



MALAYSIAN MARITIME ENFORCEMENT AGENCY

FUTURE VESSEL : MMEA'S PERSPECTIVE



BY: COMMANDER (M) MUHAMMAD ZULKARNAIN BIN ABDULLAH
EXECUTIVE OFFICER
OFFSHORE PATROL VESSEL 1





- **Graduated - Bachelor Degree of Electrical Engineering from University of Technology Malaysia 2006**
- **Electrical and Instrument Engineer MISC Sdn Bhd (2006-2008)**
- **Joined Malaysian Maritime Enforcement Agency (2008)**
- **Engineering Officer of KM LANGKAWI (2009-2014)**
- **Commanding Officer of KM GEMIA (2015)**
- **Commanding Officer of Batu Pahat Maritime Base (2015 - 2018)**
- **Post Graduate - Master of Electrical Engineering (2018)**
- **Assistant Director Maritime Enforcement and Coordination Division (2018 - 2021)**
- **Executive Officer of Offshore Patrol Vessel 1 (2021 - now)**

SCOPE



01

MMEA's
Overview

02

SAR &
Emergency,
Crisis or War

03

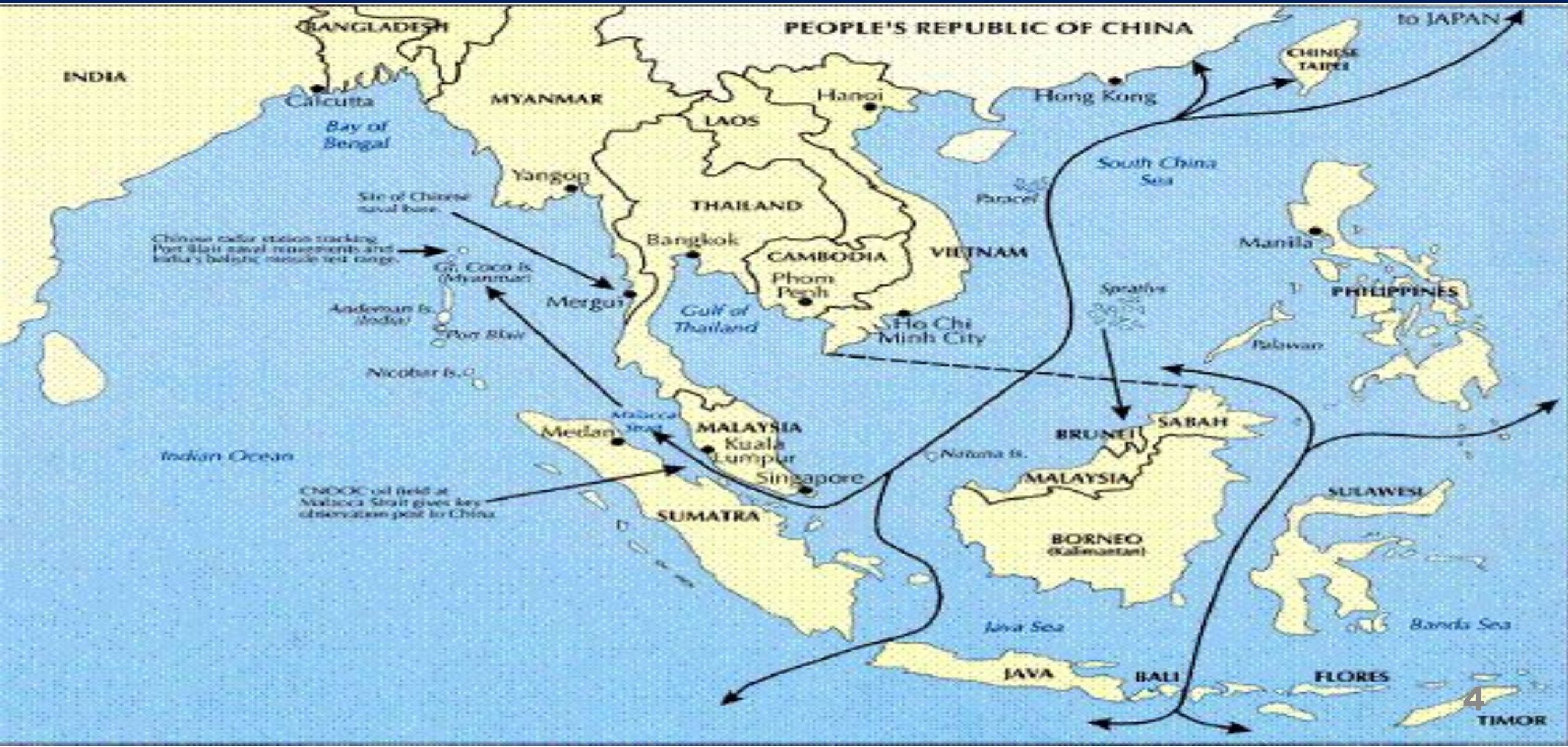
MMEA's New Asset

04

Future Vessel
Perspective



Sea Line Of Communication (SLOC)





PETROLEUM AND GAS

- * 600,000 barrels crude oil per day
- * 2.1 billion cubic feet of gas per day
- * Petroleum & gas export value USD20 billion per year mainly from offshore





FISHERIES

- 70% of fish consumptions caught at sea
- Fish production 2 million tons per year
- 80,000 fishermen

