



**PROJECT DEVELOPMENT FACILITY
REQUEST FOR PIPELINE ENTRY APPROVAL**

AGENCY'S PROJECT ID: 3050
GEFSEC PROJECT ID: 2261
COUNTRY: Global
PROJECT TITLE: Building Partnerships to Assist Developing Countries to Reduce the Transfer of Harmful Aquatic Organisms in Ships' Ballast Water (GloBallast Partnerships)
GEF AGENCY: UNDP
OTHER EXECUTING AGENCY (IES): International Maritime Organization (IMO)
DURATION: Five years
GEF FOCAL AREA: International Waters
GEF OPERATIONAL PROGRAM: 10
GEF STRATEGIC PRIORITY: IW3
ESTIMATED STARTING DATE: December 2006
ESTIMATED WP ENTRY DATE: 2006
PIPELINE ENTRY DATE:

FINANCING PLAN (US\$)	
GEF ALLOCATION	
Project (<i>estimated</i>)	7,000,000
Project Co-financing (<i>estimated</i>)	10,000,000
PDF A*	
PDF B**	
PDF C	
<u>Sub-Total GEF PDF</u>	
PDF CO-FINANCING (details provided in Part II, Section E – Budget)	
GEF Agency	
National Contribution	
Others	
<u>Sub-Total PDF Co-financing:</u>	
<u>Total PDF Project Financing:</u>	

* Indicate approval date of PDF A
 ** If supplemental, indicate amount and date of originally approved PDF

RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT:

(Enter Name, Position, Ministry)

Date: (Month, day, year)

This proposal has been prepared in accordance with GEF policies and procedures and meets the standards of the GEF Project Review Criteria for approval.

A handwritten signature in black ink, appearing to read 'Frank Pinto', with a horizontal line underneath.

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PART I - PROJECT CONCEPT

A - SUMMARY

Background and Rationale

The introduction of aquatic species to new environments, including through ships' ballast water and sediments, is considered to be one of the greatest threats to the world's coastal and marine environments. It is estimated that from 3 to 5 billion tonnes of ballast water are carried around the world by ships each year. While ballast water is essential to the safe operation of ships, it also poses a serious environmental threat, in that more than 7,000 different species of microbes, plants and animals may be carried globally in ballast water each day. When discharged into new environments these organisms may become invasive, severely disrupt the native ecology, and seriously impact on the economy and cause human diseases and even death.

Developing countries are among the largest "importers" of ballast water due to their significant exports of bulk commodities. Exports of oil, ores, phosphates and other raw materials and bulk cargoes are in many cases the primary source of revenue for developing countries and an important component of their national economies. On the other hand, developing countries are frequently dependent on their coastal and marine environments as the main source of living for coastal populations and as a major tourist attraction. Countries where ballast water is loaded, are also under pressure to see that the ballast is safe enough to be discharged at the destination ports.

Invasion of the European Zebra Mussel (*Dreissena polymorpha*) in the North American Great Lakes in the 1980s, the Asian Golden Mussel (*Limnoperna fortunei*) in the inland waterways of Argentina, Brazil, Paraguay and Uruguay, the Comb Jelly Fish (*Mnemiopsis leidyi*) in the Black Sea and the introduction of toxic dinoflagellate algae in several new areas around the globe are some of the classic examples of ballast water mediated bioinvasions. The severe economic and ecological impacts of these invaders provide some of the starkest case studies of the potential negative effects of ballast water introductions. The economic impacts alone run into several billions of dollars. The list of examples could continue as hundreds of aquatic bio-invasions have been identified around the world. Some case studies identified during the pilot phase of GloBallast are given in Annex 1, along with a general description of some of the economic and public health impacts of transfer of harmful organisms in ships' ballast water.

The transfer of invasive aquatic species in ballast water is perhaps the biggest environmental challenge facing the global shipping industry this century. There have been numerous global calls for action at the international level and international law provides a strong mandate for the adoption of relevant responses. The UN Convention on the Law of the Sea requires States to work together "to prevent, reduce and control human caused pollution of the marine environment, including the intentional or accidental introduction of harmful or alien species to a particular part of the marine environment." Controls on the introduction of alien species

that threaten ecosystems are also mandated under the Convention on Biological Diversity, and targeted for action in the Plan of Implementation adopted at the World Summit on Sustainable Development (WSSD) in 2002.

Adoption of the new Ballast Water Management Convention in February 2004 provided the much needed standardised, international regime to address this global threat and the proposed new phase of GloBallast will play a crucial role in assisting developing countries to enact legal reforms to implement the Convention.

The major elements of the Ballast Water Management Convention are summarized in Annex 2. Although structured in the traditional IMO format based on ship safety, cleaner seas and internationally agreed upon standards, the new instrument clearly links with the United Nations Convention on the Law of the Sea (UNCLOS) and UNEP/World Health Organization (WHO) biosecurity concepts and recognizes the sustainable development and integrated management practices advocated at the World Summit on Sustainable Development (WSSD) in the Plan of Implementation.

Traditionally, IMO conventions aim at the improvement of ships, equipment and procedures and are mainly directed at flag States. Many of the requirements under the Ballast Water Management Convention fall into this category. However, this is the first IMO instrument where reliance on modern equipment and ballast water treatment technologies (flag States) is combined with an adequate understanding of the quality and the impact of ballasting operations on coastal waters (coastal States). It is a unique situation where the important role of the coastal State is explicitly acknowledged by an IMO Convention.

To date, an unprecedented momentum of concerted international action has been precipitated by the GloBallast pilot phase. There is an overwhelming demand from developing countries for ongoing programmatic support for replication of GloBallast activities and technical assistance. A number of countries and regions have expressed strong interest in joining the Programme, including several UNEP Regional Seas Programmes such as the Mediterranean region, the Pacific Islands region, the Caspian Sea region, the Eastern Baltic countries, several South American countries and several African countries. This interest is constantly increasing.

Several North American and European countries have initiated programmes and strategic action plans to address the threat posed by IAS in ships' ballast water. A detailed account of these initiatives is given in Annex 3.

An extremely important development worldwide has been a major surge in research and development (R&D) efforts to find more effective, technologically based systems for the treatment of ships' ballast water to prevent the transfer of harmful organisms. The GloBallast pilot phase has been working to assist this process. These efforts have included the 1st and 2nd International Ballast Water Treatment R&D Symposia in London in March 2001 and July 2003 respectively, developing and maintaining the Ballast Water Treatment R&D Directory (<http://globallast.imo.org/research/>), directly funding R&D activities in some of the GloBallast Pilot Countries and maintaining cooperative links with a number of R&D projects and bodies.

The GloBallast R&D Directory lists more than 60 projects worldwide and the list is expanding. The R&D projects are based in countries as far-flung as Australia, Brazil, Canada, China, Germany, Japan, New Zealand, Norway, Poland, Singapore, the UK and the USA. They comprise government programmes, private initiatives, private-public consortiums, local efforts, national programmes and international alliances. However, one of the difficulties faced by this diverse global R&D effort, is the lack of effective lines of communication between these groups and with governments and the shipping industry. Apart from the efforts of GloBallast, there is also a general lack of involvement of developing countries and the potentially significant economic benefits of the multi-billion dollar market for shipboard treatment systems may not be seen by developing countries. There is an increasing need to facilitate technology transfer towards developing countries and ensure global sustainability through North-South collaboration.

It should be noted, however, that during the initial phase of GloBallast a number of developed countries have provided substantial support to the six Pilot Countries (e.g. Australia/New Zealand support for risk assessment and port surveys, HELCOM support for eastern Baltic workshop, Singapore subsidising GloBallast countries at their two Ballast Water Conferences, UK and US support for GloBallast R&D Symposiums, US currently seeking funding for GloBallast in wider Caribbean through White Water to Blue Water programme). This excellent foundation of collaboration between developed and developing countries firmly established by GloBallast phase I would certainly be developed further in the PDF-B to secure additional co-financing for phase II.

Barriers and Underlying Causes

Despite the achievements by the GloBallast demonstration phase in the initial pilot countries, the knowledge base, legal/policy framework and technical and institutional capacity required to give effect to an international regime for the control and management of ships' ballast water remain severe constraints for most of the developing countries. The root causes associated with these issues can be grouped in six categories as follows:

- International and cross boundary character of shipping industry.
- Broad lack of awareness regarding aquatic invasive species.
- Lack of viable treatment technology to prevent the introduction of unwanted organisms in ships' ballast water.
- Institutional and legal arrangements are insufficient or inadequate to address the ballast water problem.
- Poor and inconsistent regional cooperation.
- Limited to non-existent financial resources allocated to address ballast water issues.

If not adequately addressed, the lack of institutional and legal arrangements and of coordinated action by the various stakeholders and the insufficient capacity to deal with invasive species in ships' ballast water will continue to remain a major barrier to the effective implementation of ballast water control and management measures in developing countries.

Objectives

The overall objective of the project is to assist especially vulnerable developing countries to enact legal and policy reforms at national level to minimize the adverse impacts of aquatic invasive species transferred by ships and to develop sustainable mechanisms for the control and management of ships' ballast water and sediments.

The specific objectives of the project are:

1. To identify and agree upon the most appropriate strategies and actions required to reduce the rate of aquatic bio-invasions caused by IAS transferred in ships' ballast water.
2. To provide technical assistance to implement legal, policy and institutional reforms at national level to minimize the adverse impacts of aquatic invasive species in ships' ballast water.
3. To use existing co-operative mechanisms and suitable partnerships to ensure financial sustainability for the control and management of ships' ballast water and sediments and for the effective involvement of the relevant stakeholders.
4. To mainstream and integrate ballast water management into a broader effort to control invasive aquatic species at the Large Marine Ecosystems (LME) level.
5. To develop an institutional and procedural approach for monitoring and evaluation of ballast water management and control measures.

