

Oil Spill Preparedness and Response: The Singapore Experience



Capt M Segar
Assistant Chief Executive (Operations)
Maritime and Port Authority of Singapore

Scope

- **Introduction**
- **MPA's Strategy in Combating Oil Spill**
- **Regional Cooperation Mechanisms**
- **Singapore's participation in the Arctic**





More than **140,000** ships
call annually

More than **50,000** ships
pass through the Singapore
Strait each year

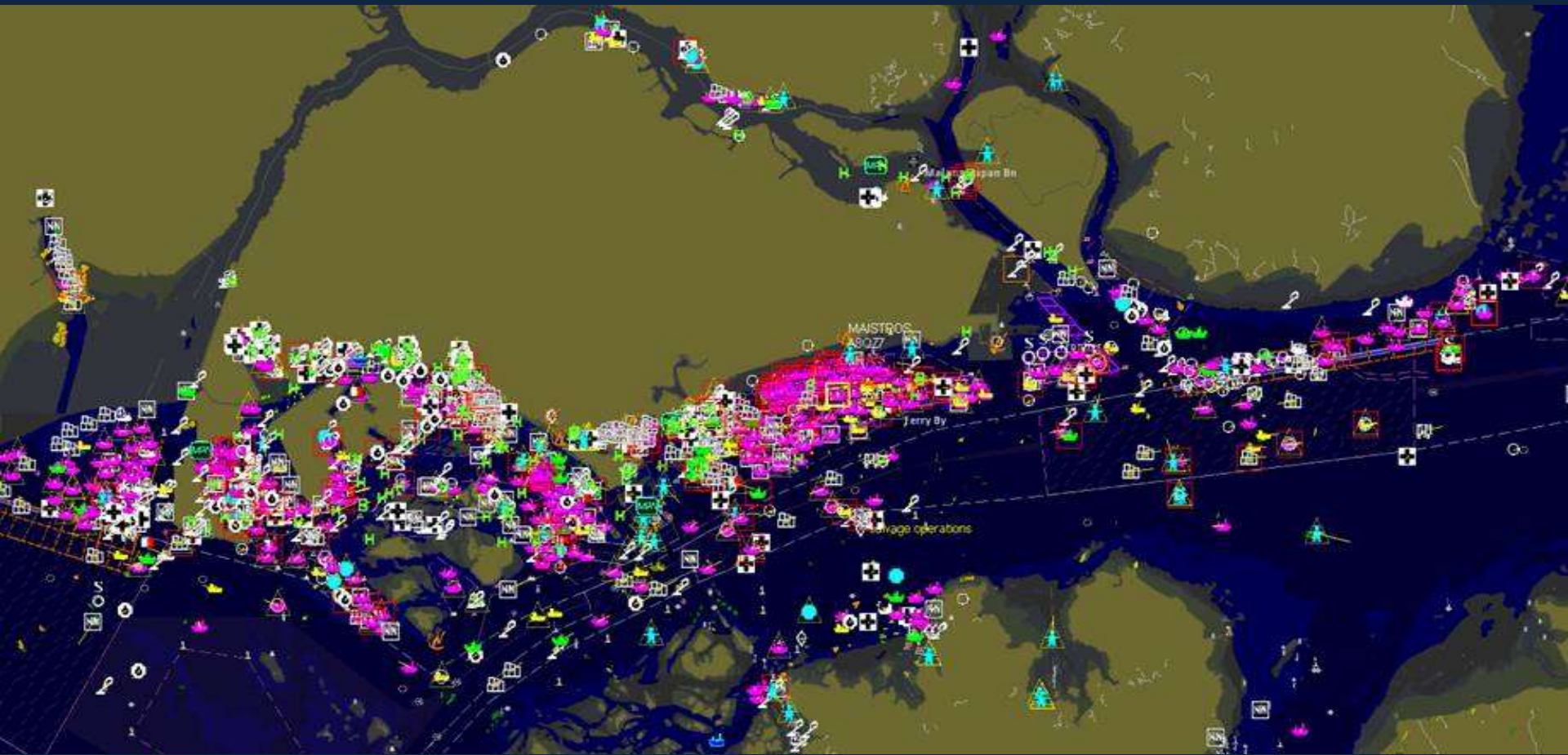


About **1,000** vessels in the
Singapore Port at any time

