

## NEEDED, A FRAMEWORK TO PROTECT UNDERSEA CABLES

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*In the data-driven world we live in, submarine cables are the arteries that connect nation-states and their people in literally every human activity, including trade, commerce, entertainment and social interactions. Any interference in that flow of data can disrupt lives and livelihoods and compromise the capacity of nation-states to trade, communicate and defend their interests. There are few instruments in public international law available to nation-states for the protection of submarine cables vital to their national interest. However, private international law and, in particular, commercial contracts may provide the basis for a network of contracts that may provide the legal framework required to defend the network of submarine cables. The ASEAN Power Grid Agreement and the Five Power Defence Agreement may provide the analytical framework upon which a series of mutual agreements may be constructed so as to create a synthetic hardened shell around the cables.*

### Introduction

In an era where data is hailed as the “new oil,” the role of submarine cables in global connectivity cannot be overstated. Due to the fact that these cables cross through different nations and jurisdictions, safeguarding submarine cables has become a transnational issue. In the absence of any existing legal framework or agreement between coastal states in protecting submarine cables, the chances of implementing or following the “rule

of law” in accordance with international practice will be difficult. The international legal framework or UNCLOS provides less insight into governing underwater space, which presents a major challenge to guaranteeing the safety of submarine cables or pipelines in the high seas.

The main priorities in the underwater domain are mineral resources, submarine cables, and pipelines.

As the global race for digital dominance intensifies in the Indo-Pacific, the security threats and geopolitical tensions around submarine cables are expected to increase. It is, therefore, imperative to establish a mutually agreeable framework to govern the subsurface effectively. This issue brief analyzes the increasing threat to submarine cables in the Indo-Pacific region and discusses the legal challenges and policy measures required to address this problem. Additionally, it examines the Memorandum of Understanding on the ASEAN Power Grid to determine if it could serve as a model for creating an effective framework to protect submarine cables.

Submarine cables, spanning approximately 1.4 million kilometers, are responsible for transmitting over 95 percent of global data traffic and have become the backbone of digital communications.<sup>1</sup> According to TeleGeography, there are nearly 500 active submarine cables that serve as a lifeline for finance, commerce, defense, and diplomacy, playing a pivotal role in shaping the digital landscape. As a result of the growing demand for bandwidth and the global rise of cloud computing, Jonathan E. Hillman points out in his report that submarine cables can provide a capacity of 250TB/s. This

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capacity can serve around 1.7 million small businesses using typical cloud services. Alternatively, it can handle the simultaneous streaming of 3.3 million 4K-resolution videos.<sup>2</sup> He also highlights the advancement in submarine cable technologies in the last three decades has lowered the latency and enabled high-capacity connection. As society becomes more reliant on high-tech computing, the demand and importance of submarine cables are expected to increase drastically in the future.

In the Indo-Pacific, the digital economy is growing rapidly, creating a high demand for cloud data centers in the region. As of now, there are over 90 active cloud regions, with China being the top market with almost 41 cloud data centers. Other leading markets include Japan (12), India (12), South Korea (9), and Singapore (7).<sup>3</sup> Meanwhile, the economies of Southeast Asian countries are rapidly growing, and they are focusing on digital expansion. Major content providers such as Google, Facebook, Microsoft, and Amazon are investing in building submarine cables around the world. They are also setting up new landing stations in Indonesia, Malaysia, Thailand, and the Philippines. This suggests that the Indo-Pacific region will have a substantial number of submarine cables, but there are concerns about geopolitical tensions, and fishing and shipping activities posing a potential risk to the submarine cables.

### **Threat to Submarine Cables**

In 2022, the disruption of Nord Stream 1 and Nord Stream 2 pipelines in the Baltic Sea sharpened the conversation among policymakers, security experts, and industries on the safety and security aspects of submarine cables.<sup>4</sup> The safety and security assessment of maritime infrastructure is a complex undertaking, and comprehending the challenges is crucial for the Indo-Pacific nations that are increasingly reliant on maritime infrastructure supporting significant activities such as transportation, energy, data, fishing, and ecosystems. The emerging challenges in the region indicate that submarine cables are especially susceptible to disturbances caused by both

state and non-state actors. The threat to submarine cables can be divided into two aspects: First, the submarine cable and Chinese political game, and secondly, sabotage and accidents.