The objectives of GloBallast Partnerships will be a logical expansion of the pilot phase, with a greater focus on policy reforms in targeted developing countries and more emphasis on integrated management. The project is designed to build on the lessons learned during the pilot phase and is based on the principle of "on the ground" implementation. A number of activities particularly successful in the initial phase, will be replicated in other ports and particularly sensitive areas. The GEF supported activities will focus on assisting specially vulnerable and sensitive countries to enact legal reforms to implement the international regime. The project will ensure a globally uniform approach and, to the extent possible, global coverage of the developing regions of the world.

All activities will include training and capacity building based on lessons and best practices acquired in the pilot phase. Additional efforts will be directed into building a contingency and

response role for dealing with outbreaks of IAS in a rapid and timely manner and to improve the diagnostic capabilities of the countries worldwide.

GloBallast Partnerships aims to establish strategic alliances with other organizations and programmes that are endeavouring to address the problem of invasive aquatic species and it seeks to integrate ballast water management activities with other coastal and marine management programmes, thereby increasing cost-effectiveness and creating inter-programme synergies. In particular, the World Conservation Union (IUCN), the Regional Seas Programme of UNEP and the Global Invasive Species Programme (GISP) have expressed a strong interest in partnering and providing resources to assist the future implementation of GloBallast Partnerships. The exact nature and extent of the involvement of IUCN, UNEP Regional Seas, GISP and other partners will be developed during the PDF-B.

B - COUNTRY OWNERSHIP

1. COUNTRY ELIGIBILITY

The project will mainly fund participation of the developing countries with particularly vulnerable or highly sensitive marine environments eligible for GEF support under paragraph 9(b) of the GEF Instrument. Non-eligible countries will be expected to finance their participation in project activities.

2. COUNTRY DRIVENNESS

As the transfer of invasive aquatic species (IAS) is a trans-boundary problem, regional co-operation is a key element in any strategy to address this issue. Lack of action at a regional level could become a serious barrier to progress, if single country actions were to lead to other nations using the lack of adequate ballast water management provisions to attract greater interest in their ports. The ballast water problem has a high degree of specificity, due to the fact that IAS do not recognise national borders and that the shipping industry crosses jurisdictional boundaries in the conduct of trade.

The foundations of such a regional approach have been laid during the 2000-2004 pilot phase of the GEF/UNDP/IMO Global Ballast Water Management Programme (GloBallast), through the following Pilot Countries: Brazil, China, India, I.R. Iran, South Africa and Ukraine, representing the main developing regions of the world.

As a result of the GloBallast pilot phase, Regional Tasks Forces (RTFs) have been formed and regional Strategic Action Plans (SAPs) on ballast water control and management have been developed and adopted involving more than 60 countries, as follows:

- The Black Sea region: RTF formed and Resolution and regional SAP adopted by Bulgaria, Georgia, Romania, Russian Federation, Turkey and Ukraine. Ballast water control and management/IAS issues have been included in the agenda of the Istanbul Commission and Black Sea Environment Programme and a detailed short-term programme of action has been developed and adopted.

- The ROPME Sea Area: RTF formed and Resolution and regional SAP adopted by Bahrain, Kuwait, I.R. Iran, Oman, Qatar, United Arab Emirates and Saudi Arabia at ministerial level. Ballast water control and management has been included in the short-term workplan of the Regional Organization for the Protection of the Marine Environment (ROPME).
- East Asia: RTF formed, Resolution and regional SAP adopted by P.R. China, the Democratic People's Republic of Korea, Japan, the Republic of Korea, the Philippines, the Russian Federation and Vietnam.
- Southern and Eastern Africa: RTF formed and regional SAP adopted by Angola, Comoros, Kenya, Madagascar, Mauritius, Mozambique, Namibia, Seychelles, South Africa and Tanzania. Ballast water/IAS problem included in the agenda of the Conference of the Parties to the Nairobi Convention.
- South America (Atlantic Region): RTF formed Resolution and regional SAP adopted by Argentina, Brazil, Paraguay and Uruguay. Ballast water control and management/IAS issues have been included in the agenda of the MERCOSUR Working Group on Environment (VI).
- South Asia: RTF formed, Resolution and regional SAP adopted by Bangladesh, India, Malaysia, Singapore, Sri Lanka and Thailand.
- Eastern Baltic: Resolution adopted and foundations for a regional SAP developed by Estonia, Finland, Latvia, Lithuania, Germany, Poland, Sweden and Russian Federation. Ballast water control and management/IAS issues have been included on the agenda of the Helsinki Commission (HELCOM) and GEF Baltic Sea Regional Project.

The regional SAPs are focussed on the protection of shared coastal and marine environment through policy reforms at national level triggered by the newly adopted International Convention for the Control and Management of Ships' Ballast Water and Sediments. An example of a regional SAP is provided in Annex 4 and the full reports on the regional meetings that were held to initiate the RTFs and regional SAPs are available as part of the GloBallast Monograph Series (<http://globallast.imo.org/publications>).

The GloBallast pilot phase has also been assisting the Mediterranean Action Plan (MAP), the Permanent Commission of the South Pacific (CPPS) and the South Pacific Regional Environment Programme (SPREP) to develop regional strategies and activities on ballast water/IAS control and management, and has had preliminary contacts with the Caribbean Environment Programme (CEP), bringing an additional 70+ countries to the list that have demonstrated "country drivenness" in relation to ballast water/IAS issues. The countries determination to effectively address the ballast water problem has been clearly and formally expressed during the 49th session of Marine Environment Protection Committee in 2003, when IMO member States called upon the Organization to explore the possibilities to secure

resourcing for a possible extrapolation of the GloBallast pilot phase to the more comprehensive approach contained in GloBallast Partnerships.

The latest confirmation of the country driven interest in ballast water related issues came with the adoption by consensus of a resolution on the need for technical cooperation and assistance, during the Diplomatic Conference held in February 2004 at IMO's Headquarters in London, UK.

In addition, GloBallast is currently assisting GEF International Waters "sister projects" that are focused on Large Marine Ecosystems (LMEs), to frame their strategies and activities on ballast water/IAS control and management under the assumption that activities will be carried out in coordination with IMO as the specific designated UN agency to deal with ballast water issues.

The main focus of the full project proposed in this Concept Paper will be to assist developing countries to reduce the rate of aquatic bio-invasions transferred by ships' ballast water and sediments by working through cooperative structures, mechanisms and partnerships to build capacity and implement policy and reforms at the national level in order to promote rapid and effective implementation of the newly adopted international regime. The project will cover the six developing regions represented in the pilot phase providing further support for some of the most relevant achievements, which could be replicated in other ports or special areas and additional new regions that have expressed their interest in joining the programme.

As outlined above, through the various regional initiatives more than 130 developing countries are now moving to develop national responses to the ballast water issue. During the GloBallast pilot phase, the Programme Coordination Unit (PCU) based at IMO in London has also received numerous requests directly from many countries seeking to participate in the Programme. Many of these countries have included the issue of IAS and ballast water control and management in their national priorities, action plans and programmes, and participation in negotiations to develop the new ballast water Convention has increased from around 14 member States and organizations at the commencement of the GloBallast pilot phase in 2000, to 57 in 2002 and 2003. Many developing countries are also party to the Convention on Biological Diversity (CBD), the United Nations Convention on the Law of the Sea (UNCLOS) and other international and regional instruments that have elements relating to IAS in ships' ballast water.

As a result of the GloBallast pilot phase the six participating countries are committed to continue and expand their ballast water related activities and have included ballast water management and control in their national development and environment policies. They are also prepared to share their experience and lessons learned with their neighbours and unanimously support the principle that this issue can only be addressed successfully through concerted multi-lateral action. A synopsis of the institutional framework related to ballast water issues and the level of commitment in each Pilot Country is given in Annex 5 to this paper, and full details are available from the final report of the GloBallast Legislative Review (<http://globallast.imo.org/publications>). Details of the current status of national policies on ballast water/IAS issues in additional countries in each pilot region are available from the Country Status Reports contained in the reports on the regional meetings that were held to

initiate the RTFs and regional SAPs (also available as part of the GloBallast Monograph Series (<http://globallast.imo.org/publications>)).

The development and adoption of regional SAPs has been a key achievement of the GloBallast pilot phase, and provides a clear indication of country drivenness regarding the ballast water issue, and a measure of the determination of countries to work together towards the implementation of the Ballast Water Management Convention. To date, through the GloBallast regional initiatives, more than 130 countries and many regional organizations and programmes from all of the developing regions of the world have expressed their genuine interest in becoming partners or being associated with GloBallast. More specific commitments will be provided in the full Project Brief.

C – PROGRAM AND POLICY CONFORMITY

1. PROGRAM DESIGNATION AND CONFORMITY

The project will demonstrate practical ways of overcoming barriers to the adoption of best practices that limit contamination of international waters through shipping vectors and will harness involvement of the UN agency specialized in addressing non-indigenous species in ships' ballast water. The project identifies itself with the Contaminant-Based Operational Program (Ship-Related Contaminants Component) where GEF plays a catalytic role in demonstrating ways to overcome barriers to the adoption of the best practices to limit contamination of international waters and IMO provides the technical expertise related to ships' ballast water management. Although clearly associated to IW-3 GEF strategic priority, the project will help to develop strategic links across operational programs in the focal area and contributes to an integrated approach to marine ecosystems management facilitating cross-cutting capacity building to address the potentially devastating impacts of bioinvasions through ships' ballast water.

