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Addressing Vulnerabilities and Securing Critical Underwater Infrastructure in Southeast Asia

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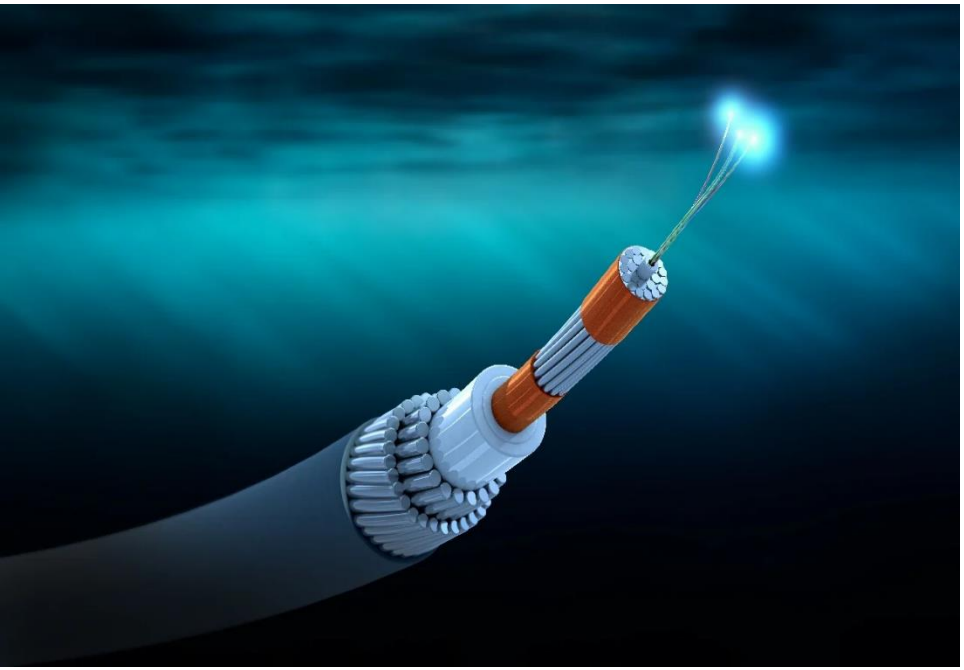
Key Messages

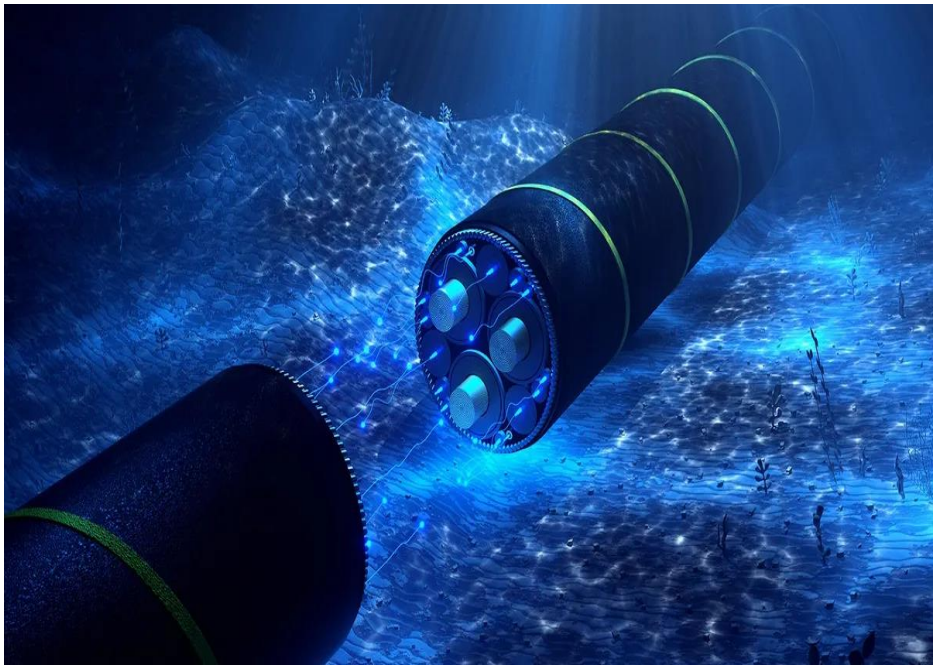
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- ✓ What are CUIs?
- ✓ Security Risks and the need to protect them
- ✓ Existing International Legal Framework
- ✓ Strengthening national laws: Implementing Article 113 of the UNCLOS 1982
- ✓ Best Practices or recent developments?
- ✓ Recommendations for ASEAN