### *The Chinese Political Game*

China's revolution in the telecommunication and digital sectors has allowed it to penetrate the global market. China is rapidly expanding its digital infrastructure in the Asia-Middle East-Africa as part of the Digital Silk Route (DSR). The main objective of China's DSR is to construct submarine cables globally to control data and information flow, and to build digital infrastructure in developing countries by providing loans and credits. The Pakistan and East Africa Connecting Europe (PEACE) cable is one of China's big-ticket projects, which connects Gwadar Port with Djibouti, Kenya, Seychelles, and South Africa. The upcoming 2Africa project is also another massive Chinese project, an extensive 45,000 km long submarine cable to interconnect Europe, Asia, and Africa. China has also approached Pacific Island countries for building digital infrastructure with seamless connectivity. Although China's approach towards building digital infrastructure in the Indo-Pacific for less-developed countries seems promising, it has raised concerns among some experts.<sup>5</sup> They view China's "coercive lending" process,<sup>6</sup> which creates a "debt trap" situation, as a means of establishing dominance over these countries and question China's intentions. The Quad countries have also expressed concerns about China's growing involvement in the construction of submarine cables. Especially, when it comes to safeguarding the sovereignty and resilience of Indo-Pacific nations with less developed critical infrastructure.<sup>7</sup>

China has also been accused of causing a delay in the approval for laying cables in the South China Sea. The country is demanding that companies obtain permits to carry out work in international waters outside of its territorial waters. This has forced companies to consider alternative routes to avoid China's interference. The Singapore-Japan

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Cable 2 (SJC2) project is one of the projects that has been delayed due to China's actions. Due to Chinese assertiveness, two planned new cables from Singapore to America—Apricot and Echo—have been rerouted via Indonesia to avoid the South China Sea. Moreover, the safety of submarine cables is facing an increasing number of challenges, particularly in the South China Sea. In February 2023, Taiwan accused China of disrupting the submarine cable that connects Matsu Island, a small Taiwanese island group just off the coast of China. According to Taiwan, Matsu's sea cables have been damaged around 30 times since 2017, due to various reasons such as sand dredging near the island by China.<sup>8</sup> These incidents have sparked serious discussions in Taiwan about the need to protect digital connectivity both during peacetime and wartime.

The ongoing conflict between Russia and Ukraine has emphasized the significance of internet connectivity during warfare. Ukraine heavily depends on its digital infrastructure to communicate, coordinate, and gather information while fighting against Russian forces in the occupied part of the country. In the Indo-Pacific region, the safety of submarine cables is becoming a crucial issue, especially for island nations like Taiwan. Such cables play a vital role in enabling communication and data exchange

between different military units and command centers. Therefore, digital infrastructure has become a strategic issue in this region. China's expansion policy, along with its active digital espionage, calls for a more comprehensive policy to safeguard submarine cables.

*Sabotage and Accidents: Damage to Submarine Cables*

Submarine cables are highly vulnerable to sabotage carried out by both state and non-state actors. This may include intentional damage to the cables, destruction of landing sites, or espionage activities involving the placement of listening devices within the cables. In May 2023, NATO intelligence chief David Cattler issued a warning that "Russia may sabotage undersea cables to punish Western nations for supporting Ukraine."<sup>9</sup> The Snowden incident also revealed how New Zealand's electronic spy agency, the Government Communications Security Bureau (GCSB), along with the US National Security Agency, implemented a mass metadata surveillance program named "Speargun" in 2012, by secretly installing a "cable access" equipment to the Southern Cross Cable, New Zealand's major undersea cable link that connects Australia, New Zealand, and North America.<sup>10</sup> There have

been numerous incidents of attack and sabotage of undersea cables. The Egyptian Coastguard apprehended three individuals off the coast of Alexandria in 2013 for cutting the SE-WE-ME-4 cable, which carries internet traffic from Egypt to Europe.<sup>11</sup> Similarly, in March of that same year, 16 tons of submarine cables laid on the sea bed between Bangka Island and the Riau Islands in Indonesia were stolen, causing widespread disruption in the region.<sup>12</sup> These incidents highlight the critical need for security measures to protect undersea cables from deliberate acts of sabotage and theft.

