

# COUNTRY REPORT - INDONESIA INITIATIVES RELATED TO E- NAVIGATION

---

Virtual Workshop on E-Navigation  
9 s.d. 10 November 2021

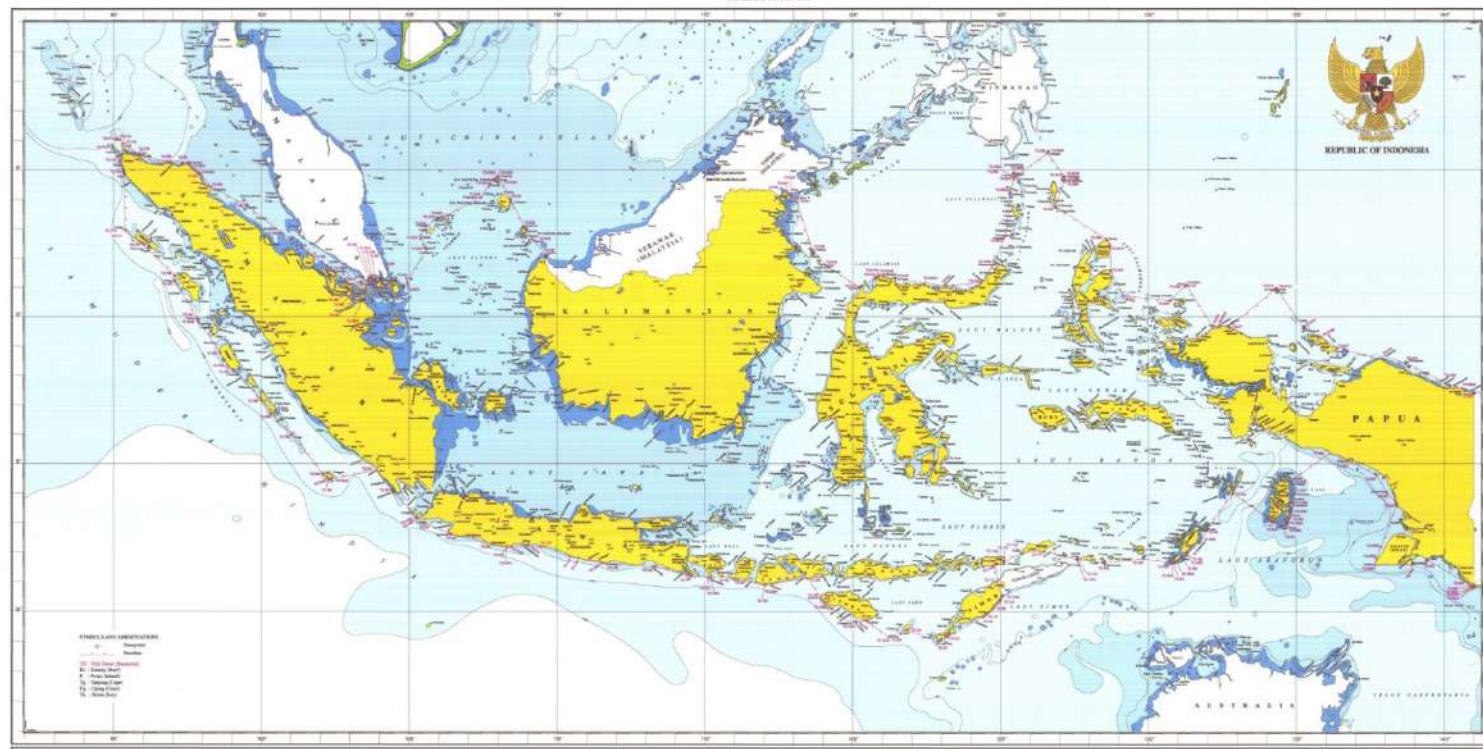
MINISTRY OF TRANSPORTATION  
DIRECTORATE GENERAL OF SEA TRANSPORTATION





# INDONESIAN WATERS

ILLUSTRATIVE MAP OF  
THE GEOGRAPHICAL COORDINATES OF POINTS OF THE INDONESIAN ARCHIPELAGIC BASELINES  
BASED ON THE GOVERNMENT REGULATION OF THE REPUBLIC OF INDONESIA NUMBER 38 OF 2002  
AS AMENDED BY THE GOVERNMENT REGULATION OF THE REPUBLIC OF INDONESIA NUMBER 37 OF 2008  
DEPOSITED TO THE UNITED NATIONS SECRETARY GENERAL  
SCALE 1 : 5 500 000



The **TERRITORIAL WATERS OF INDONESIA** are defined according to the principles set out in Article 46 of the UNCLOS. There are 179 archipelagic baselines segment that connect the outer most points of the islands to encompass approximately 3.067.504,14 km<sup>2</sup> archipelagic waters. (Government Regulation No.38 Year 2002)





# MARITIME TRANSPORT FACTS

## GENERAL INFORMATION FOR 2020

**Population**  
273.524 Millions

**GDP**  
1 057 913 Millions current US\$

**Merchandise trade<sup>1</sup>**  
304 929 Millions current US\$

**Land area<sup>2</sup>**  
(j) 1 811 570 Km<sup>2</sup>

**GDP growth**  
-2.13 %

**Transport services trade<sup>3</sup>**  
39 409 Millions current US\$



Number of Ports in Indonesia  
**2,439 Ports**

## MARITIME KEY FIGURES FOR 2020

**Coast/area ratio<sup>2</sup>**  
52.5 m/km<sup>2</sup>

**Ship building<sup>4</sup>**  
36 388 GT

**Ship recycling<sup>4</sup>**  
21 031 GT

**Fleet - National flag<sup>5</sup>**  
27 114 Thousands DWT

**Fleet - National flag<sup>5</sup>**  
10 282 ships

**Fleet - Ownership<sup>6</sup>**  
24 390 Thousands DWT

**Container port throughput<sup>7</sup>**  
14 763 630 TEU

**Number of seafarers<sup>8</sup>**  
143 702

**Number of port calls<sup>9</sup>**  
166 578



Number of Indonesian Seafarers  
**1,213,960 Seafarers**

## NATIONAL FLEET

### Carrying capacity by type of ship<sup>5</sup>

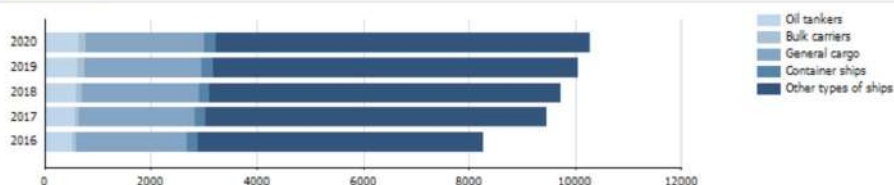
(Thousands DWT)	2005	2010	2015	2020
Total fleet	5 039.0	10 470.7	19 109.6	27 114.0
Oil tankers	1 651.0	3 866.9	5 731.8	8 019.4
Bulk carriers	602.0	2 082.4	2 271.7	5 798.6
General cargo	2 179.0	2 927.6	4 098.8	4 508.3
Container ships	246.0	824.5	1 717.9	2 445.0
Other types of ships	361.0	769.2	5 289.4	6 342.7

