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Protection of Critical Underwater Infrastructure (CUI): Challenges and the Way Forward for ASEAN

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Key Outlines

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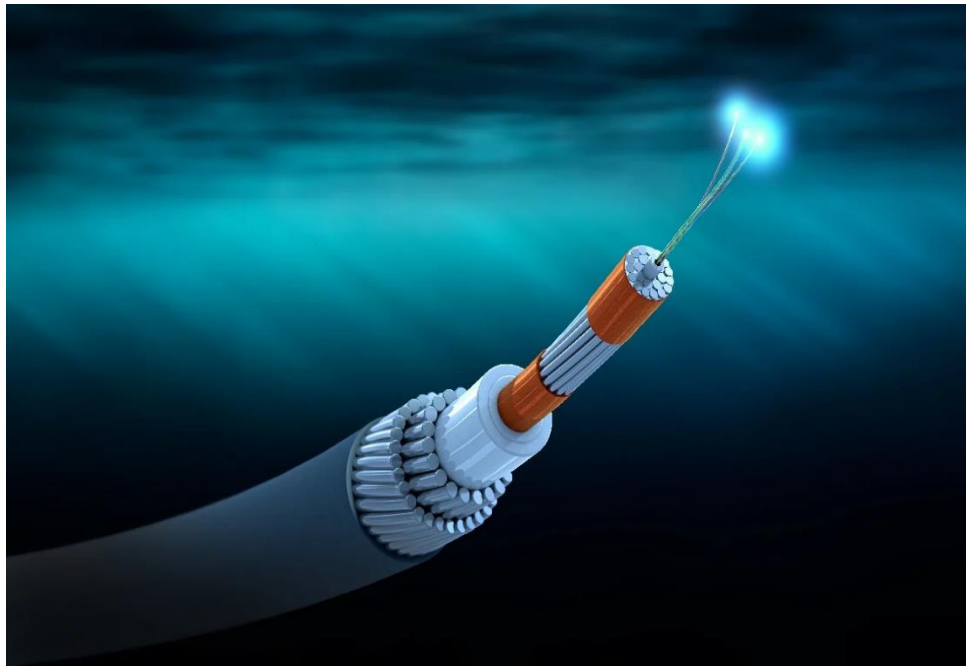
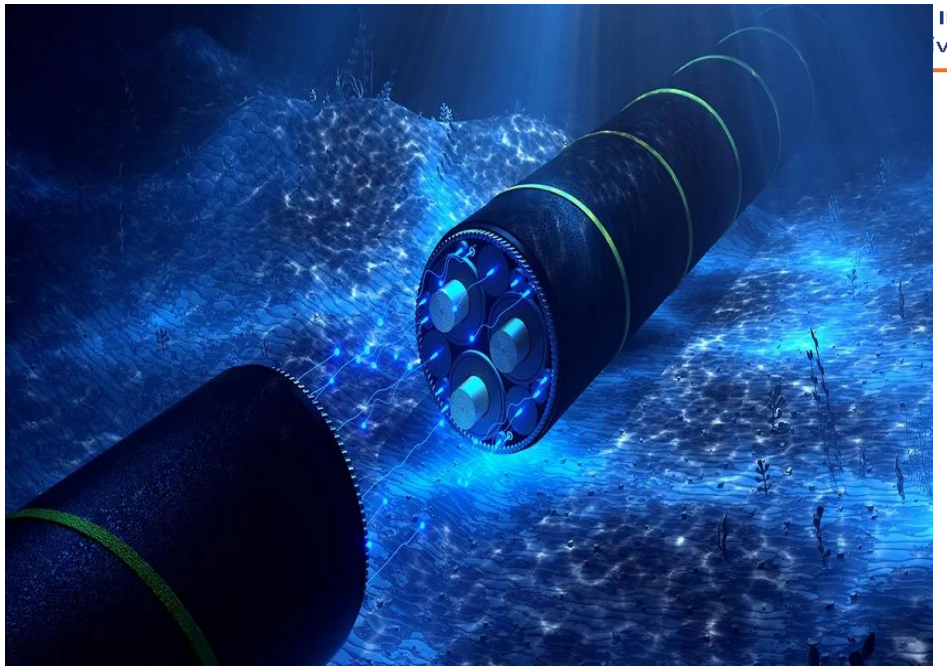
- ✓ CUI: subsea cables and pipelines
- ✓ Security Risks and the need to protect them
- ✓ Strengthening national laws: Implementing Article 113 of the UNCLOS 1982
- ✓ Existing Challenges
- ✓ Recommendations for AMS and ASEAN

