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**National Ocean Environmental Contingency Plan
in Asian Pacific States:
The Singapore Perspective**

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Overview

- Context and Background
- Marine pollution threats to Singapore's coastal and marine environment
- National actions to deal with marine pollution incidents
- Participation in regional and trilateral/bilateral arrangements to deal with marine pollution incidents
- Adequacy of national actions and regional and trilateral/bilateral arrangements and recommendations

Context and Background

Strategic location also creates risk

Heavily dependent on its strategic location along the Straits of Malacca and Singapore

- **60,000** vessels accounting for **1/3** of global trade pass through each year
- High traffic plus narrowest point (Philips Channel) increases risk of spills due to collisions, groundings
- Crude oil makes **90%** of flows



Source: Noer, John H. Noer and Gregory, David, *Chokepoints: Maritime Economic Concerns in Southeast Asia* (National Defense University, Institute for National Strategic Studies, October 1996).

Success brings higher level of risk

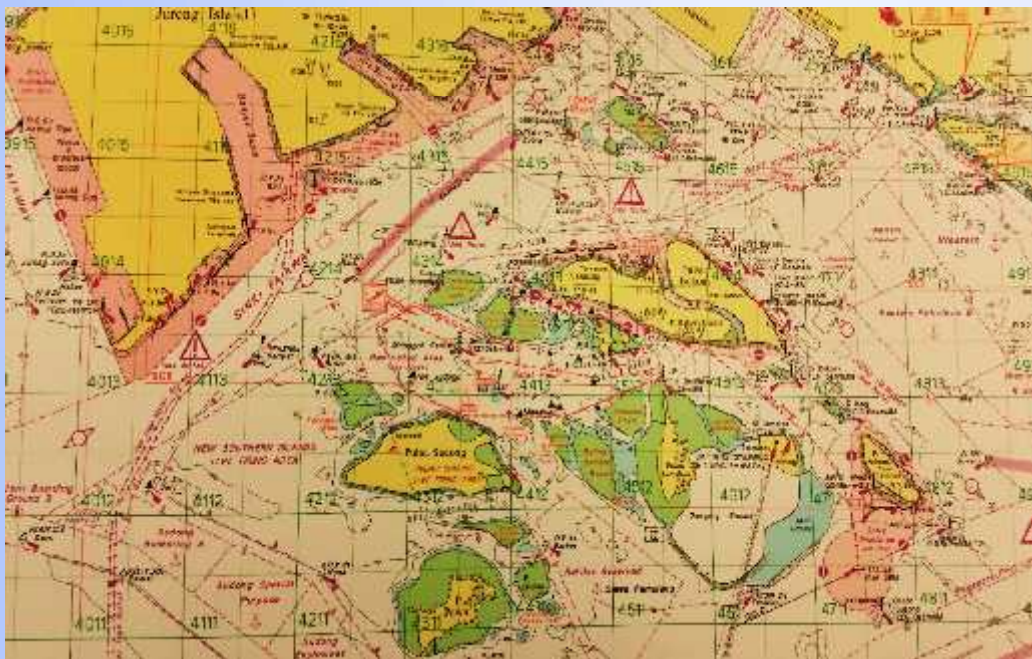
Singapore is the world's top bunkering port and a major oil-refining centre and petrochemical hub



Photo: PSA

Multiple competing uses

Limited coastal and marine environment that is subject to intense use by multiple competing users



Source: MPA Singapore. *Charts for Small Craft, Singapore Strait and Adjacent Waterways* (2009/2010)

- Recreation areas (e.g. swimming, sailing and water-skiing)
- Military live firing areas
- Anchorages
- Passenger cruise terminals
- Resorts
- Landfill
- Oil refineries
- Port facilities
- Shipping lanes
- Offshore installations