**+6.7 %**

Fleet growth rate in 2020

### Fleet by type of ship<sup>5</sup>

(Number of ships)



## Port calls, time spent in ports, vessel age and size in 2020<sup>9</sup>

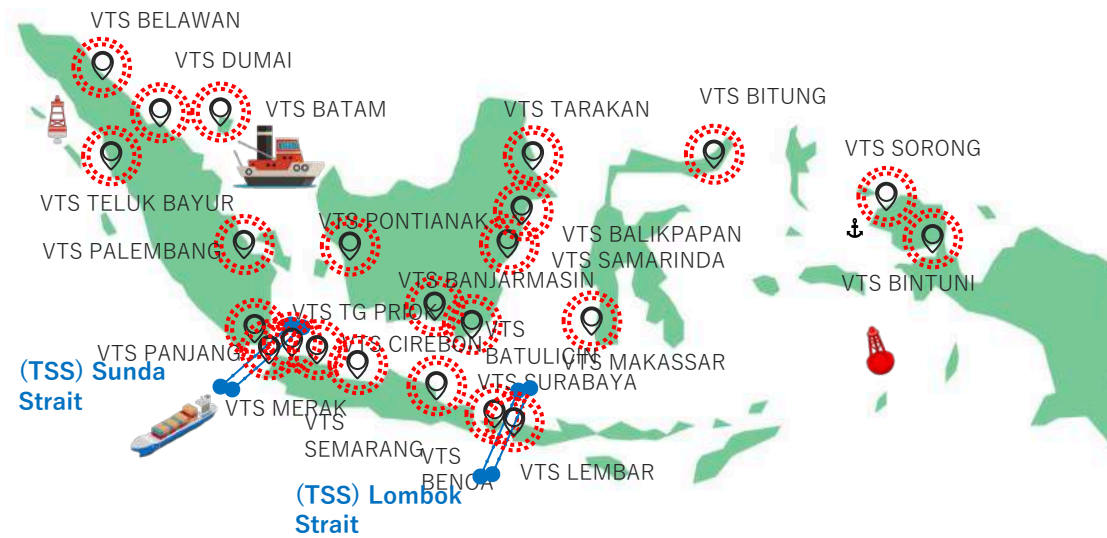
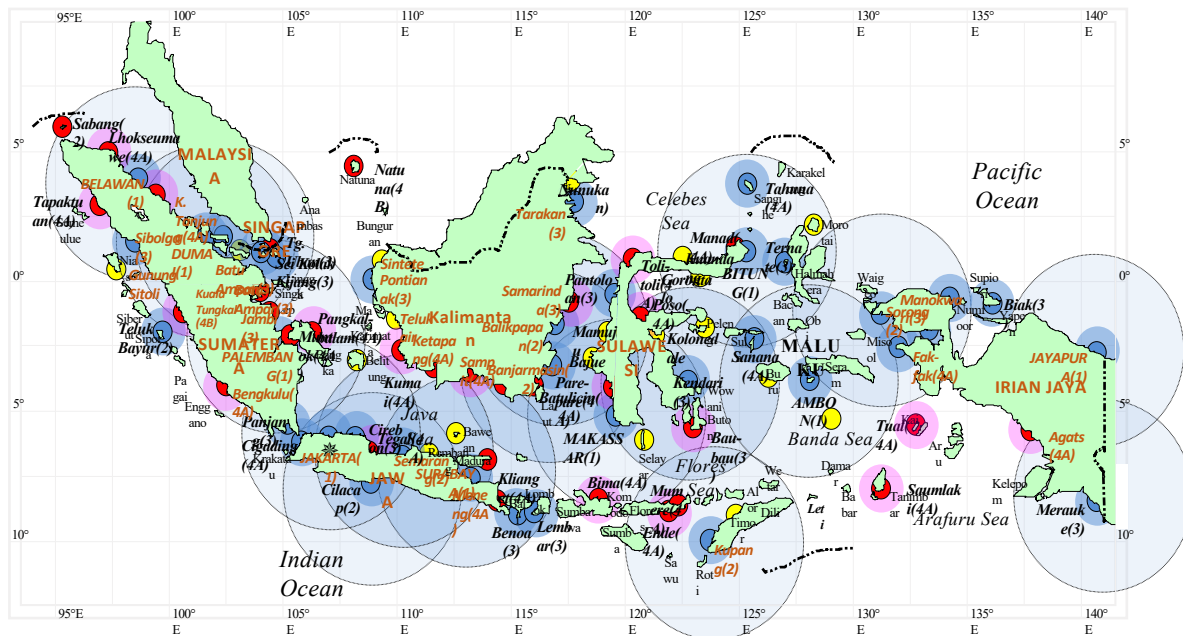
	Number of arrivals	Median time in port (days)	Avg age of vessels	Avg size (GT) of vessels	Avg cargo carrying capacity (DWT) per vessel	Avg container carrying capacity (TEU) per container ship	Maximum size (GT) of vessels
All ships	166 578	1.22	20	7 670	16 098	1 509	172 000
Liquid bulk carriers	17 587	1.22	15	7 924	12 259	..	157 098
Liquefied petroleum gas carriers	3 230	1.09	19	9 855	10 914	..	50 676
Liquefied natural gas carriers	304	1.40	19	85 052	67 074	..	139 049
Dry bulk carriers	9 505	3.08	17	24 896	43 621	..	108 100
Roll-on/ roll-off ships	4 217	..	33	8 903	4 146	..	76 387
Container ships	15 019	0.99	14	15 475	..	1 509	172 000
Passenger ships	101 713	..	22	4 908	..	..	110 239

Source : UNCTAD, 2020





# COASTAL RADIO STATIONS AND VESSELS TRAFFIC SERVICES



- CRS GMDSS – 112 Stations (Comprises of Sea Area A1, A2 and A3)
- CRS Non GMDSS – 39 Stations