CUI: Subsea Cables & Pipelines





- approximately 95% of the
- world's communications are provided by such subsea cables
- more than 600 active and planned submarine cables.

- carry electricity, typically from offshore renewable energy sources like wind farms to the mainland, and;
- connect countries or regions to share power, acting as electricity inter-connectors.

Subsea Communication Cables Map (TeleGeography)

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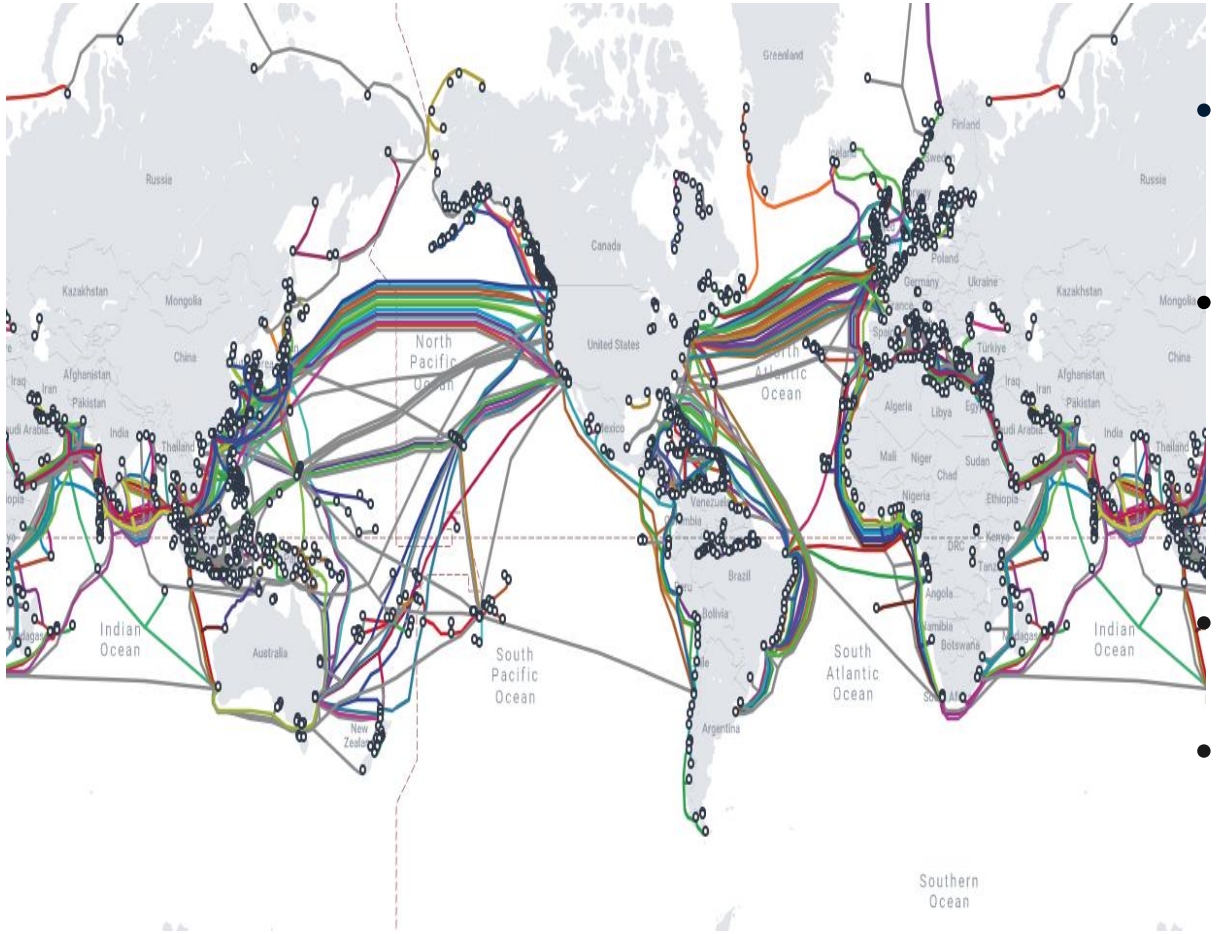