CUI: Subsea Cables & Pipelines

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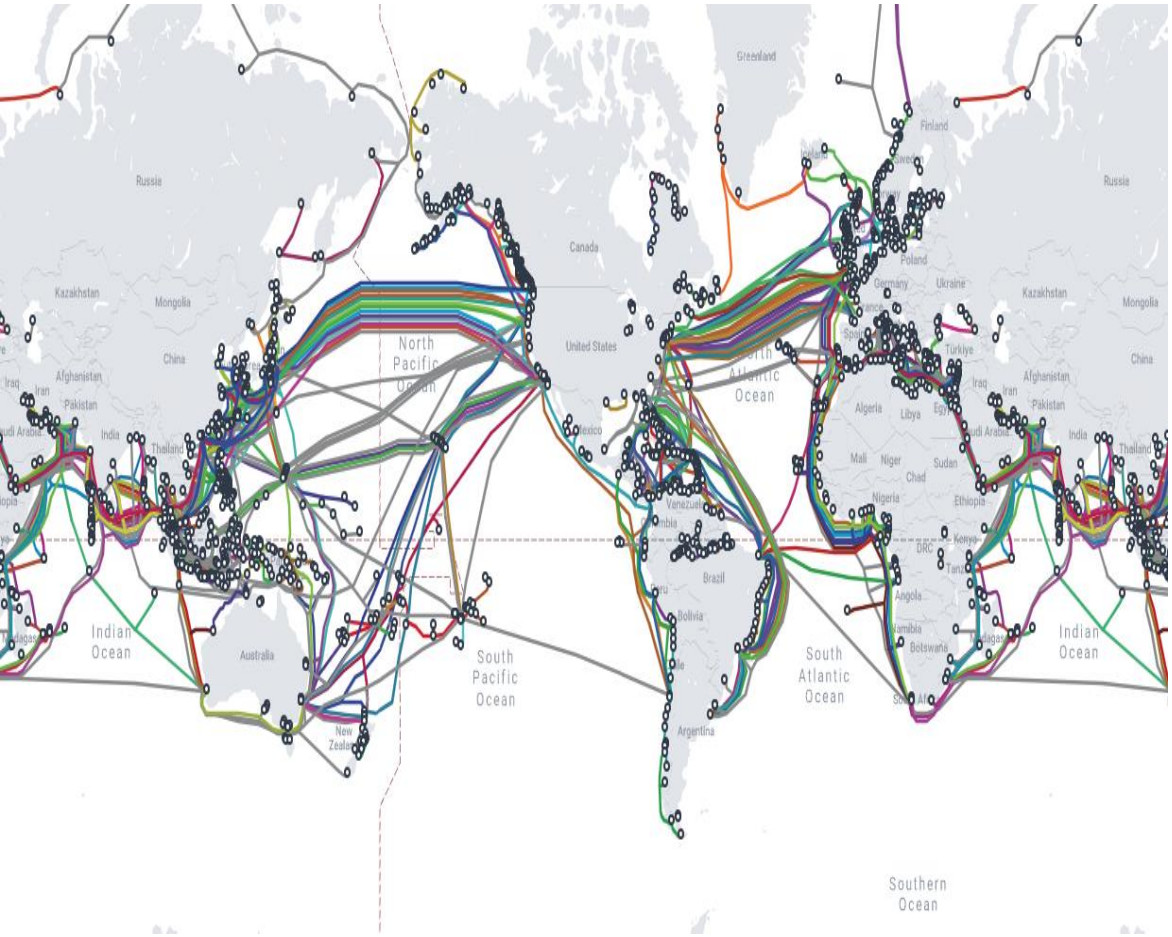


- approximately 95% of the
- world's communications are provided by such subsea cables
- more than 600 active and planned submarine cables.