About **42 million** tons of
bunker lifted each year



A Typical Day in the Port of Singapore and surrounding waters



MPA is the **Lead Agency** for all marine emergencies

- E.g. Oil Spill, SAR, collision, contact
- Chairs Emergency Operations Committee
- Coordinates Operations At Sea



Major Clean-up Operations



Oct 1997
“Evoikos”

Spilled 28,500 metric ton
MFO

Clean up cost US\$3.2 mil



Oct 2000
“Natuna Sea”

Spilled 7,000 metric ton
Nile Crude oil

Cleanup cost US\$1.6 mil



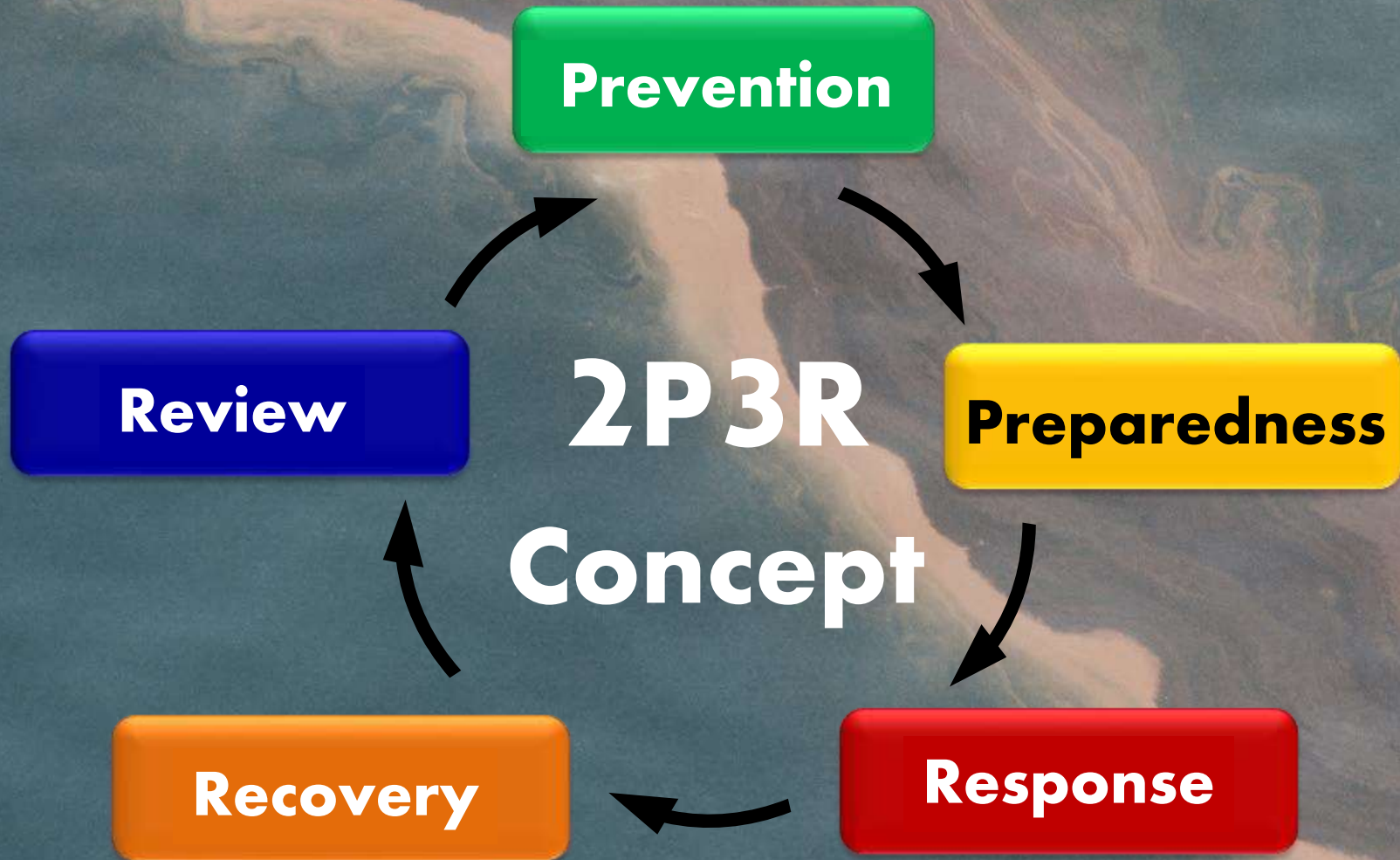
May 2010
“Bunga Kelana 3”