- As of early 2025, there are 600 active and planned submarine cables.
- *number of the cables keeps changing as new cables enter service and older cables are decommissioned*)

- Around 150-200 cables are damaged globally each year.
- Two thirds of faults are caused by accidental human activities such as fishing activities and ship anchors)

CUI: Subsea Pipelines

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- Energy pipelines are primarily used to ***transport crude oil and natural gas*** .
- At least ***2,381 operational oil and gas pipelines around the World distributed across 162 countries*** with a combined length of 1.18 milliom km- enough to circle the Earth 30 times. (2020, Global Energy Monitor)

Impact-centric Approach

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Security Risks to Cables	Impact
Intentional: Sabotage (State-sponsored operations) Terrorism Espionage/Data interception Theft Hybrid Warfare	**Immediate technical impact:** • Communication breakdown • Latency • Reduced bandwidth **Economic and Operational Impact:** • Financial market/banking • Maritime & aviation operation • E commerce and digital operation • Media and communication (news, govt communications etc) **Security Impact:** • Loss of situational awareness • Vulnerability exposure • Public panic or misinformation
Unintentional: Fishing activities, Natural hazards, Anchoring, Construction/seabed works, Operational error etc.)	

Relevance for AMS: Subsea Communication Cables

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ASEAN Member States	No. of Cables
Brunei	4
Cambodia	2
Indonesia	22
Philippines	11 in-service ;and another 6 under construction
Myanmar	3
Malaysia	29 including those under construction
Singapore	26, to double the capacity for landings within a decade
Thailand	8 and 2 new under construction
Vietnam	5 in service; aiming for 15 by 2030
Timor Leste	1

Relevance for AMS: Subsea Gas Pipelines

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- Currently, there are eight cross-border natural gas pipelines that are operating, with a total length of over 2,500 km

- Peninsular Malaysia- Singapore
- Myanmar- Thailand
- Indonesia- Singapore (with two pipelines)
- Thailand- Malaysia

- An estimated **US$14.2 billion has already been invested** in some 3,900 km of bilateral pipelines in 2008.

- The **Trans ASEAN Gas Pipeline,** as part of the ASEAN Vision 2020**,** aims to interconnect existing and planned gas pipeline infrastructure within ASEAN, to transport gas across borders to ensure greater security of gas supply.

Past Incidents: Damage to Cables and Pipelines

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Reuters World Business Markets Sustainability Legal Commentary Technology Investigations

Three of Vietnam's five undersea internet cables are down

By Reuters

June 17, 2024 3:56 PM GMT+8 · Updated June 17, 2024

HANOI, June 17 (Reuters) - Three out of Vietnam's five active international undersea internet cables are

News

How did divers manage to blow up the Nord Stream pipeline? We went down to the spot to find out

German network ARD chartered yacht and divers to see how sabotage occurred

Lea Struckmeier · CBC News · Posted: Aug 18, 2024 4:00 AM EDT | Last Updated: August 19, 2024

Finland investigates suspected sabotage of Baltic-connector gas pipeline

11 October 2023

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Kathryn Armstrong & Vishala Sri-Pathma BBC News

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Report on MDI May-Sept 2025

Detected Causes of Damage to the Timika-Merauke Submarine Cable

Indonesia's digital connectivity relies heavily on submarine communication cable systems (SKKL). In the Arafura Sea, several incidents of submarine cable damage have been detected, strongly suspected to be caused by intense fishing activities in the area. "IOJI detected recurring damage along the SKKL Timika-Merauke segment (SMPCS Packet 2) as linked to the movements of cable-laying vessels and fishing boats intersecting submarine cable routes," said **Imam Prakoso**.

