



*Republic of Yemen*



# National Ballast Water Management Strategy for Yemen



National Strategy for Ballast Water Management in Yemen



**Maritime Affairs Authority(MAA) – 2010**

Draft Report- December2010



Basic Data				
<b>Report Title: National Strategy for Ballast Water Management in Yemen</b>			<b>Report No.:</b>	
			<b>Origin:</b> PERSGA/IMO	
<b>National Focal Point:</b> <i>Republic of Yemen, Maritime Affairs Authority (MAA).</i>			<b>Distribution:</b> Official	
			<b>Issued:</b> Initial Draft	
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Revision	Description	Prepared/Drafted	Checked/Reviewed	Approved
R1	Draft Report	National Consultancy Team	Project National Coordinator	National Focal point MAA Chairman's
	Signature			
	Date	8 <sup>th</sup> Dec 2010	13 <sup>th</sup> Dec 2010	18 <sup>th</sup> Dec 2010
R2	Final Report			
<i>The preparation of this report for the above titled project by MAA Maritime Affairs Authority (Yemen) and has been undertaken within national consultant team of the brief using all reasonable skills and care.</i>				

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## Executive Summary

The introduction of invasive marine species into new environments by ships' ballast water, attached to ships' hulls and via other vectors has been identified as one of the four greatest threats to the world's oceans. The other three are land-based sources of marine pollution, overexploitation of living marine resources and physical alteration/destruction of marine habitat.

Ships carry over 90% of the world's commodities and globally, it is estimated that some 3 to 5 billion tonnes of ballast water is transferred throughout the world each year by some 85,000 ships. Ballast water is absolutely essential to the safe and efficient operation of ships, providing balance and stability to partly laden or un-laden ships. However, ballast water may also pose a serious ecological, economic and health threat.

Another important point is that the quantity of ballast water is only one component of risk. Other factors perhaps even more important than the volume of ballast are the frequency of ship visits and environmental similarity of ports. Some of most spectacular aquatic bioinvasions have occurred at ports that received relatively small volumes of ballast water while some very major ports that received huge volumes have not been invaded, due to lack of environment matching and other factors.

The effect of the invasive marine species is very great on the environment unlike the marine oil pollution which can be seen by eye and if improving action had been taken, the environment will be recovered; while the impact of the invasive marine species will be very slow and are most often irreversible and the result will be devastating.

“The International Convention for the Control of Ship's Ballast Water and Sediments” (referred onward as Ballast water management (BWM) convention) provides a critically needed set of management tool to address the issue and calls for regional cooperation and harmonization of policies to attempt solving this trans-boundary marine environmental problem. Although the Ballast Water Management Convention has not yet entered into force, the national process of ratification is underway in many countries including Yemen.

# Glossary

ABBREVIATION	TEXT
<b>BWM</b>	Ballast Water Management
<b>BWM Conv.</b>	The IMO Ballast Water Management Convention
<b>BWRB</b>	Ballast Water Record Book
<b>BWRF</b>	Ballast Water Reporting Form
<b>CME</b>	Compliance Monitoring and Enforcement
<b>EPA</b>	Environment Protection Authority (of Yemen)
<b>IAS</b>	Invasive Alien Species
<b>IMO</b>	International Maritime Organization
<b>IOMOU</b>	Indian Ocean Memorandum Of Understanding
<b>MAA</b>	Maritime Affairs Authority (of Yemen)
<b>MARPOL</b>	International Convention for the Prevention of Marine Pollution
<b>MFW</b>	Ministry of Fish Wealth (of Yemen)
<b>MFW</b>	Ministry of Water and Environment (of Yemen)
<b>NCT</b>	National Consultancy Team (of Yemen)
<b>NFP</b>	National Focal Point
<b>NPC</b>	National Project Coordinator
<b>NTF</b>	National Task Force
<b>NBWMS</b>	National Ballast Water Management Strategy (for Yemen)
<b>NGO</b>	Non Governmental Organisation
<b>PERSGA</b>	Regional Organization for the conservation of the Persian Gulf
<b>RTF</b>	Regional Task Force
<b>SOLAS</b>	International Convention on the Safety of Life at Sea
<b>YASPC</b>	Yemen Arabian Sea Ports Corporation
<b>YGAPC</b>	Yemen Gulf of Aden Ports Corporation
<b>YRSPC</b>	Yemen Red Sea Ports Corporation

# 1 Introduction

## 1.1 Background to the issue of IAS and BWM

### 1.1.1. Background to the issue of IAS

#### a) Internationally and Regionally

Species that as a result of human activity have been moved, intentionally or unintentionally, into areas where they do not occur naturally are called “introduced species” or alien species”.

While most species introductions result in no or little noticeable change in local ecosystem diversity and productivity, some introduced species may under suitable conditions become established and, in the absence of natural controls such as predators, parasites or disease, drastically change the ecosystem. Such species are called invasive alien species (IAS). Because an introduced species is likely to be subjected to the same natural controls that kept its population numbers in an ecological balance in its native range, it tends to increase rapidly, to the point where it can take over their new environment, often to the detriment of both native biodiversity and human livelihoods.

