (MEPC); Flag State Implementation (FSI) and Facilitation of Maritime Traffic, 1965 (FAL).

emergency and safety related exceptions. Where relevant this may extend to prevention related activity within the contiguous zone, if the country has claimed one, (if the legislation is related to sanitary measures). Subject to other regional and international obligations, it might be possible to also design legislation that requires that ballast water management occur outside the EEZ, however, in the absence of generally accepted international rules and standards, such legislation and particularly its enforcement is questionable under UNCLOS. Areas of the EEZ that require special protection may also be designated under UNCLOS and in cooperation with IMO. It should be noted that there is varying State practice on this matter.

- Legislation, (or another form of regulatory action), should operate at a national level, although allowance should be made for ecosystem differences that may exist along a coastline.

- Legislation (or another form of regulatory action) should also deal with ballast water and sediments that may be discharged in dry-dock /ship repair yards.

- Primary administrative responsibility should be held by an agency or agencies that can operate at a national level and interact, if appropriate, at a regional and even international level.

- The responsible agency should prepare a National Framework for dealing with the port/coastal State responsibilities to prevent the spread of harmful aquatic organisms and pathogens. Strategic Plans consistent with this National Framework should for each port to manage its response to the problem of harmful aquatic organisms and pathogens that may be transported on ships either in ballast water or sediments or other parts of the ship (i.e., hull and equipment fouling). This can include protocols for necessary interagency and intercountry communications (i.e., fisheries, quarantine etc.), laboratory testing, training for inspectors or others involved in rapid risk assessment, sediment disposal options, port surveys, data collection to identify organisms in the water that may be hazardous to others if taken up in ships´ ballast water, contingency arrangements and possible eradication or containment strategies, in the event of an introduction.

- The agency (or agencies) designated as responsible needs to have or develop a process for baseline port surveys, designation of environmentally safe alternative ballast exchange zones, sediment reception facilities and other contingency arrangements. This agency (or agencies) should have the ability to access marine scientific research services.

- Countries need to encourage inter-agency relationships to evaluate, consistent with their international responsibility, their biodiversity status and identify areas of high risk for ballast water operations (uptake and discharge).

- Legislation (or another form of regulatory action) should ensure that, irrespective of the primary legal responsibility, the agency identified for port–ship interaction for purposes of document filing and other communication is in a position to do so efficiently with a minimum of delay or other administrative burden on ships. In particular reporting to multiple agencies should be avoided. For example, consolidated or comprehensive reporting, ideally electronically, for quarantine, ballast water and other entry documents is recommended.

- Legislation (or another form of regulatory action) should ensure that the agency designated to carry or to supervise the administration of inspections and other enforcement activities seek as much as possible to do so on a whole ship basis with multi-skilled inspectors to check for quarantine, ballast water, MARPOL and SOLAS related inspections, anti-fouling system monitoring and other related inspections.

- The legislation (or another form of regulatory action) requiring documentation and application of a ballast water management plan should not usually refuse to entry for vessels

that do not have the requisite documentation.[136] However, these vessels may be subject to inspections and sampling and contingency requirements before permission is given to conduct ballasting operations, and will be liable for any direct costs of these inspections (polluter pays basis).

- The current debate over ship safety and the viability of mid ocean exchange as well the uncertainty over standards for discharge measures, suggests that national responses should avoid entrenching any particular treatment or management method in legislation, or at least provide for future alternative equally acceptable practices. A reference to the IMO Guidelines may be sufficient for these purposes in that the Guidelines contemplate alternative methods of treatment.

- The agency (or agencies) responsible for this issue, (and any legislation developed) must ensure there is administrative responsibility (or the ability to direct another agency), for implementing current flag State obligations, crew training, competency evaluation and certification standards and, if, and when, it is developed, administering surveys and issuing International Ballast Water Management Certificates.

- MET institutions and private sector training for crew should be encouraged to ensure training and education to deal with safe and effective ballast water management practices on a generic and ship specific basis and to prepare and provide documentation for port State inspections.

- States should be encouraged to require that all vessels over which they have control that have ballast tanks carry a ship specific ballast water management plan and ballast water record book.

- Reporting and all other procedures should apply to vessels with ballast tanks that enter more than one port in the country (coasting trade).

- A State should be encouraged to regulate its non-commercial government ships and warships, although under international law it may not be able to impose these requirements on foreign flag non-commercial government vessels.

- A compliance agreement option based on industry co-regulation should be available and encouraged for ships with a good history of accurate reporting and environmental protection.

- Ballast water exchanged outside the coastal waters of one State (e.g., a designated ballasting operations zone or area) may have a negative impact on other States. Any legislation requiring or endorsing this method should only be done on the basis of consultation with other potentially affected parties.

- States that are part of regional arrangements should work co-operatively to develop a regionally agreed upon approach, perhaps on a first port of call basis, to protect the marine environment. Any regionally adopted approach should seek to ensure consistency with the Guidelines and the future international convention.

8.4 Elements to be Considered when Drafting National Legislation[137] for the Control and Management of Ships' Ballast Water and Sediments

8.4.1 Introduction

The need for flexibility and the importance of acknowledging diverse legal, economic and political situations have been recurrent themes in this Report. Specifically accounting for differing institutional

[136] There maybe some known high risk vessels, for example those coming from areas with a listed disease.

[137] As pointed out earlier the word "legislation " has been used as a generic term to encompass a wide range of terminology for regulatory instruments, i.e., Act, Bill, Statute, Law, Rule, Ordinance etc.

capacities and priorities amongst countries is one of the core issues to be discussed at the World Summit on Sustainable Development that will take place in South Africa in 2002. At the same time the need to cooperate in the development of global standards is important to both the environmental and trade/economic development regimes. The discussion in the earlier parts of Section 8 emphasised the fact that some countries may feel that it is imperative to proceed with national legislation regarding harmful aquatic organisms and pathogens ahead of the finalisation and adoption of the IMO draft Convention. This need can arise from a mix of economic and ecological factors affecting the country. Other countries may feel that legislation should only occur once a Convention has been adopted. However, they may still wish to take immediate action as both a flag and coastal/port State, perhaps in the form of guidelines, research, voluntary administrative requirements to help support research and education of seafarers and other relevant personnel. These options and how they, or variations on them, might be developed were discussed in detail in Section 8.2 under Issue 6. In addition, if a country does choose to develop legislation, it may take the form of an amendment to existing marine environmental protection legislation. Alternatively, it may be dealt with as quarantine or biodiversity protection (or other border control) legislation in countries where there is integrated management allowing for maritime administration, quarantine and environmental agency joint implementation. The specific format and classification in each country will vary depending on its lawmaking system and the configuration of its administrative agencies, expertise and resources.

It will be recalled that a recommendation was also made that a country new to the issue may wish to first adopt voluntary guidelines for a period of time to allow for the development of the infrastructure and scientific assessment of the marine ecosystem necessary to carry out port/coastal State responsibilities. Implementation of flag Sate responsibilities may be somewhat easier and less demanding in terms of infrastructure and State administrative.

It should be noted that legislation is only one component of a comprehensive response. In order to support the legislation, adequate and coordinated administrative infrastructure and programmes such as, inspector training, seafarer education, biological surveys of ports and nearby coastal waters and the development of environmentally safe land based disposal/ reception facilities, are essential.

At a domestic level it is preferable that countries try to avoid a patchwork of single issue ship inspections, when implementing international conventions and standards. The approach suggested earlier in Section 8 is that it is administratively and economically efficient for both the shipping industry and the port/coastal State conduct "whole ship" inspections to deal with the currently existing related concerns or those that may arise in the future. In addition it is recommended that sanctions or penalties should be linked as much as possible with existing legislation. Questions regarding civil remedies or compensation systems have not been dealt with in depth in this Report. This is a matter that requires international discussion as the draft Convention is developed in the next year. It is also recommended that, as much as possible, a regulatory response should be designed to encourage the development of technological solutions. A coastal State should also take action to implement its international responsibility to assess its marine biodiversity and to support ship based efforts by identifying risky water areas, in terms of both the import and export of potentially harmful aquatic organisms or pathogens.

Whatever the particular regulatory option chosen, a key concern is to ensure that, as much as possible, there is consistency with existing international law on the issue and that there is sufficient uniformity to ensure that the country does not undermine the economic development opportunities related to an efficient and competitive maritime transport system.