- 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 2025, 570 in-service submarine cable systems worldwide and 81 additional systems planned.
- Highest number of in-service systems in the past two decades

(*number of the cables keeps changing as new cables enter service and older cables are decommissioned*)

CUI: Subsea Pipelines

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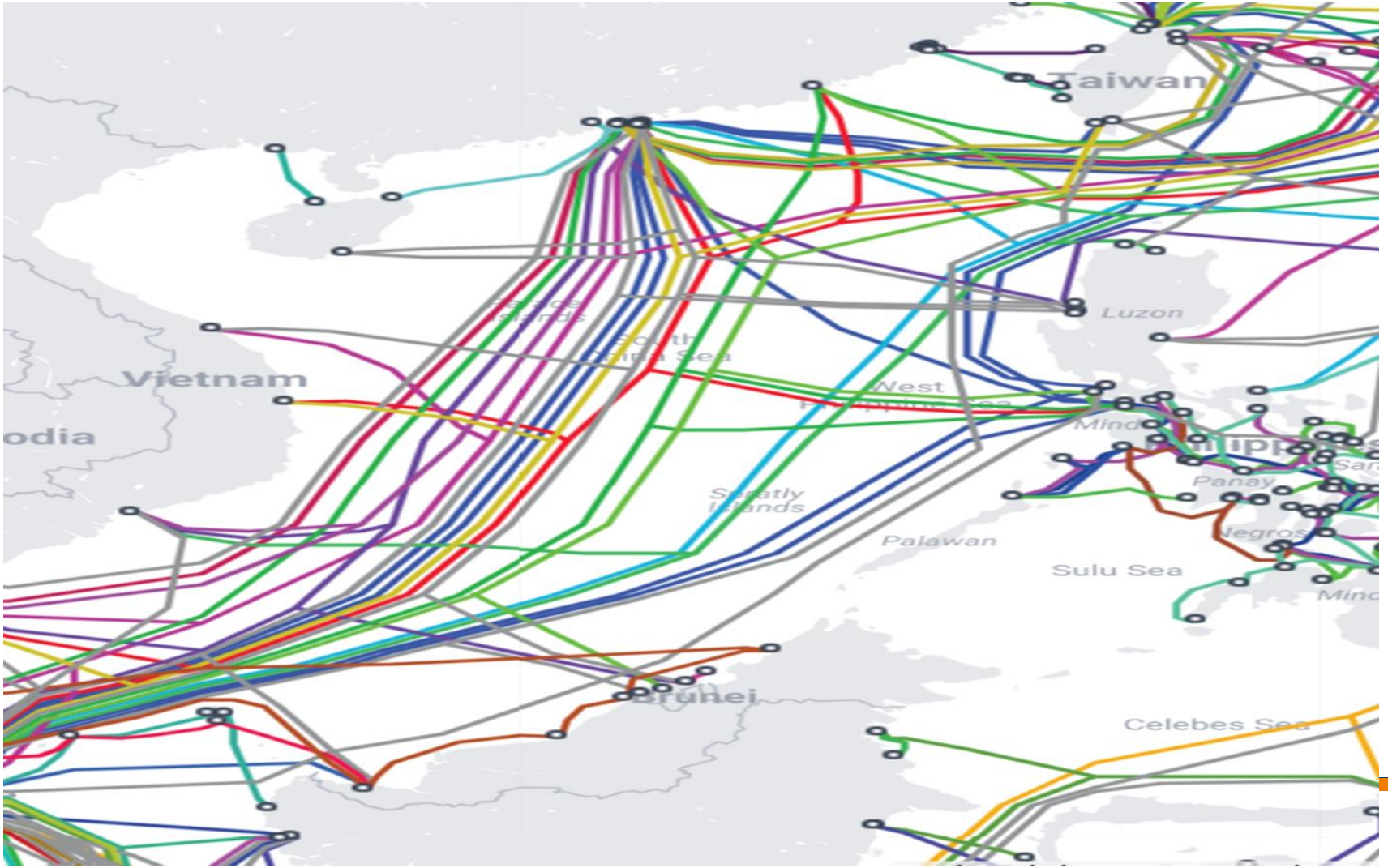