Example of IAS including the zebra mussel (*Dreissena polymorpha*) and the comb jellyfish (*Mnemiopsis leidyi*) have caused significant ecological and economic impact. The freshwater zebra mussel, native to Europe, has become a prolific invader, spreading to the US in ballast water and recently found throughout the waterway of North America. They encrust any solid structure in the water and block water pipes. The North American comb jelly was introduced into the Black Sea through ballast water in the early 1980s. There are numerous further examples of marine invasive species that have caused fundamental impacts on biodiversity, ecosystem resources, fisheries and mariculture, human health industrial development and infrastructure.

The consequences of IAS are becoming established include damage to sensitive ecosystems, as well as negative impacts on fishing, tourism, and other industries that form the backbone of local economies.

#### b) Nationally

As for Yemen, up to now there are not any studies, surveys recorded, reported or observed that there are marine invasive alien species in the Yemeni waters during the past years until now.

### **1.1.2. Background to the issue of BWM**

#### **a) Internationally and Regionally**

Ships carry clean sea water in special separated tanks called ballast water in order to enhance their equilibrium and stability. Ships usually carry ballast water when they are partly laden or in un-laden condition. Ballast water is of particular concern as a vector for the introduction of invasive alien species both because of the large quantities of ballast water being used and discharged into new environments around the world, but also because of the huge variety and numbers of species which it may transfer.

Today ballast water is recognised as one of the principal vectors of potentially invasive alien species, and is responsible for the transfer of between 7,000 and 10,000 different species of marine microbes, plants and animals globally each year (Cariton, 1999).

The worldwide focus is therefore on managing ships ballast water in a manner that minimizes the risk, while at the same time attempting to find more satisfactory longer.

Numerous initiatives and activities are being undertaken around the world to address the problem of ballast water, including research and development of improved management and treatment systems. A very wide range of key stakeholders, including shipping, ports, environmental groups, tourism bodies, public health organizations, seafood producers etc. are working on the problem both individually, within their own countries and regions and in international forums.

#### **b) Nationally**

As for Yemen no steps had been taken in this regard. No information or statistics regarding the quantity of ballast water discharged in the Yemeni ports and no studies of research carried out to estimate the invasive species that are present due to discharging of ballast water in the Yemeni Ports.

## **1.2 Purpose of the Strategy**

The purpose of this strategy is planning of the future studies by establishing a work plan so as to minimize the risks; seeking to avoid adverse economic, environmental and public health impacts. Also it aims to establish a system for monitoring the implementation of this strategy and make revision on the future plan.

The general purpose of the present strategy is to establish the framework for an international harmonized approach for Yemen on ship's ballast water control and management, which is consistent with the requirements and standards of the BWM Convention



### 1.3 Guiding principles

The Convention on Biological Diversity adopted "Guiding Principles" for the prevention and mitigation of impacts of alien species that threaten ecosystems, habitats or species. These include:

- *The **precautionary approach**, which states that “Where there are threats of serious or irreversible damage; lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation” (Rio Declaration on Environment and Development, 1992).*
- *The **user pays principle** in which the user, or ‘responsible party’, is the entity that seeks to conduct the activity which may result in an IAS introduction, and that will benefit from it. Therefore any costs associated with the process, and the burden of proof for demonstrating compliance with regulations, should fall upon the user.*
- *Invasive species management is multidisciplinary by nature and requires "**cross-sectoral approach**" to be effective. This applies not only at the national level, but, given the transboundary nature of IAS, also requires close cooperation and coordination with neighbouring countries and trading partners, and amongst international stakeholders.*
- ***Prevention** is the most cost-effective and environmentally desirable option, and should be given priority in any IAS management strategy. This is commonly known as the **hierarchical approach** to management which progresses from prevention, to early detection and rapid response, to eradication, containment and long-term control.*

The IMO BWM convention also adopted "Guiding Principles" and developed guidelines and resolutions for the Control and Management of Ships' Ballast Waters and Sediment discharges. These guidelines included new principles such as:

- *Prevent or minimize the transfer of Harmful Aquatic Organisms and Pathogens by ship's ballast waters.*
- *Prevent or minimize the risks of the introduction of unwanted aquatic organisms and pathogens, and impacts of invasive alien species to ecosystems, economics, public health and welfare.*

### 1.4 Objectives

The overall objectives of this national strategy and action plan are;

- Establish a ballast water management system with respect to the International Ballast Water Management Convention;
- Establish capacity building activities for Maritime Affairs Authority as the leading agency in order to make:
  - Port state controls;
  - Certification;
  - Type approval;
  - Biological port baseline surveys;
  - Coordination with the universities and research centres;
  - Supporting scientific studies;
  - Revision of the knowledge on ballast water management.
- Minimize the risk of invasive species in order to protect the sustainability of the marine sectors like fishing and tourism;
- Establish a national force task; to ensure effective implementation, support and follow-up of the ballast water strategy related activities and procedures.
- Establish national legislations; compliance with requirements of BWM Conv. And other international legislations related to this issue.
- Coordinate with the regional initiatives;

# 2 Legislative Obligations

## 2.1 International Obligations

The International Convention for the Control and Management of Ships' Ballast Water & Sediments (BWM) was adopted in London on Friday 13 February 2004. This convention is prepared in order to find a global solution to invasive species carried in ballast water.