In light of the diversity among countries and the need to accommodate and support a range of regulatory responses this Section presents a non exhaustive "list of elements" for policymakers and legislative drafters to consider in developing some form of legislation (guidelines, regulations etc.) that implements the IMO Guidelines and lays a foundation for the rapid implementation of the future IMO Convention for the Control and Management of Ships' Ballast Water and Sediments. The list of elements draws on the six pilot country Legislative Reviews, the Guidelines, the draft Convention and legislation that has been developed in other countries.

The recommendations in this Report, including the list of elements, are intended to assist the GloBallast pilot countries to implement IMO Resolution A.868 (20) in the interim period, while internationally binding rules are developed. Since one of the objectives of the Project is to pave the way for rapid implementation of the IMO Convention for the Control and Management of Ships' Ballast Water and Sediments, the List of Elements includes examples of ways that national legislation might be modified once an international convention is in place, assuming the current draft Convention framework is adopted.

As noted above the list of elements set out below refers to and is based, in part, on the draft Convention text currently under negotiation at IMO. This means that the text will change a number of times and to varying degrees before it is adopted. It is important, therefore, that the most recent text of the draft Convention is reviewed carefully to ensure as much consistency as possible with definitions and other matters. This will avoid the need for significant amendments and the risk of a lack of consistency with the primary international legal document that will define flag State responsibilities in the matter.

8.4.2 List of Elements to Consider in National Legislation

1. Title

The title of legislation will vary depending on the form of the regulatory instrument chosen, e.g., whether it is stand alone legislation or an amendment to, or regulation affiliated with, existing legislation. The title will also depend on legislative drafting protocols in each country. A title for legislation that is not part of existing legislation should indicate the general scope, that is, what is covered, by the legislation. For example, it might adopt a title similar to the proposed IMO Convention or the Guidelines.

2. Purpose

The legislative text will generally refer to the country's international obligations under the 1982 *United Nations Convention on the Law of the Sea* to protect and preserve the marine environment, including preventing the transfer of alien or new species between parts of the marine environment, its international obligations under the 1992 *Convention on Biological Diversity* to prevent the spread of alien species and protect marine biodiversity. It may also refer to the recommendations under the International Maritime Organization's Resolution A.868(20). It would also refer to the country's international obligations under the International Convention for the Control and Management of Ships' Ballast Water and Sediments, when the Convention is adopted and the country becomes a Party.

The last two instruments are intended to prevent, reduce and eliminate the transfer of harmful aquatic organisms and pathogens. It should be noted that terminology varies regarding this problem (i.e., alien species, harmful aquatic organisms etc.) amongst the international conventions. A purpose provision (if the country's drafting style includes one) can easily be modified to accommodate a country that chooses to characterise the problem as something in addition to marine pollution. Such a provision could be reduced, expanded or even eliminated, as applicable, and depending on the form of legislation adopted.

3. Definitions

Definitions are an important part of legislation because they precisely define the scope of the legislation and terminology within the legislation, e.g., who does it apply to and what object or activity does it apply to. The current draft of Article 2 of the proposed International Convention for the Control and Management of Ships' Ballast Water and Sediments contains a number of definitions. Some of them are standard definitions found in most IMO conventions. Some are particular to the draft Convention. For ease of reference the draft Convention definitions most relevant for domestic legislation on ballast water management are set below. These may alter in the course of negotiations. It is very important to check the latest version of the Convention to

ensure as much consistency as possible, even if the country does not become a Party to the Convention, when it is adopted. This will help to ensure a more efficient international maritime transport system.

*It should be noted that definitions are usually set out in alphabetical order in legislation.

Definitions found in the draft Convention

"*Ballast water*" means water with its suspended matter taken on board a ship to control trim, list, draft, stability or stresses of a ship.

"*Ballast Water Management*" means mechanical, physical, chemical, biological or other processes to kill, remove, render harmless or avoid the uptake or discharge of harmful aquatic organisms and pathogens within ballast water and sediments.

"*Gross tonnage*" means the gross tonnage calculated in accordance with the tonnage measurement regulations contained in Annex I of the International Convention on Tonnage Measurement of Ships, 1969 or any successor Convention.

"*Harmful aquatic organisms or pathogens*" means aquatic organisms or pathogens which, if introduced into the sea including estuaries, or into fresh water courses, may create hazards to human health, harm to living resources and aquatic life, damage to amenities, impairment of biological diversity or interfere with other legitimate uses of such areas.

"*Organization*" means the International Maritime Organization

"*Sediments*" means matter settled out of ballast water within a ship.

"*Ship*" means a vessel of any type whatsoever operating in the marine environment and includes submersibles, floating craft and fixed or floating platforms, floating storage units (FSUs) and floating production storage and off-loading units (FPSOs).

Other definitions that may be relevant for national legislation

"*Administration*" means the xxx (name of relevant agency in the country).

This definition would refer to the name of agency or department in each country that is responsible for administration of flag State responsibilities such as surveys and registration, under international agreements. The corresponding international definition of "Administration" as it relates to the maritime sector is found in most IMO Conventions including the draft Convention, Article 2.

"*Alien species*" means organisms that are not indigenous to the marine ecosystem in that part of the national (or insert country's name) waters.

The reason for including this term that is referred to, but not formally included, in the Guidelines or the draft Convention is to ensure that broader biodiversity concerns under the 1982 *United Nations Convention on the Law of the Sea* and the *Convention on Biological Diversity* are captured. The Guidelines and the draft Convention do not deal with a possible distinction between alien species and harmful aquatic organisms and it may be that the terms are interchangeable. At a minimum, harmful aquatic organisms are a subset of alien species. There has been some work done on this question under the auspices of the *Convention on Biological Diversity*, and a definition of an alien species as a species outside its normal distribution has been suggested. However, there is some debate over the concept of normal distribution. The rationale for inclusion of alien species is to ensure that activities under this legislation are not unintentionally confined to known or listed harmful organisms but that the inquiry allows for the development of scientific information in this field and is more inclusive. It allows for possible action to prevent organisms that may over time disrupt the biodiversity of an area. In any event, once onboard treatment technology has developed with a satisfactory level of effectiveness (organism and pathogen "kill rate"), this distinction will become irrelevant in context of ballast water.

The same may be said of the term "ecosystem", which refers to a ecological concept that does not necessarily relate to a State's legal jurisdiction. However, the reference to country's "waters" is intended to narrow the scope of potential inquiry. The reference to "that part" is to further narrow the inquiry and to take into account countries with differing ecosystems along their coastlines that may suffer from a transfer through the coasting trade.

"*Authority*" means the agency responsible for managing the port/coastal State functions under national legislation.

The Authority and the Administration may be the same government agency in some countries.

"*Ballast Water Management Plan*" means a plan specific to the ship that has been approved by the Administration as meeting the requirements of the international Guidelines under IMO Resolution A.868 (20) (or Regulation B-1 or its replacement regulation in the Convention when it is adopted).

"*Ballast Water Management Record Book*" means the onboard record that ships are required to use for recording ballasting operations in accordance with the IMO Resolution A.868(20) Guidelines (or Regulation B-2 or its replacement in the Convention when adopted).

Although the draft Convention refers to a Book, the increased use of onboard computers or other electronic record keeping should be taken into account. The Guidelines refer only to a record, which is part of the Appendix 1 Reporting Form

"*Ballast Water Reporting Form*" means a form developed in accordance with IMO Resolution A.868 (20) Appendix 1 that is required by the Authority or equivalent in any other country.

The draft Convention does not rely on ballast water risk assessment and reporting forms but adopts a system based on a flag State ship survey and international certificate, combined with port based compliance monitoring. However, until there is universal implementation of a Convention by all ships that use ballast water, it will be important that countries obtain information about the origins of ballast water from each ship prior to entry to its waters. This is also relevant to the International Health Regulations and will assist in rapid risk assessment in the event that a ship with an International Ballast Water Management Certificate (when this is developed) has not been able to apply its Ballast Water Management Plan. It should be noted that this Report has recommended a modification to the Reporting Form in the IMO Guidelines to accommodate questions relating to existence of a compliance agreement (if relevant), whether any ballasting operations are expected and whether the ship has a International Ballast Water Management Certificate as well as a question relevant to fouling concerns (if also dealt with in the country).