- Energy pipelines are primarily used to ***transport crude oil and natural gas*** .
- At least ***2,381 operational oil and gas pipelines around the World distributed across 162 countries*** with a combined length of 1.18 milliom km- enough to circle the Earth 30 times. (2020, Global Energy Monitor)

Cables and the Choke Points in the Region

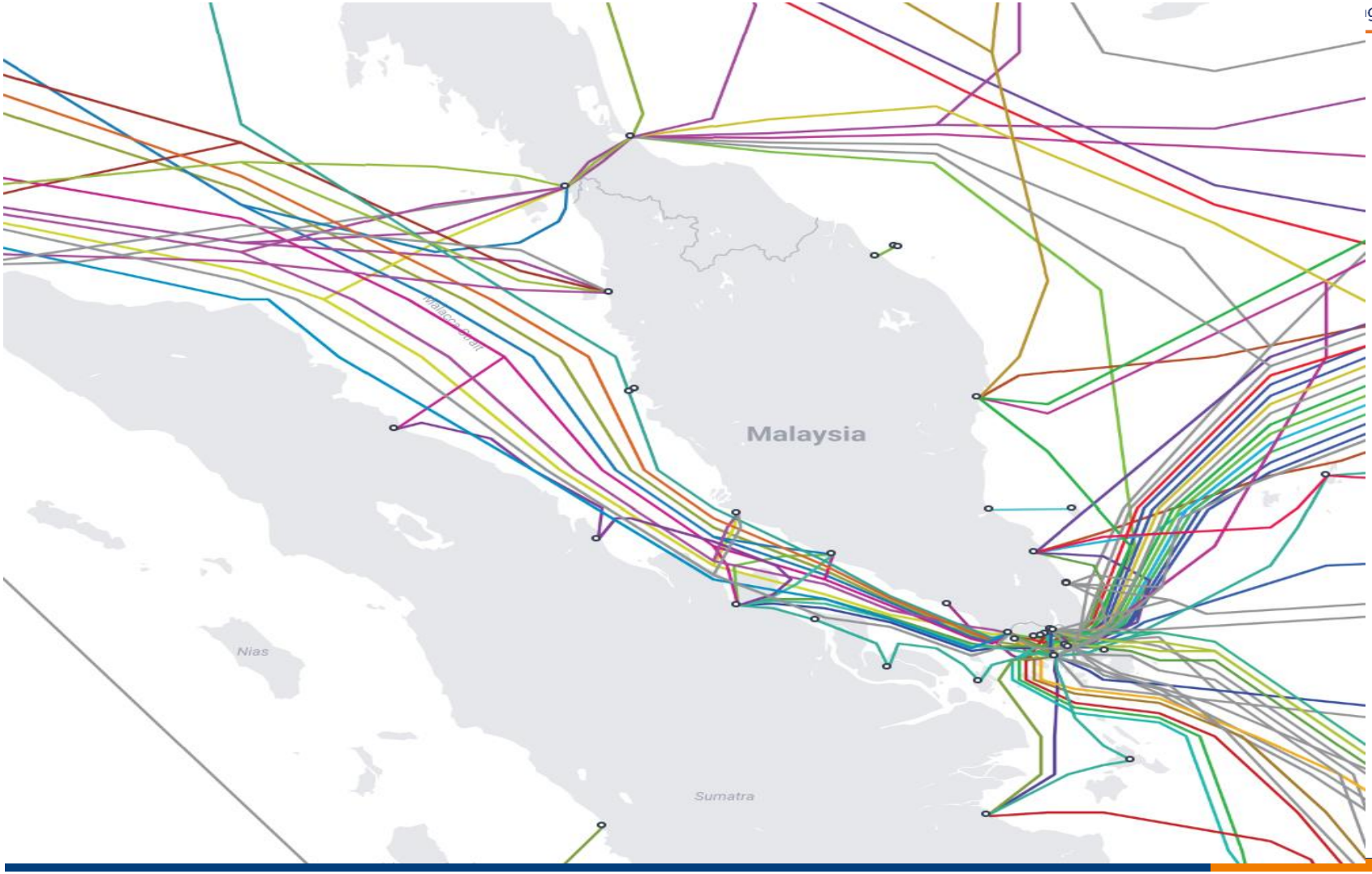
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South China Sea



Straits of Malacca and Singapore

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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 aims to interconnect existing and planned gas pipeline infrastructure within ASEAN, to transport gas across borders to ensure greater security of gas supply.