The Convention will enter into force 12 months after ratification by 30 States, representing 35 per cent of world merchant shipping tonnage. (As of 2 December 2010 there were 27 countries that have ratified the convention.

In this respect, the convention defines the responsibilities of port states, flag states and shipping industry. Also rules for control and management of ballast water and sediments were defined.

The main aim of the convention is to minimize and finally prevent the transportation of invasive species to other marine habitats. In order to perform this aim the convention defines two methodologies. These are ballast water exchange and treatment.

The responsibilities that the convention defines can be divided on three main titles. These are responsibilities of ships, maritime authority and port authority.

The obligations which are defined by the convention are lined up briefly by titles. Firstly the obligations for ships are like as below:

**Table 1: Obligations for ships**

<b>THE OBLIGATIONS FOR SHIPS</b>
Ballast water management certificate
Ballast water management plan
Define a responsible personnel on board responsible for ballast water management
Ballast water record book
Make exchange operations in the transition period of the convention after this install an approved treatment facility on board and treat the ballast water
Giving sediments to the reception facilities
Reporting the ballast operations with ballast water reporting form

The obligations for Maritime Authorities are like as below:

**Table 2: Obligations for maritime authorities**

<b>THE OBLIGATIONS FOR MARITIME AUTHORITIES</b>
Define the strategy and prepare an action plan
To promote the scientific studies
Preparing the national legislation
Giving ballast water certificates to ships
Giving type approvals to ballast water treatment facilities
Determine the exemptions for applications
Port state controls
Ballast water sampling
Compliance and enforcement
Coordinate the port biological surveys
Attend to coordinate regional arrangements
Define alternative ballast water exchange areas
Define applications for the ships that is not in the scope of the convention

The obligations for Port Authorities are like as below:

**Table 3: Obligations for port authorities**

<b>THE OBLIGATIONS FOR PORT AUTHORITIES</b>
Provide adequate facilities for the reception of sediments
To provide the MAA with daily report of incoming vessels to the port
To provide the MAA with the BWRP received from ships

## **2.2 Regional Obligations**

Yemen is a signatory country to the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA). Under the umbrella of PERSGA was prepared draft a Regional Strategic Action Plan to Control the Transfer of Harmful Aquatic Organisms and Pathogens in Ships Ballast Water, which will be implemented as a Protocol annexed to the Jeddah Convention.

Yemen has participated in revising the draft strategy and comment on it, as it is also an active member in the PERSGA.

## **2.3 National Legislations and Requirements to implement**

In reaction to the great risk by bio-invasive species from ballast waters carried on ships, Yemen expresses its willingness to access the convention on Ballast Water Management (BWM) as early as possible, which is planned to be before the convention enters into force.

Therefore, Yemen will start the national implementation of procedures for accession to the convention after the ratification of its National strategy for Ballast Water Management, according to the mechanism defined for the national legislations in force.

Meanwhile, Yemen will start preparation of the national legislations for BWM, to be ready for publishing, distribution, and implementation once the Convention enters into force.

Yemen is also aware that BWM has to be harmonized with the regional and international systems, and that the independent national implementation of a country could be harmful for the other.

## **2.4 Compliance Monitoring and Enforcement (CME) System**

It is a mechanism to monitor compliance with the system of ballast water management. It is designed to:

- *to assess whether or not a ship has met the IMO and Port State's BWM requirements; and*
- *when necessary, enforce those requirements.*

The CME system must meet three essential criteria:

- *It must be based on, and fully consistent with, the BWM regime that it forms part of;*
- *It must be consistent with the IMO BWM Convention;*
- *It must be capable of assessing whether the Port State's BWM requirements have been met, and if not, ensuring that appropriate action is taken.*

Inspections serve to ascertain compliance with both the requirements of the State and also those of the Convention. In addition to satisfying the essential criteria described above, any comprehensive and effective CME system should have a number of key elements. These include:

- A requirement for ships to collect and record information about their BWM practices.
- A requirement for ships to make available this information to the Port State's BWM regulatory Authority (RA) and receive directions from them.

- Provision for examination/auditing of the ship's official log books and other official records to ascertain compliance with the BWM requirements of the Port State.
- Provisions to enable the appropriate authority, either the RA or someone acting on their behalf, to take ballast water (and sediment) samples and carry out any necessary testing.
- A legal provision 'enforcement', where necessary, for ships found in non-compliance with the BWM requirements.
- A requirement for notification of arrangements to IMO and other interested parties.

Sanctions or penalties in case on non-compliance should apply.

Two tools exist to document ballast water information: (a) the Ballast Water Record Book (BWRB) and (b) the Ballast Water Reporting Form (BWRF).

The **BWRB** required by the IMO BWM Convention for collecting and recording this information and becomes a component of the official logbooks and must be available to Port States during inspection to assist with verification of compliance. This BWRB should include information such as location, day, time and dimension of each ballast operation.