"*Convention*" means the International Convention for the Control and Management of Ships' Ballast Water and Sediments.

This is relevant only when the Convention comes into force for the country.

"*Designated ballasting zone*" means marine areas in the national waters designated as ecologically safe in accordance with applicable environmental impact assessment legislation for ballasting operations authorised by the Authority.

The Guidelines refer to alternate exchange zones but, given, the likely phase out of exchange as a ballast water management method the term "alternative exchange" may not be appropriate in the long term.

"*Guidelines*" means the International Maritime Organization, Resolution A.868 (20) Guidelines for the control and management of ships' ballast water to minimise the transfer of harmful aquatic organisms and pathogens.

"*International Ballast Water Management Certificate*" means a Certificate issued by the Administration or any agency designated by it, or by the Administration of a flag State party to the International Convention for the Control and Management of Ships' Ballast Water and Sediments.

This definition is relevant only when the Convention comes into force, assuming a Certificate based approach is ultimately adopted.

"*National Policy Framework*" means a strategy developed by the Authority to ensure an integrated and nationally consistent approach to implementation of coastal and port State responsibilities for preventing the introduction and spread of harmful aquatic organisms and pathogens.

"*(National) waters*" means the internal waters and the territorial sea.

This includes port waters located within internal waters and outlying port installations and roadsteads that may be in the territorial sea of the country. The size of the territorial sea will vary amongst countries although up to 12nm is recognized under UNCLOS. A country may wish to insert the relevant nautical miles for clarification. Depending on the scope and designation of any special pollution prevention or biodiversity protection zones and the development of international standards, this may also include the exclusive economic zone (EEZ).[138] If a country claims a contiguous zone and the legislation adopted falls within the sanitary law regime (i.e., quarantine) then this area may also include a contiguous zone, for enforcement purposes (preventing or punishing activities that may result in an infringement of legislation that applies within the country's territory). Instead of the word "National" a country may wish to insert the name of the country before "waters."

"*Precautionary ballast water uptake and management practices*" means exercising the precautions set out in Guideline 9 of IMO Resolution A.868 (20) (or draft Convention, if developed in the Convention).

The current text of draft Convention uses the term "Supplemental Ballast Water Management Practices" (Regulation D-1), which are to deal with "… the uptake, transfer and discharge of potentially harmful organisms and pathogens, as well as sediments that may contain such organisms." It then refers to IMO recommendations for practices. It not clear what the "Supplemental Practices" are or how they differ from the rest of the Convention except that they relate to ships based practices and require only "best efforts". The IMO Guidelines use the term "precautionary practices" and focus primarily on uptake practices, although they also recommend regular tank cleaning and sediment removal and avoiding unnecessary discharge of ballast water taken from another port. The suggestion here is to simply refer to the relevant Guideline (9) with view to carefully reviewing this question in the text of draft Convention, as it develops. In principle, these precautionary practices should also be part of a ship's Ballast Water Management Plan.

Alternatively, for the sake of clarity, a country may wish to set out in full the recommendations in the Guidelines and any other actions it deems relevant to its ecological situation. Guideline 9 recommends:

9. Ships' operational procedures

9.1 Precautionary practices

9.1.1 Minimizing uptake of harmful aquatic organisms, pathogens and sediments.

When loading ballast, every effort should be made to avoid the uptake of potentially harmful aquatic organisms, pathogens and sediment that may contain such organisms. The uptake of ballast water should be minimized or, where practicable, avoided in areas and situations such as:

- *areas identified by the port State in connection with advise relating to 8.2.2 above;*
- *in darkness when bottom-dwelling organisms may rise up in the water columns;*
- *in very shallow water; or*
- *where propellers may stir up sediment*

[138] or the relevant name for a zone extending beyond the territorial sea to a limit of 200nm. For example, France as recently indicated that it will declare a 200nm ecological protection zone on its Mediterranean coast.

9.1.2 Removing ballast sediment on a timely basis

Where practicable, routine cleaning of the ballast tank to remove sediments should be carried out in mid-ocean or under controlled arrangements in port or dry dock, in accordance with the provisions of the ship's ballast water management plan.

9.1.3 Avoiding unnecessary discharge of ballast water

If it is necessary to take on and discharge ballast water in the same port to facilitate safe cargo operations, care should be taken to avoid unnecessary discharge of ballast water that has been taken up in another port.

"*Strategic Plan*" means a means a Plan developed for each port by the Authority to implement the port/coastal State responsibilities to prevent the introduction and spread of harmful aquatic organisms or pathogens.

3. Application

An application provision (even if not labelled as such in the country's legislation for reasons relating to drafting protocols) is necessary to build on the definitions and clarify the scope of activities regulated by the legislation. The draft Convention has an Application section (Article 4). Although domestic legislation may be broader in its application or deal with issues that are not usually regulated in an international convention, the national legislation should be consistent with the provisions of Article 4 of the draft Convention (or the relevant Article when the draft Convention is finalised). It is very important to check the latest version of the Convention to ensure as much consistency as possible, even if the country does not become a Party to the Convention, when it is adopted.

According to Article 4 of the current text of the draft Convention, the Convention requirements apply to all ships operating under the flag or authority or a party State. The draft Convention also applies indirectly to ships of countries that do not become a party to the Convention. States party to the Convention are required to apply the Convention in a way that ensures that ships of non party States are not given more favourable treatment than ships of State that have ratified the Convention (non discrimination). The draft Convention does not apply to "ships not designed or constructed to carry ballast water", or ships operating only within one country's waters or between one country's waters and the high seas (if this does not negatively impact on the aquatic resources of a another State). In other words, countries are not required (but can choose to do so) to regulate ships that do not operate on international routes, unless this exemption results in transboundary harm. The draft Convention also does not apply to warships, navy or ships used for government non-commercial activities, although countries are required to adopt appropriate (operationally viable) measures that are consistent with the draft Convention.

It can be seen then that the draft Convention sets a "floor" or minimum standards for flag State responsibilities for implementing the Convention, when the country becomes party to it. With respect to ships for which it has flag State administrative responsibilities a country can adopt standards that are broader or more stringent than the Convention minimum. However, other than the non discrimination provision, Article 4 of the draft Convention does not directly address the scope of a country's coastal/port State rights regarding foreign flag ships.

The following points are suggestions for issues specific to national level legislation that would apply to both flag/national ships (if the country is a flag State) and foreign flag ships (i.e., it covers both flag State and port/coastal State responsibilities):

(1) This legislation (or applicable name) applies to all ships that have ballast tanks entering national (or insert country's name) waters.

The draft Convention refers to "all ships" but does not apply to ships "not designed or constructed to carry ballast water." This definition, found in Article 4 (when finalised), could also be inserted instead of "have ballast tanks". The phrase "have ballast tanks" seems to capture the same point in terms of coverage and clearly covers concerns about tank sediments as well. From a coastal State perspective it may be difficult to ascertain coverage in terms of the original design or construction

of a ship. An alternative used in some places is ships that "use ballast water", however is possible that this may not cover sediment questions. Such a provision can also be adjusted to extend coverage to other related concerns or those that may arise in the future.

(2) This legislation (or applicable name) applies to all national (or insert country's name) ships that have ballast tanks (or alternative phrasing as per Article 4, as discussed above), on any voyage, unless it is inconsistent with applicable legislation in another jurisdiction.

Although the draft Convention only applies to international shipping, concerns about containment and preventing the transfer of organism and pathogens between ports in a country suggests that vessels engaged in coastal journeys within a country should also be regulated at a domestic level. A suggestion such as this one, which relates to a country's flag State jurisdiction will help to better protect the environment even if the country does not formally adopt the Convention when it comes into force. In principle, if all flag States implemented ballast water management requirements on ships over which they exercise legal control, it would significantly reduce the risk of transfer of harmful organisms and pathogens, with relatively little administrative cost that cannot ultimately be absorbed by the market for maritime transport. It is desirable that this be achieved through an international agreement, such as the draft Convention, to ensure uniformity in approach and standards, but in the interim the approach suggested here which is consistent with the draft Convention will assist in rapidly addressing the ecological problem and in implementing the draft Convention when it comes into force.

(3) This legislation applies (or, does not apply) to national warships, naval auxiliary ships, and government non-commercial service ships.