Security Risks to CUI

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Security Risks to CUI	Impacts		
Intentional: Sabotage (State-sponsored operations) Terrorism Espionage/Data interception Theft Hybrid Warfare	**Cables:** **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)	**Energy cables & Pipelines:** **Energy security Impact:** • Sudden energy shortages and reduced energy reliability • Power outage **Economic Impact:** • Spike in global gas and energy prices **Operational and Infrastructure Impacts** • Long-term disruption to energy infrastructure
Unintentional: Fishing activities, Natural hazards, Anchoring, Construction/seabed works, Operational error etc.	**Security Impact:** • Loss of situational awareness • Vulnerability exposure • Public panic or misinformation	**Environmental Impact of Energy pipelines:** • Large-scale methane leakage (Nord Stream Sabotage) • Marine ecosystem damage and pollution • Contribution to global warming

Growing Cybersecurity Risks

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Undersea cables:

Fiber optic cables- NMS
Power cables – landing stations, control systems

Undersea Pipelines:
Rely on industrial control systems (ICS/SCADA)

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 down, state media said over the weekend, the second major round of outages in the country in just over a year.

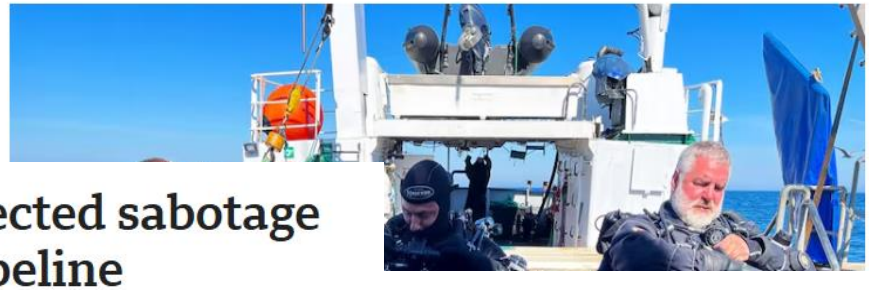
The problems with the three cables, which connect Vietnam with the United States, Europe and Asia, have "significantly affected Vietna
Agency.