The convention, however, does not include specific reporting requirements although the regulations on BWM plans refers to such requirements. A port State may introduce such requirements – and in this case this should be done by using the IMO **BWRF** to ensure the necessary standardization of such reporting.

# 3 Ballast Water Management Strategy

## 3.1 National Policy and vision

- A formal policy for Yemen seeks to protect Yemeni marine environment and their natural resources and native biological diversity from the risks of marine IAS.
- The political decision of the state in the fields of ballast water management requires prevent or minimization of environmental, public health, and economic impacts of IAS introduction and invasions in marine environment.
- The national political vision is seeking to develop a national strategic and action plan for the controlling the transfer of harmful aquatic organisms and pathogens in ship's ballast water introduce of marine alien species to local marine environments, and to take promote measures in the field of ballast water management in the Yemeni ports and waters.
- To facilitate the ratification and implementation of the IMO international ballast water management convention by the Yemeni government.

## 3.2 Scope of Strategy

### ▪ Geographical scope

The scope of the BW strategy and relevant implementations and activities cover all the Yemeni coasts, Yemeni ports, waters beyond the port limits, and territorial waters either on the Red sea or the Gulf of Aden, and any adjacent water that can be affected or threaten by IAS invasion.

### ▪ Technical scope

Technical scope is defined as titles below:

- Administrative studies
- Capacity building studies
- Education activities
- Raising awareness instruments
- Scientific researches

### 3 .3 Strategic Priorities

Table 4: strategic priorities

<b>Strategic Priority 1</b>	<b><i>Support the BWM Convention</i></b>
Yemen supports particularly the work of the International Maritime Organisation and is committed to take all appropriate actions toward the ratification of the BWM Convention for its entry into force as soon as possible.	
<b>Strategic Priority 2</b>	<b><i>Maintain capacity building activities</i></b>
Yemen stress the need to continue efforts to enhance capacity building, knowledge transfer and training of personnel after the national project in order to implement the ballast water management needs concerned in the convention.	
<b>Strategic Priority 3</b>	<b><i>Support the scientific studies on harmful invasive species</i></b>
Yemen promotes research and development programmes in the field of invasive alien species and ships' ballast water management, as a means to enhance knowledge and help setting scientific grounds on which best measures on controlling the transfer of invasive aquatic species can be based.	
<b>Strategic Priority 4</b>	<b><i>Attend regional arrangements</i></b>
Yemen works collaboratively to adopt regional arrangements with neighboring countries concerning ballast water management in not only the PERSGA region but also the Indian Ocean MoU (IOMOU) Region consistent with the requirements and standards set in the BWM Convention.	
<b>Strategic Priority 5</b>	<b><i>Work on adequate resources</i></b>
Yemen's long-term vision and policy are to ensure the sustainability and continuity of activities from self-financing sources.	

### 3 .4 Fostering Regional linked to National Strategy

In response to Glo-Ballast water management project, the Republic of Yemen has been pursuing its active involvement in global efforts for marine environment protection and biodiversity conservation through, among others, the development of NBWMS and effectively participating in the work of the IMO and other Regional Partners. At the same time, the Republic of Yemen is continuing the implementation of its obligations under other international Maritime conventions. Furthermore, the government is attempting to pursue its economic development efforts within the context of a sustainable development framework and protection of Environmental resources.



At both regional and international levels, the country has been engaged in Global BWM processes and efforts that led to the ratification of the BWM Convention.

Ecosystems and natural resources exceed national boundaries more often than not. Threats to them – such as pollution or invasive species - can, therefore, seldom, if ever, be addressed by individual states. While this is true across all ecosystems, it is even more so in the marine environment, where coastal currents can rapidly transfer pollutants or invasive species from one coastal state to the next.

The need for, and advantages of, regional co-operation on environmental matters are widely recognised, and in most parts of the world, neighbouring countries and those in specific regions have well-developed bilateral, multilateral and/or regional co-operative agreements. The most prominent of those in the marine context, are the Regional Conventions which provide the legal frameworks for the UNEP Regional Seas Programmes.

Yemen is a member of PERSGA and Indian Ocean MOU and accordingly, it is now widely recognised that international and particularly regional co-operation is of paramount importance for achieving progress in preventing and/or combating the introduction and the spread of unwanted aquatic organisms and pathogens through ships' ballast water.

Regional cooperation can be approached by: **Participation, Partnership, Sharing, Replication and Integration.**

**Participation** of key stakeholders and relevant experts leads to **partnerships**, which in turn may facilitate common understandings and approaches as well as **sharing** of information, knowledge, tasks, commitments, etc. This then leads to the establishment of an agreed regional approach as a means for further **replication** of experiences among the countries of a region. Once a co-operative framework is in place, this may lead to a much broader **integration** of the regional BW Management issues with more broadly based national and regional environmental policies up to large marine ecosystem level.