Under international law a coastal State's legal requirements that apply in its territory (including territorial waters) are applicable to foreign flag military and governmental non-commercial vessels (subject to the normal rules regarding Innocent Passage). However, because of customary international law (as reflected in UNCLOS, Art. 236) regarding sovereign immunity, the legislation is not considered enforceable against these ships. The coastal State has some remedial powers in that a foreign flag military or government non- commercial ship that does not comply can be required to leave the territorial waters. The flag State of the ship may be required to compensate the coastal State for any damage if there is a violation (UNCLOS, Art. 30, 31). This means that ships falling into this category are expected to operate in a manner that respects the legislation of a foreign coastal State. In addition, countries are encouraged to develop practices for their military and government non-commercial ships. If a country does not wish to apply its legislation to its own military and governmental non-commercial service vessels then the phase "does not apply" would be inserted in the element out above. A country may always decide to include its own warships, naval auxiliary or government non-commercial ships under its legislation. Certainly a country should take action to ensure that efforts to address this problem are not undermined by unnecessary exemptions.

4. Obligations of National (or insert name of the country) Ships

Alternatively, a title dealing with this element could explicitly refer to "ships entitled to fly the flag" of the relevant country. The following sets out some of the responsibilities that a country may wish to impose on its national/flag ships. They are derived from the IMO Guidelines and the current text of draft Convention. It is important to review the final text of the draft Convention to ensure as much consistency as possible with international standards. The word national used below can be replaced by the country's name. In addition the wording used to describe the ships – "have ballast tanks" - should be consistent with the wording adopted by the country under the element dealt with above as "Application".

(1) All national ships that have ballast tanks must carry and apply an approved Ballast Water Management Plan that responds to matters outlined under the Guidelines (or draft Convention when it is adopted), including precautionary ballast water uptake and management practices.

In principle the precautionary practices should be listed in and part of a ship's Ballast Water Management Plan. As noted earlier under the "Definitions" element, the draft Convention labels these practices as "supplemental" and refers to recommendations developed by the Organization. The IMO Guidelines uses the term precautionary practices.

(2) All ships that have ballast tanks and intend to discharge ballast water in the national waters of the State (or country's name waters) must apply the ship's Ballast Water Management Plan before entering its Territorial Sea.

Countries vary regarding the breadth of the declared Territorial Sea (maximum 12nm). A country may wish to replace the reference to Territorial Sea with specific geographical or nautical mile references.

(3) Ships using mid ocean exchange for ballast water management in accordance with the IMO Resolution A.868 (20) Guidelines must do so in waters deeper then (xx) metres and must apply the ship and human safety considerations set out in Appendix 2 of the Guidelines (or if these safety practices are specifically included in the draft Convention, then the reference should be to the Convention when it is finalized).

It is clear that ship and human safety considerations are aligned and are necessarily paramount for the ship's master and Maritime Administrations. The depth requirement for water exchanges could be replaced by a geographical reference e.g., x nautical miles, or another jurisdictional boundary, or another ecological, or scientifically determined boundary (for example, in protecting the Canadian and US Great Lakes the concern has largely related to ensuring sufficient salinity in the exchanged water). As noted earlier, ballast water exchange may be phased out in the long term. However, in the interim, and even if equipment or a technological solution is developed, there will be ships that will have to use this method.

(4) All national ships that have ballast tanks must carry, maintain and have available for inspection a Ballast Water Record (Book) in the format and meeting the requirements set out in (the IMO Guidelines or the draft Convention when it comes into effect).

These are primarily requirements found in the current text of the draft Convention. The IMO Guidelines refer only to a record. The current text of the draft Convention refers to a Book and provides a sample page. It requires that the Book be kept on board for a minimum of two years followed by minimum three-year retention under the control of the company. The draft Convention also requires that the entries must be written in the working language of the crew (and possibly also the officers if that differs) and may require, where the language is not English, French or Spanish, a translation into one of those languages.

(5) All national ships that have ballast tanks must appoint an officer in charge of ensuring implementation of the ship's Ballast Water Management Plan, maintenance of the Ballast Water Record (Book) and provision of the harmful aquatic organism or pathogen related information required by a country.

(6) All national ships that have ballast tanks must, on request, file a Ballast Water Reporting Form with the designated reporting agency of any country.

It should be noted that the IMO Guidelines are based, in part, on coastal/port State review of a uniform reporting form submitted by a ship. The draft Convention is not based on the same coastal/port State risk assessment approach. Nevertheless, it is suggested that countries encourage use of the standard Ballast Reporting Form in the Guidelines to assist in data collection and to support risk assessments, even when the draft Convention becomes operative, for ships that do not have or unable for some reason to apply the ship's Ballast Water Management Plan. In addition it will allow a country to have advance notice of ships' entering that have a valid International Ballast Water Management Certificate (along with other Certificates). It will also help enable the operation of industry compliance agreements, if a country adopts this approach for frequent clients. Earlier the Report has recommended that, as much as possible, ships should file all required entry related forms (ideally consolidated) with one centralised agency designated by the country. In some countries there is already a designated ship reporting center (for example for

VTS), in others it may be a function carried out by the Maritime Administration or another agency. This agency can then distribute the forms to the relevant national agencies. This will help to ensure comprehensive information and records for administrators. It will also reduce the workload for ships' officers and avoid delays for vessel entry.

(7) All national ships that have ballast tanks must have crew and officers that are familiar with the Guidelines (or the draft Convention when it is adopted) and the requirements of the ship's Ballast Water Management Plan for safe ballast water management.

This does not require that all crew be trained to implement the ship's Ballast Management Plan. Until there is a change to the STCW requirements it may prove difficult for ship operators working with multinational crews, to ensure that all crew members have this training. In addition it may not be relevant to the work of some crew members. However, it is clear that, at a minimum the ship's master, the officer(s) designated as responsible for the Ballast Water Management Plan and personnel directly involved in carrying it out must have this training.

(8) All ships of more than 400 Gross Tonnes that have ballast tanks must obtain and carry a valid International Ballast Water Management Certificate granted by the Administration in accordance with the survey requirements in the Convention.

This element will only be relevant when an International Certificate system is adopted by IMO Member States. The current text of the draft Convention requires a Certificate and related surveys for ships that are 400 Gross Tonnes and above.

5. Ballast Water Reporting and Management for All Ships Entering National (or country's name) Waters

The matters referred to above relate to flag State responsibilities. This element and element 6 below relates to the requirements that a coastal State may choose to impose on all ships (its own and foreign flag) entering waters that are under its jurisdiction. Many of these are simply the counterpart to, or complements, the obligations imposed on ships. The following suggests some requirements that are relevant to national legislation.

(1) All ships that have ballast tanks must file directly, or through an agent, a Ballast Water Reporting Form with the designated reporting agency of the country.

As noted above with respect to national ships' obligations the draft Convention is not based on the same reporting system as the IMO Guidelines. For the reasons set out above it is suggested that use of the standard Reporting Form will be helpful to the port/coastal State and necessary for an interim period. Countries may consider linking the quarantine and ballast water reporting process and even the forms. The number of hours of notice required will vary amongst countries. For example, some countries now require 96 hours notice for enhanced security purposes. In others notice is not required until 12 hours before arrival in port or even less. Countries should try to ensure that the required notice times are, if possible, the same for all entry related reports.

(2) A ship that does not file a Ballast Water Reporting Form (or a ship required to have an International Ballast Water Management Certificate that does not have one) or does not apply ballast water management in accordance with its Ballast Water Management Plan:

- *(a) will be subject to an inspection;*
- *(b) may have its ballast water sampled and analysed before discharge is permitted;*
- *(c) may be directed to use a designated ballasting zone or other uptake or discharge arrangement;*
- *(d) may, if deemed essential by the Authority to protect the safety of the marine ecosystem or human health in the country, be denied permission to discharge ballast water (or refused permission to enter the port).*

A reference to the Certificate will only be relevant once the draft Convention is operational. It is important to check the final version of the text. The refusal of port entry is relevant to countries that may link this legislation to the quarantine or a broader biosecurity regime.

While inspections are an obvious minimum response and should be required, for remedial actions it is recommended that countries use the more flexible phrasing implied by "may". This provides sufficient authority to administrative officers but allows for the reasonable exercise of discretion if warranted by the situation (i.e., low risk ships).

(3) Refusal to file a Ballast Water Reporting Form or filing a Form that contains false or misleading information is an offence (punishable in accordance with the relevant national legislation).