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

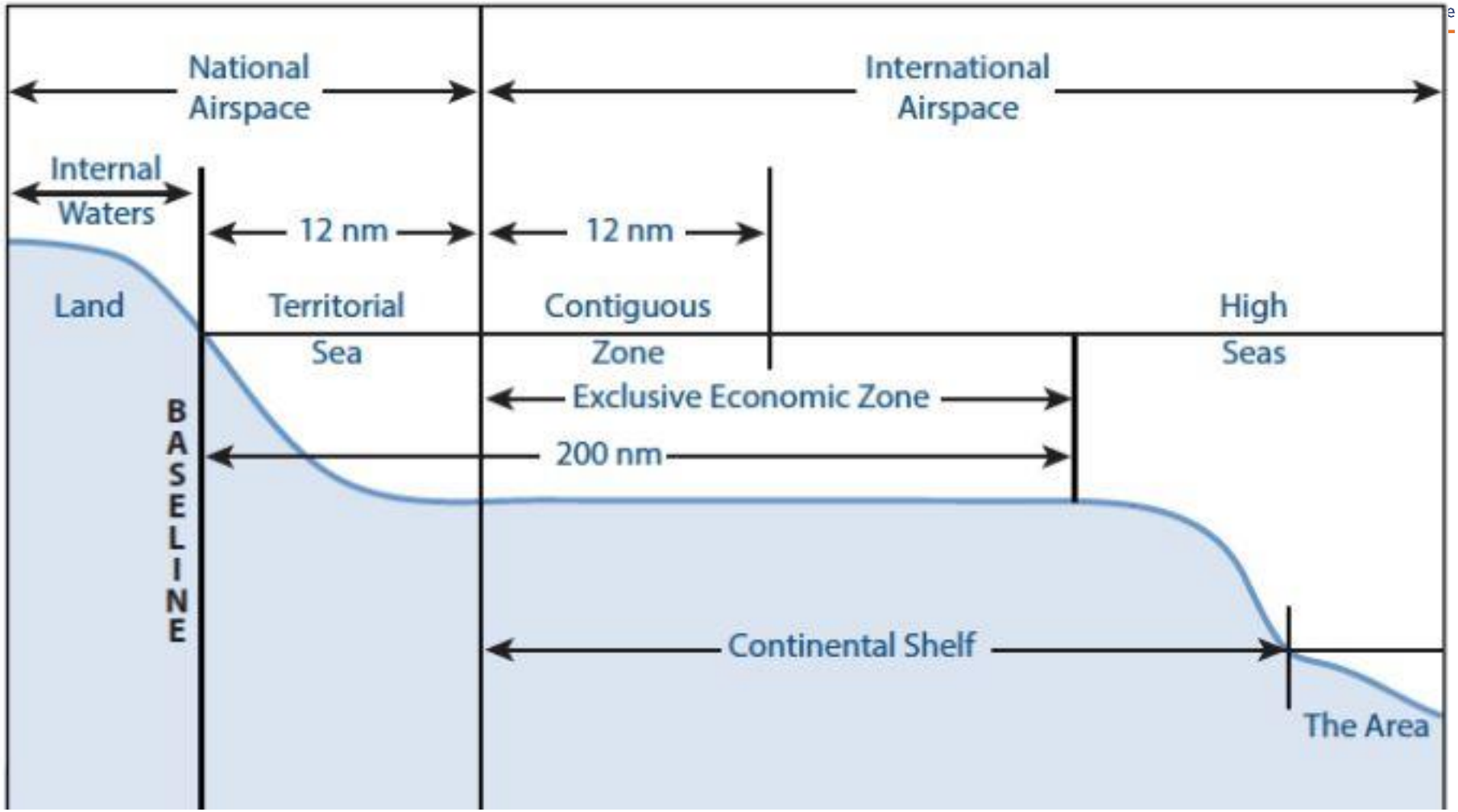
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Kathryn Armstrong & Vishala Sri-Pathma BBC News



Maritime Zones Illustration

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Relevant Provisions of UNCLOS on Subsea Cables and Pipelines

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- Coastal States' ***rights*** to regulate cables and pipelines, and the ***obligation*** of States to protect cables, depend on where they are located:

➢ Maritime zones subject to sovereignty – territorial sea and archipelagic waters

➢ Maritime zones outside sovereignty – EEZ, continental shelf, high seas, and deep seabed

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)

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 **wilfully 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) Proles'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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Article 113	Exclusive Economic Zone	High Seas
Prescriptive Jurisdiction (Adopt national legislation)	laws and regulations that make the breaking or injury beneath the high seas or in the EEZ by vessels flying their flag or their nationals a punishable offence.	laws and regulations that make the breaking or injury beneath the high seas or in the EEZ by vessels flying their flag or their nationals a punishable offence.
Enforcement Jurisdiction (Stop, Board, Investigate and seizure/arrest/convict/sentence)	• Flag State • States where perpetrators are the Nationals of that State	• Flag State • States where perpetrators are the Nationals of that State

Territorial Sea

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- Coastal State can enforce existing relevant national laws (telecommunication or oil and gas laws) or criminal laws within the 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

- 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)

- 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)