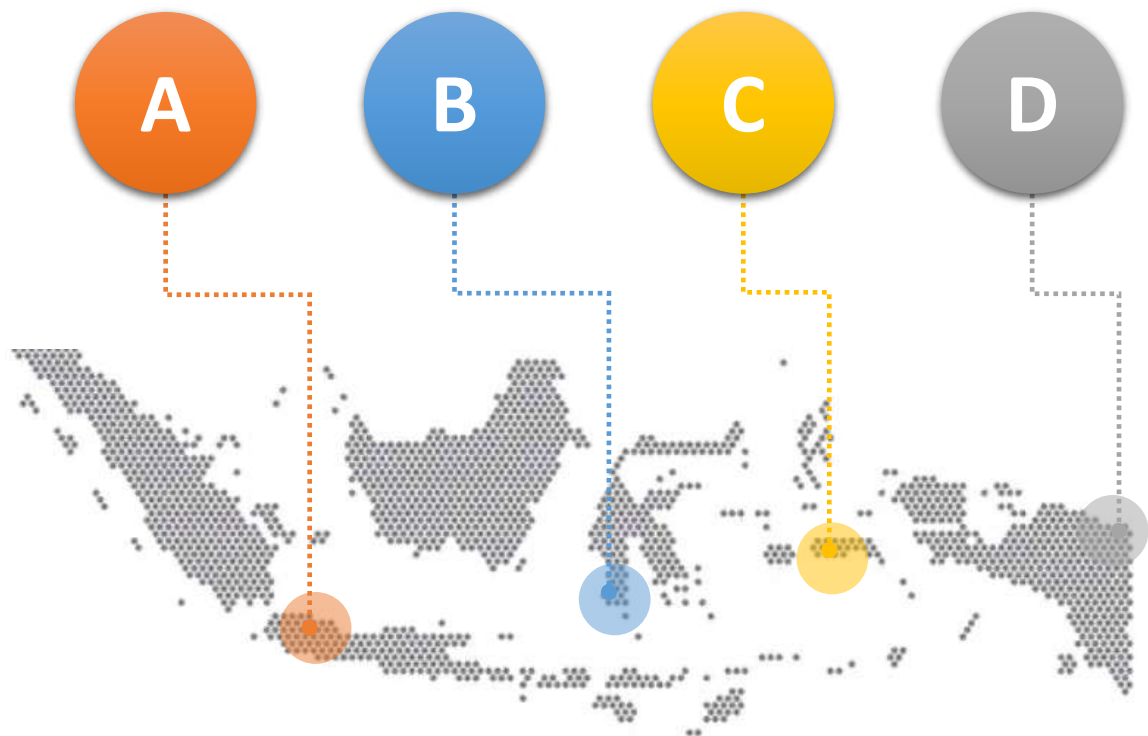
• Total Nr of VTS 23 Sta





# NAVIGATIONAL TELEX

## ***LOCATION***



<b>A</b> JAKARTA
<b>B</b> MAKASSAR
<b>C</b> AMBON
<b>D</b> JAYAPURA

<b>NAVTEX STATION JAKARTA</b> 06°07'28"S - 106°51'16"E Broadcast time 00:40, 04:40, 08:40, 12:40, 16:40, 20:40 (UTC+7)
<b>NAVTEX STATION MAKASSAR</b> 05°06'34"S - 119°26'22"E Broadcast time, 00:30, 04:30, 08:30, 12:30, 16:30, 20:30 (UTC+8)
<b>NAVTEX STATION AMBON</b> 03°41'57"S - 128°10'40"E Broadcast time 00:10, 04:10, 08:10, 12:10, 16:10, 20:10 (UTC+9)
<b>NAVTEX STATION JAYAPURA</b> 02°31'10"S - 140°43'22"E Broadcast time 00:00, 04:00, 08:00, 12:00, 16:00, 20:00 (UTC+9)



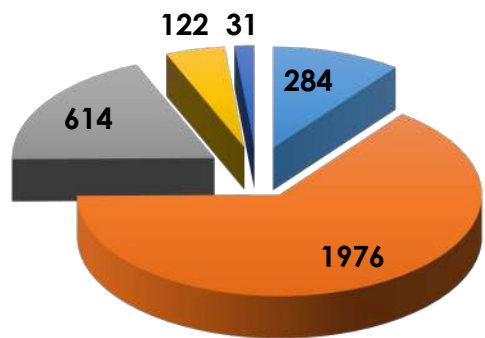
- Type of Information:**
- Navigational Warning;
  - Meteorological Information;
  - SAR Information;
  - Other urgent safety-related information.

Figure 1 - Location of NAVTEX stations in Indonesia





# AIDS TO NAVIGATION



- Light House
- Light Beacon
- Light Buoy
- Day Mark
- Buoy



284

LIGHTHOUSES



614

LIGHT BUOY



1976

LIGHT BEACON



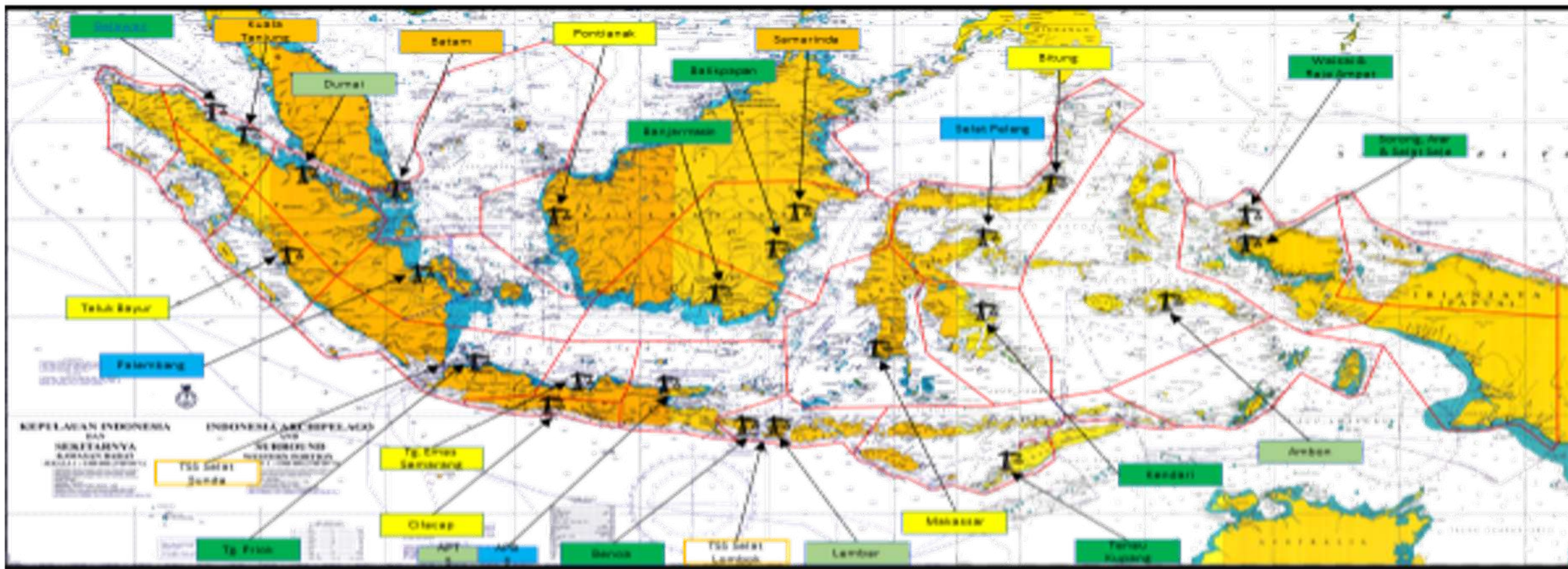


# AIDS TO NAVIGATION





# SHIP ROUTEING MEASURES



- Ditetapkan tahun 2015 (Pontianak, Cilacap, Semarang, Bitung, Makassar dan Teluk Bayur)
- Ditetapkan tahun 2016 (APBS, Palembang, dan Selat Pelang)
- Ditetapkan tahun 2017 (Benoa, Tg. Priok, Belawan, Banjarmasin, Balikpapan, Tenau Kupang, Kendari, Waisai Raja Ampat, Sorong, Arar dan Sele)
- Progress Penetapan di Biro Hukum (APTS, Dumai, Lembar dan Ambon)
- Studi Penetapan Alur di Tahun 2017 (Batam, Samarinda dan Kuala Tanjung)
- Studi Penetapan TSS di Tahun 2017 [Selat Sunda dan Selat Lombok]