2. PROJECT DESIGN

Project Structure

The project is focused on assisting especially vulnerable countries to adopt coordinated legal and policy reforms to minimize the adverse impacts of invasive species transferred through ships' ballast water and to develop financial mechanisms that will ensure long-term sustainability. As emphasized above, “on the ground implementation” is a key conceptual element of this project, which will comprise five major components:

1. Assessment and identification of the most appropriate strategies required to reduce the rate of aquatic bio-invasions caused by invasive species in ships' ballast water.
2. Implementation of legal, policy and institutional reforms at national level to minimize the impacts of invasive species in ships' ballast water.
3. Development of suitable mechanisms to ensure financial sustainability for the

effective control and management of ships' ballast water and effective involvement of relevant stakeholders.

4. Integration of ballast water management into broader effort to control invasive aquatic species at the Large Marine Ecosystems (LME) level.
5. Development of effective monitoring and evaluation indicators for ballast water management and control measures.

Components/Activities/Outcomes

Component 1: Identification of the most appropriate strategies.

Activity 1.1: Review existing information regarding the quantity and quality of ballast water discharges in the targeted countries and determine the existing and potential threats posed by unmanaged ballast water discharges.

Activity 1.2: Conduct an initial assessment of the legal and institutional structures related to ballast water management in the targeted countries.

Activity 1.3: Develop a National Action Plan (NAP) that identifies and outlines the most appropriate strategies to reduce the rate of aquatic bio-invasions caused by invasive species in ships' ballast water.

Outcome 1: Most appropriate strategies to address the ballast water issue tailored to the specific needs of the targeted countries identified and agreed upon.

(i) Assessment of the existing and potential threat posed by invasive species in ships' ballast water completed.

(ii) Assessment of the existing legal and institutional structures related to management of ships' ballast water completed.

(iii) NAP developed and agreed upon. The NAP will be updated during the implementation process to effect the improved knowledge base and the newly established institutional arrangements.

Component 2: Implementation of legal, policy and institutional reforms at national level.

Activity 2.1: Facilitate the establishment of institutional arrangements at national level for enhanced cross-sectoral participation in the implementation of the NAP.

- Activity 2.2: Develop communication and awareness-raising programmes.
- Activity 2.3: Establish national information management centres linked to the existing databases on invasive aquatic species at regional and international level.
- Activity 2.4: Develop risk assessment programmes and decision support systems.
- Activity 2.5: Develop and implement compliance monitoring and enforcement systems.
- Activity 2.6: Adapt and implement the generic capacity building package for ballast water management and control developed during the demonstration phase of GloBallast.
- Activity 2.7: Promote the ratification and implementation of relevant international instruments (e.g. Ballast Water Management Convention, UNCLOS, CBD, etc.).
- Activity 2.8: Disseminate and share project results, best practices and lessons learnt through publications, dedicated websites, IW: LEARN, GEF IW Conferences, etc.
- Outcome 2: Legal, policy and institutional reforms to minimize the impact of invasive species in ships' ballast water implemented.
- (i) Institutional
- Country Task Forces, interministerial in nature, established to facilitate cross-sectoral participation.
 - Information management centres operational at national level linked to existing databases worldwide.
- (ii) Policy
- Increased level of awareness on impacts of ballast water discharges among the stakeholders.
 - Decision Support Systems based on comprehensive risk assessments developed and operational.
 - Compliance Monitoring and Enforcement systems in place and operational.

- Ballast Water Management expertise created and available at national level.
- (iii) Legal
- Enhanced implementation of international instruments relevant to ballast water management and ratification processes initiated.
- Component 3: Development of suitable mechanisms to ensure financial sustainability.
- Activity 3.1: Ensure sustainability of project intervention by identifying the most appropriate governmental organizations for the long-term co-ordination of ballast water management and control.
- Activity 3.2: Facilitate the implementation of specific measures (financial and institutional) to sustain the reforms (e.g. port fees, government contributions, involvement of private sector, etc.).
- Outcome 3: Financial and institutional mechanisms to support control and management of ships' ballast water identified together with responsible government agencies.
- (i) Increased national capacity to address threats posed by ballast water transfer.
 - (ii) Enhanced participation in the regional and international decision-making activities.
 - (iii) Sustainability and replicability of the project interventions ensured.
- Component 4: Integration of ballast water management into broader effort to control invasive aquatic species at the Large Marine Ecosystem (LME) level.
- Activity 4.1: Establish co-operative links at national, regional and international level, with organizations involved in control of IAS (e.g. IUCN, GISP, UNEP, etc.).
- Activity 4.2: Exchange experience and share project results, best practices and lessons learnt using established for addressing invasive species and biodiversity issues.
- Outcome 4: Integrated approach to marine vectors for control of introduction of invasive species to new environments at LME level.

- Component 5: Development of effective monitoring and evaluation indicators for ballast water management and control measures.
- Activity 5.1: Identify the most appropriate institutional arrangement for consolidating and reporting on agreed indicator or monitoring and evaluation of ballast water management and control measures.
- Activity 5.2: Develop process, environmental status and stress reduction indicators for ballast water management and control.
- Activity 5.3: Harmonize procedures for reporting on process, environmental status and stress reduction indicators at regional level.
- Outcome 5: Monitoring, evaluation and reporting processes in place:
- (i) Institutional and procedural approach to ballast water management and control, monitoring, evaluation and reporting in place including relevant indicators.
 - (ii) Shared procedures for monitoring, evaluation and reporting available at regional level.

Baseline Scenario

Despite the general awareness and the international momentum generated by the GloBallast demonstration phase, the knowledge base, legal/policy framework and technical and institutional capacity required to give effect to an international regime for the control and management of ships' ballast water remain severe constraints for most of the developing countries. The efforts made by developing countries, as the main recipients of ballast water, to adopt and implement this regime tend to be fragmented and un-coordinated. Given the above underlying causes, it is unlikely that emerging national efforts would lead to the mitigation of the impacts of uncontrolled ballast water discharges. The absence of a cooperative approach means that effective measures to address the ballast water problem may prove difficult. The lack of institutional arrangements and of co-ordinated action by the various stakeholders and the insufficient capacity to deal with invasive species in ships' ballast water will continue to remain a major barrier to the effective implementation of ballast water control and management measures in developing countries.

Because of the enormous engineering, technical, scientific, environmental, economic and social implications, the ballast water issue is far more complex than most of the other ship-based pollution threats that IMO member States have faced, and under the baseline scenario, rapid and effective implementation of the Ballast Water Management Convention could be severely restricted by a lack of capacity in developing countries. It is anticipated that without further technical cooperation activities and the proper mobilization of existing resources, the Ballast Water Management Convention will go through an unnecessarily long process of implementation and its entry-into-force will be delayed, leading to the proliferation of detrimental, and sometimes devastating, impacts on coastal populations, the marine

environment, and biodiversity. Such a scenario would result in wasting the momentum generated by the GloBallast pilot phase.

As outlined above, even the group of highly industrialized countries that have at least some expertise in this matter is limited, and under the baseline scenario there is little hope for technology and skills transfer from these countries to the developing world. The much-needed exchange of information and concerted action at the global level is in most cases insufficient and lacks consistency and internationally agreed standards.

A consequence of the comprehensive awareness raising campaign conducted during the GloBallast pilot phase has been the growing interest in ballast water issues in a constantly increasing number of developing countries. Encouraging responses have been received from many regional marine environment protection organizations as they are planning to include the ballast water issue on their agenda of priorities. UNEP Regional Seas Programmes and regional GEF projects dealing with Integrated Coastal Management (ICM) and Large Marine Ecosystems (LME) have also expressed their interest in including ballast water management and control in their regional strategies. However, these are only good intentions that will not materialize in self-supporting mechanisms to properly address ballast water as a vector for invasive aquatic species without GEF intervention.

The absence of support, and the lack of co-ordination and standardized approaches at a regional level, will discourage emerging initiatives and bring additional difficulties to the implementation of an international regime for the control and management of ballast water, which means that the transfer of unwanted species with its notorious impacts on the environment, economy and human health will continue.

The issue of invasive aquatic species is transboundary in nature and has significant cross-sectoral impacts. Under the baseline scenario, IMO is seeking, however commendably, to address only one vector – ballast water. A more integrated, holistic management approach, where ballast water management is linked with efforts to address other IAS vectors, and where IAS management efforts are integrated into broader coastal and ocean management, as well as social development efforts, is needed if the issue is to be addressed effectively. Unfortunately IMO, while doing all within its limits to address shipping vectors, does not have the mandate to take a more holistic, integrated approach and can only do so as part of a broader program where IMO and the countries involved share the burden of the baseline activities with GEF contributing to specific incremental activities in specifically targeted countries.

Alternative Scenario

GloBallast Partnerships will provide a programmatic framework for the sustainable replication of ballast water management and control measures, ensuring that maximum benefits accrue from the foundation work achieved in the pilot phase. The aims and objectives of GloBallast Partnerships will be a logical extension of the pilot phase, with a focus on national policy and legal reforms in targeted developing countries and an emphasis on integrated management. The approach envisaged for the new project would involve:

- Building on the achievements and momentum, and utilising the capacity and talent generated by the pilot phase.
- Replication of best-practices and technical activities in newly identified beneficiary countries with the view to stimulate policy reforms at national level.
- Supporting specially vulnerable and/or environmentally highly sensitive countries in their efforts to enact legal reforms to implement the Ballast Water Management Convention.
- Working towards advanced integration through other interested structures, mechanisms and programmes, including where optimal, GEF-IW LME projects and UNEP Regional Seas.
- Promoting collaboration to facilitate the successful transfer of new technologies from developed to developing countries.