Abundant and rich biodiversity

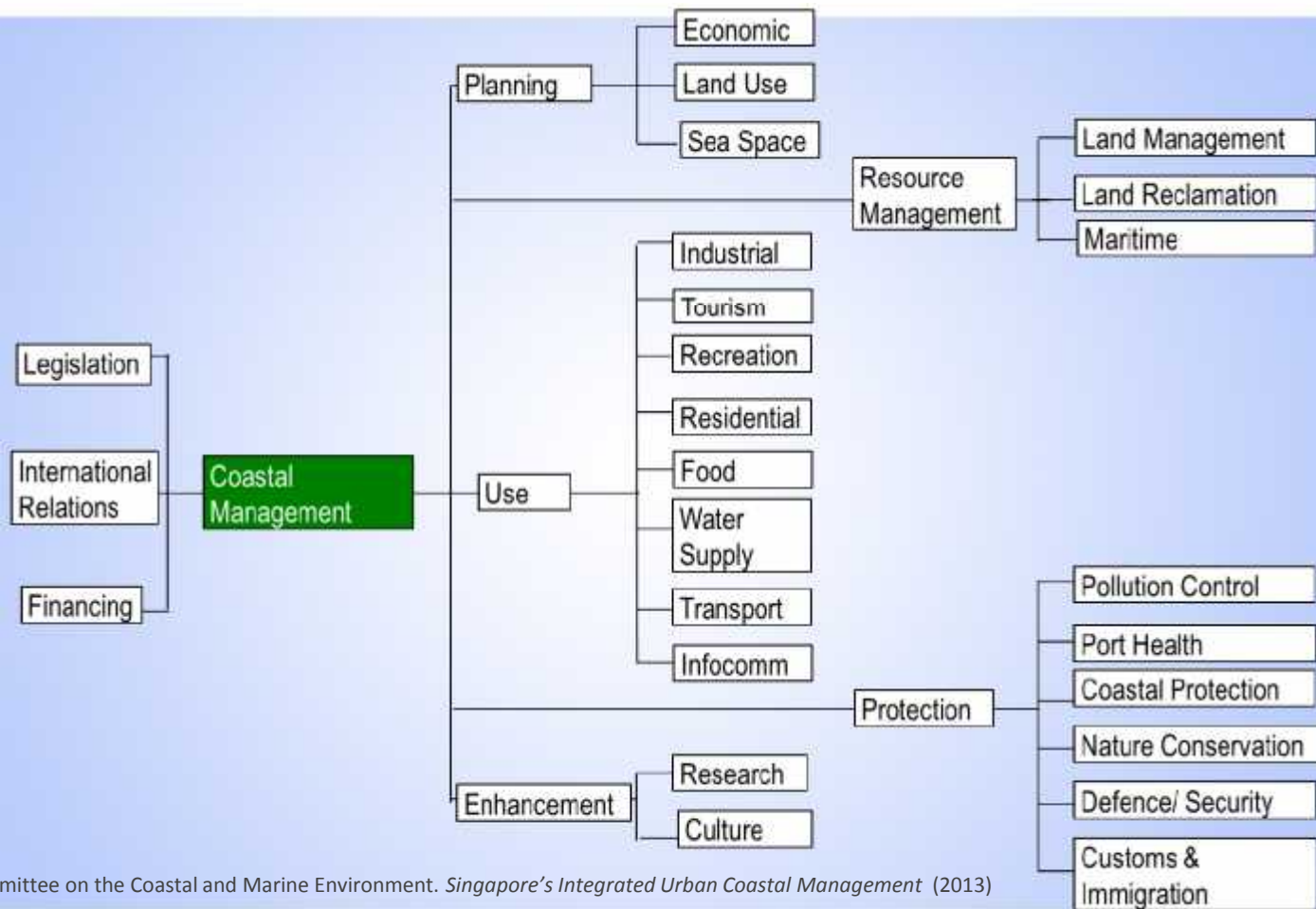
Singapore's lesser-known marine biodiversity



- Hard coral species of more than **50%** of the coral diversity in the Coral Triangle
- **14 species** identified as possibly new to science, in the five-year Comprehensive Marine Biodiversity Survey (CMBS)
- **10 species** have also been rediscovered, such as a species of large coastal catfish last seen in Singapore waters over 100 years ago.

Source: WILD Singapore. online posters: WILD, Singapore <<http://wildsingapore.com.sg>>

IUCM approach to marine environment



Source: Technical Committee on the Coastal and Marine Environment. *Singapore's Integrated Urban Coastal Management* (2013)

Marine Pollution Threats

Marine Pollution Threats

“Pollution of the Marine Environment” defined in Art 1 of UNCLOS:

- introduction by man of substance or energy into the marine environment
- results or likely to result in harm to marine life
- hazards to human health
- hindrance to marine activities
- impairment of quality for use of sea water
- reduction of amenities

- **Oil pollution** (from shipping activities, oil handling facilities, offshore oil pipelines, offshore drilling activities)
- **Chemical pollution** (from HNS handling facilities, shipping activities)
- **Pollution from reclamation activity** i.e., sedimentation and siltation
- **Nuclear pollution** (from shipping activities and nuclear power plants in the region in the near future)