# STATES OWNED NAVIGATION VESSEL

## BUOY TENDER VESSEL



Length Overall (Loa)	59,95 M
Ship Main Dimension	55,19 M
Width (B)	10,40 M
Height (D)	4,70 M
Draft (d)	3,50 M
Crews	37 Person
Exploration Distance	4000 Mil

**TOTAL UNIT : 23**

## AIDS TENDER VESSEL



Length Overall (Loa)	51,94 M
Ship Main Dimension	47,07 M
Width (B)	10,20 M
Height (D)	4,35 M
Draft (d)	3,00 M
Crews	28 Person
Exploration Distance	3000 Mil

**TOTAL UNIT : 34**

## INSPECTION BOAT



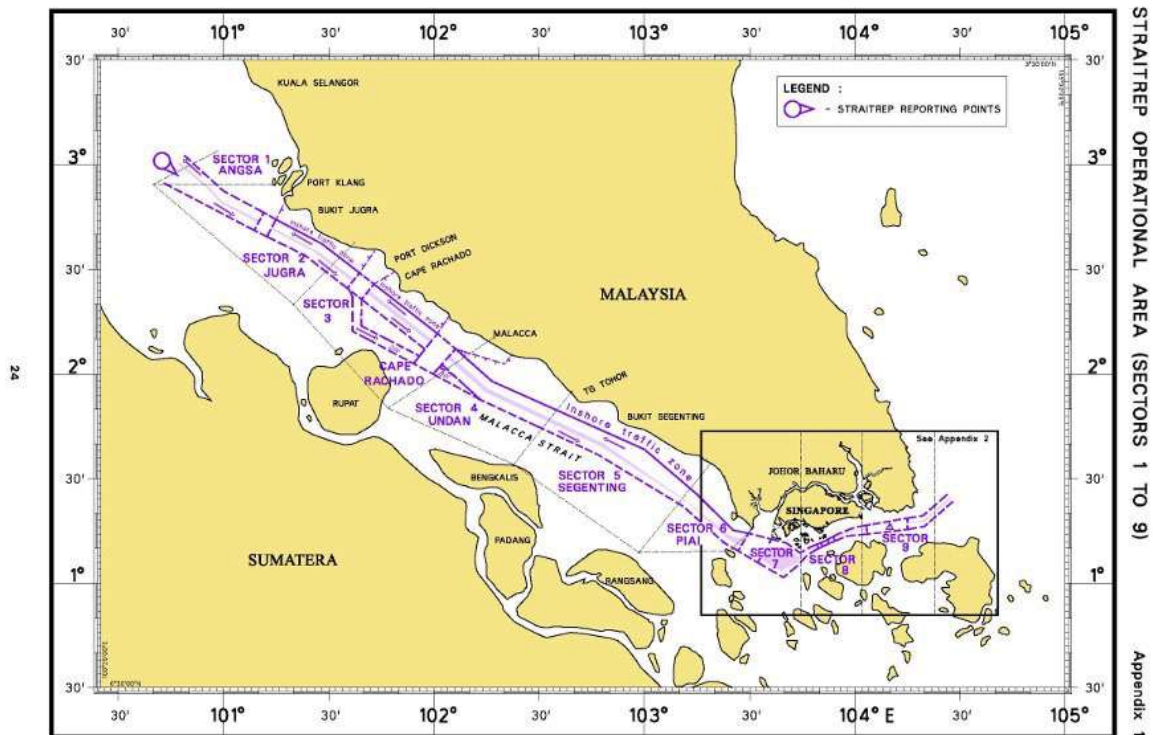
Length Overall (Loa)	30,00 M
Ship Main Dimension	
Width (B)	6,20 M
Height (D)	3,35 M
Draft (d)	1,20 -1,85 M
Crews	12 Person
Exploration Distance	1500 Mil

**TOTAL CREWS : 1520 Personnel**

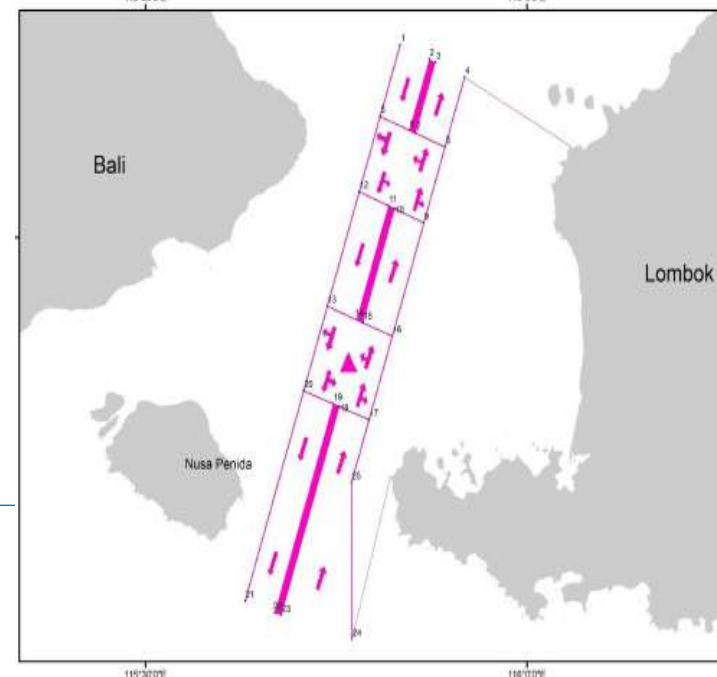
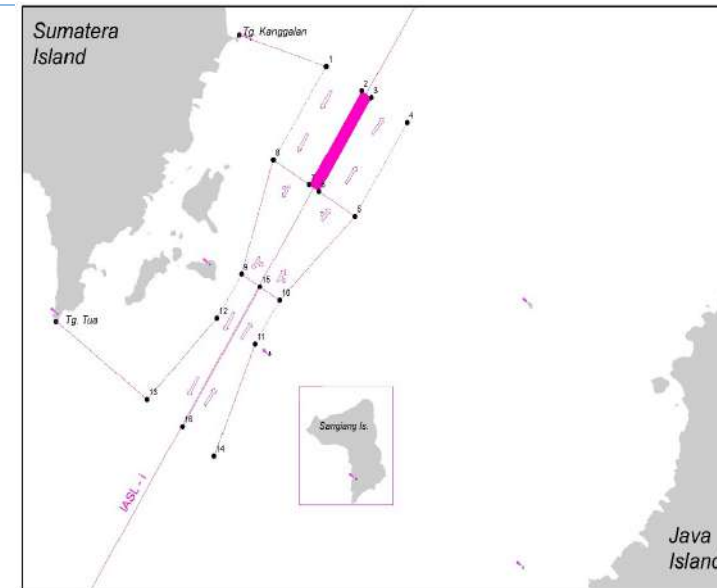