Where possible, existing legislation governing, for example, false reporting for other required reports or environmental offences, should be adopted. Such a provision would then refer to the existing sanctions. It recommended that sanctions be severe enough to provide an incentive for compliance. Such a provision will remain relevant for many vessels even if a Certificate system is adopted.

6. Ballast Water Operations in National (or country name) Waters

As is the case with elements set out above this element also relates to port/coastal State regulation of ships operating in waters under its jurisdiction. Such a regulation should apply to both uptake and discharge operations. If the draft Convention comes into force for the country then this may affect the scope of State regulation of these operations. It is important to review the final text of the draft Convention to ensure as much consistency as possible.

(1) Ballast water discharge and uptake operations are prohibited in national waters of (country name) without permission from the Authority.

The IMO Guidelines are premised on a regime involving coastal/port State decisionmaking and approval. The draft Convention does not speak to this question directly but addresses only the extent and scope of compliance inspections (primarily based on UNCLOS). The first step for a State in obtaining some level of regulatory control over this issue is to prohibit ballast water operations without permission. The conditions for permission to discharge can then be as stringent as the country deems necessary or consistent with international standards that it has accepted under the applicable international agreement (or regional agreements if these are developed). As pointed out below, once the draft Convention is finalised, holding a valid International Ballast Water Management Certificate would, in principle, be deemed sufficient by party States, subject to compliance related inspections under the draft Convention.

(2) Permission to discharge will normally be granted by the Authority after a review of the Ballast Water Reporting Form (or a Certificate once the draft Convention is in effect) and, if deemed necessary, inspection, without undue to delay to the ship.

It will be recalled from the discussion in Part I of this Report that UNCLOS (Art.226) provides that ships should not be unduly delayed. Article 16 of the current text of the draft Convention also addresses this issue and includes a requirement for port State compensation of a ship's operator for undue delays or detentions. If a country adopts negotiated industry compliance agreements for frequent port clients that have a good record of regulatory compliance and responsible environmental practices, then permission can be assumed as automatic on filing of a Report, subject to periodic compliance audits. Once the International Ballast Water Management Certificate is developed under the draft Convention, then permission can be assumed as automatic, subject to compliance inspections and samples as provided by the draft Convention regime.

(3) Ships must use precautionary (or "supplemental" if the draft Convention terminology, now found in Regulation D-1, is adopted) ballast water uptake and management practices (or set out the Convention if it includes these once finalised) and the ship's Ballast Water Management Plan. The Authority giving permission for ballast water operations will warn the master of marine areas where ballast water uptake must be avoided.

This approach clearly requires the port/coastal State to take responsibility for identifying problem areas in its port and coastal waters and for assisting ships to avoid inadvertently loading hazardous coastal water. Ships' masters are not generally in a position to identify areas that have problems such as toxic blooms or sewage runoff. This responsibility is part of a port/coastal State's responsibility under international law to help prevent the export or transfer of harmful aquatic organisms or alien species to another part of marine ecosystem.

(4) Undertaking ballast water discharging operations, unless necessary for established safety related emergency reasons under the IMO Guidelines (or, as specified in the Convention, once it is finalized), without permission is an offence punishable (in accordance with the applicable national legislation).

As suggested with respect to the reporting element, where possible, existing legislation providing sanctions for other hazardous discharges should be adopted. Given the potential consequences, sanctions should be correspondingly severe. Economic sanctions can be highly effective in encouraging companies to develop a culture of compliance and responsibility in employees. A number of emergency situations are specified in MARPOL 73/78 Annex 1. The draft Convention currently includes such a list in Annex 1, Regulation A-3. National legislation should be as consistent as possible with the final Convention text.

7. Sediment Removal

Research indicates that the sediments in ballast tanks and caught in other parts of the ship's system also harbours organisms and pathogens that are not necessarily removed by water treatment or exchange. It is important to make sure these sediments are not disposed of in coastal waters. Annex 1, Regulation B-4 of the current text of the draft Convention also addresses this issue as it pertains to ships' operations. Article 6 of the draft Convention also requires that countries party to the Convention provide adequate reception facilities for ballast water tank cleaning, repairs and sediment reception.

As with the other elements reference should be made to the final text of the draft Convention to ensure consistency with the terminology in the international standard.

The following sets out some suggestion for elements that a country can consider to address this concern and lay a foundation for the future Convention.

(1) Discharge or removal of sediments from ballast tanks or other related equipment is prohibited in national waters of (name of the country)

(2) Discharge may occur with permission from the Authority at designated reception facilities.

(3) Discharge of ship sediments at other than an approved facility is an offence punishable (in accordance with national legislation).

8. Ship Repair Yards

Although ship repair yards are not addressed by the draft Convention or the IMO Guidelines, they can be a link in the ship related pathway for the transfer of harmful aquatic organisms and pathogens, if ballast water or sediments are released in the course of ship repair or tank cleaning. It is important that every effort is made in domestic legislation to address this problem as comprehensively as possible. Since ship repair yards are a land based activity and potential source of this form of marine pollution they clearly fall under the sole regulatory jurisdiction of the port/coastal State.

(1) Ship repair yards are prohibited from discharging ballast water or ships' sediments in national waters.

(2) Ship repair yard disposal arrangements for ballast water or sediments must be approved by the Authority as environmentally safe.

(3) Discharge of ships' ballast water or sediments into the national waters of (country name) or at an unapproved facility by a ship repair yard is an offence (punishable in accordance with national legislation).

This element may also be relevant to the disposal of hull scrapings under the new IMO International Convention on the Control of Harmful Anti-fouling Systems on Ships (2001). The arrangements under this Convention should also be reviewed to ensure as much harmonization of domestic legal and administrative requirements as possible. Although environmental impact assessment procedures are difficult to apply to international shipping operations, they are clearly applicable to land based activities under domestic environmental legislation in most countries. It is also endorsed under international environmental law as an aspect of the precautionary principle and other principles found in the 1992 *Rio Declaration on Environment and Development*.

9. Responsibilities of the Authority

In order to implement the elements of port/coastal State responsibilities set out above, the department or agency responsible for these activities needs to develop a coordinated response – a National Policy Framework. This is suggested as a means of ensuring a reasonably uniform and flexible national approach. Given the diversity in situations between ports in some countries with a long or multiple coastlines a port specific Strategic Plan that conforms to the National Policy Framework but accounts for special ecological or other concerns (for example a port near a coral reef or with an aquaculture industry will need special precautions) should also be developed. A Strategic Plan may adopt what is sometimes called a "blanket approach" and target all ships, or it may adopt a "risk assessment strategy", or a combination of those two.

The legislation addressing this element may be in the same legislation as the previous 8 elements or it may need to be located in other legislation. This will depend on the legal and administrative structure in each country.

(1) In order to implement (country's name) coastal and port State responsibilities under the IMO Guidelines (or draft Convention when finalised) the Authority must develop a National Policy Framework and a Strategic Plan conforming to the Framework for each port that services ships that have ballast tanks.

(2) The Strategic Plan should provide an effective and efficient response by:

- *(a) ensuring efficient centralised management of ships' Ballast Water Reporting, reviewing of Ballast Water Reports, granting of permission to conduct ballast water operations, inspections and ballast water and sediments analysis;*
- *(b) training personnel needed to implement the Strategic Plan;*
- *(c) facilitating any necessary interagency cooperation;*
- *(d) communicating warnings about harmful organisms in the national waters to other ports and ships' masters;*
- *(e) conducting biological surveys of the port and nearby waters;*
- *(f) identifying and providing notice to the Organization and ships' of any water areas where ballasting operations are not permitted on a permanent or temporary basis for ecological or health security reasons;*
- *(g) designating, in accordance with applicable environmental assessment requirements, and providing on going monitoring of designated ballasting zones;*
- *(h) designating and approving safe reception and disposal facilities for ballast water or sediments for use by ships and ship repair yards;*
- *(i) developing port and regional contingency plans to prevent the introduction and spread of harmful aquatic organisms or pathogens (or other alien species);*
- *(j) encouraging and disseminating scientific research;*
- *(k) developing negotiated compliance agreements for some port users.*

The Authority, if it differs from the "Administration" in the country, should coordinate its activities with those of the Administration to ensure communication of all requirements and

research to IMO, the industry and other countries. Some States may be highly dependent on international shipping and may have regular low risk port clients that have a good history of implementing ship based marine environmental protection requirements. In these cases one modern regulatory co-management tool to consider is a negotiated compliance agreement. For example, ships operating under such an agreement would still need to file the required report form and meet all requirements, but would have some assurance that they would not be subject to possible inspections, except for periodic compliance audits. If such an approach is adopted then care must be taken to ensure such arrangements are transparent, are not abused and are applied in way that respects the principle of non discrimination. Essentially this kind of approach is an economic incentive to encourage voluntary compliance. It may mesh well with other "green" market incentive programmes that a country has adopted.