Support for appropriate national institutional arrangements will be granted and regional mechanisms will be used as catalysts for supporting national policy reforms. Generic Compliance Monitoring and Enforcement (CME) systems, which could not be developed due to the delay in the adoption of the Ballast Water Management Convention, will be prepared in accordance with the requirements of the IMO instrument. Formalized communication systems through identified lead agencies will be developed and early warning systems for invasions and outbreaks will be established. Priority software and hardware will be designed and direct logistic support from the more advanced countries will be sought. Some incremental investments will be supported by the proposed GEF project. Standardised protocols and methodology for conducting port biological surveys and risk assessments will be provided with direct assistance from the capacity built in the pilot phase.

Specific training on ballast water management and control will be provided, based on the training courses developed during the pilot phase, with emphasis on various responsibilities under the new Ballast Water Management Convention. Sustainable financial and institutional arrangements for the long-term management of ships' ballast water will be established, including the mobilization of public and private sector funding.

The global information clearing house function established during the pilot phase will be continued and further strengthened, in support of a uniform approach. Strategies to integrate the ballast water programmes with existing marine and coastal management schemes will be developed and implemented.

In essence, the proposed GEF project will build on the findings, institutional settings and capacity developed during the pilot phase. The results of this GEF intervention should include a measurable reduction in aquatic bio-invasions with a significant mitigation of the detrimental, sometimes devastating, effects of ballast water transfers, better protection of marine and coastal ecosystems and habitats and conservation of biodiversity.

GEF involvement

Oceans cover 70% of our planet and nearly 50% of the world's population live in coastal areas and therefore protection of the marine environment is beyond the scope of one country and has global benefits. GEF should be involved in this project because it focuses on transboundary issues related to contamination of coastal and marine environment. GEF is uniquely situated to comprehensively address transboundary needs in an integrated way through its International Waters Programme. It is expected that GEF will primarily fund the legal, policy and institutional reforms to effectively address threats posed by invasive species in ships' ballast water.

All the six initial Pilot Countries have expressed their willingness to share their experience and their commitment to foster technical cooperation. However, existing mechanisms to operationalize this commitment are limited and hindered by lack of communication and consistency. GEF support can ensure that the growing interest of developing countries in the ballast water problem leads to action. Specifically, with GEF support, sustainable mechanisms to properly address the issue will be established and the often catastrophic effects of aquatic bio-invasions will be minimized and possibly eliminated.

GloBallast Partnerships will represent a unique example and a model of GEF assistance being used during the early stages of implementation of an international regime related to GEF aims and objectives with the burden of baseline activities shared by the responsible UN Agency together with the respective developing countries. The new project will provide an opportunity for GEF to pursue its mandate related to IAS and to follow up on its own strategic priorities related to enabling long term policy reforms "on the ground" at country level.

Without this GEF intervention, the extremely significant progress achieved in the GloBallast pilot phase will not be capitalized, and the global benefits may well be lost. GEF support is being sought to build on, optimize benefits from and continue the momentum generated by the GEF investment in the pilot phase. The GEF intervention will demonstrate how GEF financing of some incremental costs can massively catalyse major achievements at national level relating to one of GEF's key strategic priorities.

Finally, the project will provide additional confirmation of the catalytic role of GEF in demonstrating ways to overcome the barriers to the adoption of best practices limiting biological contamination of international waters and will prove the effectiveness of GEF policy when addressing global problems.

3. SUSTAINABILITY (INCLUDING FINANCIAL SUSTAINABILITY)

Financial

The project will address the financial constraints throughout its duration. Financing strategies will be included and defining the sources of finance will be a prerequisite of countries participating. Strategic partnerships that have already been initiated with the Global Invasive Species Program (GISP), the World Conservation Union (IUCN) and the United Nations

Environment Programme (UNEP) will be expanded for the funding of specific activities of common interest. Such alliances will provide an extremely powerful mechanism to address invasive aquatic species from a regional and global perspective in an integrated and meaningful way.

Expert advice and support to ensure the financial sustainability of the project will be sought from International Funding Institutions (IFIs) (e.g. World Bank, Regional Development Banks, etc.) or specialized international consultants. As part of the financial strategy, incentives to stimulate investment into ballast water related activities will be explored and barriers to private sector funding will be assessed and measures implemented for their removal. Donor conferences and informal meetings will be held in line with resource mobilization strategies to channel additional co-funding towards implementation of GloBallast Partnerships activities.

Institutional

Sustained governmental commitment is essential to the healthy implementation of the project. The current field structure of government-paid Country Focal Points will be extrapolated to ensure a long-term self-sustaining basis. Long-term policy reforms at national level will be encouraged and integrated within regional mechanisms. Specific provisions regarding ballast water management and control will be included in the existing government cooperation mechanisms to ensure long-term governmental commitment and continuation of ballast water activities after GEF's intervention. Integrating GloBallast Partnerships with existing regional mechanisms will help to reduce administration costs and create inter-programme synergies.

At the global level, as a result of the pilot phase of the project, IMO has created a strong institutional basis by establishing the "Office for Ballast Water Management" and funding a senior technical position and associated secretarial support. This, together with the adoption of ballast water management as a new thematic priority of IMO's Integrated Technical Cooperation Programme will ensure the necessary sustainability during and beyond the proposed period of the GloBallast Partnerships Project.

The project will encourage involvement of national/international non-governmental networks in the implementation process to allow independent "watchdog" feedback and to maintain pressure on the governments.

Partnership and participation are key to the successful replication of GloBallast type activities in additional developing countries. The stakeholders analysis conducted in the pilot phase has indicated that key partners would include relevant government agencies (maritime administrations, environment agencies, etc.), scientific community, industry representatives, financial community (private and other donors), GEF, GEF Implementing Agencies (IAs) and GEF "sister" projects. The active participation of all the stakeholders will be ensured through the establishment of the Country Task Forces (CTF) and the roles and responsibilities of all partners will be stipulated in the project documents.

The following elements of the project will contribute to its sustainability beyond the end of the project:

- Increased awareness and commitment at political and decision-making levels regarding the value of shared resources and the transboundary management issues affecting them,
- The information base, tools, and models for management decision-making will have been substantially increased,
- The project will focus on enhancing existing networks and institutions rather than creating new ones,
- The project will have a major emphasis on capacity building,
- The project duration should contribute to the establishment and sustainability of the proposed processes and mechanisms,
- The project will seek to establish a culture of cooperation and networking among countries in their respective regions and the mechanism to do so.

4. REPLICABILITY

The project has the potential to provide useful lessons that can be adapted to other countries and regions of the world. GloBallast Partnerships will share its experience and findings with other GEF International Waters projects involved in marine and coastal management (ICZM and LME) and will provide the necessary tools to address the ballast water issue in an integrated manner. The project will promote dissemination and replication of its best practices and lessons learnt through the Clearing House Mechanism (CHM) established at IMO Headquarters in the pilot phase and through specialized communication projects such as GEF IW: LEARN. The training package designed using Train-X methodology in the pilot phase will continue to be delivered at new locations and be made available worldwide through the Train-X network. Technical and capacity-building activities implemented in the initial Pilot Countries will be replicated at additional demonstration sites during the proposed project.

5. STAKEHOLDER INVOLVEMENT/INTENDED BENEFICIARIES

As ballast water problems are inter-disciplinary in nature, the success of the project depends on the full involvement of a broad group of stakeholders. Experience from the pilot phase has provided a good indication of the main actors involved in the issue. Without precluding the participation of additional partners, the following institutions and organizations are likely to be involved and interact:

- Maritime administrations
- Environmental agencies
- Ministries of agriculture (fisheries)
- Ministries of health (quarantine and sanitary services)
- Coast-guard and navy
- Parliamentary committees for environmental protection

- . Shipping and port industry
- . Oil and gas industry
- . Mining industry
- . National and regional marine research institutions
- . Regional and international organizations involved in ballast water management and control
- . Relevant NGOs
- . Local government agencies
- . Donor community and international financial institutions.

Consistent with other GEF requirements, project preparation will examine the role of various stakeholder communities and determine appropriate involvement as part of the full project; the latter will include a full stakeholder involvement plan.

Full consultation of the key players will be ensured at the national level through the establishment of Country Task Forces. The Country Focal Points, who will be responsible for the implementation of the project in their respective countries, will act as chairpersons of the Country Task Forces. The project document will outline roles, responsibilities and relationships among the stakeholders and suggest mechanisms for their optimal involvement in the project activities. This will ensure ownership and will facilitate smooth implementation. The stakeholders will benefit throughout the project from studies, workshops, training, reviews and legal and institutional analysis. They will be granted access to the Global Clearing House Mechanism established in IMO and will be invited to sit in the Global Task Force, which will be the steering structure and the highest advisory body of the project.

D – FINANCING

1) FINANCING PLAN

The financing plan of the full project is to be finalized during the PDF-B stage; a preliminary estimate over the proposed five years includes a GEF grant of US\$ 7 million plus US\$ 10 million in co-financing.

Generally, GEF funds will focus on developing institutional arrangements, policy and strategy at national level and capacity building in the newly identified developing countries. The leverage created during the pilot phase will, however, be maintained and showcase projects in high priority areas for each country will be further encouraged. GEF may also partially support the development of integrated IAS strategies; co-funding being sought from Governments and partners such as GISP, IUCN and UNEP Regional Seas. GEF seed-money may be provided to support outstanding pilot initiatives to address the root causes of the ballast water problem.

GEF will finance a portion of the incremental costs of the project including costs related to implementing soft investments (institutional policy, capacity building, databases, etc.) and costs to initiate a limited number of strategic demonstration projects or to continue successful

initiatives from the initial pilot phase to address the root causes of the ballast water problem. Priority hardware costs will also be supported by the GEF.