Spilled 2,500 metric ton
of Bintulu Crude

Cleanup cost S\$9.5 mil

So **HOW** does MPA manage oil spills?

MPA's Strategy



Prevention



Enhance Navigation Safety

- Vessel Traffic Information System
- Harbour Pilots



Regular checks to ensure ship- board safety

- Flag State Control
- Port State Control
- Port Inspectors
- Port Chemists
- Safety measures for handling of oil and chemicals

Preparedness

Response

Recovery

Review



Enforcement on port regulations

- 24 hours patrol
- Check for compliance of port regulations

Prevention



MPA Patrol Craft on 24 hours patrol

Preparedness

Response

Recovery

Review



Regular checks onboard ships

Prevention



Marine Emergency Action Plan

- National Contingency Plan for all marine emergencies
- Includes the Oil Spill Contingency Plan

Preparedness



Oil Spill Contingency Plan

- Government, private agencies and oil companies are parties to the plan
- List of response capabilities & sensitivity mapping
- Enable MPA to call upon resources from oil industry and response companies

Response

Recovery

Review



Memorandum of Understanding with ITOPF

- Agreed rates for vessels and equipment deployment
- Technical Adviser invited to EOC

Prevention

Preparedness

Response

Recovery

Review



Regular Exercises

- Joint Oil Spill Exercise (Ex JOSE) – involves both government agencies and relevant stakeholders, e.g. terminals.
- Organised every year



Booming of “oil spill” during Exercise JOSE



Boundary cooling of casualty vessel during Exercise JOSE

3 Tiered Response

Prevention

Preparedness

Response

Recovery

Review

Tier 1

Incident of national interest, with potential for large-scale impacts

- Require extensive multi-agency response, all local resources and potentially overseas resources

Tier 2

Incident with wider extent of pollution

- EOC convened
- Involves government agencies & other stakeholders

Tier 3

Local incident

- Clean-up done by vessel's and terminal's own capabilities

Prevention

Preparedness

Response

Recovery

Review



MPA's Tools for Combating Oil Spill

- 24hrs Marine Safety Control Centre
- Patrol craft with approved dispersants



Terminal's Tools for Combating Oil Spill

- Anti-oil pollution craft with approved dispersants
- Skimmers
- Oil booms
- Trained personnel