(3) The Authority may recover additional administrative costs it incurs as a result of a ship's failure to file a Ballast Water Report Form or apply its Ballast Water Management Plan or hold a valid International Ballast Water Management Certificate.

Cost recovery operations seem to be increasingly accepted and used by many countries to meet the administrative costs of implementing environmental protection. This can be viewed as an aspect of the polluter pay principle, (the internalisation of the costs of environmental protection). This fee will provide a further economic incentive to encourage industry compliance.

(4) The Authority must ensure that requirements regarding ships' reports and any other requirements under national legislation are communicated to the Organization and to relevant interested Parties.

10. Responsibilities of the Administration

This element relates to a country's flag State responsibilities under the IMO Guidelines and the draft Convention. The following outlines the main areas of responsibility.

(1) The Administration must ensure that all national (or country name) ships that have ballast tanks also have on board an approved Ballast Water Management Plan and crew and officers competent to apply the Plan and carry out the specified ballast water management practices and the related recording and reporting functions.

The ICS & INTERTANKO Model Ballast Water Management Plan that was based on the IMO Guidelines has been considered acceptable in some countries. It is likely to be revised in the near future to conform more closely to the draft Convention. The draft Convention and the Guidelines also set out parameters for an acceptable Plan. Under the draft Convention it is linked to the ship survey process. A number of Classification Societies have also developed plans.

(2) The Administration is responsible for issuing an International Ballast Water Certificates to all ships over 400 gross tones entitled to fly its flag that have ballast tanks and ensure that the surveys required under the Convention take place.

This is only relevant when an international convention is adopted and in force.

(3) The Administration will develop appropriate sanctions for ships entitled to fly its flag that are the subject of a complaint from another Administration.

(4) The Administration will ensure that all relevant crew, officers and the ship's master on all national ships (or country's name) are competent to safely conduct ballast water management, as specified in the ship's Ballast Water Management Plan.

When the draft Convention is finalised it will require an amendment to the STCW Code to include this issue as part of minimum training. This element, as worded, does not mean that all crew members are trained in this issue. The point was made earlier that with ships increasingly operating with multinational crews it is difficult for a country to require this for all crew. However, at a minimum, the ship's master and responsible officers must be able to implement the Ship's Ballast Water Management Plan.

11. Damages and Compensation

The penalties provided in (this legislation or other applicable legislation) does not affect any right to compensation or other any other (civil) remedy that may apply.

This element is also found in Article 229 of the 1982 *United Nations Law of the Sea Convention*. The word civil is a common law word used to refer to private law as opposed to public law remedies. Equivalent terminology would be used in countries with other legal systems. Liability and compensation for damage and the costs of remediation or containment as a result of the unintentional transfer of harmful aquatic organisms or pathogens is a difficult issue. This is because of problems in determining causation and attribution of responsibility between the ship and either the exporting or port/coastal State and the fact that a long period of time may pass before an introduction is noticed. The availability of any other remedy is also contingent on the legal system in each jurisdiction. Some countries may not wish to include this element, however the provision of compensation is increasingly part of modern environmental legislation and principles (see for e.g., Article 235, UNCLOS).

Appendix 1: Terms of Reference for Lead Legal Consultant/Project Coordinator

Activity 4.3 – Legislative Review

Background

The International Maritime Organization (IMO), with funding provided by the Global Environment Facility (GEF) through the United Nations Development Programme (UNDP), has initiated the Global Ballast Water Management Programme (GloBallast).

This programme is aimed at reducing the transfer of harmful marine species in ships' ballast water, by assisting developing countries to implement existing IMO voluntary guidelines on ballast water management (IMO Assembly Resolution A.868(20)), and to prepare for the anticipated introduction of an international legal instrument regulating ballast water management currently being developed by IMO member states. This is to be achieved by providing technical assistance, capacity building and institutional strengthening to remove barriers to effective ballast water management arrangements in six initial demonstration sites

The obligation of States party to the United Nations *Law of the Sea Convention* to prevent the introduction of new or alien species that may cause significant or harmful changes to a particular part of the marine environment was clearly articulated in 1982. Concern about biodiversity, including protection and preservation of marine biodiversity, was again articulated by the world community in the 1992 *Convention on Biodiversity*.

A number of States have also developed national legislation to address the problem of vessels carrying harmful aquatic organisms and pathogens in their ballast water.

A legal system that is consistent with existing international instruments and which allows for incorporation of the IMO Guidelines is essential for the development of National Ballast Water Management Plans. The process involves a comprehensive review of the legal regimes for ballast water operating in the six pilot countries and review of legal regimes in other jurisdictions, including identification of the world's best practices and the development of "model" legislation that can be used by countries to rapidly develop and implement ballast water legislation and regulations consistent with current IMO guidelines and the evolving international ballast water convention.

Services Required/Tasks to be Carried Out

The Legislative Review will collect detailed information about the legal regimes affecting ballast water management and aquatic organisms and pathogen transfer in the six demonstration sites, Brazil China, India, Iran, South Africa and Ukraine. In order to ensure a fully informed review and to achieve the goal of local capacity building and awareness of the issue, locally based legal consultants will carry out the review and analysis of the legislative structure governing ballast water management and invasive marine species in each State. The local legal consultants will carry out the legal review on a number of levels, including identifying relevant international legal obligations of the country, national legislation and administrative arrangements, where applicable provincial or municipal legislation, any port regulations, agricultural and quarantine regulations, emergency response plans, inspection directives and other practices. The consultants will also make recommendations for changes where gaps have been identified.

The terms of reference and legislative review protocol will be developed by the World Maritime University, in cooperation with the Country Focal Points (CFPs) and submitted to PCU for approval. The CFPs will ensure that best qualified legal consultants will be recruited to perform the legislative review. Once the review have been completed, the local consultants and relevant GloBallast personnel will attend a workshop planed for Summer 2001 at WMU premises to review the country reports and recommendations. The workshop will focus on developing a model regulatory structure on ballast

water management and will identify best practices for implementing this structure at each demonstration site.

Acting upon the instructions of the Secretary-General of IMO or other officials acting on his behalf, the World Maritime University, through its faculty member, Moira McConnell, Professor of Law and Maritime Affairs shall, during February –October 2001, carry out the following tasks:

1. Visit IMO for one-day briefing and literature study;
2. Carry out the legal research necessary to develop the terms of reference and legislative review protocol for the local legal consultants.
3. Assist and coordinate the activities of the local legal consultants.
4. At the request of the CFPs and in justified situations the WMU representative (Lead Legal Consultant) will undertake short-term assistance missions in the pilot countries and will attend administrative or technical meetings as required. All activities related to this task will be scheduled in consultation with PCU and approved by the Chief Technical Adviser.
5. Assist in the compilation of the local consultants reports.
6. Research the available literature for best practices in countries with more advanced experience in ballast water management and control and develop an easily adaptable set of model regulatory structure compatible with the existing IMO Guidelines (Rez. A.868(20)) and the anticipated international convention for the control and management of ships' ballast water and sediments.
7. Organize in consultation with PCU the international workshop and compile the final report on the outcome of the event.
8. Submit a draft report on the outcome of the activities, addressing the elements above for peer review and comments to PCU.
9. Visit IMO for a two days debriefing.
10. Address eventual comments from PCU and submit the final report in hard and electronic copy to PCU by 31 October 2001;
11. Carry out other relevant duties falling within the scope of her competence.

Deliverables/Outputs

- Legislative review protocol for the local legislative reviews including briefing package for local legal consultants.
- Terms of reference for local legal consultants and subsequent coordination of the legal work of the local legal consultants in cooperation with the CFPs in each country.
- Model regulatory system based on legislative activities and practices identified in the 6 reviews and international best practice.
- Final report on the Legislative Review Activity.
- Coordination, facilitation and hosting of a 2- 3*(to be determined later) day workshop at the WMU premises in Malmö, Sweden. Travel costs for the participants will be provided from the local budgets allocated for Activity 4.3. Costs involved for the organization of the workshop (e.g. rental of workshop facilities, catering, accommodation, and secretarial services will be provided by the GloBallast Programme from a separate budget.