# IMO ADOPTED TSS IN THE SOMS, SUNDA AND LOMBOK STRAITS



STRAITREP OPERATIONAL AREA (SECTORS 1 TO 9)  
Appendix 1

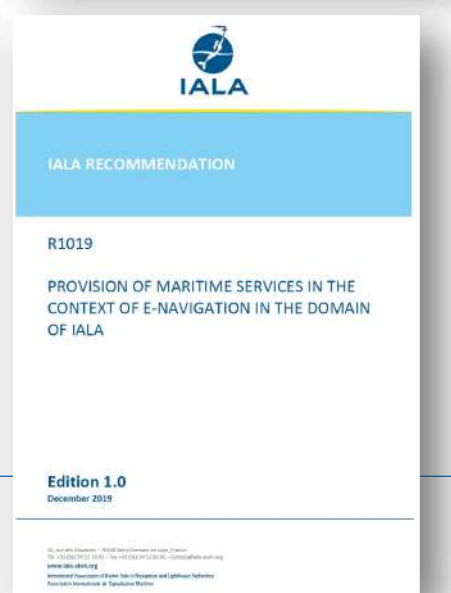
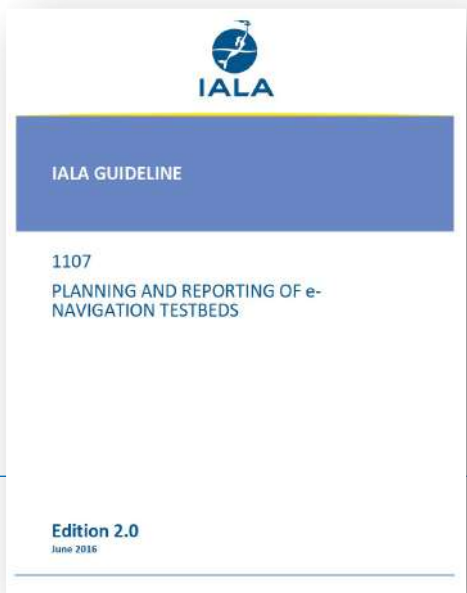
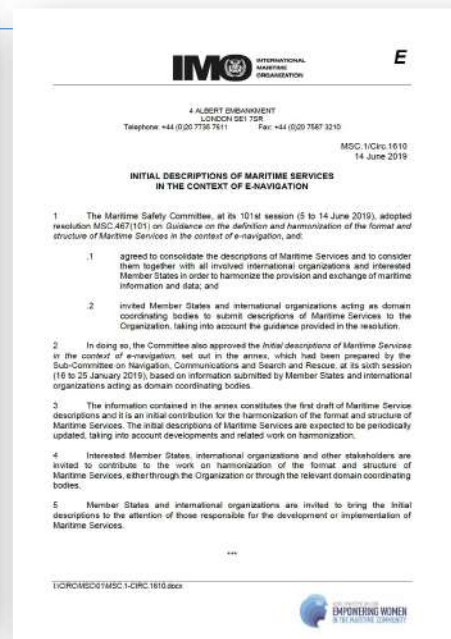




# DEFINITION OF E-NAVIGATION

## E-Navigation :

“E-Navigation is the harmonized collection, integration, exchange, presentation, and analysis of maritime information onboard and ashore by electronic means to enhance berth to berth navigation and related services, for safety and security at sea and protection of the marine environment. ”  
(IMO MSC85, 2007)





# MARITIME SERVICES IN THE CONTEXT OF E-NAVIGATION



## Maritime Service Portfolio(MSP)

- (MSP 1) VTS Information Service (IS);
- (MSP 2) VTS Navigation Assistance Service (NAS);
- (MSP 3) VTS Traffic Organization Service (TOS);
- (MSP 4) Local Port Service (LPS);
- (MSP 5) Maritime Safety Information (MSI) service;
- (MSP 6) pilotage service;
- (MSP 7) tugs service;
- (MSP 8) vessel shore reporting;
- (MSP 9) Telemedical Maritime Assistance Service (TMAS);
- (MSP 10) Maritime Assistance Service (MAS);
- (MSP 11) nautical chart service;
- (MSP 12) nautical publications service;
- (MSP 13) ice navigation service;
- (MSP 14) Meteorological information service;
- (MSP 15) real-time hydrographic and environmental information services; and
- (MSP 16) Search and Rescue (SAR) Service.

BVL  16 





# THE DEVELOPMENT OF E-NAVIGATION IN INDONESIA



## 2020-2024

### INDO ENAV PHASE-1

BASELINE STUDY ON INDO ENAV CONCEPT AND TESTBEDS. AND THE COMMENCEMENT OF INTERNATIONAL SYMPOSIUM ON E-NAVIGATION



## 2030 - 2034

### INDO ENAV PHASE-3

THE INSTALLATION OF THE NEW EQUIPMENTS AND TEST BEDS ON MAIN SHIPPING ROUTES.



## 2025 - 2029

### INDO ENAV PHASE-2

FOLLOW UP STUDY, INSTALLATION OF THE NEW EQUIPMENTS, AND TESTBEDS ON THE MAJOR PORTS.



## 2034 - 2038

### INDO ENAV PHASE - 4

EVALUATION AND NEW CONCEPT STUDY.

- Enhance the Monitoring Coverage;
- Just in time arrival
- System Integration.