2) CO-FINANCING

Co-financing from the participating governments, other donors and shipping industry will be sought as a prerequisite of the participation in the project. Co-financing through partnerships with IUCN and UNEP Regional Seas Programme under preparation during the current phase of GloBallast will be reviewed and expanded. Additional co-financing from the private sector (shipping and ports, oil and gas industries, mining, etc.) will be explored. Last, but not least, IMO will co-finance the co-operative effort over the five years of the project by supporting the activity of the Office for Ballast Water Management and ensuring the global sustainability and the much needed consistency with the Convention. Constant support for the baseline activities will be provided to the respective governments through IMO's Integrated Technical Cooperation Programme Fund and other specific financial arrangements.

Throughout the duration of the project further donor support will be explored with assistance from IFIs or expert advice from international consultants. It is expected that at the end of the project long-term sustainable financial mechanisms will be operational and ballast water management and control activities will be included in the regular budgets of the respective participating countries.

It is anticipated that by the end of the project GEF will have assisted in establishing long-term sustainable financial mechanisms for ballast water management and control in the main developing regions of the world.

E - INSTITUTIONAL COORDINATION AND SUPPORT

1) CORE COMMITMENTS AND LINKAGES

As outlined above, the implementation of GloBallast Partnerships will require an integrated approach. It is increasingly recognized that it is more effective and efficient to take a more holistic, integrated approach to the management of invasive aquatic species. In addition, various international guidelines on the management of invasive species produced by GISP, IUCN and technical groups under the Convention on Biological Diversity (CBD) adopted a similar integrated approach. GloBallast Partnerships will follow the international trend and develop a more holistic attitude towards the management of invasive aquatic species while retaining its technical focus on ballast water management. This can be achieved by liaising and collaborating more closely with other international groups involved in matters related to invasive aquatic species, such as GISP, IUCN, the United Nations Environment Programme and its Regional Seas Programmes, the UNEP Convention on Biological Diversity, the International Council for the Exploration of the Seas (ICES), the Intergovernmental Oceanographic Commission (IOC), the UN Food and Agriculture Organization (FAO) and the World Health Organization (WHO). The successful integration of GloBallast will rely on good coordination amongst the GEF IA and the above organizations. To ensure this, the IA and the relevant organizations, as described above, will be involved from the outset through the implementation process and will be invited to the steering committees.

The project is complementary to several GEF projects focused on integrated coastal zone management and large marine ecosystems and can offer the necessary ready-made tools to address invasive species transferred through ships' ballast water. This will be achieved in the broader context given by their objectives. The IA may assist significantly by fostering communication and cooperative linkage between GloBallast and these particular projects.

2) CONSULTATION, COORDINATION AND COLLABORATION BETWEEN AND AMONG IMPLEMENTING AGENCIES, EXECUTING AGENCIES, AND THE GEF SECRETARIAT, IF APPROPRIATE.

The project is being prepared by IMO on behalf of the six initial Pilot Countries supported by the other countries in their respective regions that have already expressed their interest and commitment by adopting regional Strategic Action Plans and related Resolutions. Additional support for this proposal will be secured during the PDF Block B phase from the newly identified participating countries. Formal agreements (MoUs) will be concluded between GloBallast/IMO and the participating countries. Signatures from the relevant Governments will be provided before the approval of the full sized project as required by the usual procedures for International Waters projects.

3) IMPLEMENTATION/EXECUTION ARRANGEMENTS

The project will be implemented by UNDP and executed by the International Maritime Organization (IMO). IMO is the regulatory body of the United Nations responsible for the development of rules and regulations regarding the safety and security of shipping and the prevention of pollution from ships and has provided significant "added-value" during the GloBallast Pilot Phase. As with most maritime instruments, IMO provides Secretariat support for the Ballast Water Management Convention. If traditionally IMO instruments were focused on flag States, this new global Convention establishes concrete rights and responsibilities for the port and coastal States as well. IMO coordinates Convention processes, reporting, information dissemination, and technical assistance when requested. The responsibility of implementing the conventions lies, however, with IMO member States and the very large majority of the costs related to the implementation process is absorbed by the respective governments, shipping industry and interested donors. IMO is greatly respected in all shipping industry matters and its reputation of thoroughness gives the project a very necessary priority and level of importance. IMO is seen as a very professional organization, which lends the project a lot of credibility and respect from the global community. The Organization is also instrumental in smoothing out political and diplomatic asperities at the regional and global level and is, without doubt, the most appropriate Executing Agency. During its last session in July 2003 the Marine Environment Protection Committee of IMO, attended by 88 member States, acknowledged the substantial contribution of GloBallast in addressing ballast water related problems and requested IMO to approach UNDP, GEF and other potential donors and partners to explore the possibilities for continuation of the activities initiated during the pilot phase. UNDP will continue to ensure appropriate linkage with related GEF and other internationally supported projects, notably relations with International Waters projects involved in marine and coastal zone management.

To facilitate the donors' coordination and strengthen financial leveraging capacity, International Financing Institutions (IFIs) may be involved in the management of the components for the financial implementation of SAPs and in the preparation and organization of donor conferences.

A project steering committee (Global Task Force) will be established and will consist of representatives of all the countries involved in the project, UNDP/GEF, IMO, the IFIs and other donors. The steering committee will approve the Project Implementation Plan, SAPs and major project outputs.

The existing cooperation with the International Association of Independent Tanker Owners (INTERTANKO), Oil Companies International Marine Forum (OCIMF), International Chamber of Shipping Limited (ICS), Friends of the Earth International (FOEI), World Conservation Union (IUCN) and other major NGOs with an interest in ballast water and invasive species will be continued and enhanced by inviting their representatives to observe the meetings of the steering committee.

PART II - PROJECT DEVELOPMENT PREPARATION

N/A

PART IV – RESPONSE TO REVIEWS

Ecological, Economic and Health Impacts of Harmful Aquatic Species Transported Through Ships' Ballast Water

The World Conservation Union (IUCN) and UNEP have identified invasive species in general as the second greatest threat to global bio-diversity after habitat loss and this was reiterated at the World Summit on Sustainable Development in 2002. Should an introduced species become a successful invader in its new environment, it can cause a range of ecological impacts. These include:

- competing with native species for space and food,
- preying upon native species,
- altering habitat,
- altering environmental conditions (e.g. increased water clarity due to mass filter-feeding),
- altering the food web and the overall ecosystem, and
- displacing native species, reducing native biodiversity and even causing local extinctions.

An important feature of the ecological impacts of harmful aquatic bio-invasions is that they are virtually always irreversible, and generally increase in severity over time. In this regard it is worth comparing the impacts of aquatic bio-invasions with those of a better-known form of ship-sourced pollution, major oil spills. In a major oil spill, the ecological impacts are most likely to occur very quickly, be catastrophic and acute, and highly visible. However, impacts will decrease over time as the oil degrades and clean up and rehabilitation activities are undertaken. With an aquatic bio-invasion, the initial impacts may be non-existent to minor and invisible. However, as the population increases, the impacts will increase over time, in an insidious, chronic and irreversible manner.

Unlike oil spills, for which humans have developed a huge range of response and clean-up options, once an invading species has established a viable population in a new environment, it is almost always impossible to remove. There are no recorded cases of successful control and eradication of aquatic invasive species that have established in open waters. The extremely limited cases of successful control and eradication have been when the invading species was detected at a very early stage, inside enclosed waters such as a marina or small bay, that could be closed-off and treated with biocides (e.g. the striped mussel in Darwin Harbour, Northern Australia – Pyne 1999).

Many aquatic invasive species can cause major economic impacts on human society. Direct economic losses to society can be caused by aquatic bio-invasions in a number of ways, including:

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- Reductions in fisheries production (including collapse of the fishery) due to competition, predation and/or displacement of the fishery species by the invading species, and/or through habitat/environmental changes caused by the invading species.
- Impacts on aquaculture (including closure of fish-farms), especially from introduced harmful algae blooms.
- Physical impacts on coastal infrastructure, facilities and industry, especially by fouling species.
- Reduction in the economy and efficiency of shipping due to fouling species.
- Impacts and even closure of recreational and tourism beaches and other coastal amenity sites due to invasive species (e.g. physical fouling of beaches and severe odours from harmful algae blooms).
- Secondary economic impacts from human health impacts of introduced pathogens and toxic species, including increased monitoring, testing, diagnostic and treatment costs, and loss of social productivity due to illness and even death in affected persons.
- Secondary economic impacts from ecological impacts and bio-diversity loss.
- The costs of responding to the problem, including research and development, monitoring, education, communication, regulation, compliance, management, mitigation and control costs.

Other examples of the economic impacts of invasive aquatic species include the closure of fisheries and fish farms during outbreaks of harmful, introduced algae (and the subsequent implementation of expensive monitoring and quality-control programmes) and the closure of recreational and tourism beaches due to fouling by harmful algae blooms.

Added to these are the ever-increasing costs to coastal and port States, flag States and industry of responding to the ballast water 'problem', including research and development, monitoring, education, communication, regulation, compliance, management, mitigation and control costs.

One study has estimated that the total cost of all invasive species (including terrestrial) is in the vicinity of US\$138 billion per year in the USA alone (Pimental et al 2000). The global economic impacts of invasive aquatic species have not been quantified but are likely to be in the order of billions of US dollars per year or more.

Given the magnitude of ongoing ballast water transfers, large-scale movement of microorganisms by ships has retained the attention of both invasion biologists and epidemiologists. *Vibrio Cholerae*, the bacterium that causes human epidemic cholera, has been detected in the ballast water of virtually all ships tested worldwide. While *Vibrio*

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Cholerae and other potential pathogens may be normal constituents of coastal waters, they do not ordinarily occur in high enough concentrations to cause human health problems.