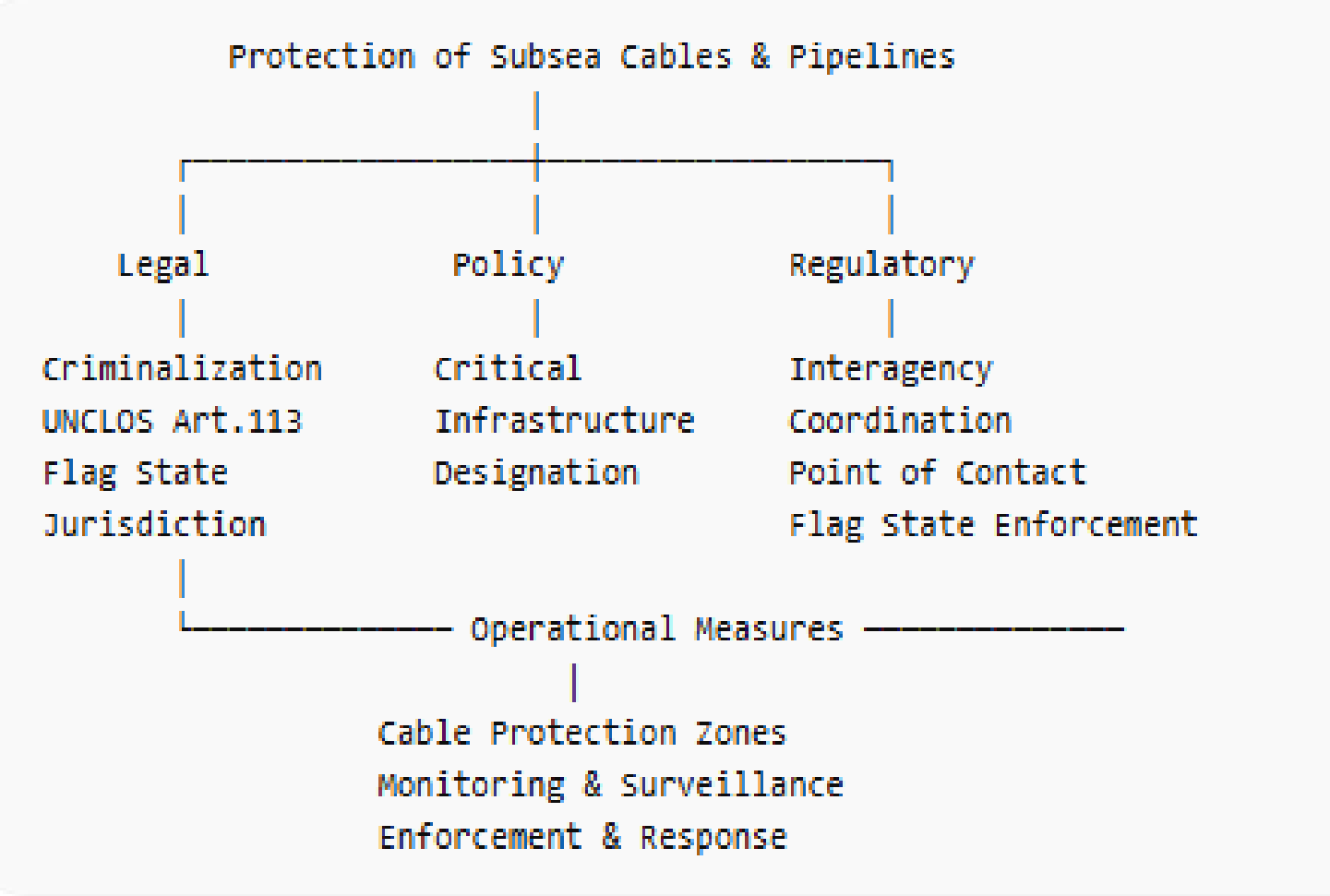
Some Existing Challenges

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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

Recommendation for AMS

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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