ISLAND & COASTAL TOURISM

- USD 4.4 billion per year



Piracy/ Sea Robbery



Illegal, Unreported And Unregulated (IUU) Fishing Activities



Kidnap For Ransom



Marine Pollution



Human Trafficking/ Smuggling Of Migrant



Intrusion Of Foreign Enforcement Agencies



Smuggling Drugs, Weapons And Contraband Items





MONITORING AND ENSURING THE EFFECTIVENESS MARITIME LAWS IMPLEMENTATION



Before The Existance Of MMEA



NAVY



**MARINE
DEPT.**



FISHERIES



IMMIGRATION



**AIR
FORCE**



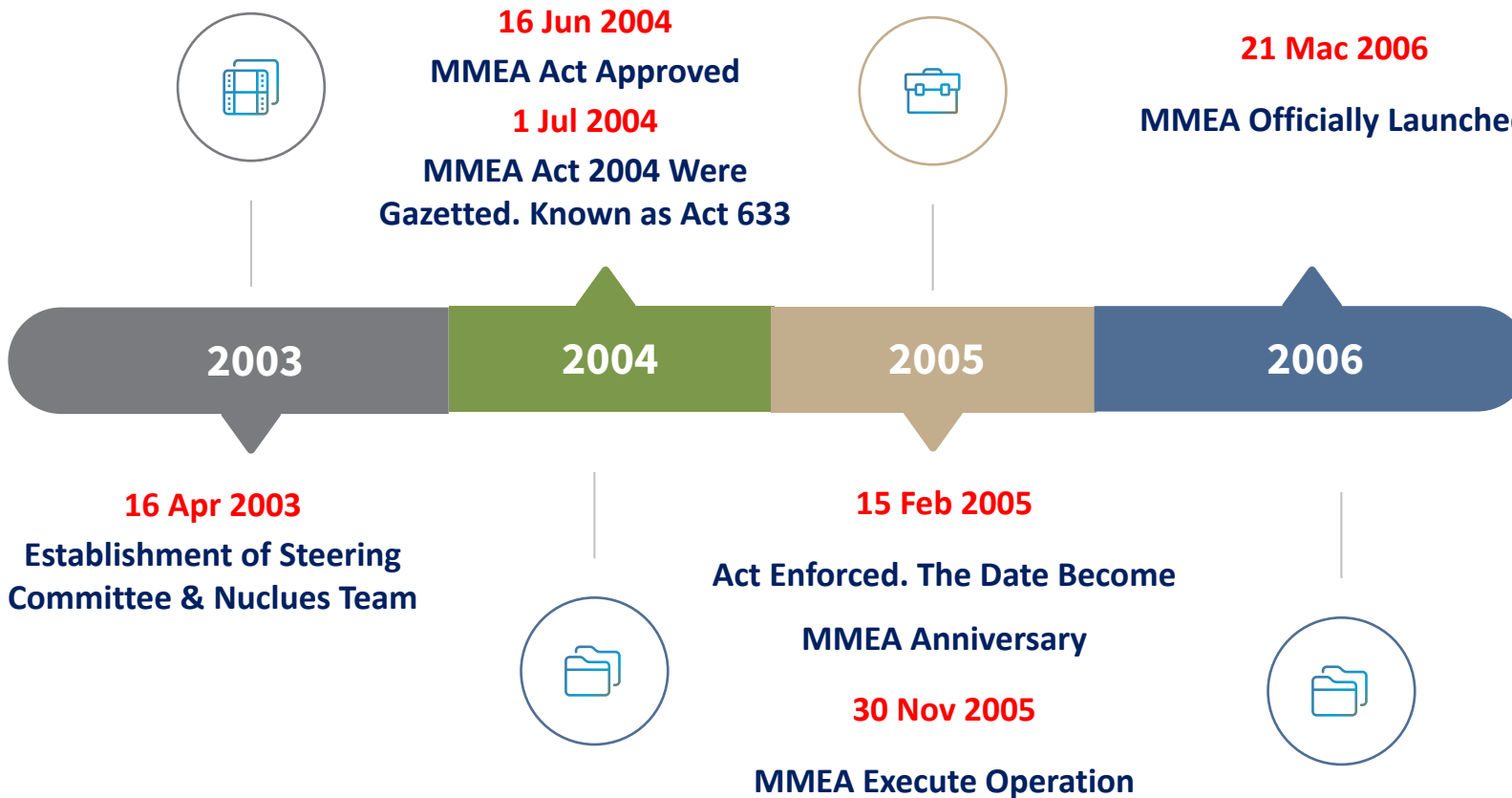
**MARINE
POLICE**

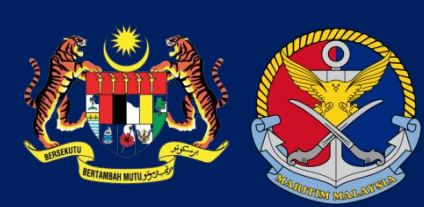


CUSTOM



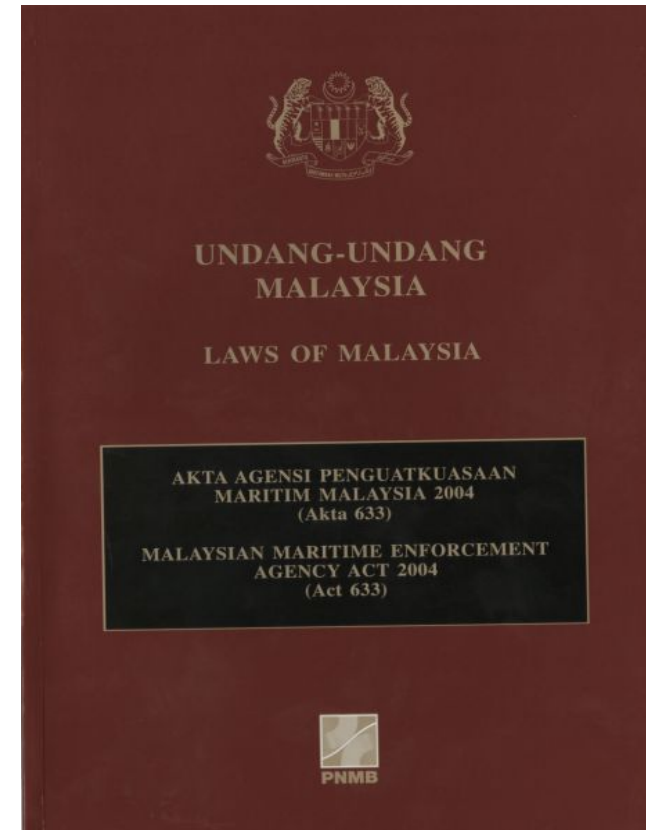
DOE





Establishment of MMEA Section 3(2)

"Agencies shall be subject to this Act, used in the Malaysian Maritime Zone to preserve law and order, maintain peace, well-being and security, prevent and detect crimes, arrest and prosecute offenders and gather security intelligence"





ADMIRAL MARITIME DATO' MOHD ZUBIL BIN MAT SOM
DIRECTOR GENERAL OF MMEA

MISION

To enforce laws, saving lives and properties at sea in order to ensure the safety and security of Malaysian Maritime Zone (MMZ)

VISION

To be one of the best maritime enforcement agencies in the world



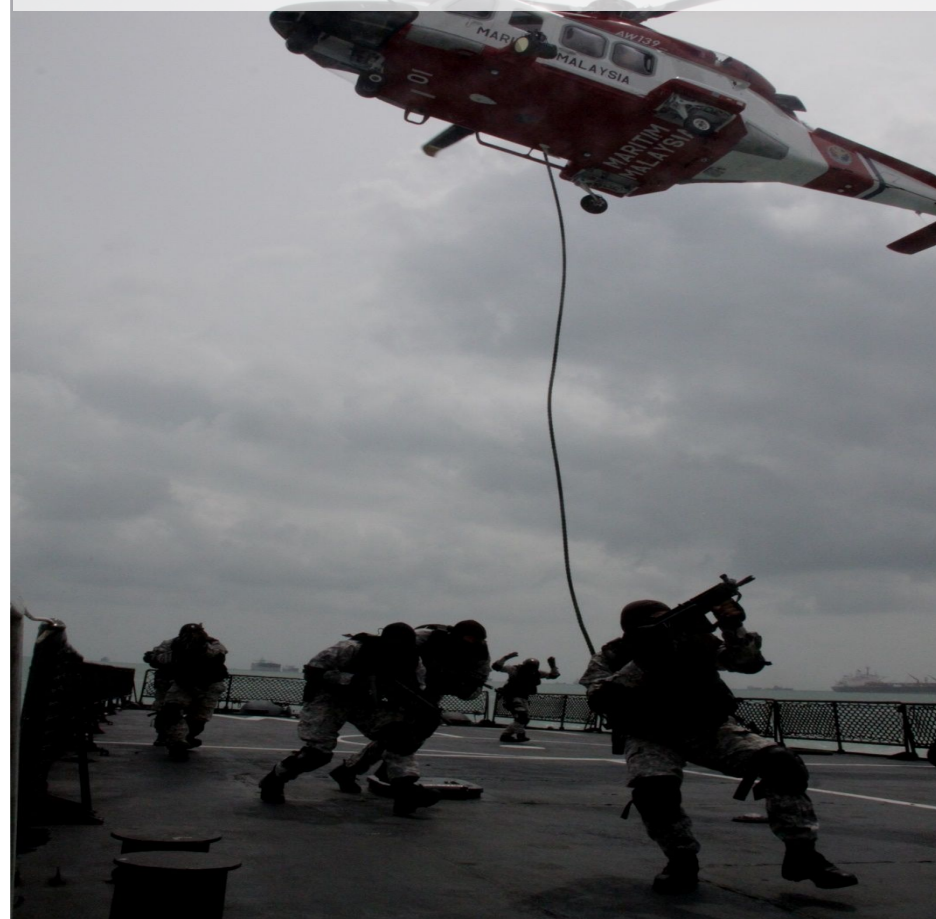


1. ENFORCEMENT
2. SEARCH AND RESCUE
3. SOVEREIGNTY / WHITE HULL DIPLOMACY



IN MALAYSIAN MARITIME ZONE (MMZ)

(Section 6 of the MMEA Act 2004)



- ◆ To enforce law and order under any federal law;
- ◆ To perform maritime search and rescue;
- ◆ To prevent and suppress the commission of an offence;
- ◆ To carry out air and coastal surveillance;

- ◆ To provide platform services to any relevant agency;
- ◆ To establish and manage maritime institutions for training;
- ◆ To ensure maritime security and safety;
- ◆ To lend assistance in any criminal matters on request by a foreign State (Mutual Assistance Act 2002).