# 4 Institutional Structure and Arrangements

## 4.1 The Lead Agency

**The Maritime Affairs Authority (MAA)**, under the Ministry of transport, is responsible for maritime matters and marine environment protection from pollution, and also for issuing seafarers' documents and for conducting ship inspections. It is also as a Flag State Authority responsible for registration of ships, fishing boats and pleasure craft.

The MAA is also the primary authority for Port State Control. MAA is a member of the Indian Ocean MoU on Port State Control (IOMOU).

The MAA is the leading agency for ballast water implementation. All the implementations on ballast water management will be carried out by MAA. The responsibilities and tasks of the lead agency (MAA) are as follows:

**Table 5: Responsibilities of the leading agency (MAA)**

Maritime Affairs Authority is responsible for	
1	Defining the national strategy, preparing and Implementing an action plan;
2	Establishing the national legislations and ensuring effective enforcement of national legislation;
3	Implementing the ballast water management activities to all ships calling Yemeni ports;
4	Ensuring that all key stakeholders are fully conversant with the National Strategy;
5	Monitoring and reviewing on an ongoing basis how effectively the National Strategy is being implemented and introducing changes, as necessary;
6	Provide in-country coordination between different government bodies, industry sectors and other groups with interest in ballast water issue;
7	administration of relevant international instruments related to ballast water management;
8	Incorporating into the National Strategy improved measures that become possible due to experience gained in operating the National Strategy and/or through developments in research or technology, or changed international requirements or 'best practice';
9	Ensuring the ongoing liaison and cooperation of all key stakeholders;
10	Participating in international, regional and national matters relating to BWM;
11	Planning for marine bio-invasion management; and prompt and effective response actions to controlling of IAS invasion in the emerging cases;
12	Serving as natural contact point with the neighbouring states, and the international and regional support organizations;
13	Defining applications for the ships that is not in the scope of the convention;
14	Determining the procedures required for the mitigation of IAS impacts.

## 4.2 Key Stakeholders (Division of labour) and Responsibilities

**Table 6: Division of Labour Responsibilities**

STAKEHOLDER	RESPONSIBILITY
<b>Maritime Affairs Authority (MAA)</b>	<ul style="list-style-type: none"> <li>- Implementing the national strategy;</li> <li>- Preparing the national legislation;</li> <li>- Implementing the port state and flag state rules;</li> <li>- Leading the national task force, control and direct the activities of the task force;</li> <li>- Monitoring the implementation of the strategy;</li> <li>- Monitoring the implementation of the national legislation;</li> <li>- Making the revisions on the strategy document;</li> <li>- Participating in the international studies on ballast water management.</li> </ul>
<b>Yemeni Ports Corporations</b>	<ul style="list-style-type: none"> <li>- Elaboration and implementation of port BWM plans (consistent with national strategy) and provision of relevant facilities or infrastructures;</li> <li>- Monitoring of routes of vessels that most frequently visiting its port and reporting the BW discharges from those vessels or any ships incoming its ports to MAA;</li> <li>- Plays a key role in receiving the reports from ships, pilots about ballast water uptake and discharge.</li> </ul>
<b>Marine Sciences and Biological Research Authority (MSBRA)</b>	<ul style="list-style-type: none"> <li>- Controlling the invasive from aquaculture farms;</li> <li>- Implementation of port Biota baseline surveys to identify the endemics and introduced marine species and providing the right species characteristics, which delegates the lead agency and universities;</li> <li>- Determine the frequency of a particular species introduced that have high invasive potential from any particular source port, and evaluating the chances of survival of IAS;</li> <li>- Identifying of invasive species in the waters of Yemen and testing its taxonomy;</li> <li>- Supporting of ballast water risk assessment and monitoring programmes;</li> <li>- Consulting to the leading agency.</li> </ul>
<b>Environmental Protection Authority (EPA)</b>	<ul style="list-style-type: none"> <li>- Conservation of natural living resources and development their management through sustainable methods, and management and protection of marine living resources including biodiversity and endangered species; coastal zone management; and protected areas;</li> <li>- Controlling the land based invasives and integrate with ballast water managements system;</li> </ul>