However, with expanding world trade and an increasing number of ships moving among international ports the transfer of microbes could well be the most insidious threat related to ballast water discharge.

Some cholera epidemics appear to be directly associated with the international carriage and discharge of ballast water. One example is an epidemic that began simultaneously at three separate port cities in Peru in 1991, sweeping across South America, affecting more than a million people and killing more than ten thousand people by 1994.

In addition to bacteria and viruses, ballast water can also transfer a range of species of micro-algae, including toxic species that may form harmful algae blooms or 'red tides'. The public health impacts of such outbreaks are well documented and include paralytic shellfish poisoning, which can cause severe illness or even death in humans.

Some specific case studies identified during the pilot phase of GloBallast are given below:

Some Examples of Notorious Bio-Invasions Attributed to Ships' Ballast Water

Species	Origin	Area invaded	Impact
Asian Kelp <i>Undaria pinnatifida</i>	Northern Asia	Southern Australia, New Zealand, West Coast of USA, Europe and Argentina	Grows and spreads rapidly, both vegetatively and through dispersal of spores. Displaces native algae and marine life. Alters habitat, ecosystem and food web. May affect commercial shellfish stocks through space competition and alteration of habitat.
Cholera <i>Vibrio cholerae</i> (various strains)	Various strains with broad ranges	South America, Gulf of Mexico and other areas	Some cholera epidemics appear to be directly associated with ballast water. One example is an epidemic that began simultaneously at three separate ports in Peru in 1991, sweeping across South America, affecting more than a million people and killing more than ten thousand by 1994. This strain had previously been reported only in Bangladesh.
Cladoceran Water Flea <i>Cercopagis pengoi</i>	Black and Caspian Seas	Baltic Sea	Reproduces to form very large populations that dominate the zooplankton community and clog fishing nets and trawls, with associated economic impacts.
European Green Crab <i>Carcinus maenus</i>	European Atlantic Coast	Southern Australia, South Africa, USA and Japan	Highly adaptable and invasive. Resistant to predation due to hard shell. Competes with and displaces native crabs and becomes a dominant species in invaded areas. Consumes and depletes wide range of prey species. Alters inter-tidal rocky shore ecosystem.
Mitten Crab <i>Eiocheir sinensis</i>	Northern Asia	Western Europe, Baltic Sea and West Coast North America	Undergoes mass migrations for reproductive purposes. Burrows into river banks and dykes causing erosion and siltation. Preys on native fish and invertebrate species, causing local extinctions during population outbreaks. Interferes with fishing activities.

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Species	Origin	Area invaded	Impact
North American Comb Jelly <i>Mnemiopsis leidyi</i>	Eastern Seaboard of the Americas	Black, Azov and Caspian Seas	Reproduces rapidly (self fertilising hermaphrodite) under favourable conditions. Feeds excessively on zooplankton. Depletes zooplankton stocks; altering food web and ecosystem function. Contributed significantly to collapse of Black and Asov Sea fisheries in 1990s, with massive economic and social impact. Now threatens similar impact in Caspian Sea.
North Pacific Seastar <i>Asterias amurensis</i>	Northern Pacific	Southern Australia	Reproduces in large numbers, reaching 'plague' proportions rapidly in invaded environments. Feeds on shellfish, including commercially valuable scallop, oyster and clam species.
Round Goby <i>Neogobius melanostomus</i>	Black, Asov and Caspian Seas	Baltic Sea and North America	Highly adaptable and invasive. Increases in numbers and spreads quickly. Competes for food and habitat with native fishes including commercially important species, and preys on their eggs and young. Spawns multiple times per season and survives in poor water quality
Toxic Algae (Red/Brown/Green Tides) <i>Various species</i>	Various species with broad ranges	Several species have been transferred to new areas in ships' ballast water	May form Harmful Algae Blooms. Depending on the species, can cause massive kills of marine life through oxygen depletion, release of toxins and/or mucus. Can foul beaches and impact on tourism and recreation. Some species may contaminate filter-feeding shellfish and cause fisheries to be closed. Consumption of contaminated shellfish by humans may cause severe illness and death.
Zebra Mussel <i>Dreissena polymorpha</i>	Eastern Europe (Black Sea)	Western and northern Europe, including Ireland and Baltic Sea; eastern half of North America	Fouls all available hard surfaces in mass numbers. Displaces native aquatic life. Alters habitat, ecosystem and food web. Causes severe fouling problems on infrastructure and vessels. Blocks water intake pipes, sluices and irrigation ditches. Economic costs to USA alone of around US\$750 million to \$1 billion between 1989 and 2000.

Note: There are hundreds of cases of harmful aquatic bio-invasions, the above are provided simply as examples only. It is believed that an invasion takes place every two weeks somewhere on our planet.

ANNEX 2

Synopsis of Ballast Water Convention Main Elements

Convention

- **Preamble** – connects the Convention to the UNCLOS and UNEP/WHO biosecurity concepts as well as to UNCED Agenda 21 and WSSD provisions on sustainable development.
- **Article 1** – definitions of usual IMO Convention terms.
- **Article 2** – general obligations including the need for enhanced ballast water management and standards as well as for co-operation in the high seas.
- **Article 3 to 7** – area of application and specific obligations of the Contracting Parties. Need for scientific and technical research and monitoring emphasized in Article 6.
- **Article 8 to 12** – compliance monitoring and enforcement, notification and responsibilities of IMO and the Contracting Parties.
- **Article 13** – regional co-operation with special emphasis on enclosed and semi-enclosed seas.
- **Article 14** – communication of information.
- **Article 15 to 22** – procedural articles regarding the administration of the Convention (e.g. signature, entry into force, amendments, denunciation, etc.).

Annex

- **Section A** – general provisions regarding the regulations for the control and management of ships' ballast water and sediments (e.g. definitions, applicability, exceptions, etc.).
- **Section B** – specific provisions for ballast water management and control requirements including the Ballast Water Management Plan and Record Book, the phase-in calendar, ballast water exchange requirements, sediments management and duties of officers and crew. The need for adequate training to familiarize seafarers with their duties is emphasized in Regulation B-5.
- **Section C** – additional measures applicable in certain areas.
- **Section D** – standards and systems for ballast water management, existing equipment and provisions for periodic reviews.
- **Section E** – survey and certification including procedures to issue certificates, their duration and validity.

National and Regional Level Activities in USA and Europe to Address Ballast Water Transfer of Invasive Species

The European Union has long recognised the need for regional approach to IAS prevention and began to develop technical references in the late 80's. The size, number of countries and borders and its free trade arrangements make it essential for EU consistency and avoid unilateral national efforts being undermined by their neighbours inaction. Since 1989, the Bern Convention has initiated a range of relevant actions. These include the adoption of recommendations on general IAS issues and specific problems, production of technical reports, organization of workshops and establishment of an IAS experts' group in collaboration with the European Section of the IUCN Invasive Species Specialist Group. In year 2000 this group began work on developing elements for a draft European Strategy on IAS, which is currently in its final stage.

Under the auspices of OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic, the Nordic countries of Europe have initiated the development of a common strategy to address the threat posed by IAS in ships' ballast water in the North Sea. In Section IV of the Bergen Declaration in March 2002 the Ministers of the North Sea countries agree, inter alia, to take coordinated action within IMO to establish adequate mitigation and control measures for their region under the framework of the IMO Convention and to support OSPAR work on regional matters regarding ballast water. It is important to note that the current work for the development of relevant guidelines for the implementation of the Ballast Water Management Convention is coordinated by four OSPAR countries (i.e. Germany, Norway, the Netherlands and the UK).

Under the auspices of the Helsinki Commission, which had its last meeting in March 2004, the Baltic countries agreed to urge the Contracting Parties to ratify the Ballast Water Management Convention as soon as possible, to task the HELCOM Maritime Working Group to develop a Regional Ballast Water Action Plan and to ask the HELCOM Secretariat to cooperate with GloBallast/IMO in the development of a new proposal for the continuation of the GloBallast activities during the next five years.

A number of European countries are currently involved in the development of new technologies for ships' ballast water treatment including filtration, de-oxygenation, UV and hydrocyclonic treatment or technologies based on biocides.

In US mandatory and voluntary ballast water management regimes exist for the Great Lakes and the rest of the national territory, respectively. The National Ballast Information Clearinghouse (NBIC), established by congressional direction, continues to collect the ballast water management (BWM) reports required to be submitted by vessels entering U.S. waters after operation outside of the EEZ. Efforts are underway to maximize vessels' use of internet-based means of submitting BWM reports. On the basis of the first biennial report of

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the NBIC, the Secretary of Transportation determined that compliance with the reporting requirement was insufficient to allow a determination of compliance with the voluntary guidelines, and directed that the program be made mandatory. The Coast Guard has subsequently initiated a series of rulemakings that will implement penalty provisions for non-reporting, make the voluntary guidelines mandatory, and establish ballast water discharge standards. To support the development and implementation of this regulatory program, the Coast Guard has initiated a suite of Research and Development projects. These projects include efforts to develop protocols for evaluating the effectiveness of treatment technologies, analytical methods for verifying ballast water exchange (BWE), and management practices that could be used to address the vessels, which cannot conduct BWE due to safety constraints. The Coast Guard is developing a program to provide an incentive for ship owners to participate in the Program, ships operating an accepted experimental system would be considered to conditionally meet regulatory requirements for ballast water management for a specific period of time.

Regional Strategic Action Plans
(Developed/Adopted during GloBallast Pilot Phase)

BLACK SEA

Regional Action Plan to minimize the transfer of harmful aquatic organisms and pathogens in ships' ballast water

1 Introduction and Background

The introduction of invasive marine species into new environments by ships' ballast water, attached to ships' hulls and via other vectors, has been identified by the Global Environment Facility (GEF) as one of the greatest threats to the World ' s oceans. The others are land-based sources of marine pollution, overexploitation of living marine resources and alteration and destruction of marine habitat.