Function of

MMEA

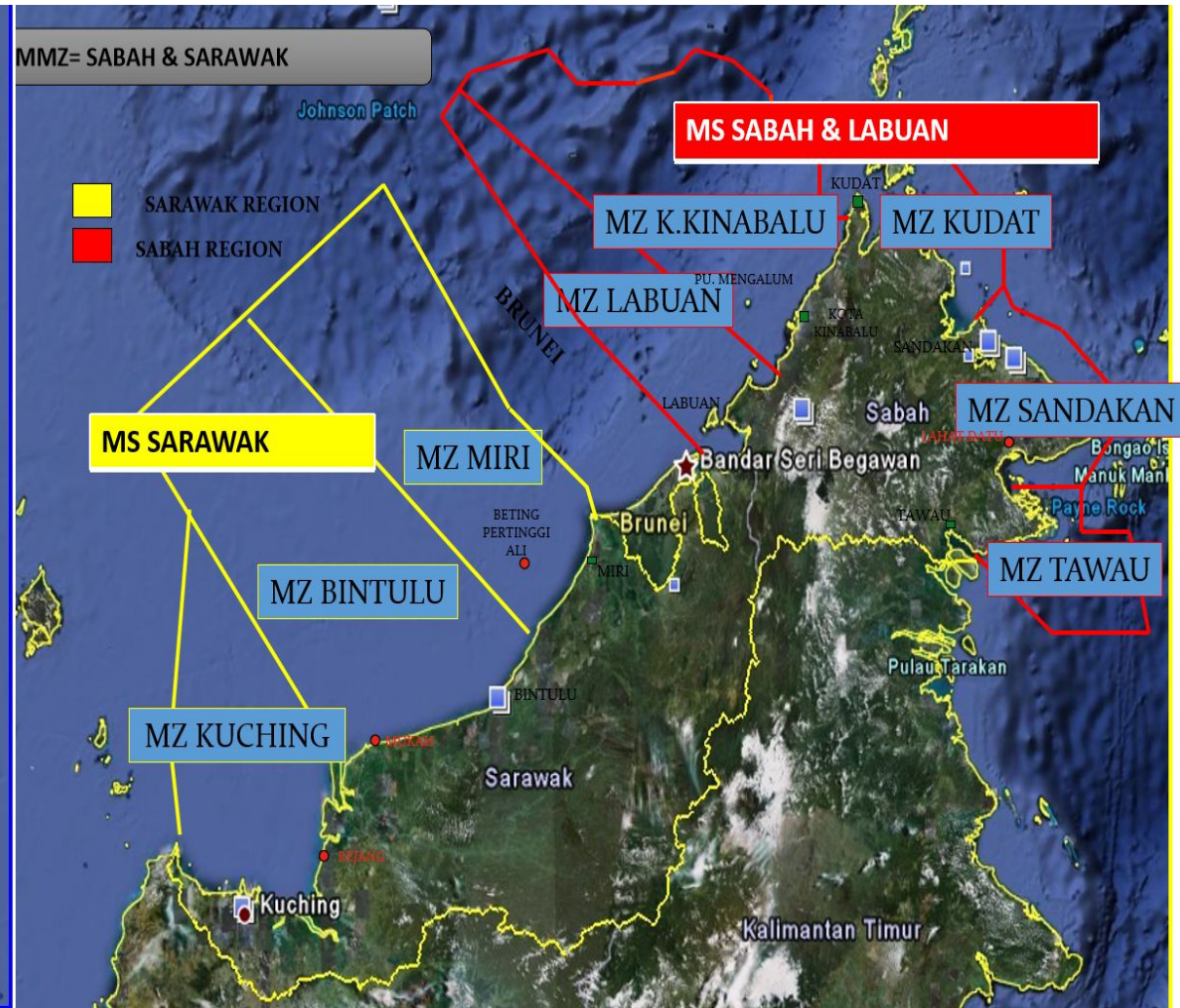
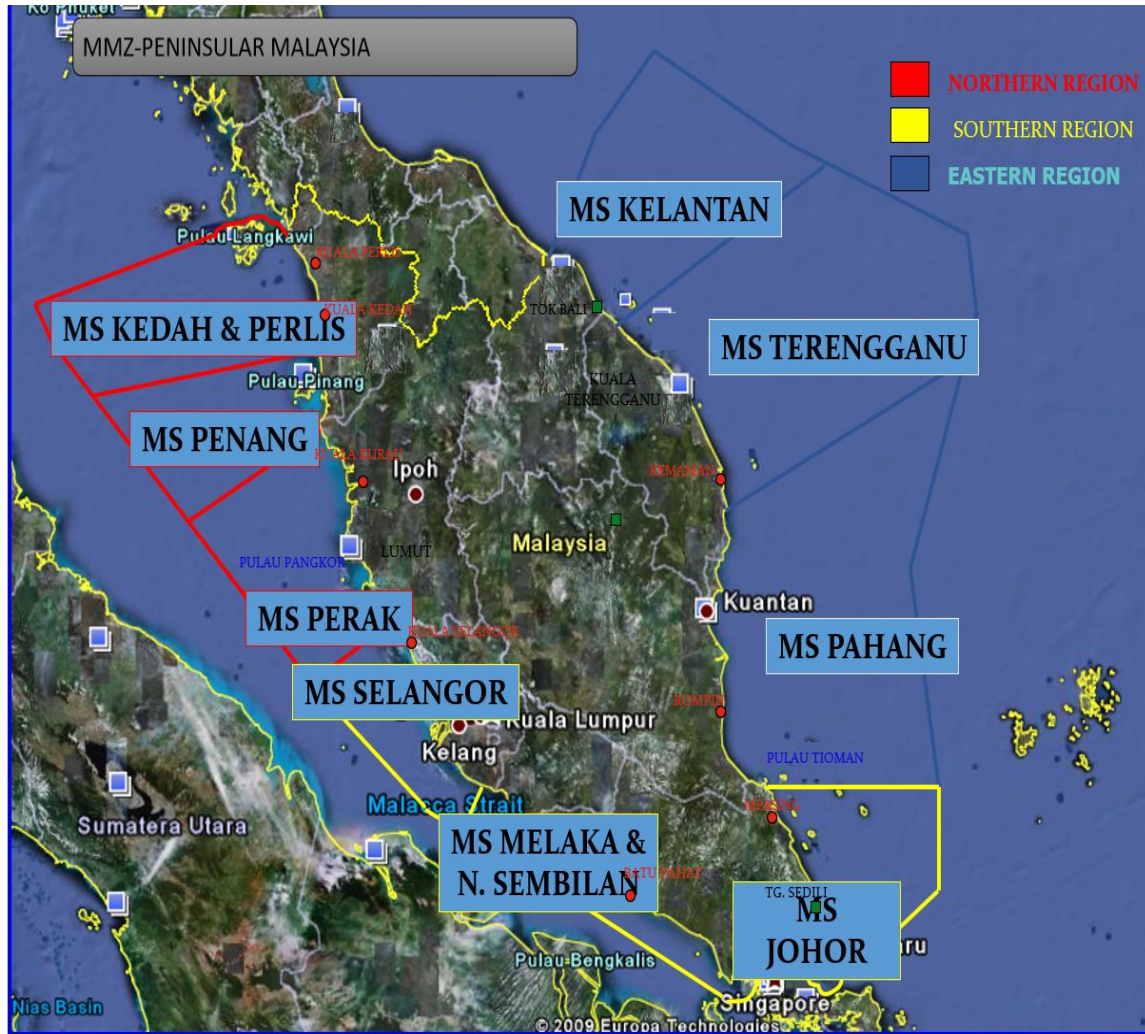
(Section 6 of the MMEA Act 2004)