Key Actors under UNCLOS

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- ✓ Coastal State

- ✓ Other States (cable laying States)

- ➢ In practice: Private companies (Consortium of private companies lay the cables, **Not** the States)

- ➢ E.g., Global tech giants such as Google, Meta (Facebook), Amazon, and Microsoft are now actively investing in undersea cable projects

Key Stages for Protection of Cables and Pipelines

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1. Before laying

2. During laying

3. After being laid, monitoring and surveillance

4. Taking Legal Action

✓ Working closely with the industry for stages 1 to 3
✓ Best to prevent damage by taking proactive actions

Article 113: Breaking or injury of a submarine cable or pipeline

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- Every State shall adopt the laws and regulations necessary to provide that the breaking or injury by a ship flying its flag or by a person subject to its jurisdiction of a submarine cable **beneath the high seas** done **willfully or through culpable negligence**, in such a manner as to be liable to interrupt or obstruct telegraphic or telephonic communications, and similarly the breaking or injury of a submarine pipeline or high-voltage power cable, shall be a punishable offence.

- This provision shall apply also to conduct calculated or likely to result in such breaking or injury. (This reflected concerns with fishing vessels anchoring & exploration by researchers around cables, etc) Proelss's commentary

Does article 113 applicable to EEZ?

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- Yes
- Article 58 (2): Articles 88 to 115 and other pertinent rules of international law apply to the exclusive economic zone in so far as they are not incompatible with this Part

Implementation of Article 113: Prescriptive and Enforcement Jurisdiction

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Prescriptive Jurisdiction:

- National legislation criminalising intentional damage to subsea cables and pipelines

Enforcement Jurisdiction:

(i) By Coastal State **within territorial sea** (existing relevant national laws (telecommunication or oil and gas laws) or criminal laws within the Territorial Sea)

(ii) By the Flag State or National State of the perpetrator **beyond territorial Sea**

Case Studies: Enforcement Jurisdiction based on Article 113

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Coastal State Jurisdiction: A Chinese National, the captain of Hong Tai 58, a Tongolese- flagged vessel was sentenced to **three years in prison** for damaging an undersea cable connecting Taiwan's main island and the Penghu islands **in the Taiwan Strait**.

National Jurisdiction (beyond Territorial Sea): Cable Theft: Vietname's Submarine Cables lost and found 2007 ; Total of 10 ppl were arrested, and the ringleader (Vietnamese national) was sentenced **12 years imprisonment.**

Flag State Jurisdiction: The captain is Chinese, but **the trial is taking place in Hong Kong as the New New Polar Bear was sailing under the Hong Kong flag**. The man has been held in pretrial detention in Hong Kong since May. Prosecutors consider the captain responsible for damaging the Balticconnector gas pipeline (Between Finland and Estonia) in October 2023. In addition to the criminal charge, he is also accused of violating maritime safety regulations.

Practices of the ASEAN member States: Existing Position

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- None of the AMS have adopted dedicated legislation on protection of subsea cables and pipelines

- **Example 1:** Some AMS have national legislation criminalizing damage to submarine cables in their internal waters, TS and archipelagic waters. (E.g.,Section 209 and 210 of Navigation in Thai Water Act)

- **Example 2:** Several AMS have adopted legislation either under their applicable telecommunication law or oil and gas law or criminal law which penalizes damage to infrastructure used for communication (E.g., Singapore Section 427 of Penal Code)

Some Existing Challenges

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- Fragmented legal framework or lack of legislation implementation Article 113 of the UNCLOS
- No single point of contact for cable damage
- Delay in getting permit for cable repair
- No inter-agency or coordinating agency
- Not sufficient monitoring and surveillance
- Not sufficient cable repair capacity

ASEAN plans to build a new subsea cable system

The Association of Southeast Asian Nations (ASEAN) has agreed to build a new submarine cable network as it seeks to develop interoperable digital public infrastructure to connect people and businesses across Southeast Asia.