Tentative timing

It is understood that this timetable is subject to the local consultancy process and the timely delivery of the national legal reviews.

February 2001
Legislative review protocol and terms of reference completed and circulated to CFP personnel

March 2001
Local legal consultants hired and instructed

April 200l
Interim reports from local legal consultants submitted to the lead Legal Consultant

May 2001
Date set for workshop at WMU

June 2001
Submission of final local legislative reviews to the Lead Legal Consultant.

June 2001
Lead Legal Consultant review of the 6 national regimes and other research and preliminary model regulations drafted and other research, for workshop discussion.

July-early August 2001
Workshop with project personnel to review the draft model regulatory structure and identify best practices and recommendations for legislative reform.

September 2001
Interim report of Lead Legal Consultant on the outcome of the activities for peer review and comments by PCU.

October 2001
Final Report on Legislative Review Project submitted.

Appendix 2: Terms of Reference for Local Legal Consultant

Activity 4.3 – Legislation and Regulations (Legislative Review)

Background

The International Maritime Organization (IMO), with funding provided by the Global Environment Facility (GEF) through the United Nations Development Programme (UNDP), has initiated the Global Ballast Water Management Programme (GloBallast).

This Programme is aimed at reducing the transfer of harmful marine species in ships' ballast water by assisting developing countries to implement the existing IMO voluntary *Guidelines for the control and management of ships' ballast water to minimize the transfer of harmful aquatic organisms and pathogens* (IMO Assembly Resolution A.868(20)), and to prepare for the anticipated introduction of an international legal instrument regulating ballast water management currently being developed by IMO member States. This is to be achieved by providing technical assistance, capacity building and institutional strengthening to remove barriers to effective ballast water management arrangements in six initial demonstration sites

The obligation of States party to the United Nations *Law of the Sea Convention* to prevent the introduction of new or alien species that may cause significant or harmful changes to a particular part of the marine environment was clearly articulated in 1982. Concern about biodiversity, including protection and preservation of marine biodiversity, was again articulated by the world community in the 1992 *Convention on Biodiversity*.

International shipping has been identified as one of the key pathways for the movement of species between differing ecosystems. Organisms and pathogens found in ballast water and sediments in ballast tanks have had significant economic and ecological impact on the marine biodiversity in many regions. They can also pose a threat to human health from the spread of diseases and species harmful to humans. A number of countries have developed national legislation to address the problem of vessels carrying harmful aquatic organisms and pathogens in their ballast water. This has led to a concern that the objective of universally accepted ship safety and environmental protection standards will be undermined. This in turn may affect the long-term viability of international shipping and economic development.

Unlike some forms of ship source environmental harm the problem arises from an activity inherent to the ship's operation. Currently there are no entirely satisfactory means of preventing the transfer of species in ballast water and open sea ballast exchange management techniques have raised some concerns about vessel and crew safety, and the limits of its environmental effectiveness. In the future, changes in vessel and ballast tank design and other technological developments may effectively address these concerns. In the interim, a strategy based on risk minimisation has been adopted at the international level, in the form of the 1998 IMO voluntary *Guidelines*. In order to have a successful international risk minimisation regime state action is required on a number of different levels. A country may well have responsibility as a Flag State to ensure crew and vessel compliance with procedures and as a Port/Coastal State to guard against both the unintentional import of harmful species and the unintentional export of organisms or pathogens that may be harmful to another State.

It is essential to establish a domestic legal system that responds to these international obligations, effectively implements the current IMO *Guidelines* and prepares the ground for a new international convention. It has been agreed that a supportive regulatory regime is necessary to address these issues and that any domestic regime that is developed must be reflect the universally agreed upon standards and practices set out in the IMO voluntary *Guidelines* and any convention that is adopted.

The GloBallast Legislative Review Project is aimed at identifying and developing the legal regimes for effective ballast water management operating in the six demonstration countries, Brazil China, India, Iran, South Africa and Ukraine. The Project has been developed on a cooperative basis with the

Country Focal Point (CFP) in each State and will use local legal experts to identify, evaluate and develop recommendations as to the regulatory changes needed to effectively implement the IMO *Guidelines* and any international convention that may be adopted. These experts, the Local Legal Consultants (LLC) from the six demonstration countries will work with a Lead Consultant, located at the World Maritime University, to develop a final report and recommendations, based on experiences in the six demonstration sites and practices that have developed in other countries implementing these *Guidelines*. The final report will identify best practices and provide "model" legislation that can be used by other countries to rapidly develop and implement ballast water management legislation and regulations consistent with current IMO voluntary *Guidelines* and the evolving ballast water convention.

Services Required/Tasks to be carried out

In order to ensure a fully informed review and to achieve the goal of local capacity building and raise awareness of the issue, locally based legal consultants will carry out a comprehensive review and analysis of the legislative regime, if any, governing ballast water management and invasive marine species in each country. This review will be carried out in consultation with, and under the supervision and coordination of, the Lead Consultant, Dr. Moira McConnell, Professor of Law and Maritime Affairs at the World Maritime University. The CFP and Assistant in each country, in conjunction with the Programme Coordination Unit, will have the primary in-person liaison and administrative responsibility for the LLC. The LLC will carry out the legislative review on a number of levels including, identifying relevant international and regional legal obligations of the country, national legislation and administrative arrangements, where applicable, provincial or municipal legislation, any port regulations, vessel and crewing certification standards, agricultural and quarantine regulations, emergency response plans, inspection directives and other practices, including voluntary industry compliance.

Once the reviews in the six demonstration sites have been completed, the LLCs and relevant GloBallast personnel will attend a workshop planned for September 2001 at the World Maritime University premises in Sweden to review the six Local Legislative reports and recommendations for implementing the *Guidelines* at each demonstration site. The workshop will focus on developing a model regulatory regime on ballast water management and will identify best practices that can be adopted for the implementation of this regime.

Acting upon the instructions of the Lead Consultant and in cooperation with the CFP office the LLC will, during a period of 53 working days between March and October 2001, carry out the following tasks:

1. Review all briefing documents and familiarise her or himself with the topic.

2. Carry out a comprehensive legislative review of the regulatory structure and instruments in the State relevant to the effective implementation of the IMO voluntary *Guidelines* and any future convention on ballast water management, as well as the State's obligations under the Law of the Sea Convention and the Convention on Biodiversity. The Local Legal Consultant's Review must conform to and address all matters identified in the Local Legislative Review Protocol attached as Annex 1 to these Terms of Reference.

3. Prepare an analysis and legal opinion, based on the local legislative review and regulatory structures adopted elsewhere, regarding the best model for implementing the IMO voluntary *Guidelines* in the State. These recommendations should take into account existing structures and activities and seek, where possible, to maximise the use of existing resources.

4. Provide the Lead Consultant with an interim report for her review and comments.

5. Provide a Final Legislative Review Report that responds to any questions or gaps identified in the interim report.

6. Travel to Sweden for a 2 or 3 day (to be determined) workshop with other Local Legal Consultants in the summer of 2001 to develop a Final Report and model regulations.

7. Be available to provide commentary on a Draft Final Report prepared by the Lead Consultant.

8. Meet with the CFP or Assistant and/or Lead Consultant, if such a meeting is deemed by the PCU to be useful for the progress of the project.

9. Keep a detailed record of all meetings with agencies, organisations or individuals, including contact information for future reference.

10. Carry out any other relevant duties falling within the scope of his or her competence.

Qualifications of the Local Legal Consultant:

1. The LLC must have recognised legal qualifications (practice or legal academic) in the respective country and must have previous research experience.

2. The LLC must have demonstrated an ability to effectively communicate orally and in writing in English.

3. The LLC must have demonstrated competence with, and access to, Internet, email communication and an ability to work in either Word or Wordperfect Programmes.

4. The LLC should have experience with the maritime industry and with environmental or resource conservation issues in the State as well as a good level of knowledge regarding international law and the domestic legislative framework for implementing international obligations.