AT THE HIGH SEAS:

- ◆ Maritime Search And Rescue
- ◆ Controlling and preventing marine pollution
- ◆ Preventing and suppressing piracy
- ◆ Preventing and suppressing illicit traffic in narcotic drugs



OPERATIONAL AREA

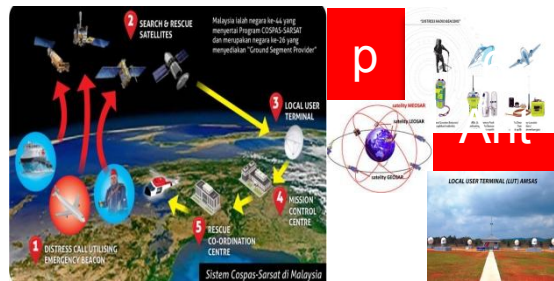




SHIPS



BOATS



SAR – CORPAS SARSAT

TYPES OF ASSETS	TOTAL
SHIPS	70
BOATS	193
AIR-BOAT	3
JET SKI	10
BOMBARDIER (CL 415)	2
AGUSTA (AW 139)	3
DAUPHIN (AS365N3)	3
RADAR – MAIN CONTROL CENTER	2
RADAR – AREA CONTROL CENTER	3
RADAR – REMOTE SENSOR SITE	14
SAR – COSPAS SARSAT	1
PERSONNELS OF MMEA	4,346



SWASLA RADAR



SPECIAL FORCES



CL 415 MP



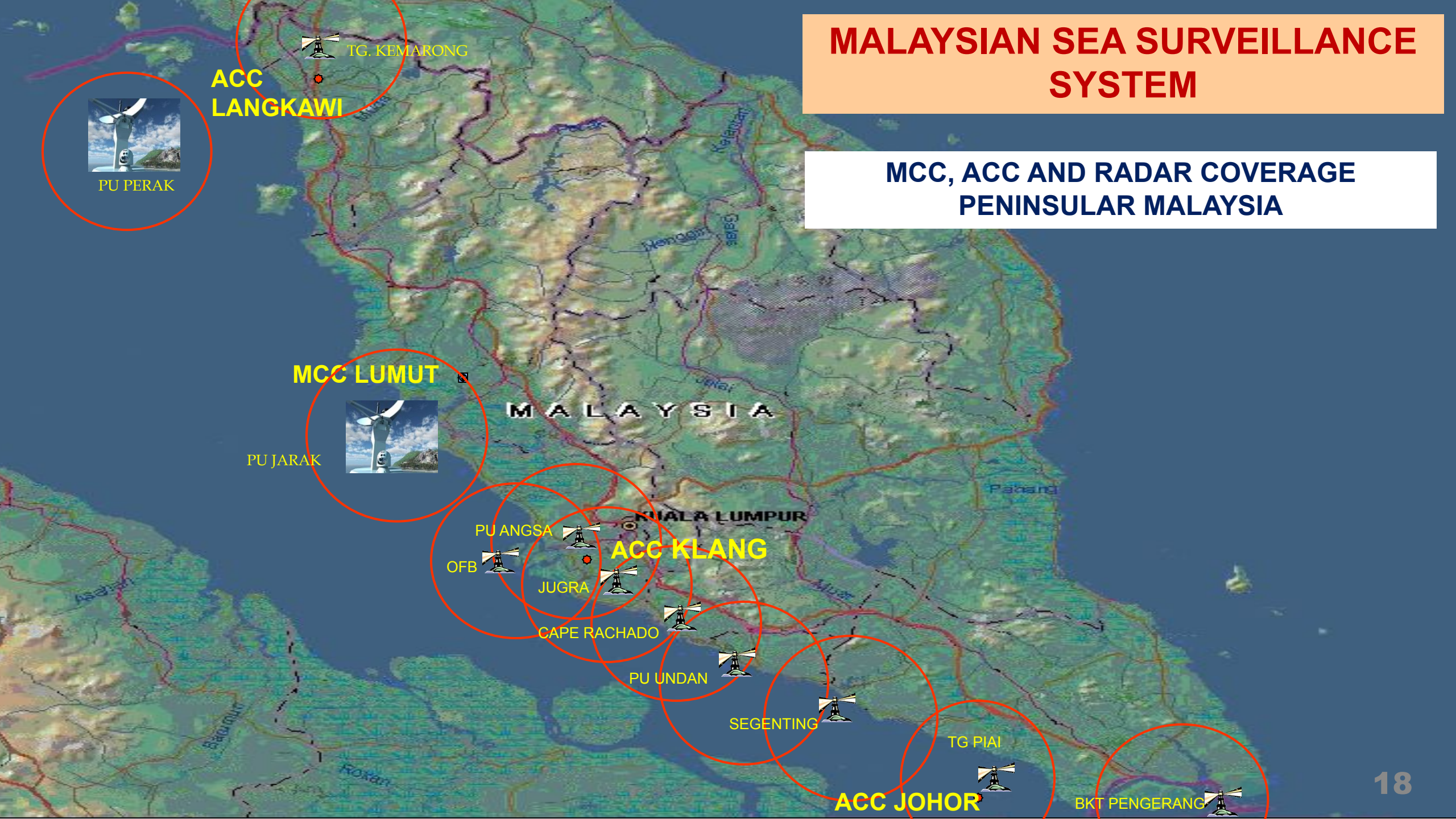
AW 139



AS 365 N3

MALAYSIAN SEA SURVEILLANCE SYSTEM

MCC, ACC AND RADAR COVERAGE PENINSULAR MALAYSIA



ACC LANGKAWI

TG. KEMARONG



PU PERAK

MCC LUMUT



PU JARAK

MALAYSIA

ACC KLANG

PU ANGSA

OFB

JUGRA

CAPE RACHADO

PU UNDAN

SEGENTING

TG PIAI

ACC JOHOR

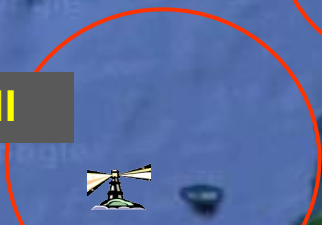
BKT PENERANG

MALAYSIAN SEA SURVEILLANCE SYSTEM

RSS BALAMBANGAN



RSS MANTANANI



SOUTH CHINA SEA

RSS GAYA



SULU SEA

NEXT PHASE



NEXT PHASE

**MCC
KOTA KINABALU**

**MCC, ACC AND RADAR COVERAGE
SABAH**



MALAYSIA MARITIME SEARCH & RESCUE (MSAR)



)