STAKEHOLDER	RESPONSIBILITY
	<ul style="list-style-type: none"> <li>- Plays a key role in overall coordination and management of invasive species problems, including monitoring and response plans, evaluating of environmental Resources and damages that come under invasion;</li> <li>- Implementation of Biodiversity and environmental conventions and legislations;</li> <li>- Supporting of environmental risk assessment and monitoring programmes;</li> <li>- Consulting to the leading agency.</li> </ul>
<b>Coast Guard Authority (YCG)</b>	<ul style="list-style-type: none"> <li>- Controlling the ballast water discharge in forbidden zones;</li> <li>- Monitoring any pollution incident or ballast water discharge within ports, outer anchorage or territorial waters;</li> <li>- Reporting or notify of MAA about these issues.</li> </ul>
<b>Ministry of Health</b>	<ul style="list-style-type: none"> <li>- Supervision and evaluation of sanitary control activities in ports and coastal areas;</li> <li>- Controlling activities for ships for health diseases;</li> <li>- Consulting to the leading agency.</li> </ul>
<b>Ministry of Tourism</b>	<ul style="list-style-type: none"> <li>- Ensure that all the tourist facility operators on the seashores dedicated for recreation and swimming have their own arrangements to respond any IAS invasion;</li> <li>- Tourism activities throughout the country including eco-tourism;</li> <li>- Permits for coastal tourist villages and marinas;</li> <li>- Assist the raising awareness studies;</li> <li>- Consulting the leading agency.</li> </ul>
<b>Universities and Research centres</b>	<ul style="list-style-type: none"> <li>- Consulting to the leading agency;</li> <li>- Executing the port biological baseline surveys which delegates the MAA and MSBRA;</li> <li>- Reporting the invasive detected;</li> </ul>
<b>Ship agents and Private terminal operators</b>	<ul style="list-style-type: none"> <li>- Responsible for the procedures and activities of the ship that it represents;</li> <li>- Inform ship masters, owners and charteres about the requirements of the Yemeni ports, MAA, health, immigration and customs authority regulations and ballast water data and reports.</li> </ul>
<b>Oil and Gas Terminals</b>	<p>To follow the regulations about ballast water laid down by MAA informing the shipmaster about them and assists the ships' masters to submit reports and data about the ballast water to the port authorities and MAA.</p>
<b>District Branches of MAA</b>	<ul style="list-style-type: none"> <li>- Coordinating with the Harbour Masters.</li> </ul>

STAKEHOLDER	RESPONSIBILITY
NGO's	<ul style="list-style-type: none"> <li>- Informs the public and raise the awareness;</li> <li>- Assist the port biological baseline survey studies.</li> </ul>
Port Managers	<ul style="list-style-type: none"> <li>- Assist the harbour masters on inspection activities.</li> </ul>
Fishery co-operations	<ul style="list-style-type: none"> <li>- Monitoring ballast water discharge from ships at fishing areas and notifying the MAA and port authorities;</li> <li>- Report the observations about the new species or fish stocks.</li> </ul>
Press media	<ul style="list-style-type: none"> <li>- Addressing the public regarding the effect of ballast water on the marine environment and raise their awareness regarding this issue;</li> <li>- Providing the media with press reports to create awareness about BWM and hazardous of IAS through the mass media;</li> <li>- Providing coverage of the BWM issues and Strategy activities.</li> </ul>

### 4.3 National Task Force (NTF)

For the purpose of advising and supporting the process of developing, implementing, and follow-up of the ballast water strategy, a national task force shall be established.

The NTF shall assist the MAA in carrying out the tasks and present the proposals required when a bio-invasion takes place. They are included representations from all relevant stakeholders that can be involved in and support of BWM issues in Yemen. The memberships, working system and responsibilities of the task force are defined as shown below:

**Table 7: National task Force responsibilities and working system**

<b>National Task Force (NTF) for Yemen</b>		
<b>Membership</b>	<b>Roles/Responsibilities</b>	<b>Working system</b>
<b>a) Chair of NTF</b> (from MAA as a lead agency) <b>b) NPC , Reporters and Secretary</b> (from MAA) <b>c) Representatives from the below selected stakeholders</b> - <b>Port corporations</b> - <b>MSBRA and MFW</b> - <b>EPA and MWE</b> - <b>Terminal's Operators</b> - <b>Aden Refinery Co.</b> - <b>Ministry of Health</b> - <b>Ministry of Tourism</b> - <b>Coast Guard (YCG)</b>	- Evaluates the ballast water implementation activities politically, strategically and legislatively and produces suggestions for revision; - Revises the national strategy document; - Implements the necessities of the National Strategy; - Develops and implements an evaluation plan; - Develop and implement of a review / evaluation plan; - Make recommendations and decisions on suitable polices practices, legislation, operational procedures and responsibilities	- The executive chairman for MAA will lead/chair of the NTF; - The /NTF meets once a year regularly. - If there is an extra meeting suggested from a member then the task force organizes an intercessional meeting - If there is an extra meeting shall be at the invitation of NTF chairman or the request of two thirds, at least, of the NTF members. - The members of the task force communicate via correspondence group between meetings - All the decisions of the NTF will be given by consensus and approve by NTF chairman. - After every NTF meeting the MAA, as a leading agency, will publish the minutes of the meeting. - All documents relating to NTF meetings, including agendas and minutes, should be files and progress records maintained for information and programme coordination purposes.

#### **4.4 Cross-Sectoral Collaboration**

This applies not only at the national level, but, given the transboundary nature of IAS, also requires close cooperation and coordination with neighbouring countries and trading partners, and amongst international stakeholders.