Gigi Onag, Senior Editor, APAC, Light Reading
February 6, 2024

4 Min Read

The 4th ASEAN Digital Ministers Meeting (ADGMIN) was held in Singapore with Josephine Teo, Minister for Communications and Information, Singapore (center), chairing the meeting. (SOURCE: ASEAN)

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02/09/2025

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ASEAN: Existing Initiatives

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- ASEAN recognizes submarine cables as critical infrastructure. (***Keynote by Secretary General of ASEAN at AOIP Seminar Series: Submarine Cable)***

- ASEAN **Guidelines for Strengthening Resilience and Repair** of Submarine Cables in 2019.

- In 2024, established the **Working Group on Submarine-Cables** to facilitate regular exchanges and promote cooperation among ASEAN Member States. The Working Group is currently enhancing the 2019 Guidelines.

Cont..CONCEPT PAPER ON (CUI) SECURITY FROM A DEFENCE PERSPECTIVE (Adopted by the 19th ADMM, 13 October 2025)

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- For the purpose of this paper, **Critical Underwater Infrastructure (CUI) refers to underwater infrastructure systems** that are essential to ASEAN's connectivity, resilience and strategic security. CUI refers to, but is not limited to, **submarine/subsea telecommunications cables that carry internet and data traffic; and submarine/subsea energy transmission infrastructure such as gas pipelines and power cables.**

- The scope of CUI can be expanded in the future based on consensus by ASEAN Member States (AMS).

Recommendation for AMS: Strengthening existing legal framework

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- Explicit provision on criminalizing the act of damaging submarine cables and pipelines (in criminal law);

- To adopt national laws implementing Article 113 of the UNCLOS to criminalize intentional damage to submarine cables and pipelines by their flagged vessels and their nationals. (enforcement beyond territorial sea)

- Best to have a dedicated legislation on the protection of cables and pipelines implementing all relevant provisions of the UNCLOS. (E.g, Australia)

- For effective flag state jurisdiction, there should be a point of contact in every responsible Flag State to facilitate enforcement

Cont…

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- **Policy:** designation of subsea cables and pipelines as critical infrastructure
- **Regulatory:** Establishing an interagency committee or coordinating agency on protection of cables and pipelines
- Cable Protection Zones: Australia, New Zealand

Relevant International Organisations

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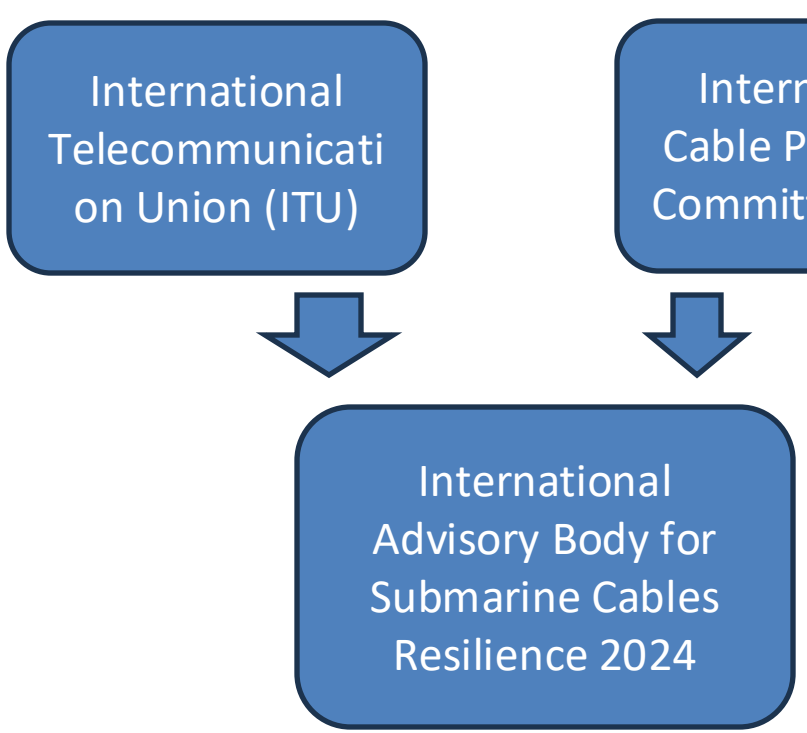