Prevention

Preparedness

Response

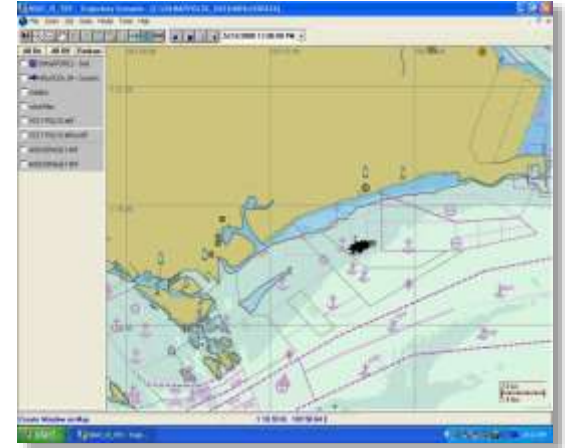
Recovery

Review



Maintaining Situational Awareness

- On-scene Commander
- Oil Spill Modeling Tool
- Closed Circuit TV
- Live Video Links with patrol craft at sea
- Live Video Links with Unmanned Aerial Vehicle (UAV)
- Aerial Reconnaissance
- Satellite imaging
- Reporting by other vessels in the vicinity



Prevention

Recovery – Back to Normalcy

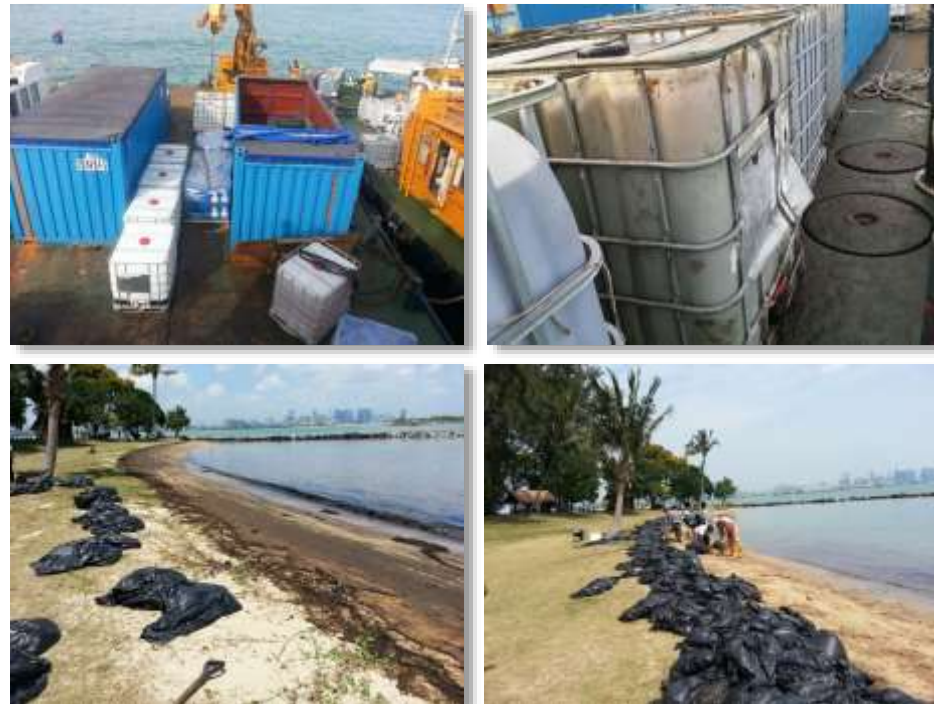
- Removing weathered oil from sea by skimmers
- Proper disposal of collected oil at **approved reception facilities** (e.g. Cleanseas, NSL)
- Shore-line clean up (coordinated by NEA)

Preparedness

Response

Recovery

Review



Prevention

Continuous Review is critical for an effective oil spill contingency plan

- MPA engages experts e.g. ITOPF, CEDRE to conduct independent review of the contingency plan, resources and response strategy.
- Test and review plans annually – Ex JOSE
 - To update SOPs, contact lists, etc.
- Lessons learnt from previous cases