In addition to these deliberate actions, accidents such as bottom trawling by fishing vessels, anchor dropping on submarine cables, or mining activities can also cause damage to these critical communication lines. The Indo-Pacific waterway is a crucial highway that connects the Indian Ocean with the Pacific, and the high density of shipping traffic near the chokepoints is possibly leading to the shortage of anchorage areas, resulting in the destruction of the submarine cables. Similar to ships, submarine cables are planned for the shortest routes and pass through international chokepoints in the Indian Ocean. There have been several incidents reported in Southeast Asia where ship anchors have caused damage to submarine cables. In 2018, a Singapore-flagged vessel unintentionally damaged a submarine cable owned by Indonesia's largest telecommunication provider, PT Triasmita. The damage occurred off the coast of Riau Islands, Indonesia and the cable connected the Straits of Malacca and Singapore to the South China Sea.<sup>13</sup> In 2021, a container ship anchored approximately 500 meters from the protection zone in Perth, Australia, and during high winds, its anchor dragged through the area, breaking the cable in multiple places.<sup>14</sup> The master of the maritime vessel was arrested by the Australian Federal Police (AFP) for negligent conduct under section 37 of Schedule 3A of the Telecommunications Act 1997.<sup>15</sup> However, the master was later released in 2023. The major reason for negligence or unintentional accidents taking place may be because of unfamiliarity with the

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presence of submarine cables or lack of awareness related to Rules of the Road (RoR) or rules related to protection zones.

The damage to submarine cables due to geopolitical tensions and human negligence is a major issue that can have severe consequences in the digital world. The South China Sea plays a crucial role in connecting the Middle East, Indian sub-continent, and Southeast Asian nations with Northeast Asia and the East shores of the American continent. Unfortunately, overlapping maritime boundary claims and disputes have created challenges in the installation and repair of cables in these contested maritime zones. The International Cable Protection Committee (ICPC) recommends that states involved in such disputes set aside their overlapping maritime boundary claims and cooperate in an unprejudiced manner to facilitate cable installation and repair in these zones. The ICPC's recommendation to remain neutral is an essential step towards ensuring the safe and reliable functioning of submarine cables in contested maritime zones. In 2009, the International Maritime Organization (IMO) issued a notice to mariners at the request of the governments of Indonesia, Malaysia, and Singapore. The notice instructs mariners to refrain from anchoring in areas within the Traffic Separation Scheme (TSS) of the Straits of Malacca and Singapore. Instead, they should only anchor in anchorages designated by the respective littoral states. There have been attempts made by various parties, including state and non-state actors, to safeguard the submarine cables in the region. However, the issue remains quite complicated and will require proactive participation from both regional and international organizations to ensure that it is not a political or legal issue.

In response to China's predatory practices, the governments of the U.S., Australia, and Japan offer financial assistance and training to avoid the use of Chinese supplies and equipment. In 2023, the Quad leadership meeting adopted a resolution to support the regional "Quad Partnership for Cable Connectivity and Resilience" aimed at strengthening

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cable systems in the Indo-Pacific region by drawing on world-class expertise in manufacturing, delivering, and maintaining cable infrastructure.<sup>16</sup> Additionally, the U.S. "CABLES" program and the "Trilateral Partnership for Infrastructure Investment" between the U.S., Australia, and Japan are also expected to provide assistance in setting up safe and reliable cable infrastructure across the Indo-Pacific region.

Submarine cables pose a significant challenge in terms of governance due to the absence of a regulatory authority or framework to oversee them. It is crucial to examine the legal issues and explore possible approaches to bringing a coherent policy that addresses governance concerns. In the next section of this issue brief, we will delve deeper into the legal complexities of submarine cables and examine potential solutions to establish a regulatory framework that governs them effectively.