MMEA SEARCH AND RESCUE (SAR)



**MERS 999
UPGRADE TO NEW
GENERATION 999**



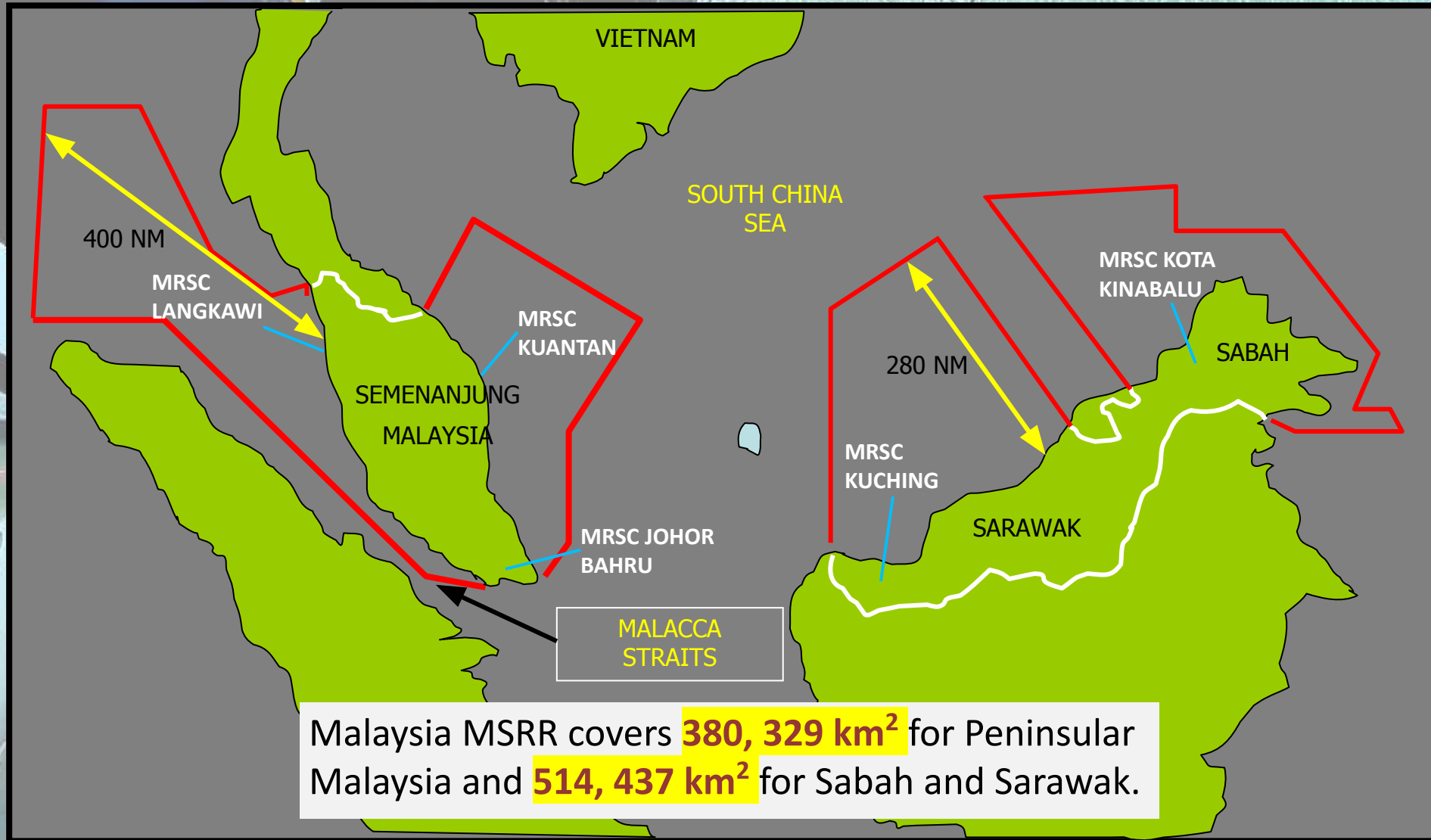
COSPAS-SARSAT



GMDSS



Malaysia Maritime Search & Rescue Region (MSRR)



Beach - 20 nm



Boat Class
Endurance: 1-3 days
operation

20 - 50 nm



Small ship
Ship Length 20-39
meters
Endurance: 4 days to
8 days of operation

50 - 100 nm



Ship length 40-74
Meters
Endurance: 8 days to
10 days of operation

100 - 200 nm



Ship length 75
Meters & ABOVE
Endurance: 14 days
to 30 days of
operation



INTER AGENCY COOPERATION

- MMEA-NAVY-RMP (NATIONAL TASK FORCE)/ESSCOM
- MMEA - MALAYSIAN ARMED FORCES
- MMEA - MACC
- MMEA – FISHERIES DEPT
- MMEA – ROYAL MALAYSIAN CUSTOM
- MMEA – IMMIGRATION DEPT
- MMEA – ROYAL MALAYSIAN POLICE



INTERNATIONAL COOPERATION

- US COAST GUARD
- JAPAN COAST GUARD
- AUSTRALIAN BORDER FORCE
- BAKAMLA INDONESIA
- SINGAPORE POLICE COAST GUARD
- THAI MECC/ MARINE POLICE
- PHILLIPINE COAST GUARD
- VIETNAM COAST GUARD
- INDIA COAST GUARD



MARITIME COMMUNITY ENGAGEMENT

- PETRONAS/BSN/TM
- FISHERMEN COMMUNITIES
- PRIVATE SECTORS PARTICIPATION EXHIBITION
- SAHABAT MARITIM - SINCE 2006
- MALAYSIAN SHIP OWNER ASSOCIATION

CAPACITY BUILDING

BILATERAL COOPERATION WITH INDONESIA :

- ❖ MALINDO General Border Committee.
- ❖ Maritime Planning Operation Team.
- ❖ Coordinated Maritime Border Patrol.
- ❖ Coordinated Search and Rescue in SAR MALINDO



BILATERAL COOPERATION WITH PHILIPPINES :

- ❖ Joint Commission Border Cooperation Meeting.
- ❖ Border Patrol Coordinating Group.
- ❖ Coordinated Maritime Border Patrol in PHIMAL series.



BILATERAL COOPERATION WITH BRUNEI :

- ❖ Joint Commission Meeting.
- ❖ Malaysia – Brunei Military Operation in MABRU series.

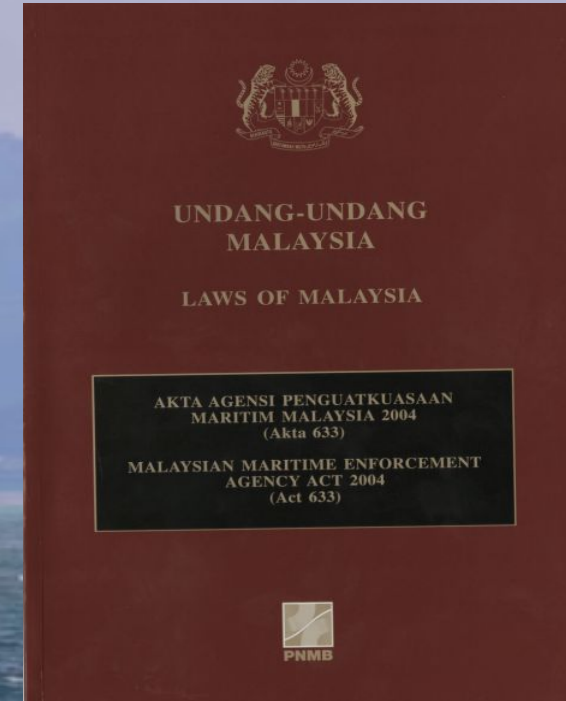
BILATERAL COOPERATION WITH SINGAPORE :

- ❖ Joint Commission Meeting.