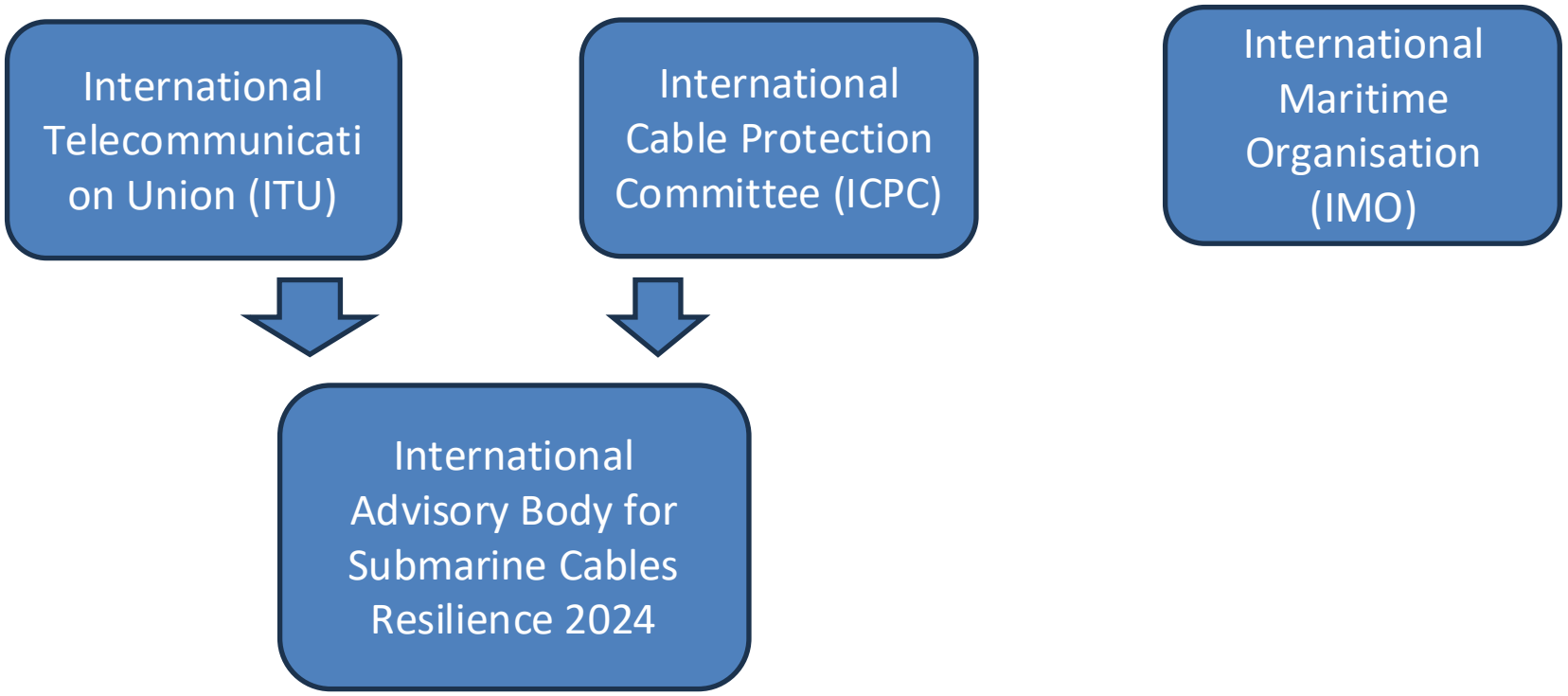
More investments needed for infrastructure as Asean works towards an interconnected grid

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Relevant International Organisations

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Recommendation: ASEAN

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Strengthening Existing Initiatives and Establishing Forward-looking ones	
Policy & Strategic Initiatives	• ASEAN recognizes submarine cables as critical infrastructure Enhanced ASEAN Guidelines to strengthen resilience and repair capacity • ADMM-Plus Concept Paper on Critical Undersea Infrastructure Protection
Institutional & Cooperation Mechanisms	• Establishment of ASEAN Working Group on Submarine Cables (2024) • Regular exchanges and cooperation among ASEAN Member States (repair)
Legal & Regulatory Cooperation	• Develop ASEAN Model Provisions implementing United Nations Convention on the Law of the Sea • Harmonization of national legislation among ASEAN Member States • Consider legally binding regional agreement for protection of cables and pipelines
Operational Cooperation	• Coordinated patrols and surveillance • Joint monitoring mechanisms • Strengthened law enforcement cooperation (Malacca Strait Patrols, Trilateral Maritime Patrols) • Information sharing (ReCAPP, IFC)
Multi-Stakeholder Engagement	***Collaboration among:*** Governments and regulators, academia, think tanks, Industry stakeholders

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In today's threat environment:

No cooperation, no security.

Cooperation is not a choice- it is a necessity.

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THANK YOU

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