Preparedness

Response

Recovery

Review



Prevention

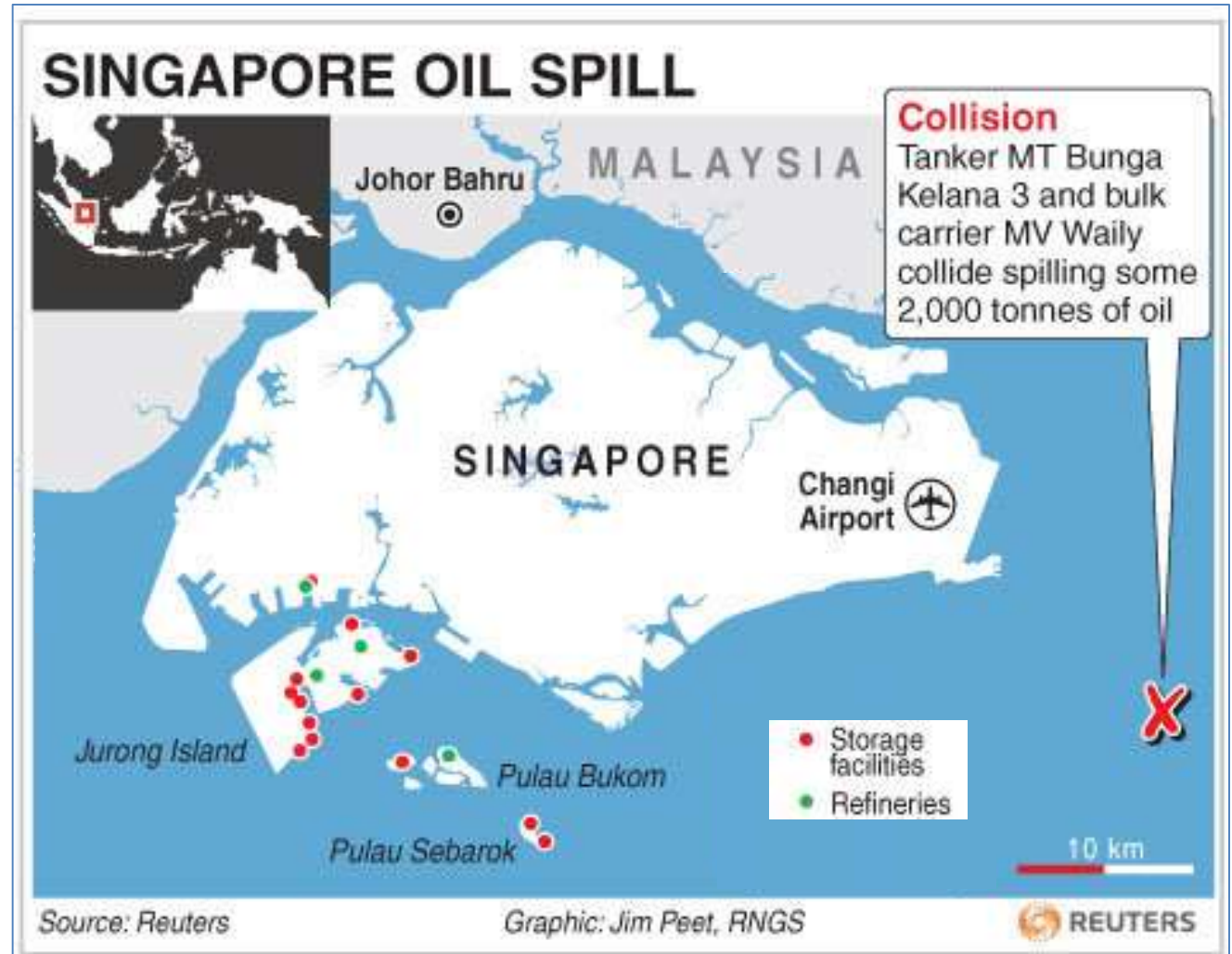
Case Study: Bunga Kelana 3

Preparedness

Response

Recovery

Review



Prevention

Case Study: Bunga Kelana 3

Preparedness

Immediate

- 4 MPA patrol craft deployed to survey the situation
- EOC activated.
- Salvage and oil spill response companies activated



Response

Phase 1

- Dispersant spraying
- Deploy containment boom
- Recover oil within boom with skimmer
- Air & satellite surveillance