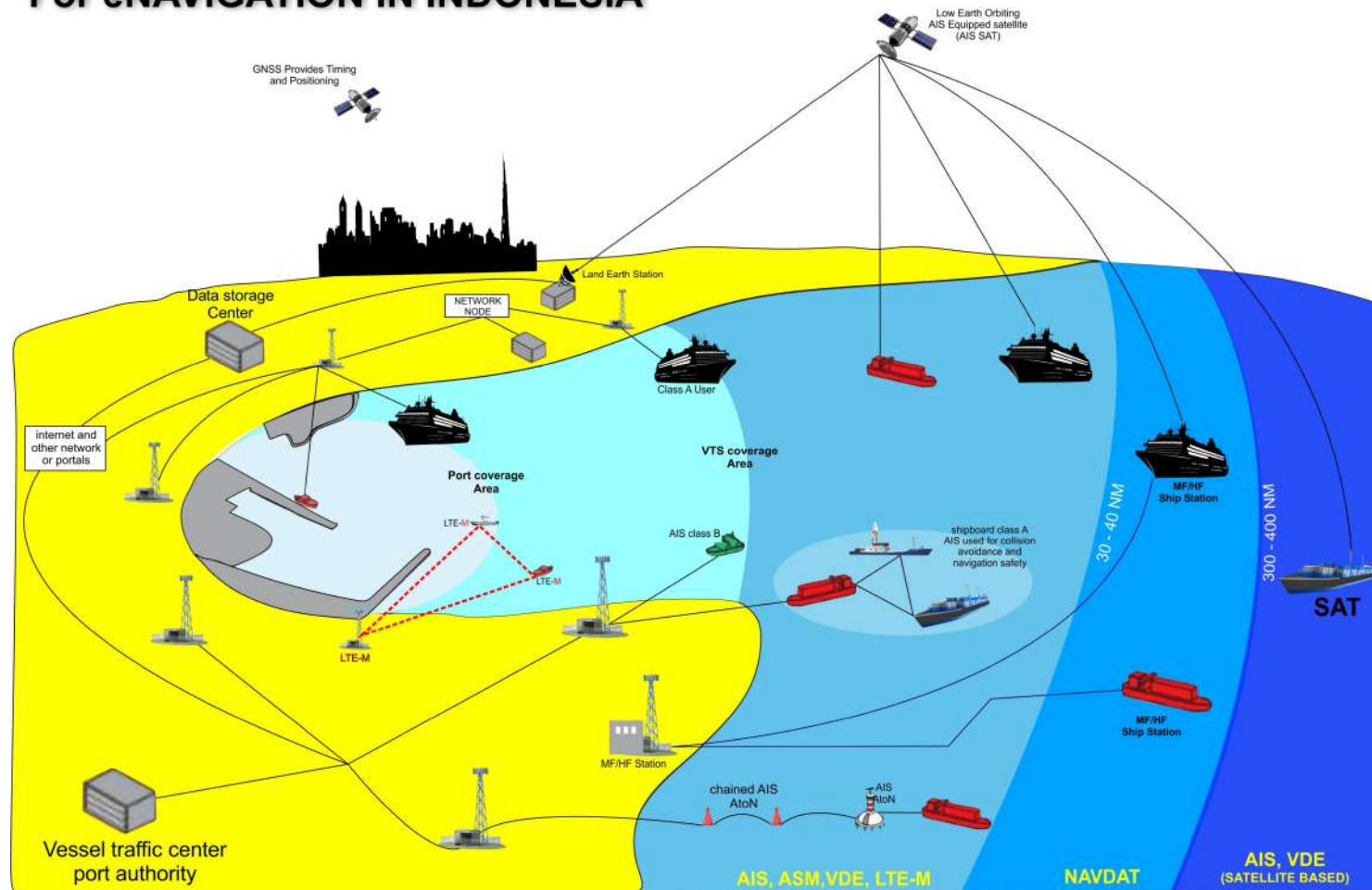




# INDO E-NAVIGATION

## MARITIME DIGITAL INFRASTRUCTURE For eNAVIGATION IN INDONESIA

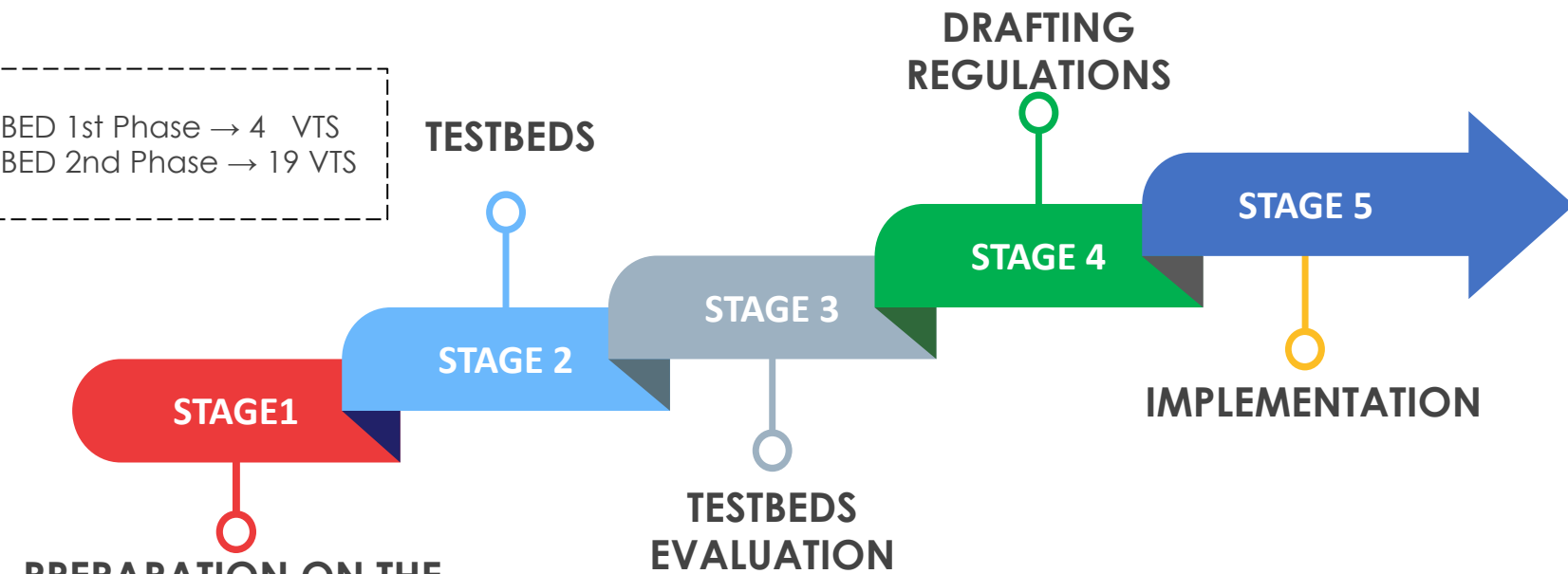
- **ZONE I (30-40 Nm)**
  - PNT --> AIS, RADAR, VDE Terrestrial, ASM, LTE-M
  - Link of communication --> Point to Point, Multicast, Broadcast
  - Main Equipment: VDES/VHF (Solas Ships) and LTE-M/UHF (non-Solas Ships)
- **ZONE II (300-400 Nm)**
  - PNT --> Long Range AIS, VDE Satellite
  - Link of communication --> Point to Point, Multicast, Broadcast
  - Main Equipment : VDE Satellite, Long Range AIS, NAVDAT/MF-HF supporting elements
- **ZONE III (> 400 Nm)**
  - PNT --> Long Range AIS, VDE Satellite
  - Link of communication --> Point to Point, Multicast, Broadcast
  - Main Equipment : VDES Satellite





# STRENGTHENING VTS OPERATIONS AND E-PILOTAGE

- TEST BED 1st Phase → 4 VTS
- TEST BED 2nd Phase → 19 VTS





# INTERNATIONAL SYMPOSIUM ON E-NAVIGATION

 DIRECTORATE OF NAVIGATION  
DIRECTORATE GENERAL OF SEA TRANSPORTATION  
MINISTRY OF TRANSPORTATION OF REPUBLIC OF INDONESIA