5. Previous consultancy and research report preparation experience is desirable.

6. Women are particularly encouraged to apply to carry out this consultancy.

Deliverables

- Interim Legislative Review conforming to the Legislative Review Protocol
- Final Local Legislative Review Report conforming to the Legislative Review Protocol, Annex I in electronic and hard copy form, including all supporting documents.
- Presentation and discussion of the Legislative Review at a workshop in Sweden.
- Commentary on the Draft Final Report.

Tentative Timing

The following deadlines are based on completion of the hiring of the Local Legal Consultant by 15 April 2001. Approximately one and a half months of work time has been allocated to preparation of the Interim Report.

15 April 200l
Local Legal Consultants hired and instructed

June 2001
Interim reports from Local Legal Consultant submitted to the Lead Consultant

July 2001
Submission of final Local Legislative Review to the Lead Consultant

September 2001
Workshop in Sweden with all project personnel to review experiences, develop and review the draft model regulatory structure and identify best practices and recommendations for effective implementation.

November 2001
Final Legislative Review project report submitted.

Annex 1
Local Legislative Review Protocol

Introductory Note

The Terms of Reference for the LLC noted that there are various aspects of a State's responsibility to fully implement its international legal obligations to minimise the transfer of harmful organisms and pathogens. This Legislative Review will focus specifically on the effective implementation of the 1998 IMO voluntary *Guidelines for the control and management of ships' ballast water to minimize the transfer of harmful aquatic organisms and pathogens* (Resolution A.868(20) as well as preparing the ground for the implementation of an international convention currently under development.

The local Legislative Review will examine each country's regulatory regime and needs from three different perspectives:

- as a Flag State and/or crew supply State with marine environmental protection responsibilities;
- as a Port/coastal State that has concerns about importing organisms and pathogens though ballast water discharge;
- as a Port/Coastal State that has concerns about exporting organisms and pathogens through ballast water pick-up and exchange.

This Review will require a multisectoral approach that will likely include governmental agencies dealing with maritime transport, health, environment, quarantine, fisheries, coastal management, navy or defence, port authorities and ship and crew certification and registration. In each country the regulatory process and instruments will vary depending state practice and constitutional or governance systems. In some countries co-regulation based on industry partnerships and voluntary compliance has also been explored.

The Legislative Review will seek to identify a wide range of regulatory instruments including directives, protocols, policies, guidelines, and inspection guidelines, marine or harbour notice and regulations that may relate to the implementation of the *Guidelines*. Many of the regulatory instruments may not be found in traditional legal sources and will require contact with the relevant authorities and personnel. Each country will have an office or individual designated to respond to its obligations under the *Convention on Biodiversity*. The LLC should ensure that she or he is aware of all legislative action being taken in connection with this related State obligation.

Although the focus of the GloBallast Programme and this legislative review is targeted at transfers occurring through ballast water exchange, a number of states also include within their regulations related sources of vessel organism transfer such as ship fouling, anchoring, connection pipes. An integrated regulatory system that seeks to minimise other vessel operations organism transfer paths may be desirable. The need to ensure consistency between the convention that is being developed to deal with ballast water exchange and the draft anti-fouling convention has been noted.

There are a number of legislative models that have been adopted to deal with ballast water management. For example, in several countries the problem is dealt with as an aspect of agriculture and quarantine regulation. Others deal with it as a matter of environmental and economic security and the coastguard, navy or a specialised biosecurity agency deals with the issue. There are variations in the approved methods of treatment and management and the forms and reports required. In addition there are also management approaches developed by the private sector. The LLC should make him or herself aware of the various approaches, some of which are referred to in the background documents for this Review or found in the listed Internet databases. Some of the approaches constitute an implementation of the IMO voluntary *Guidelines*, while others differ in their approach and may not reflect an approach based on the universally agreed practices advocated by IMO. However, a review of all approaches will enable the LLC to identify possible regulatory approaches that may be appropriately adapted for their State. There is a need to ensure that ship safety and efficiency concerns are respected in all implementation measures.

The Legislative Review must take into account some of the techniques currently being used or developed to minimise the risk of transfer in addition to open sea exchange. For example, prevention through safe zones for water up take and discharge is one method. This requires that States locate and identify such zones. The LLC will need to examine the legislative authority necessary to determine such zones, which may alter depending on local conditions, and to provide this information and authorisation to vessels. Similarly some countries are examining the use of chemical treatment. The Legal Consultant should examine the State's environmental impact assessment legislation, if any, to determine whether there are any procedures that need to be undertaken before such an approach is adopted. Finally it is important to take into account the fact that not all ballast water discharges are or will be harmful to the particular marine environment. This means that some consideration will need to be given to questions regarding the application of any legislation and enforcement strategies and penalties in the event of a violation, when a convention supporting mandatory ballast water management is adopted.

Local Legislative Review Requirements

The Legislative Review must be in English in Word or WordPerfect Programme and include accurate referencing of reports where secondary materials are used. The local Legislative Review report must include copies of key supporting materials including legislation, directives and other instruments or documents referred to in the Review. The most relevant sections of these documents must be translated into English.

The Local Legislative Review must contain the following information:

1. Legal and Administrative Overview

1.1 Describe the constitutional and legal framework of the State and levels of legislative authority and jurisdiction.

1.2 Identify relevant international legal obligations of the State including those derived from MARPOL, the Law of the Sea Convention and the Convention on Biodiversity and any other instruments.

1.3 Identify any regional organisation initiatives or agreements that might relate to this issue.

1.4 Identify any national or local legislation or plans or policies implementing these obligations as well as the agencies responsible for enforcement and monitoring those obligations.

1.5 Identify the agencies, departments or organisations with legislative and implementation authority and administrative responsibilities (and/or have an interest) that relate, or could relate, to the issue of ships' ballast water exchange and organism transfer.

2. Detailed Legislative Review

2.1 Collect, identify and explain or comment on all relevant legislation or regulatory instruments from the applicable levels of government -national, state, province, district, port, municipality, depending on State practice including:

2.1.1 environmental or marine environmental protection legislation that applies or might apply, if amended;

2.1.2 fisheries legislation that might apply to this issue;

2.1.3 coastal zone planning and integrated management legislation and policy;

2.1.4 agriculture, health and quarantine legislation and regulations;

2.1.5 ship source pollution legislation and enforcement and contingency practices including port state inspection directives, marine or harbour notices etc.;

2.1.6 all reporting requirements (and forms) from vessel to port or maritime authorities, all interdepartmental reporting obligations, in particular between environment, fisheries health and relevant maritime authorities or agencies;

2.1.7 all directives for inspectors including standards and sampling guidelines;

2.1.8 all regulations relating to inspection and reporting for recreational and fishing vessels;

2.1.9 all laws or instruments, if any, governing ship registry requirements and any directives or regulations governing vessel certification, whether governmental or delegated;

2.1.10 all laws, regulations or standards governing certification of Master or seafarer competence;

2.1.11 any other instruments or documents deemed relevant by the LLC and/or Lead Consultant.

3. Analysis, Legal Opinion, Recommendations

Based on the information that she or he has collected the LLC should evaluate the existing laws and practices to determine whether they adequately address the issue and effectively implement the IMO voluntary *Guidelines*, and if not, what changes need to be made. This may take the form of new legislation or regulations or it may involve amendments to existing laws. For example, existing marine environmental protection or quarantine legislation can be amended to address this harm and authorise inspection activity and reporting requirements. Similarly, ship registry laws or regulations may be amended to include requirements for ballast water management plans for each vessel and familiarity with reporting and recording requirements. Existing inspection procedures and directives/guidelines may also be amended to include sampling or inspections to respond to this issue. Recommendations in the form of draft legislation or proposed amendments should also be included. The LLC is also encouraged to include institutional or operational suggestions to help ensure the effective implementation of his or her legal recommendations.

Annex II
Briefing Package for the Local Legal Consultants

1. IMO *Guidelines* (Resolution A868(20)).
2. Draft of the anticipated convention (document MEPC 46/3/2).
3. Ballast Water Management Model – INTERTANKO/ICS.
4. A Guide to Designing Legal and Institutional Frameworks on Alien Invasive Species (Environmental Policy and Law Paper no. 40).
5. International Council for the Exploration of the Sea Code of Practice on Introductions and Transfers of Marine Organisms 1994.
6. Convention on Biodiversity.
7. List of relevant websites.
8. Contact Directory.

More Information?

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