## Submarine Cables in a Synthetic Hardened Shell: The Policy and Legal Discourse

A submarine cable conveys light that conveys bytes of data.<sup>17</sup> Conceptually, the conveyance of data is not different from the conveyance of goods and persons by seafaring vessels, and the map given ahead of cables connecting the continents by sea is symbolic of that fact.

Given that conceptual likeness, if not a facsimile, between the two platforms of sea-based conveyance, the international laws of the sea seem a logical point from which to begin an analysis of the laws that may or may not apply to cables.

Article 113 of the United Nations Convention on the Law of the Sea (UNCLOS) provides:

“Every State shall adopt the laws and regulations necessary to ensure 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.”

However, submarine cables venture far into international waters where the laws and regulations of states do not apply for want of jurisdiction. In the words of Robert Beckman:<sup>18</sup> “Submarine cables are the orphans of international law.”

Commenting on Beckman’s pointed analysis, Burnett notes:<sup>19</sup>

“.....no applicable international treaty exists to deal with attacks

on submarine cables outside of territorial seas by terrorist or “grey” forces. The Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation and the Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation (together called the “SUA Conventions”) cover aircraft, ships, offshore platforms, and navigational aids, but are silent on cables.”

Burnett supports Beckman’s suggestion that the SUA be expanded to include submarine cables, but that idea does not seem to have gained traction. However, the suggestion that cables be regarded as if they are ships does turn attention to the nature of cables and what they do. As described above, cables convey data and they are not unlike ships, which convey persons and goods. Unlike ships, they are not directed by human actors, but of course, human actors are responsible for their construction and supervision. That similarity raises the prospect that perhaps cables ought to be analyzed within the framework of Admiralty rather than the law of the sea.<sup>20</sup>

### *Admiralty Law*

O’Hare summarizes Admiralty Law in the following terms:

“The distinctive feature of Admiralty is its capacity to entertain proceedings taken directly against ship, cargo, freight or other maritime property. In contrast with the action in persona, which proceeds against a defendant having common law personality, the action in rem commences against the thing which causes damage or in respect of which obligations accrue.”<sup>21</sup>

Admiralty Law, if extended by treaty and statute to define cables as ships, would allow cables to be defendants in a matter and commence counter-claims where possible. Still, it is difficult to see how that legal fiction would assist states in the task of defending their cables or cable connections from intended or unintended damage. The legal construct employed in Admiralty Law is not unlike the legal construct of the corporate personality. Still, it does not extend to the point where a ship might, like a corporation, commence an action in its own name. This element of the corporate personality is vital when cables are damaged in areas outside of the jurisdiction, and other avenues need to be found in order to commence an action against miscreants.

However, Admiralty Law also provides that a ship may be considered an extension of the flag state. The concept is summarized by Gauci, who explains it as follows:<sup>22</sup>

“.....there is no doubt that a ship or vessel has long been seen and treated in law as a special item. It is one of the few items to be endowed with the possibility or likelihood of attribution of nationality, which attracts the exclusive jurisdiction of the flag State, at least on the high seas in terms of international law; this is, in fact, a matter of necessity when the ship navigates in areas beyond any national jurisdiction. This approach has been explained by the ‘territoriality’ principle whereby the ship is described as a ‘floating island’ or a ‘detached part’ of the flag state’s territory.”

Given the above, the question arises as to the possibilities of extending the legal fiction of a ship as a ‘floating island’ or a ‘detached part’ of the flag state’s territory to cables. The answer may be found by examining the concept in the context of existing mutual agreements between ASEAN nations for the protection of infrastructure and shared space.

***This paper demonstrates that contractual joint ventures or strategic alliances can provide the framework for the creation of a network of legal instruments that, when taken together, can provide protection for cables that are currently lacking in international law.***

### **Case of the ASEAN Power Grid Agreement**

Assuming that domestic laws may be amended to include cables in the definition of ships, then cables emanating from a country and operated by an entity or entities incorporated in that country could be considered an extension of that country and, therefore, a subject of and to its laws. That may cure the current problem of a lack of jurisdiction once the cables enter international waters.

An issue that may arise is in the permissions necessary when the cable enters the territorial waters of some other State. Still, however, that issue is likely to have already been resolved by the fact that permissions must be sought and obtained from the relevant States before laying cables within their territorial seas.