# 5 Action Plan or (Operational Arrangements)

## 5.1 Port-specific BWM plan

The BWM plan of each of the Yemeni ports required the following information to be available in the plan:

- Port biological survey and monitoring including any species of concern that could be of concern that could be exported from the port;
- What comprises existing habitats and ecosystems in the port area? For example:
  - water depth, temperature, amount and penetration of sunlight
  - type of geographical formation: rocks, sand, gravel, mud and mixtures of fine sediments in various size grading;
  - currents and tidal patterns, tidal range, intertidal zones, hydrodynamic behaviour;
  - Dimension of rain water run-off as this may affect the port water salinity and turbidity;
  - Geography: habitat location, estuaries, rivers, embayments, islands, etc.
  - chemistry: nutrients (nitrate, phosphate etc.), salinity level, run-off from land (rainfall);
  - wind and wave conditions : low energy / high energy coastline.
- What resources are considered to be at risk from an introduced species?
  - Key stakeholders with an interest in waters under the jurisdiction of a particular state, such as commercial recreation and pleasure shipping, fishing, seafood producers or commercial recreation interest, are likely to be of assistance in identifying the resources that are at risk.
- Which species will be responsible for that risk?
  - Species known to be invasive or to show otherwise negative (target species) in other regions are considered as unwanted i.e. their introduction should be avoided. Especially those species which occur in regions of similar climate regimes and salinities are likely to be introduced.
- Designation of the contingency discharge zone



- Contingency deballasting zones for use where a ship has not been able to apply satisfactory BWM practices may be identified according to the Guideline on Ballast Water Exchange Area (G14).

## **5.2 Incursion Management Response Plan**

The incursion management response plan should cover the role and responsibilities of the various organisations involved, communications, an overview of risk and description of the resources at risk. It should provide the basis for the specific operational plans and is aimed at facilitating and guiding response actions to ensure maximum efficiency and effectiveness.

The operational plans – for example for a port or particular area – should include more specific information, such as:

- The names and contact details of responsible officials and may include the names of scientific experts who can provide relevant advice;
- Notification procedures
- Location of equipment;
- Environmental data such as environmental sensitivity map identifying areas and grounds most susceptible to colonization by alien species;
- Geographical data such as physical characterization of the area, including (in the case of marine environment):
  - Nautical charts, current charts, synoptic charts;
  - Port facilities;
  - Human settlements;
  - Meteorological information;
  - Geographical delimitation of the area covered by the response plan; with indication of installations and support infrastructure;
- Criteria for suspending operations etc.

## **5.3 Flag-State Ships - Requirements and Procedures**

Ensuring that ships flying the flag of the country meet the IMO requirements (e.g. the issuing of International Ballast Water Management Certificate);

Implementing a system of Compliance Monitoring and Enforcement;

Ensuring the availability of suitable staff to implement and operate the BWM regime.

#### **5.4 Inspections of Ships system**

A ship in any port or offshore terminal of another party, be subjected to inspection by officers duly authorized by that party for the purpose of determining whether the ship is in compliance with the convention. Any such inspection is limited to:

- A. Verifying that there is on board a valid certificate, which, if valid shall be accepted; and
- B. inspection of the ballast water record book, and/or
- C. a sample of the ship's ballast water carried out in accordance with the guidelines to be developed by the Organization. However, the time required to analyze the sample shall not be used to as a basis for unduly delaying the operation, movement, or departur of the ship.

## Action plan implementation Time Table

Table 8: Action Plans

Action Points	Activities	Time Table (Year)					
		2010	2011	2012	2013	2014	2015
<i>Action 1;</i>  Establishment of the national task force	- Organize an expanded meeting for establishment the task force	✓					
	- Adopt the terms of reference document for the national task force		✓				
	- Adopt the strategy document and action plan		✓				
	- Plan the future activities of the task force		✓				
<i>Action 2;</i>  Ratify the BWM Convention	- Finalize the ratification process as soon as possible, and ensure the BWM conv. is manifested into national laws		✓				
<i>Action 3;</i>  Adopt capacity building activities in	- Building up ballast water inspection offices in Branches of MAA			✓			
	- Supply inspection equipments		✓	✓			

Yemen	- Establishing national training program on Ballast water related activities and		✓	✓			
<b>Action 4;</b> Adopt national legislations for Yemen	- Revise the draft legislations in order to finalize for adoption		✓	✓			
	- Establish a solid compliance and enforcement (CME) system			✓	✓	✓	✓
<b>Action 5;</b> Prepare the certification procedures	- Organize the procedure for preparing the ballast water management certificates		✓	✓			
	- Organize the procedure for preparing the type approvals for treatment facilities		✓	✓			
<b>Action 6;</b> Prepare the raising awareness instruments	- Organize a ballast water management symposium			✓			✓
	- Preparing booklets, brochures, posters for circulating to public from MAA		✓	✓			
	- Revising the internet web page of national ballast water management system and						
	- Show the BBC documentary film to public		✓	✓			

<b>Action 7;</b> International and regional coordination	- Participate the regional and international meetings		✓	✓	✓	✓	
	- Contribute actively the drafting procedure for Red Sea and Gulf of Aden and Arabian Sea		✓	✓	✓		
<b>Action 8;</b> Port Biological baseline surveys	- To organize a national port baseline biological survey workshop		✓	✓	✓		
	- To collaborate with the universities and promote them to make surveys		✓	✓	✓	✓	✓
	- To collect all information together in order to complete sample identification, analysis and scientific reporting system for biological baseline activities  - Prepare lists of endemic species and marine IAS, with identify the most dangerous ones.		✓	✓	✓	✓	✓
<b>Action 9;</b> Plan implementations	- To extend the plan implementation to Hodeidah region and Mukalla region.		✓	✓			
<b>Action 10;</b> Risk Assessment	- Yemen considers the risk assessment is an appropriate tool to guide on ballast water management measures and is committed to establish surveys and monitoring programmes including reporting , alert mechanism and strengthen database of alien invasive species.		✓	✓	✓	✓	✓