International Maritime Organisation (IMO)

- Chief Executive Officer, Infocomm Media Development Authority (IMDA) Singapore
- Minister, Ministry of Transport and Communications (Timor Leste)

Recommendation: ASEAN

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- ASEAN to create a model provision (implementing Article 113 of the UNCLOS) to harmonize national legislation for AMS.
- ASEAN to develop an agreement (legally binding) for cooperation for strengthening law enforcement for the protection of submarine cables and pipelines between AMS, e.g, coordinated patrol, surveillance, and monitoring
- Information Sharing mechanisms (IFC Singapore)
- Establish cooperative mechanisms on monitoring and surveillance
- ASEAN Subsea Cables Association (Public+ Private Partnership)

ASEAN Maritime Outlook, July 2023

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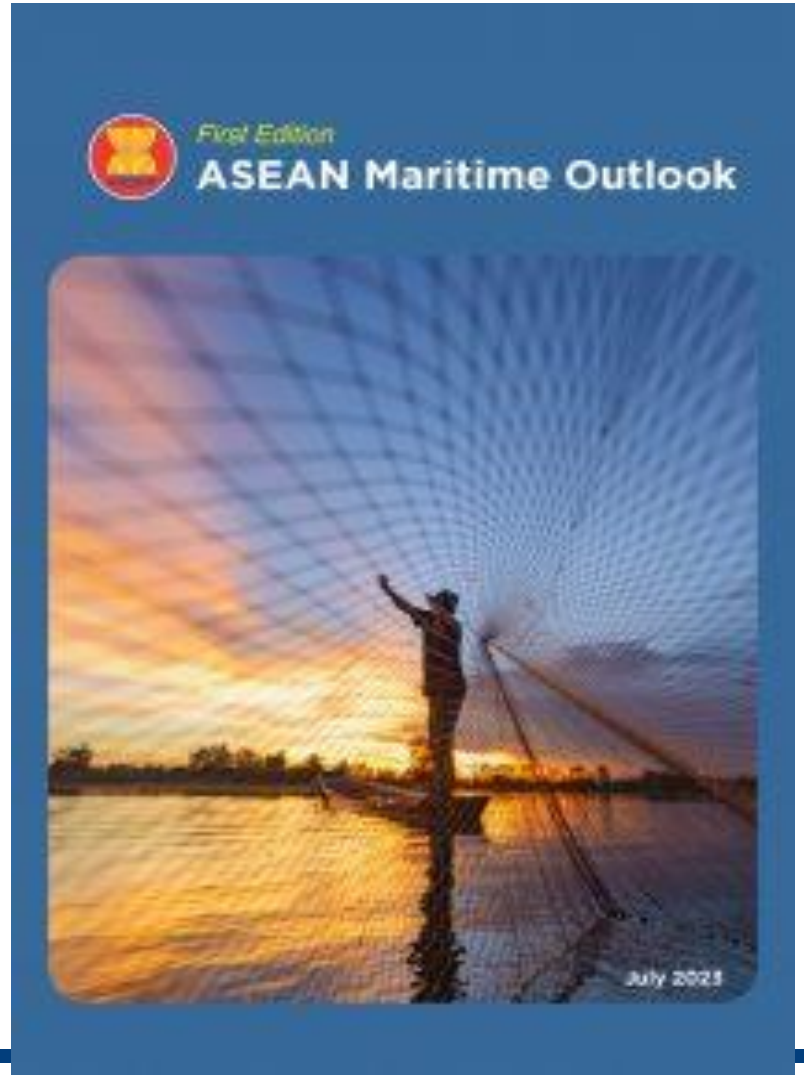

“Evolving Areas of Maritime Cooperation and Emerging Maritime Issues”

(i) proliferation of
marine debris and pollution;
(ii) environmental impact of marine transport; (iii) piracy and armed robbery against ships; (iv) cyberattacks against ships and port facilities,
(v) irregular movement of persons; and
(vi) illegal, unregulated
and unreported (IUU) fishing activities;
(vii) blue economy;
(viii) offshore mining; and
(ix) offshore renewable energy.

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THANK YOU