Recovery

Review

Prevention

Case Study: Bunga Kelana 3

Preparedness

Phase 2

- Air & satellite surveillance
- Protective/Containment booms deployed @ sensitive areas based on OILMAP projection
- Containment boom deploy @ Tanah Merah & Changi Naval Base for recovery by skimmers

Response

Phase 3

- Air & satellite surveillance
- Protective/Containment booms deploy @ East Coast Park
- Deployment of flotsam collector for retrieval of weathered tar balls & oily debris



Recovery

Review

Prevention

Case Study: Bunga Kelana 3

Preparedness

Lessons Learnt

- Inter-agency Coordination – shoreline protection & clean-up measures better coordinated.
- Surveillance Capabilities through commercial operators
- Prioritization of sensitive areas
- Better public communications
- Guidelines for dispersants used



Response

Recovery

Review

BE PREPARED!
Cooperation is KEY!

Oil spills may not be localised...

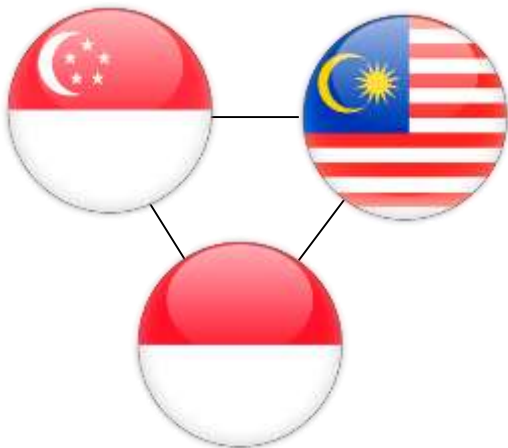


**Regional Cooperation
Mechanisms for Oil Spill Combat**

Revolving Fund Committee (RFC)

What is it

- Mechanism for member states to request and provide support for oil spills.
- Funding available for combat of oil spill (managed by Indonesia, Malaysia and Singapore).



What it covers

- Coverage area
- Division of responsibilities for lead and supporting parties.
- Designation of Liaison Officers, Communications, Alerting, Movement of Resources.
- Administration, logistics, funding.
- Listing of all resources available.
- Comms exercise



ASEAN Regional Oil Spill Contingency Plan (Draft)

What is it

- Developed under the MOU on ASEAN Cooperation Mechanism for Joint Oil Spill Preparedness and Response.
- Mechanism for member states to request and provide support for oil spills.
- Does not replace the National response system of the affected state.

What it covers

- Division of responsibilities for lead and supporting parties.
- Designation of Liaison Officers, Communications, Movement of Resources.
- Administration, logistics, funding.
- Listing of all resources available.
- Joint training and exercise programme.



ARCTIC COUNCIL

Arctic MOSPA

Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic

What is it

- Instrument on Arctic marine oil pollution preparedness and response.
- Mechanism for member states to provide mutual assistance on oil pollution preparedness and response in the Arctic
- Does not replace the National response system of the affected state.

What it covers

- Coverage area
- Division of responsibilities
- Designation of Liaison Officers, Communications, Movement of Resources.
- Administration, logistics, funding.
- Joint training and exercise programme.

Singapore's Participation in the Arctic

- Observer Status in the Arctic Council.
- Participates actively in the EPPR
- Sharing of experience and know-how:
 - Oil spill clean-up
 - Unmanned Aerial Vehicle
- Participated in the US-led MOSPA Exercise Planning workshop in Sep 2015.



Seattle 2014 UAV workshop

Conclusion

- Risk of major oil spill in both Singapore Straits and the Arctic is very real
- **Be prepared** and respond expeditiously and effectively
- **Cooperation** by all stakeholders is critical – success is through concerted effort by all stakeholders
- Many similarities in the mechanisms for the combat of oil spill – **Sharing of experiences and best practices** beneficial to all parties