In response to this threat, the International Maritime Organization (IMO) has taken a number of initiatives. As a specialized United Nations agency responsible for the international regulation of ship safety and the prevention of ship-sourced marine pollution, IMO is the most appropriate forum through which to address this issue. The member states of IMO have developed voluntary guidelines for the control and management of ships' ballast water, to minimize the transfer of harmful aquatic organisms and pathogens. These guidelines were adopted by the IMO Assembly in 1997, by Resolution A.868(20). They replace earlier, less comprehensive voluntary guidelines adopted in 1991. Management and control options recommended by the guidelines include:

- Minimizing the uptake of organisms during ballasting, by avoiding areas in ports where outbreaks or populations of harmful organisms are known to occur, in shallow water and in darkness, when bottom-dwelling organisms may rise in the water column.
- Cleaning ballast tanks and removing muds and sediments that accumulate in these tanks on a regular basis, which may harbour harmful organisms.
- Avoiding unnecessary discharge of ballast water.
- Undertaking ballast water management procedures, including:
 - o Exchanging ballast water at sea before arrival in port, replacing it with 'clean' open ocean water. Any marine species taken on at the source port are less likely to survive in the open ocean, where environmental conditions are different from coastal and port waters.
 - o Non-release or minimal release of ballast water.
 - o Discharge to reception facilities.
 - o Other technical and technological methods of ballast water treatment.

The guidelines also provide for recording and reporting procedures and a particularly useful model for a 'Ballast Water Reporting Form' is given as Appendix 1 to the guidelines.

The shipping industry has also been very active in helping to address the problem of invasive marine species. In particular, the International Chamber of Shipping (ICS) and the International Association of Independent Tanker Owners (INTERTANKO) have published a Model Ballast Water Management Plan. This give practical guidance for the implementation of the IMO voluntary guidelines on board ships.

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All of these approaches are subject to limitations. Reballasting at sea currently provides the best-available risk minimization measure, but is dependent on serious ship-safety limitations. Even fully implemented, reballasting or ballast exchange at sea may not be 100% effective.

Significant research and development efforts are therefore underway by a number of scientific and engineering research establishments around the world, aimed at developing a more complete solution to this problem. Options that are being considered include filtration and sterilization using ozone, ultra-violet light, heat treatment and chemicals.

In recognition of the limitation of the current IMO voluntary guidelines, and the serious threats still posed by invasive marine species, IMO members have agreed to develop a mandatory international legal regime to regulate and control ballast water. The IMO's Marine Environment Protection Committee (MEPC) and its Ballast Water Working Group, are well advanced with developing this regime and it is hoped that the new instrument will be agreed by member countries in 2003.

In addition to these measures, to assist less industrialized countries to tackle the invasive species and pathogens problem IMO, together with the GEF International Waters (IW) portfolio and the United Nations Development Programme (UNDP) in March 2000 launched a project commonly referred to as the Global Ballast Water Management Programme or GloBallast.

2 Objectives

The Objectives of this Regional Action Plan are:

- to provide a framework for the activities that need to be developed and implemented within the Black Sea Region in order to minimize the transfer of harmful aquatic organisms in ships' ballast water, in accordance with the IMO recommendations and GloBallast Programme;
- to facilitate the preparatory process within the Black Sea Region for the introduction new international regulations and practices on ballast water management and control; and
- to enhance the regional cooperation in protection of the marine environment using the existing regional bodies, established under the Istanbul Commission and the GEF Black Sea Environmental Programme.

3 Environmental conditions of the Black Sea Region.

The Black Sea region is a semi-enclosed sea area surrounded by the coasts of Bulgaria, Georgia, Romania, the Russian Federation, Turkey and the Ukraine.

The condition of the Black Sea environment to be the subject of serious concern due to the ongoing degradation of its ecosystem and misallocation of its natural resources. The conclusions of the Black Sea Trans-boundary Diagnostic Analysis (TDA), prepared during the first phase of Global Environmental Facility (GEF) Black Sea Environmental Programme (BSEP) in 1996, might be summarized as follows:

- The Black Sea ecosystem is still under threat from the introduction of the different kinds of pollutants mainly of organic/biogenic in nature, not only from land run-off but especially from rivers;
- Most of the Black Sea is now affected by the over-introduction of nutrients;
- The Black Sea ecosystem is still under threat from the introduction of other hazardous

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pollutants, especially oil. Oil is entering the environment as a result of accidental and operational discharges from ships as well as from land-based sources;

- Exotic marine species and pathogens already introduced via ships' ballast water are causing substantial damage to the Black Sea ecosystem and are poised to similarly affect those of the neighbouring Mediterranean and Caspian Seas; and
- Despite statements predicting that process of degradation of the Black Sea is irreversible, ecological monitoring during recent years has shown a significant improvement in the condition of some ecosystem components. This tendency should be maintained and strengthened.

The scope and gravity of the degradation processes in ecology of the Black Sea have overstepped the boundaries of waters under national jurisdiction and has become common problem for the countries of the region. All regional states are parties to the MARPOL 73/78 Convention and their ships comply with the basic requirements of the Convention. Each country has appropriate legislation in place to regulate the discharge of harmful substances from ships, taking into account the fact that under ? ? RP? L 73/78 the Black Sea has 'special area' status.

4. Existing Regional Instruments

The basic international instrument, which outlines the framework of joint regional principles, is the Convention on protection of the Black Sea from pollution signed by the countries of the Black Sea basin in 1992 (the Bucharest Convention). The main aim of the Convention is the creation of favourable conditions for joint actions to protect the Black Sea environment and living resources, whilst taking economic and social implications into account. The Convention defines priority measures on marine pollution prevention as a result of human impact, the future reduction of such impacts and the control of its consequences, as well as determining the criteria for cooperation in emergency situations.

The Ministerial Declaration on Protection of the Black Sea (Odessa, 1993) established the political framework for the implementation of the Convention. It is based on the philosophy behind the Rio Declaration (1992) and calls for immediate, balanced and continuous actions at all levels towards the protection and rehabilitation of the Black Sea marine environment, as well as its sustainable development.

The Odessa Declaration provides an outline for actions towards the conservation and protection of the Black Sea and became a basis for the International Program of Environment Management and Protection of the Black Sea - Black Sea Environmental Program (BSEP, 1993-1996). However, the implementation of the Convention and BSEP has been constrained by the adverse economic climate currently prevailing in the region.

The overall objective of BSEP is to coordinate the efforts of the Black Sea countries towards implementing the Bucharest Convention. Whilst the Program was initially financed by GEF with support from UNDP and PHARE, in 1998 responsibility for the financing of the Program's activities passed to the coastal states.

The first phase of implementation of the Program was finalized in 1996 with the signing of the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea (Black Sea Strategic Action Plan / BS SAP). The underlining tenet of the BS SAP includes the principle of prevention complemented by sustainable development. The most significant political actions by BS SAP are aimed at the reduction of pollution levels, the management of living resources and sustainable social development. Under SAP, the regional environmental quality criteria are being developed, the coordination of the national programmes for minimization of the dumping of dangerous substances and biogens is being carried out, the Harmonized Monitoring System of the sea is being introduced and environmental assessment criteria are

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being reviewed.

According to the BS SAP a regional structure of consulting bodies was established, called Advisory Groups. One of the advisory groups is “Advisory Group on the Environmental Safety Aspects of Shipping” (AG ESAS), which is dealing, on behalf of the Black Sea Commission, with coordination of the regional aspects of pollution caused by shipping

One of SAP’s most significant political actions is aimed at reducing the level of pollution in the Black Sea and is linked to the prevention of marine environment pollution from shipping and stated the following:

41. *Black Sea countries will present a joint proposal to the IMO, in 1997, for conducting an in-depth study on measures to avoid any further introductions of exotic species into the Black Sea through the deballasting of vessels. Given the danger of such species migrating to other seas in the region, the coastal states of the Caspian and Mediterranean seas will be consulted*.*

Certain specific activities to raise public awareness in the Black and Caspian Sea countries of the problem associated with the introduction of harmful aquatic organisms and pathogens into new locations should be noted:

- The International Scientific Workshop for the Black and Caspian Seas Region Countries on Problems of Ship’s Ballast Water Management and Control was held from 14-17 September 1999 on board the scientific vessel “Georgiy Ushakov”; and
- The International Workshop of the Caspian Environment Programme on the Invasion of the Caspian Sea by the Comb Jelly *Mnemiopsis Leidy* - Problems, Perspectives, Needs for Action was held in April 2001 in Baku.

5. Principal Actions

5.1 Public Awareness

To increase the level of public awareness: dissemination using the mass media, information and publications on the problem of invasive marine species and pathogens via the transfer of ballast water and how it has been managed at global and regional/national levels.

GloBallast Programme materials and IMO MEPC Ballast Water Working Group documents will be used for this exercise. The experiences of other countries and regions will also be taken into account.

5.2 Information Clearing House

The establishment of a clearing house mechanism for exchanging uniform information on changes in the species content of marine flora and fauna and information about the prevention and control measures taken by Black Sea countries and worldwide is necessary.

In connection with the establishment of a GloBallast Demonstration Site in Odessa, Ukraine (Odessa GloBallast DS), and the gradual development and broadening of its activities, it is planned to set up a National Information Center (NIC) in the framework of the Programme. The information contained in its databases will be available to Ukraine and Black Sea countries.

Once the NIC will become operational it will inform the Istanbul Commission through Advisory Group ESAS on possible sources of unwanted species, respective measures for prevention and control

* This action has not been implemented yet.