National Actions

Designated Authorities

Type of Pollution	Designated Authority
Oil	<ul style="list-style-type: none">• MPA as lead agency of multi-agency team
Chemical	<ul style="list-style-type: none">• MPA as lead agency of multi-agency team
Nuclear	<ul style="list-style-type: none">• NEA regulates radiation protection including transportation of radioactive materials by sea• MPA regulates nuclear ships to ensure that there are no unreasonable radiation or other nuclear hazards to the waterways. Also regulates ships carrying irradiated nuclear fuel.
Reclamation	<ul style="list-style-type: none">• Depends on the nature of the reclamation project

Contingency Plans

Type of Pollution	Contingency Plans
Oil	<ul style="list-style-type: none">• Marine Emergency Action Procedure (MEAP)• Contingency Plan provides for tiered response; Government, private agencies and oil companies are parties; list of response capabilities; supported by industry players
Chemical	<ul style="list-style-type: none">• Marine Emergency Action Procedure (MEAP)• Tiered Response for bulk chemicals; Government, terminals and Singapore Chemical Industry Council (SCIC) are parties; supported by industry players
Nuclear/ Reclamation	<ul style="list-style-type: none">• Not covered by MEAP and no equivalent Contingency Plans

Contingency Plan for reclamation?

Case concerning Land Reclamation by Singapore in and around the Straits of Johor (Malaysia vs Singapore):

➡ *“...the duty to cooperate is a fundamental principle in the prevention of pollution of the marine environment under Part XII of [UNCLOS] and general international law”*

➡ *“...given the possible implications of land reclamation on the marine environment, prudence and caution require that Malaysia and Singapore **establish mechanisms for exchanging information and assessing the risks or effects of land reclamation works and devising ways to deal with them in the areas concerned**”.*

Ratification and Implementation

Type of Pollution	Ratification and Implementation
Oil	<ul style="list-style-type: none">• Prevention of Pollution of the Sea Act (PPSA) and its subsidiary legislation implement MARPOL 73/78 and Annex I and the OPRC 1990• The Merchant Shipping (Civil Liability and Compensation for Oil Pollution) Act and the Merchant Shipping (Civil Liability and Compensation for Bunker Oil Pollution) Act give effect to the provisions of the CLC 1992 and Fund 1992 and the Bunker Convention 2001, respectively

Ratification and Implementation

Type of Pollution

Ratification and Implementation

Chemical

- **Prevention of Pollution of the Sea Act (PPSA)** and its subsidiary legislation implement, amongst other IMO conventions, **MARPOL 73/78 and Annexes II and III** and the **OPRC-HNS Protocol 2000**
- **Merchant Shipping Act and Merchant Shipping (Safety Convention) Regulations** implement, amongst other IMO conventions, **SOLAS 1976** (Chapter VII on Carriage of Dangerous Goods)
- BUT NOT **HNS 1996** and **HNS Protocol 2010 (2010 HNS Convention)** on liability and compensation for damage in connection with the carriage of HNS by sea

Ratification and Implementation

Type of Pollution	Ratification and Implementation
Nuclear	<ul style="list-style-type: none">• Merchant Shipping Act and the Merchant Shipping (safety Conventions) Regulations implement the SOLAS 1976 (Chapter VIII on nuclear ships)• Convention on Nuclear Safety 1994 (for land-based nuclear power plants); Convention on Early Notification of a Nuclear Accident 1986; Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency 1986 - Singapore's implementation of these Conventions is limited to current threats e.g. those related to transportation of radioactive materials. Not a party to any liability and compensation conventions.
Reclamation	<ul style="list-style-type: none">• No specific Convention

Equipment

Examples:

- Oil pollution equipment include: **booms, skimmers, portable storage and dispersant spraying equipment** given by the Japanese Govt to ASEAN (through OSPAR and maintained by MPA) and **aerial spraying systems, pollution-combating catamarans, heavy oil skimmers, booms and portable storage tanks** (maintained by private sector)
- Chemical pollution equipment include: **personal protective gear, absorbent sheets and barriers, detection equipment, effective inhibitors and neutralizing agents** (maintained by HNS handling facilities as required by law)

Exercises

- Annual table-top and seaward exercises, catering to both chemical and oil spill exercises
- Seaward exercises typically scenario-based multi-agency exercises including full deployment of equipment
- Since 1998, the MPA has conducted several chemical spill exercises both in the field and on paper, to deal with chemicals such as xylene, toluene and benzene.
- Significant real-life experience from combating actual oil spills e.g. Evoikos, Natuna SEA and Bunga Kelana 3