# 6 Implementation Plan

## 6.1 Communications, Awareness-raising and Training Campaigns

- **Industry**

The shipper/cargo owner or manager/operator as well as the ship's Master and crew and the ship's agents must be aware of the BWM and associated CME arrangements for all the port(s) their ships are visiting. They can only comply with the requirements and legitimately be held accountable for non-compliance, if they are properly aware of such requirements and where appropriate, trained in their application.

It is the shipping side's responsibility to ensure for maritime awareness of the international requirements, and the Port State's responsibility to make them aware of national requirements.

Communication is an often neglected, but very important element of any effective CME system. Agreed communication protocols are needed for all operative areas, on board the vessel in the port, between Port States and between the port and ship prior to its arrival in port.

- **Public**

Information about the danger of transfers of harmful aquatic organisms and pathogens through uncontrolled discharge of ballast water is not well known at the national level. This lack of information and generally low level of awareness of the ballast water issue is seen as an extremely important.

To increase the level of public awareness, a national public program should be established with the purpose of raising the level of awareness about the ballast water issue, its impacts and potential solutions amongst all stakeholders in the country, resulting in increased commitment to implementing ballast water management activities and addressing the issue in general.

Training of port and other appropriate personnel so they are able to administer the plan is a different but an equally important element.

## 6.2 Port Biota Baseline Surveys and Risk Assessment

- **Port biological baseline survey:**

A port baseline survey is considered vital for assessing existing natural conditions and the presence or absence of introduced marine species. Such surveys should be conducted in accordance with an internationally adopted protocol and should be conducted on an ongoing basis, as a long-term biological monitoring programme for the port. This will allow any existing introductions to be tracked and managed, and any new introductions to be detected and responded to.

The following activities are designed to advance the capacity to conduct port biological baseline surveys in key ports of Yemen:

- *Conduct a port survey at the Port of Aden, Balhaf, and Ash-Shihr (Phase I)*
- *Conduct a regional assessment of the training and capacity building needs with respect to biological surveying and monitoring (Phase II)*
- *Conduct sub-regional and/or national-level training & expansion workshops(Phase II)*
- *Conduct replicate port surveys at major ports in Yemen (Phase II & III)*

Although biological monitoring programmes are routinely carried out in many countries, those initiatives usually lack sampling sites in ports. Consequently, in most cases, the port is unlikely to have scientifically based information concerning its biological and/or 'pest' status; that is, what harmful aquatic organisms and pathogens it may already have in its waters.

This information is important not only in so far as protecting the port itself is concerned, but also so that the port can act in a responsible manner towards other ports when ships take up ballast water from its waters. It is also important in terms of the potential spread of introduced species from the port to adjacent coastal areas.

- **Ballast water risk assessment:**

This uses the result of the port biological baseline survey, as well as an analysis of shipping patterns, ballast water operations and comparison of the survey port with its source and destination ports.

This risk assessment considers the port as a donor and recipient area of alien species (either for domestic or international shipping).

### **6.3 Evaluation, Monitoring of Strategy and Action plan Schemes**

The NTF has to revise the strategy and action plan document and follow the implementation of the contents and to evaluate its effectiveness. If found that it is necessary to make amendments or need any more development, the NTF has to raise their suggestion to the Lead Agency for amendments.

To effectively evaluate the implementation of the NBWMS, a comprehensive monitoring, and reporting mechanism should be established to guide all stakeholders within NTF to meaningfully participate in the process of the

implementation of NBWMS. Such a mechanism will also help MAA as lead agency accountabilities and responsibility for more development among members of society.

This mechanism may include the following elements: (a) a system to coordinate and evaluate the extent to which the NBWMS has been adopted and implemented by all stakeholders; (b) a system to coordinate, support and enhance existing national and local multi-sectoral monitoring, evaluation and information exchange on the implementation of initiatives related to the NBWMS; and (c) a system for reporting, feed-backing and utilizing the monitoring and evaluation results on the implementation of the NBWMS for international, national and local stakeholder communities

No strategy and action plan is infallible, so continuous monitoring and reporting should be undertaken to detect problems as they arise and to facilitate remedial actions. Monitoring will be undertaken during implementation of the NBWMS and Action plan activities to measure the impact of each activity. This allows better targeting of future amendments and possible redefinition of goals, objectives and actions in specific areas.

#### **6.4 Potential Funding and Resources**

There are various possibilities for financing the Ballast water related activities:

- State budget;
- Partnerships with private sector, including in particular the shipping industry;
- Specific national funds financed through targeted taxation of certain commercial activities, and/or through accumulation of fines imposed on offenders of applicable rules and regulations; and
- National and port-level mechanisms (e.g. port dues) may ultimately to support ongoing port-specific ballast water management systems.