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undertaken and planned in the region as well as the worldwide experience and trends on this matter.

5.3 Regional Risk Assessment

Before a country decides on whether to adopt the 'blanket' (i.e. all vessels) approach or to target specific, identified high risk vessels only, a general, first-past risk assessment needs to be carried out. This should look at shipping arrival patterns and identify the source ports from which ballast water is imported. Once these are identified, source port/discharge port environmental comparisons should be carried out to give a preliminary indication of overall risk. This will greatly assist the port state to assess which approach to take.

An initial, 'first-past' regional risk assessment needs to be carried out for the Black Sea. This is important for establishing the level and types of risks of introductions that each port faces, as well as the most sensitive resources and values that might be threatened. These will differ from site to site, and will determine the types of management responses that are required

5.4 Regional Monitoring

The uniform regional monitoring system for the species profile in its ports should be developed and implemented. The system will be based on the Port Baseline Survey System undertaken by the GloBallast Programme in the port of Odessa.

It is suggested that a gradual introduction of monitoring procedures of marine flora and fauna should be put into practice in the region's ports. These procedures will reflect those established by the GloBallast Programme.

5.5 Research and Development

The search for optimal solutions, the undertaking of joint scientific research and practical assessment of technical and technological methods of ballast water treatment (BWT) both on board and in land-based waste disposal facilities as well as participation in the development of international BWT standards should be undertaken.

It is planned to produce a regional Research and Development (R&D) Directory, hold a regional R&D Workshop for scientists and researchers to assess proposals submitted against future IMO Ballast Water Treatment Standards, or against adjusted provisional criteria, should the IMO standards not be available.

It is essential that all the countries of the region actively support the outcome of the Workshop: the agreed optimal solutions, the practical measures for finalization, testing and their introduction into practice.

5.6 Rules and Regulations

The unification and introduction of rules and regulations for the ports and ships routings of the region to regulate ballast water management and control procedures is necessary.

It is suggested that a Working/Correspondence Group be established, which will be charged with the review of national regulations and practices in order to align these with IMO Resolution A.868(20) and certain provisions of new IMO Instruments, and to recommend a uniform regime for ballast water management and control procedures for Black Sea region.

5.7 Training

The establishment of a regional system for training those personnel (at all levels) involved in risk assessment, ballast water control, marine monitoring in ports and on board ballast water management.

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It is proposed that a Training Centre (TC) based on the Odessa GloBallast DS is set up, for seafarers, port officers and organizations responsible for monitoring. This TC will promote the dissemination of these training programmes to other countries in the region, and assist in establishing national training centres/facilities.

5.8 National Action Plans (NAP)

The Black Sea countries will develop their NAPs that will support, and generally follow, the Regional SAP activities.

5.9 Cooperation with the Istanbul Commission

It is necessary to provide cooperation with the Istanbul Commission on all issues regarding the protection of the Black Sea marine environment from pollution from ships, including the prevention of biological and epidemiological pollution, the detection of such pollution, the development and implementation of regional activities towards the minimization of its harmful impact.

It is recommended that Odessa GloBallast DS and the RTF should apply for the observant status with the Istanbul Commission.

6. Arrangements for future cooperation.

In order to implement the SAP it is essential that the regional mechanism for cooperation among the Black Sea countries on ballast water problems is established and maintained. This may include but not be limited to the following:

- designate appropriate persons and responsible national institutions from each of the Black Sea countries, responsible for cooperation and implementation of SAP activities;
- use relevant mechanisms of international and regional organizations (IMO, Istanbul Commission, Danube Commission, etc) and
- establish a consultative group or Regional Task Force (RTF) for ballast water management and control. The consultative group members will include also the National Focal Points.

It is recommended that the RTF should cooperate closely with the Advisory Group (AG) on Environment Safety Aspects of Shipping and thus will enhance the capacity of the Istanbul Commission regarding ballast water management issues. The Istanbul Commission will coordinate the work of this group.

It is recommended that annual reports on the progress made in implementing the SAP shall be provided to the Istanbul Commission. The report should also contain recommendations for enhancing implementation of and amendments to this Plan, taking into account ongoing IMO activities and recommendations. The Commission should consider the report and agree on any enhancements and/or amendments that may be necessary for the optimal implementation of the Plan.

Country Focal Points (CFP) of Black Sea countries will meet at least every year in order to evaluate the progress made in implementing the SAP and shall propose any additional measures that they consider may be required to attain its overall aims. The Information Centres (IC's) AG ESAS to include the issues on ballast water management and control in the permanent agenda for its annual meetings.

It is recommended that the shipping industry (including ports of the region) is fully involved in SAP activities.

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7. Regional SAP Financing

Funding for the implementation of Regional SAP may be secured from national, regional and/or international resources. General public funding or the application of specific economic mechanisms as well as utilizing grants and loans should be explored.

It is recommended that Donor Conferences to assist this regional process will be held every five years, starting in 2003.

The Istanbul Commission may consider and decide whether the joint regional activities may be funded from the Black Sea Environment Fund.

Institutional Framework and Specific Commitments on Ballast Water Related Issues in the Six Pilot Countries

(NB: It is beyond the scope of this Concept Paper to provide details on the institutional framework in all the potential beneficiary countries (global). However, the six initial Pilot Countries provide a globally representative indication from six extremely diverse regions, as described below)

Brazil has been active in ensuring marine (and other) environmental protection and is party to the CBD, 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 matters 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.

A number of government agencies may be involved in the response to the problem of harmful aquatic organisms and pathogens. The Ministry of Health, the Ministry of the Environment and the Brazilian Navy were 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 concerns associated with the problem. The Ministry of Health passed regulations relating to ballast water management in 2001, the Ministry of Environment made a substantial budget allocation from national sources for the issue in 2001/02, and as a result of the GloBallast Pilot Phase, Brazil is proceeding with the replication of certain technical ballast water management activities at major ports, using its own resources.

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." 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 CBD. The China Maritime Safety Administration (MSA) is a member Authority of the MOU on Port State Control in Asia-Pacific Region.

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China 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.

Several governmental 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.

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. 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. Several Government Agencies have responsibilities and may be involved in ballast water management and control on a cooperative basis, however, the Maritime Safety Administration and the State Administration of Inspection and Quarantine appear to be the best equipped to address the issue.

As a result of the GloBallast Pilot Phase, China is proceeding with the replication of technical ballast water management activities at major ports, using its own resources. The Chinese government is currently planning a 15-year project for the protection of the marine environment known as "Blue Sea". GloBallast is associated with the nationwide effort and will provide

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information on its activities regarding risk assessment, port surveys and compliance, monitoring and enforcement.

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 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 in 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.

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 and in several cases State legislation 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, is 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.

To date there is no comprehensive legislation governing the discharge and management of ballast water as it relates to the transfer of harmful aquatic organisms and pathogens by ships. The Merchant Shipping Act, 1958 applies to all 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

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Ministry of Surface Transport, that combines the regulations contained in other annexes to MARPOL 73/78 and also, possibly, regulations relating to ballast water management. However, the amendments relating to ballast water management assume that the international Convention on ballast water 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.

As a result of the GloBallast Pilot Phase, India is proceeding with the replication of technical ballast water management activities at major ports in India, using its own resources.

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 through 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 Parliament. Under the Iranian Civil Code, international treaties and conventions enter into force as a national law, after approval by Parliament. Iran has acceded to a number of regional and international conventions regarding environmental or marine environmental protection, including MARPOL 73/78, the Kuwait Convention (a regional seas agreement among the coastal States of the Persian Gulf and the Sea of Oman) and the CBD. 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 CBD. The country is also a member of the Caspian Environment Programme, and hosts its PCU and Thematic Centre on Pollution Emergencies and Response.

There are a number of domestic rules and regulations regarding environmental pollution, which the Department of the Environment (DOE) is responsible for, that might relate to harmful aquatic organisms.

The Ports and Shipping Organization (PSO), which is affiliated with the Ministry of Roads and Transportation, is the Authority that supervises shipping activities in Iranian waters. It is vested with responsibility for preventing marine pollution, particularly pollution from ships. 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.

As a result of the GloBallast Pilot Phase, Iran is proceeding with the replication of technical ballast water management activities at some of its other major ports using its own resources.

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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 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.

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 CBD and MARPOL73/78.

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). 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).

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 DEA&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 CBD. It will include sections on the control and elimination of alien organisms and could also be a possible vehicle for the implementation of ballast water regulations into South African law and provides for a National Biodiversity Institute for South Africa.

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As a result of the GloBallast Pilot Phase, South Africa is proceeding with the replication of technical ballast water management activities at major ports, using its own resources.

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, a one-chamber parliament, which consists of 450 National Deputies who exercise their authority on a permanent basis. The Verkhovna Rada 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.

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. Ukraine is party to numerous conventions including UNCLOS, the CBD 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 a 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 Environment 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 the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea, 1996.

The problem of harmful organisms and pathogens in ships' ballast water is not a 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.

Several national and local State administrative bodies were identified as having a potential interest in ballast water management and control, however, the Ministry of Transport and its Department of Sea and River Transport appear to have the most direct involvement. Some remarkable regulatory activities at the administrative level are currently under way in Ukraine. An Instruction issued by the State Sea and River Transport Department (Order of the Ministry of Transport No 62 March 11, 2001) lays the ground for the enforcement of IMO's Guidelines for the control and management of ships' ballast water to minimize the transfer of harmful aquatic

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organisms and pathogens (Resolution A.868(20)). In addition Orders have been issued that require Harbour Masters of the merchant shipping ports to ensure data collection on ships' ballast water, in accordance with the standard IMO Guidelines' Ballast Water Reporting Form. The Harbour Masters are responsible for registering the information and storing it for 10 years.