BILATERAL COOPERATION WITH THAILAND :

- ❖ MALTHAI General Border Committee.
- ❖ Combined Naval Working Group.

EMERGENCY, CRISIS OR WAR (Section 17 (1) Of Act 633)



Agency or any part of agency as may be determined by the minister, shall be under general command and control of Armed Forces of Malaysia



FLOOD DISASTER



OIL SPILL



MASS RESCUE OPERATION



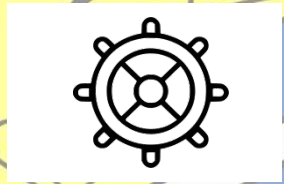
FIRE FIGHTING

MMEA Way Forward



Existing assets were not enough .

Provided 6 new vessels (New Generation Patrol Craft – NGPC)



3 new generation of OPV

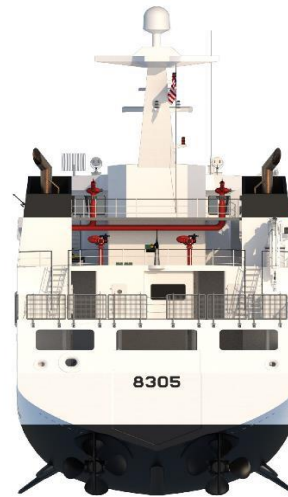
Inventory by 2023

- 1) Multi Purpose Mission Ship (MPMS)
- 2) New Helicopter
- 3) New RSS
- 4) C4ISR



MARITIM MALAYSIA

NEW OFFSHORE PATROL VESSEL





OPV SPECIFICATION



Specification	Information
Length	83 meter
<i>Draft</i>	<i>3.9 meter</i>
<i>Weight</i>	<i>1800 gross tonnage</i>
<i>Main Engine</i>	<i>4 x Caterpillar 3512C</i>
<i>Generator</i>	<i>3 x Caterpillar C18 Acert</i>
<i>Speed</i>	<i>20 Knot</i>
<i>Fuel</i>	<i>220,000 liter</i>
<i>Fresh Water</i>	<i>50,000 liter</i>
<i>Facility</i>	<i>70 crew + 20 trainee + 1 VIP</i>
<i>Gunnery</i>	<i>Aselsan Smash 30mm</i>



OPV SPECIFICATION

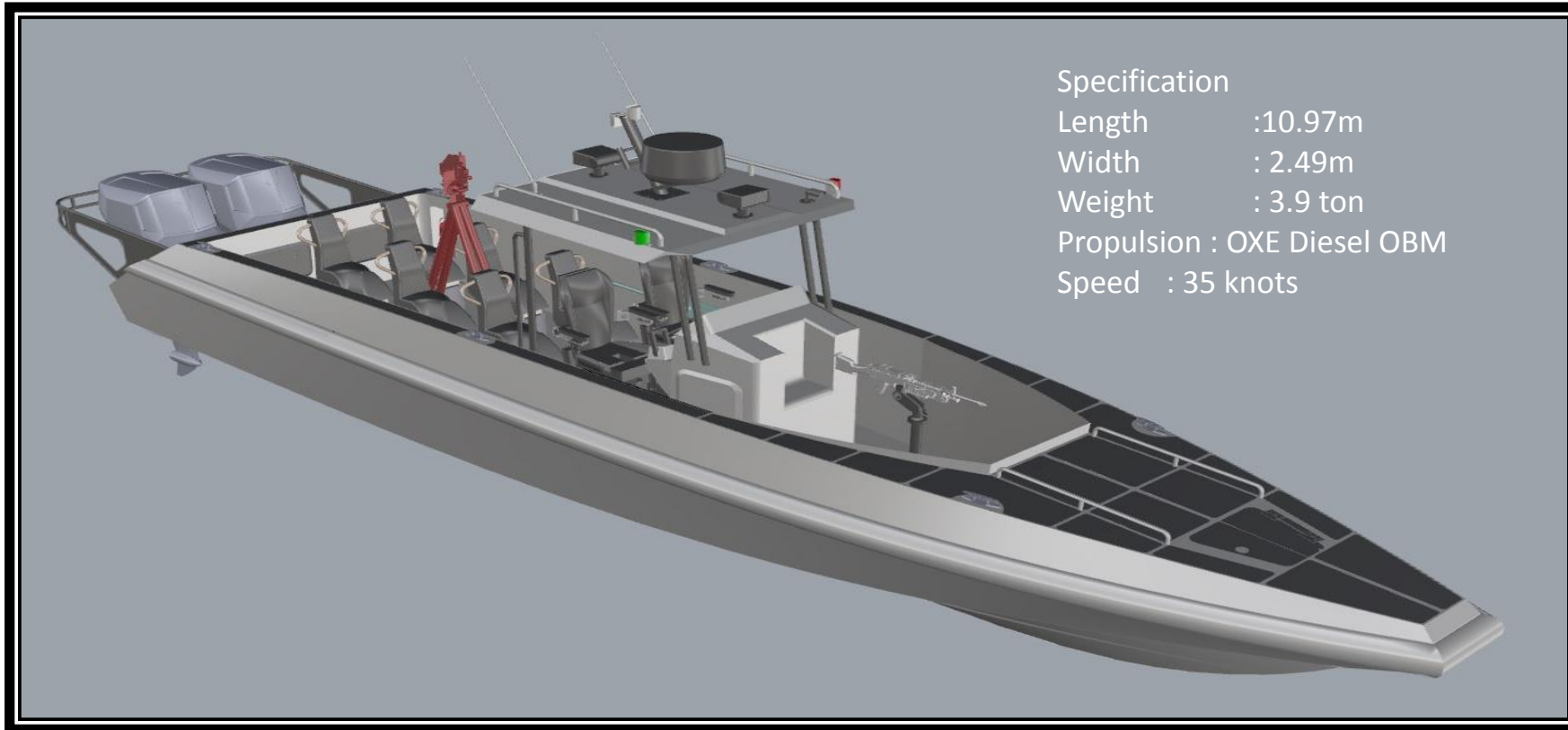


Equipment attached to OPV

- *3 Fast Interceptor Craft*
- *6 jetski*
- *3 airboat*
- *3 Unmanned ariel vehicle (UAV)*
- *Oil pollution control*
- *Integrated communication system*
- *Integrated bridge and navigation system*



FAST INTERCEPTOR CRAFT



Specification

Length : 10.97m
Width : 2.49m
Weight : 3.9 ton
Propulsion : OXE Diesel OBM
Speed : 35 knots



JETSKI



SIDE VIEW



3/4 FRONT VIEW



Specification

Model : Seadoo GTX Limited 300

Length : 3.45 meter

Breadth : 1.26 meter

Weight: 385 kg


Max. speed : 67 knots



AIRBOAT



Introduction & Specification



The MARITIM Powercraft® Airboat is the first Coastguard's airboat developed in Malaysia. The purpose mainly for security and rescue.