Recent Singapore Oil and Chemical Spill Exercise



24 April 2015 Exercise

Over 180 personnel

Over 20 agencies

22 anti-pollution craft

Aircraft with aerial
dispersant spraying
system

Source: Green4Sea. *Singapore showcases response capabilities at a joint oil spill exercise* (24 April 2015): Green4Sea, Singapore
<<http://www.green4sea.com>>

Singapore-Malaysia First Joint Chemical Spill Exercise



Photo: MPA, NEA

Source: MPA, Singapore. *MPA lead Multi-Agency Team for Joint Oil Spill Exercise* (29 October 2010): MPA, Singapore <<http://www.mpa.gov.sg>>

Singapore and Malaysia conducted their first-ever joint chemical spill exercise at sea, in the Straits of Johor on 9 April 2014

Training and Forces of Implementation

- Maritime-related businesses, in partnership with MPA, tertiary institutions and other organisations such as the IMO, have developed training initiatives such as those on oil spill planning, response and management
- Regular inspections are conducted to ensure that oil and HNS handling facilities maintain their anti-pollution equipment as required by law; fines and/or imprisonment for non-compliance
- Random checks on validity of dispersant required to be stocked by tugs and oil terminals
- Review mechanisms such as formal exercise/pollution incident debrief sessions and follow-up meetings intra and inter private and public sectors

Bilateral/Trilateral and Regional Arrangements

Bilateral Level - Chemical Pollution

Emergency Response Plan (ERP): seeks to enhance the preparedness of emergency response agencies from Singapore and Malaysia in tackling potential chemical accidents involving the seaborne transportation of hazardous chemicals in the Straits of Johor.

Trilateral Level – Oil Pollution

- **Straits of Malacca and Singapore Revolving Fund:** enables Indonesia, Malaysia and Singapore to draw cash from the Fund for use in combating oil pollution caused by ships. Amount will be repaid to the Fund when the State recovers the clean-up costs from parties responsible. Fund size is 400 million yen (approximately USD 3.3 million) and established in 1981.
- **Standard Operating Procedure (SOP) for the Joint Oil Spill Combat in the Straits of Malacca and Singapore:** adopted in 1984 by the Revolving Fund Committee to enable the three littoral States to take prompt measures, either individually or collectively, to tackle oil spills from ships.

Regional Level – Oil Pollution

ASEAN Oil Spill Response Action Plan (OSRAP): this plan (flowing from an MOU signed late 2014) is aimed at improving the oil spill capability of each ASEAN country *by providing mutual assistance in the event an oil spill exceeds the national response capability*. The SOP will need to be reviewed to ensure that it harmonises with ASEAN OSRAP.

Adequacy of National Actions and Bilateral/Trilateral Arrangements

National Actions

Widen scope of National Marine Action Plan:

- MEAP currently does not include other forms of marine pollution such as pollution from reclamation activity and nuclear pollution.

Other Contingency Plans:

- Absence of contingency plans for nuclear pollution and pollution resulting from reclamation activity.

National Actions

Greater transparency:

- MEAP and oil and chemical contingency plans should be publicly available – currently only available to parties to plans so that public scrutiny is not possible.

Accede to 2010 HNS Convention:

- Singapore yet to accede to the 2010 HNS Convention

Sensitivity mapping for oil spill response:

- to implement IMO/IPIECA Guidance on sensitivity mapping for oil spill response for the implementation of OPRC 1990

Bilateral/Trilateral Arrangements

- **Bilateral mechanisms for managing pollution from reclamation activity with transboundary impact:** Malaysia and Singapore should “...establish mechanisms for exchanging information and assessing the risks or effects of land reclamation works and devising ways to deal with them in the areas concerned” as advised by ITLOS in the 2003 land reclamation case.
- **Adequacy of Straits of Malacca and Singapore Revolving Fund:** It has been over 30 years since the Fund was established and with inflation, the Fund effectively diminishes. To review adequacy of Fund against current pollution risks. Expand coverage to include chemical spills?

Regional Arrangements

- **Regional Oil and HNS Contingency Plan:** Need a comprehensive regional plan like NOWPAP Regional Oil and HNS Spill Contingency Plan that would (i) not only set out the framework that promotes cooperation and mutual assistance among countries in the region but also (ii) set out detailed information such as immigration and customs requirements that will facilitate the effective transboundary movement of personnel and equipment.
- **Regional Nuclear Pollution Contingency Plan:** Given the plans and ambitions of countries such as Vietnam, Indonesia, Malaysia and Thailand, there is clearly a need for a nuclear contingency plan for the region to deal with transboundary pollution incidents

Thank You

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