Enforcement of those laws will of course remain a problem with the identification and apprehension of miscreants, hostile or otherwise, a matter of primary importance. Gaining the cooperation of the State where the cable lands would seem a logical step in that regard, and indeed it provides the basis from which to build a network of mutual agreements for the protection of cables.

The Memorandum Of Understanding On The ASEAN Power Grid,<sup>23</sup> for example, seeks to give life to the ASEAN Power Grid by committing ASEAN members to a series of undertakings in furtherance of the objective of “the realisation of the ASEAN Power Grid to help ensure greater regional energy security and sustainability on the basis of mutual benefit, subject to national laws.”<sup>24</sup>

It is a fact that the ASEAN Power Grid MOU was signed in 2007 and that the concept of an ASEAN Power Grid was first conceived in 1986. That delay is reason enough to question the utility of this MOU in discussions about a framework for the protection and maintenance of cables.

However, it should be noted that the cables are already in place, and to that extent there is already a degree of cooperation between the countries connected by those cables. It should also be noted that ASEAN members Lao PDR, Thailand, Malaysia, and Singapore have committed to a Power Integration Project (LTMS PIP)<sup>25</sup> and Singapore has already taken delivery of electricity pursuant to an agreement between Keppel Electric, a subsidiary of Singapore Government investment firm Temasek and Electricite du Laos, and Lao PDR.<sup>26</sup> Keppel regards the LTMS PIP as a first step towards establishing the APG.<sup>27</sup>

Turning then to the provisions of the ASEAN Power Grid MOU that may have application to cables, Article III on Cross-Border Issues would seem the logical place to begin. Article III addresses, in general terms, cooperation by member-countries in the area of harmonizing technical and legal standards but, however, says nothing about the protection of the grid. In that sense, it may provide little if anything of use to the primary concern that this paper seeks to address. Nevertheless, the articles and clauses on harmonizing technical and legal standards can provide a framework for Quad partners to, at the very least, lay down the bare bones of an agreement.

Even if domestic laws are not extended to include cables in the definition of ships, Quad partners may still profit from laying down the bare bones of an agreement to defend their cables, for that in itself may act as a deterrent against hostile actors. They could, it is submitted, seek to emulate the Five Power Defence Agreement of 1971,<sup>28</sup> which in substance only provides for technical cooperation but which in form is regarded as being a defense pact.<sup>29</sup>

The ASEAN Agreement on Transboundary Haze Pollution (AATHP)<sup>30</sup> is another example of an instrument that may be emulated to provide a formal legal framework for the preservation of cables. ASEAN member-states signed the AATHP on June 10, 2002 in Kuala Lumpur, Malaysia as a response to the smoke and smog pollution caused by forest fires in Indonesia in 1997 and 1998, which affected the entire South East Asian region.

Relevantly, Article 2 of the AATHP provides:

The objective of this Agreement is to prevent and monitor transboundary haze pollution as a result of land and/or forest fires which should be mitigated, through concerted national efforts and intensified regional and international co-operation.

The AATHP is relevant to the purposes of this paper, for it seeks to protect a shared space, which it is submitted may be regarded as shared natural infrastructure, as is the sea. The objective of and methods employed in creating a mechanism for the transboundary monitoring of haze may provide, at the very least, an institutional framework for monitoring and mitigating threats to cables.

#### *The Utility of Mutual Agreements*

Assuming that mutual agreements of the form described above are adapted as a vehicle for creating the instruments required to protect cables, the discussion can then turn to implementation. At this