No	Particular	MARITIM Powercraft® Airboat
01	Category	Security & Rescue
02	Top Design	Open Cabin
03	Hull Bottom Design	Convex / Flat
04	Airboat Length Overall	5.40 m (Hull Only)
05	Airboat Beam	2.80 m
06	Structure Height	2.70 m (Excl. Garmin)
07	Main Engine	LS3 6.2L
08	Power	480 hp @ 6600 RPM
09	Speed (Max)	30 knots @ 6600 RPM
10	Propeller Type	WWP's Whisper Tip EX3/4
11	Propeller Rotation	1 Way Rotation
12	Propeller Material	Composite - Carbon Fibre
13	Complement	4 Officers
14	NavCom	GARMIN System
15	Hull Construction	Alum. Alloy

ALTI TRANSITION



ALTI

ALTI Transition Advanced



AIRCRAFT SPECIFICATIONS

Wingspan	3,000mm
Length	2,300mm
Maximum Take-off Weight (MTOW)	16.5kg
Maximum Operational Range [LoS] ¹	150km
Endurance up to ²	8hrs
Cruise Speed	40kts 76km/h 21m/s
Minimum Speed	35kts 65km/h 18m/s
VNE (Velocity Never Exceed)	58kts 108km/h 30m/s
Maximum Crosswind ²	19kts 36km/h 10m/s
Service Ceiling ³	13,000 ft AMSL
VTOL Propulsion	T-Motor / 18" Carbon
Fixed Wing Propulsion	ICE / 15" Carbon
Power Supply	LiPo / Li-Ion
Fuel	Unleaded Petrol with 2-Stroke 100% Synthetic Oil
Fuel Tank Capacity	3 Litres
Temperature Range	-5°C to +50°C

INCLUDED

- 1 x Transition Transport Case
- 1 x ALTI Transition Ready-to-Fly
- 1 x ALTI C² Command & Control Advanced
- 1 x Raptor Payload
- 1 x Spare VTOL Propellers [Pairs]
- 1 x Spare ICE Propeller
- 1 x Starter Motor
- 1 x Fuel Pump
- 1 x Battery Charger & Battery Leads
- 2 x Flight Pack
- 3 x ALTI Command & Control Battery
- 2 x Pump & Starter Batteries
- 1 x 2-Way Radio with Earpiece
- 1 x Battery Checker
- 1 x Ethernet Cable
- 1 x Tool Kit

TRANSPORT DIMENSIONS

Length : 1,740mm
Width : 1,040mm
Height : 550mm



RAPTOR PAYLOAD

SENSORS

EO : 1280 x 720 HD
Zoom : 40 x Optical / 2 x Digital
(80 x Continuous Zoom)
IR : 1280 x 720 HD
Zoom : 8 x Digital

KEY FEATURES

Object Tracking
Geo-Lock Target GPS Location
Realtime Video Stabilization
Realtime Navigation Information
Non-ITAR
Mission Planner Integration

DRI SPECIFICATIONS

Visible EO

Man (Size 1m)
Detect : 5,000m
Recognize : 3,000m
Identify : 1,500m
Vehicle (Size 2,3m)
Detect : 20,000m
Recognize : 5,000m
Identify : 3,000m

IR

Man (Size 1m)
Detect : 2,500m
Recognize : 600m
Identify : 320m
Vehicle (Size 2,3m)
Detect : 4,000m
Recognize : 1,700m
Identify : 850m



ALTI C² COMMAND & CONTROL ADVANCED

Groundside Link

Data Link : 2,4GHz
Power : 4W Silvus 4240E

Groundside Antenna

Silvus StreamCaster 4240E 2,4GHz
Tracking OS-PT 25
TBS Crossfire Control Link 868/915MHz
TBS Diamond Antenna 2,88dB Gain

Airside Link

Data Link : 2,4GHz
Power : 4W
Data Radio Ethernet-in-Ethernet-out

Airside Antenna

Silvus StreamCaster 4240E 2,4GHz
Omni, Half Wave Dipole Antennas 2,15 dBi Gain
TBS Crossfire Control Link 868/915MHz
Custom Build 1/4 Wave Dipole Antennas

Hardware

15,6" HD Monitors x 2
HDMI Out
External USB 3,0 Ports x 3
External LAN port
Active Cooling Fans x 2
RC Pilot Controller
External Keyboard & Mouse
Main AC Power 19V
Battery LiPo x 2

Dimensions & Weight

Tracking Antenna Case 1
Length : 1,530mm
Width : 360mm
Height : 310mm
Weight : 37kg