## ONLINE WEBINAR 2020

**JOIN NOW**

  
**KEYNOTE SPEAKER**  
**H.E. Budi Karya Sumadi**  
MINISTER OF TRANSPORTATION

**KEYNOTE SPEAKER**  
  
**R. Agus H. Purnomo**  
Director General of Sea Transportation

**WELCOME REMARKS**  
  
**Hengki Angkasawan**  
Director of Navigation

**PROGRAMMES**  
The Implementation on E-Navigation and Its Development Within the Region  
E-Navigation From Users Perspectives  
E-Navigation From Industry Perspectives

 <b>Mr. David Foo</b> Senior Director Operations Technology Maritime and Port Authority Singapore	 <b>Mr. Hideki Noguchi</b> Deputy Director Administrative and Planning Division Japan Coast Guard / IALA E-Nav Committee Chair	 <b>Mr. Minsu Jeon</b> Technical Operations Manager International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA)
 <b>Mr. Ahmad Zawawi Bin Saharudin</b> Acting Principal Assistant Director Traffic Management Unit Marine Department Malaysia	 <b>Mahesh Allichandani</b> Head of Navigation Australian Maritime Safety Authority (AMSA)	 <b>Mr. Michael Baldauf</b> HS Wismar
 <b>Nanditya D. Wardhana</b> Asst. Deputy Director Directorate of Navigation DGST Indonesia	 <b>Prof. Dr. Ketut Buda Ariana</b> ITS Surabaya Indonesia	 <b>Mrs. Sanna Soninen</b> Pilot age Director, Finn Pilot
		 <b>Mr. Fredrik Karlsson</b> Coordinator Innovation and Development Swedish Maritime Administration (SMA)

**REGISTER NOW!** [www.bit.ly/e-nav\\_registration](http://www.bit.ly/e-nav_registration)







# THE DEVELOPMENT OF NATIONAL REGULATIONS RELATED TO E-NAVIGATION

## **Draft of the Ministry Regulation on Maritime Telecommunication**

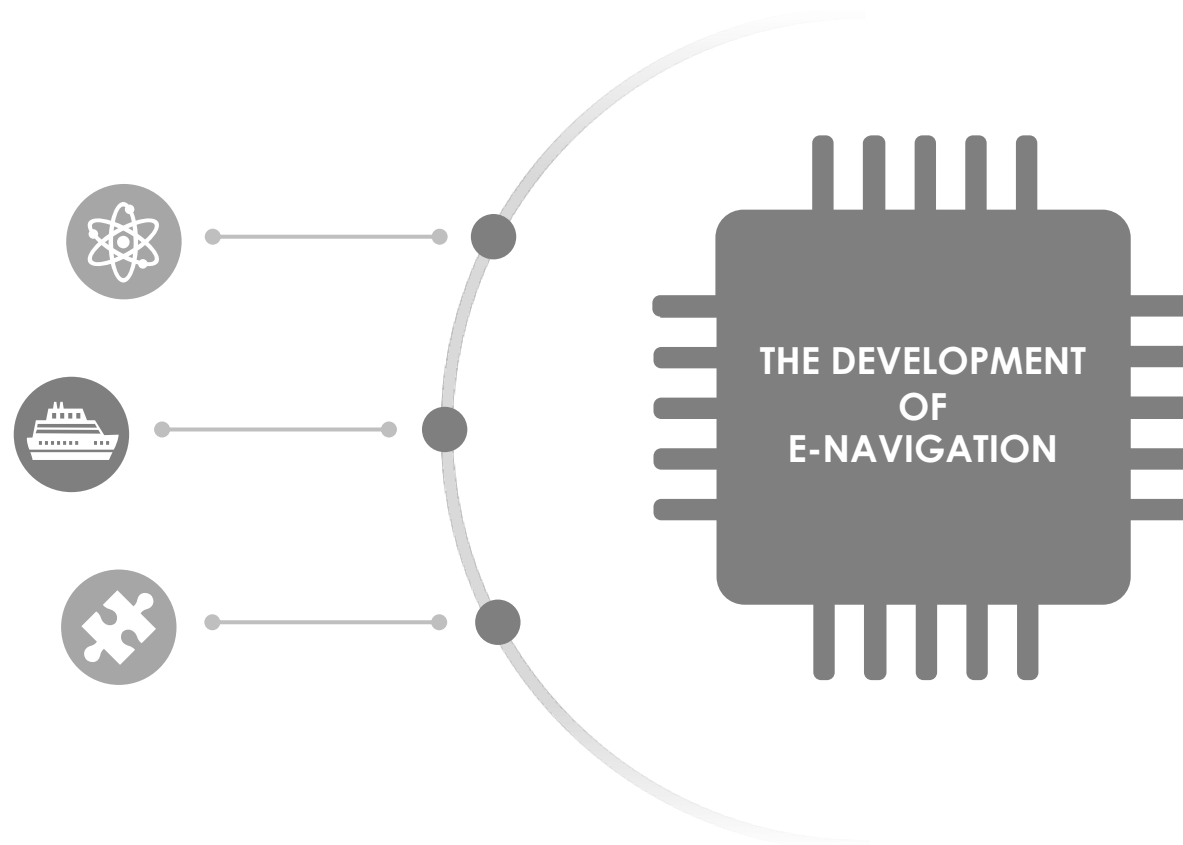
*Regulate the General Policy on Indonesian Navigation Concepts and the commencement of test bed → legal umbrella of E-Navigation*

## **Draft of the Ministry Regulation on Vessels Traffic Services**

*Regulate the possible development of VTS in the framework of E-Navigation.*

## **Draft of Ministry of Regulation on Promulgation of Maritime Safety Information**

*Regulate the possible development of MSI in the framework of E-Navigation*

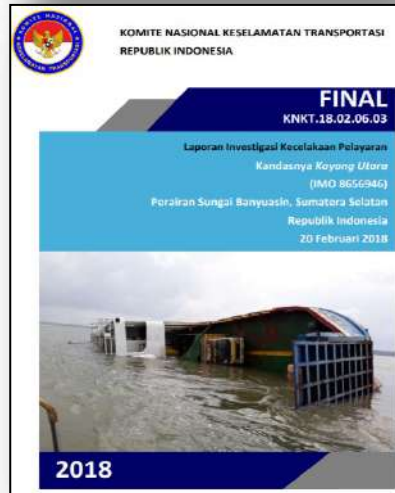
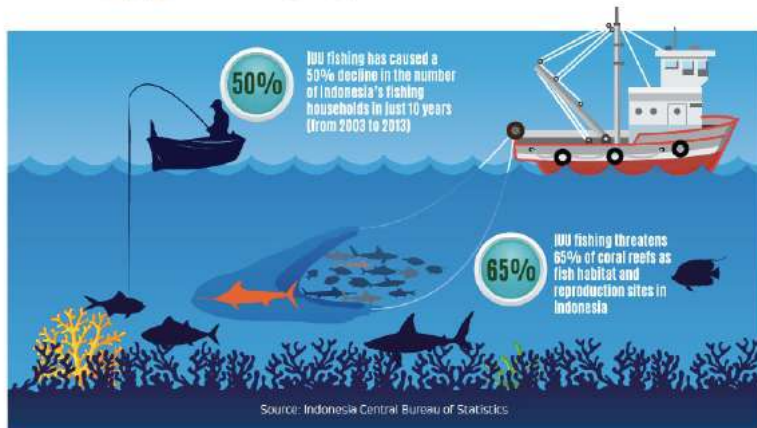