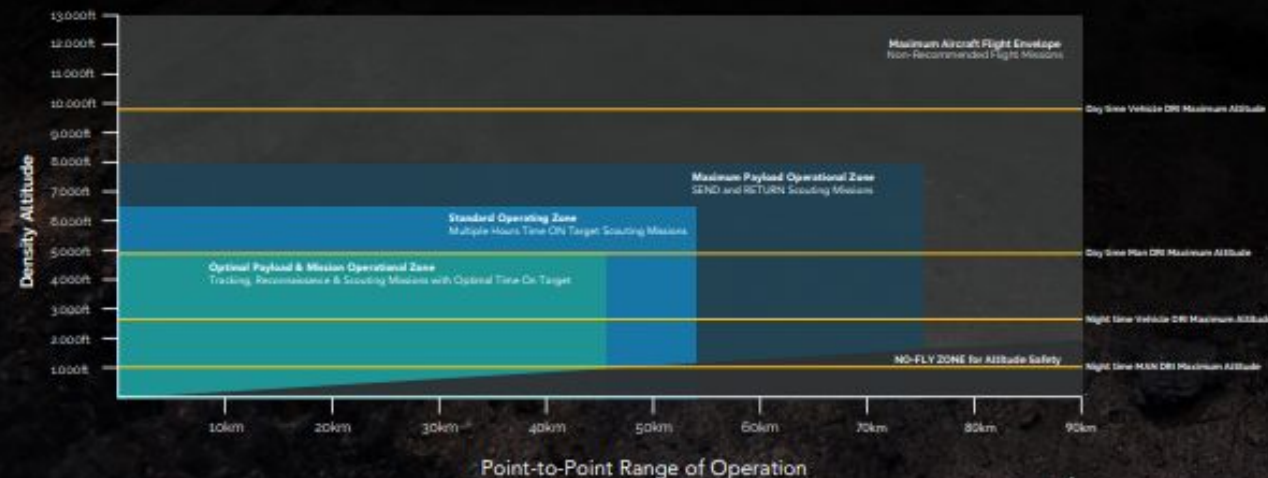
Tracking Antenna Case 2

Length : 840mm
Width : 840mm
Height : 560mm
Weight : 44kg



ALTI TRANSITION RECOMMENDED FLIGHT ENVELOPE

ALTI TRANSITION ADVANCED WITH RAPTOR PAYLOAD



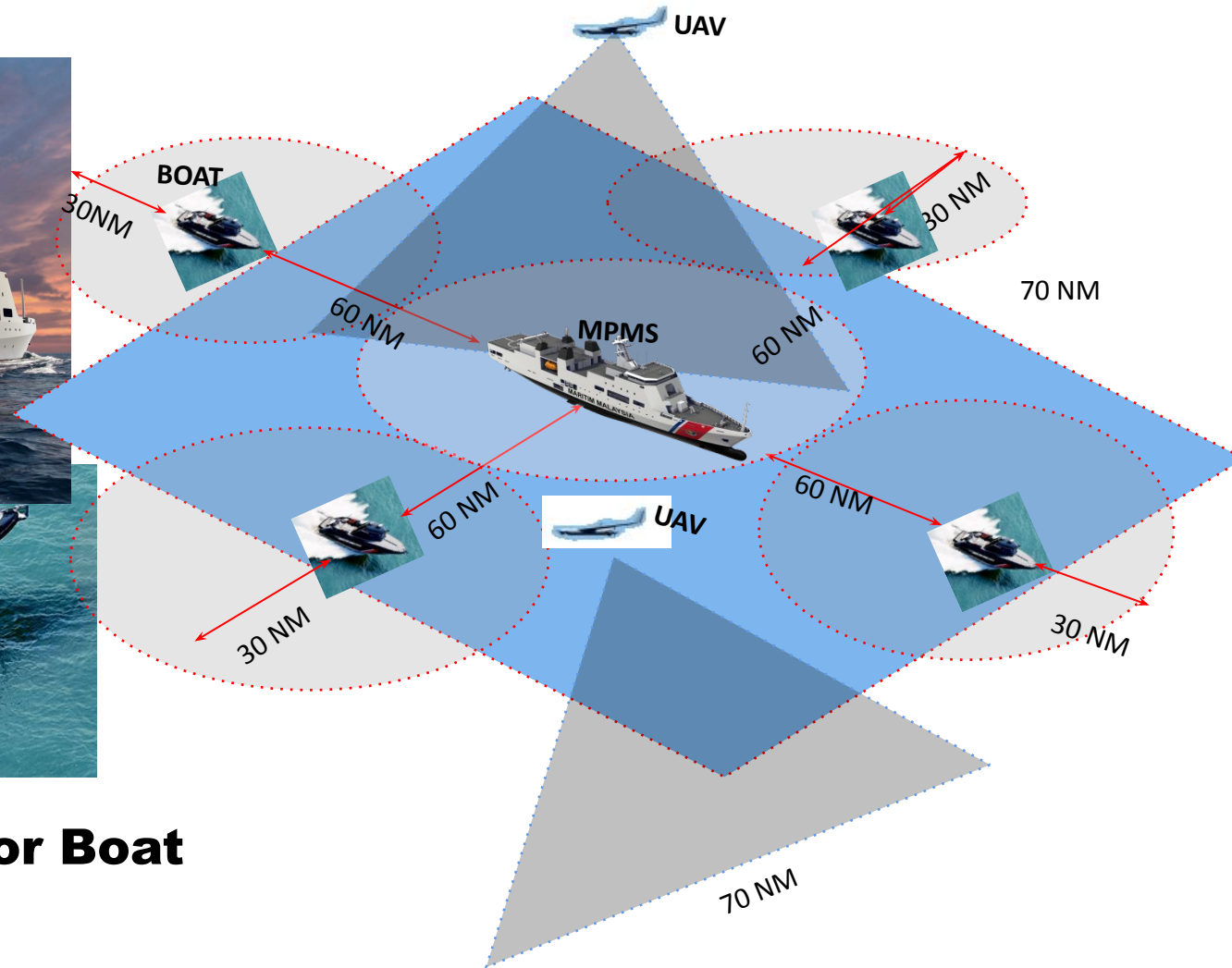
Azimuth Envelopes



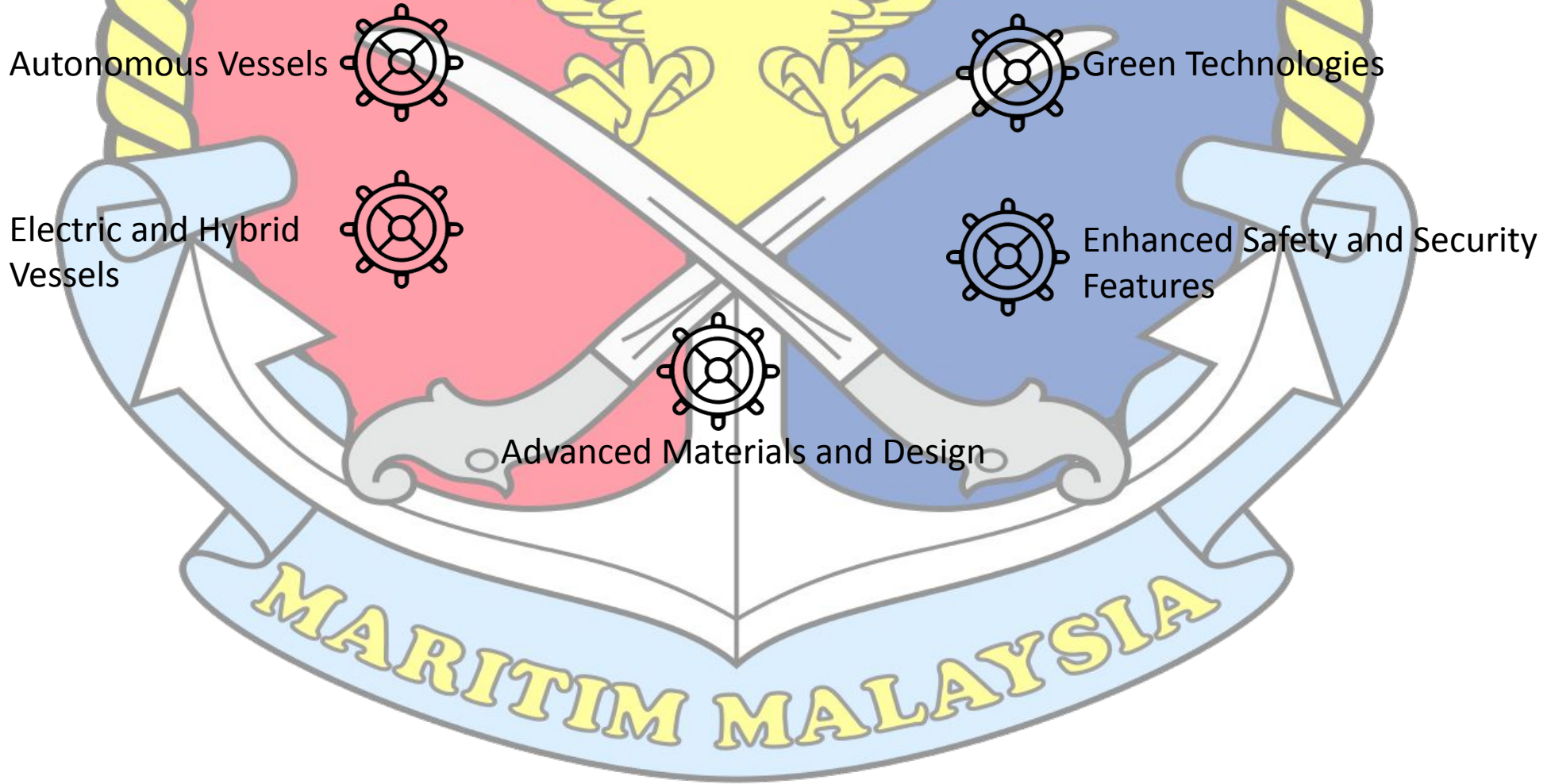
MMEA Way Forward – Deployment of MPMS



- 2 OPV & MPMS
- Deploy 4 Interceptor Boat
- UAV
- Radar



Future Vessel Perspective







TERIMA KASIH

THANK YOU | شكرا جزيلاً | ありがとうございます | धन्यवाद **Cảm**
ơn rất nhiều | धन्यवाद | **භවභවතූණ** | 감사합니다



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APMM Putrajaya



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my

MALAYSIAN MARITIME ENFORCEMENT AGENCY
(MMEA)

MALAYSIA COAST GUARD

When? Why? How? WHAT? WHERE? WHEN? What? HOW? Why? WHAT? Why? When? HOW? WHEN? When? WHERE? Why? When? WHO? WHERE? WHAT? Why? When? WHO? WHERE? WHEN? What? HOW? WHEN? What? WHERE? When? HOW? Why? Why? HOW? Where? Where? WHERE? When? What? WHERE? When? HOW? What? WHEN? What? WHERE? When? HOW? When? WHAT? Why? WHEN? HOW? WHAT? Why?