# THE REGULATION RELATED WITH AIS

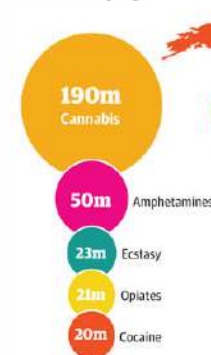


- The total area of Indonesia's oceans is 6,32 million km<sup>2</sup>
- Indonesia has the second longest coastline in the world (99,093 km)

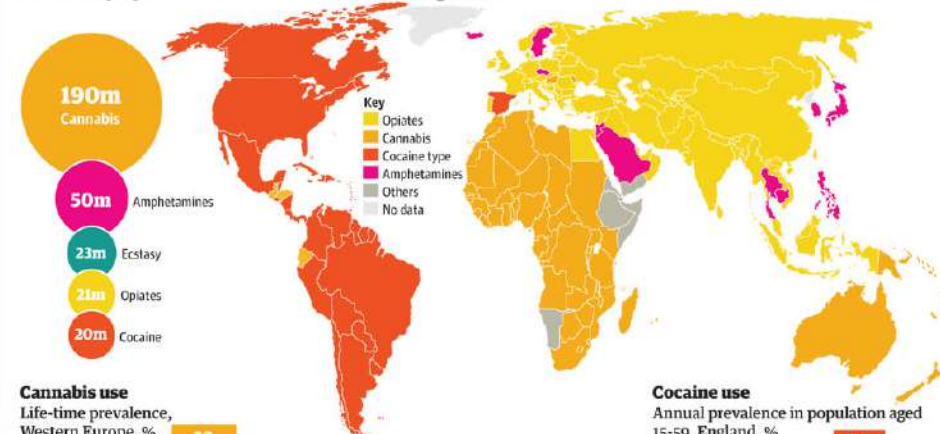


## The world of drugs

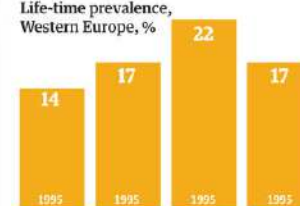
**Total users**  
Numbers of people



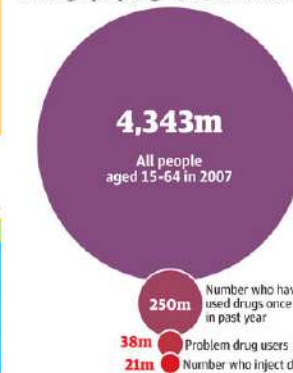
**Main problem drugs**  
For those being treated



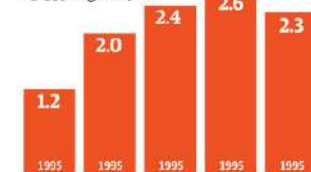
**Cannabis use**  
Life-time prevalence,  
Western Europe, %



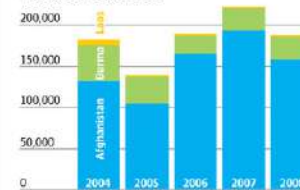
**Proportion of users in the world**  
Amongst people age 15-64 worldwide



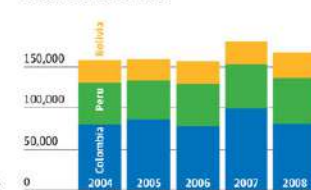
**Cocaine use**  
Annual prevalence in population aged 15-59, England, %



**Opium poppy cultivation**  
Hectares worldwide



**Coca bush cultivation**  
Hectares worldwide



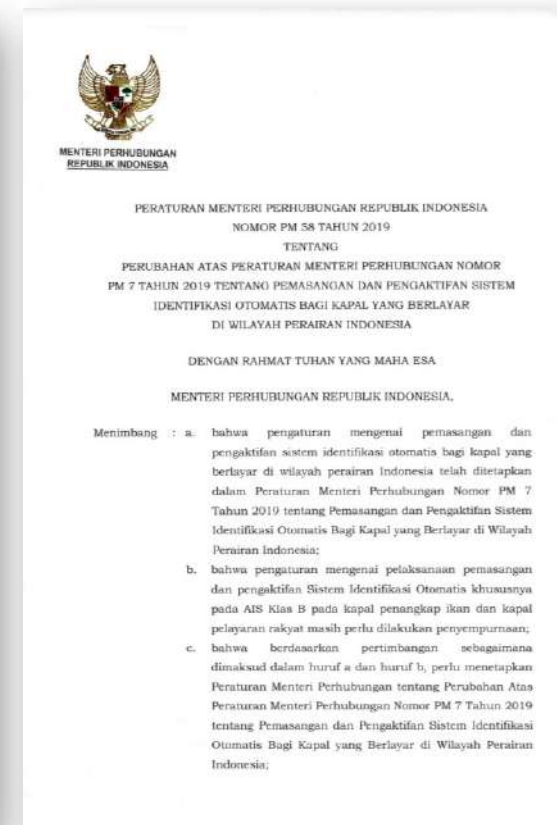
SOURCE: WORLD DRUG REPORT, 2009





# THE REGULATION RELATED WITH AIS

- Indonesia has issued the Ministry of Transportation Regulation Nr. 7 Year 2019 and Nr. 58 Year 2019 (for the amendment) Concerning Installation, Activation of AIS for Vessels Navigating Through the Indonesian Waters.
- Include the obligation for Non Convention Vessels to install and activate AIS Class B.
- Scope of the Regulation :
  - all SOLAS vessels to use and operate AIS Class A;
  - Non Convention Passenger ship and Cargo Ship above 35 GT, all of the vessels operating transboundary, and fishing vessels above 60 GT to use and operate AIS Class B.
- DGST will strengthen the coverage of AIS to monitor the implementation of the regulation.





## A WAY FORWARD

- Indonesia will implement the E-Navigation, including testbeds, based on the regulations and standard issued by the IMO, IALA, ITU, IHO and other related international standard ;
- Indonesia is conducting follow up study to determine the E-Navigation (INDO ENAV) concept which could be implemented in Indonesia;
- Possible future cooperation to develop E-Navigation in Indonesian waters, taking the example of the Implementation of Marine Electronic Highway in the SOMS;
- Sharing information on the development of E-Navigation with the relevant stakeholders and interested parties.



# THANK YOU



Direktorat Kenavigasian  
Direktorat Jenderal Perhubungan Laut  
Kementerian Perhubungan

**Directorate of Navigation, DGST**

Gedung Karya Lantai 21  
Kementerian Perhubungan  
Jl. Medan Merdeka Barat no. 8  
Jakarta Pusat 10110  
Email : [telkompel.ditnav@dephub.go.id](mailto:telkompel.ditnav@dephub.go.id)