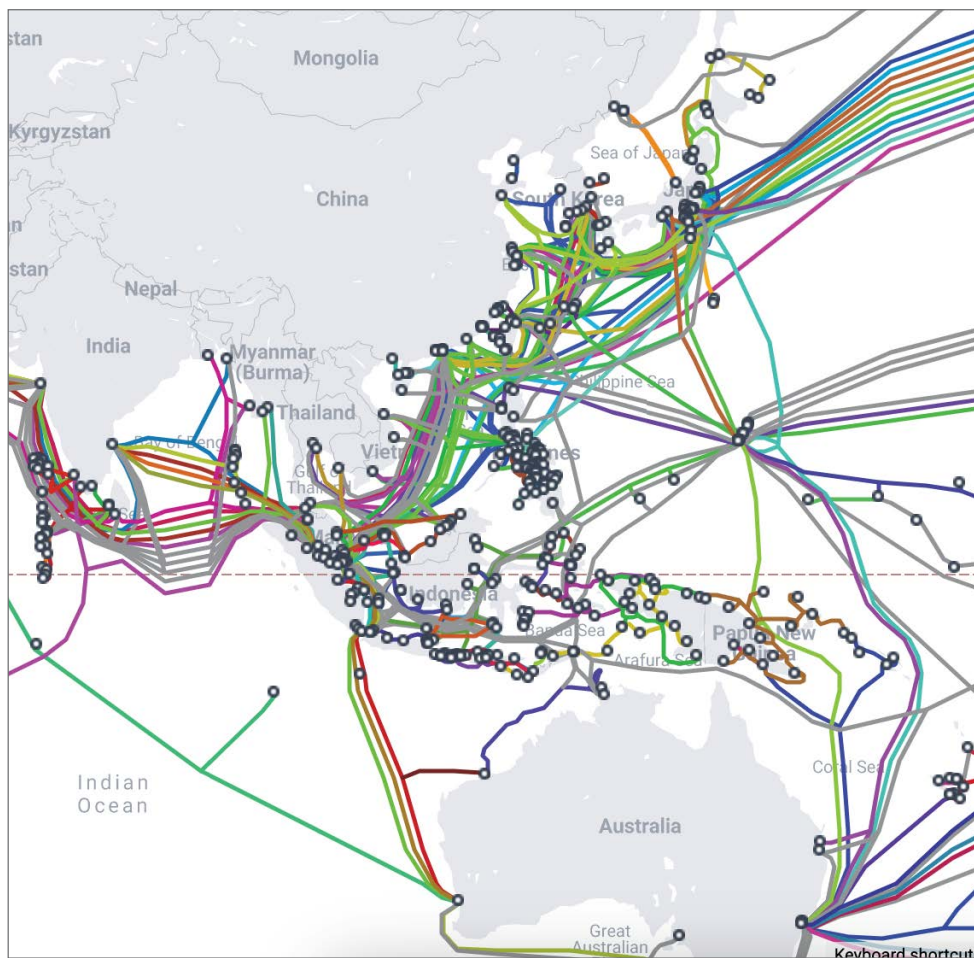
junction, the ASEAN mutual agreements and the FPDA are very similar to contractual joint ventures utilized in commercial arrangements. The parties to a contractual joint venture (or an unincorporated joint venture) agree among themselves to provide resources for some common objective without creating a new legal entity.<sup>31</sup> In some jurisdictions, for example Singapore, the terms strategic alliance and contractual alliance seem to be preferred.<sup>32</sup> These terms are also in use in the United States.

Strategic alliances or contractual alliances may be indistinguishable from partnerships but to clarify what these terms precisely mean in the context of international relations, reliance may be placed on the following United States Department of Defense

explanation:<sup>33</sup> Alliances are formal agreements between two or more nations. In national defense, they are promises that each nation will support the other, particularly during war.

Some examples of alliances that the U.S. is in include NATO (the North Atlantic Treaty Organization with 28 other countries), NORAD (the North American Aerospace Defense Command with Canada), ANZUS (the Australia, New Zealand and U.S. Security Treaty), and the Moroccan-American Treaty of Friendship, which is America's oldest unbroken treaty. Partnerships are less formal than alliances. Often called "strategic partnerships," they help build relationships between nations or organizations like militaries. Like alliances, they

### Map of Submarine Cables in the South China Sea, 2023



Source: TeleGeography, (License under CC BY-SA 4.0)

benefit the members of the partnership, but they can be short-term and don't involve a treaty.

### *A Synthetic Hardened Shell*

The U.S. Department of Defense explanation and the examples provided, together with the examples of the ASEAN mutual agreements, offer a framework for the creation of a web of legal instruments spread over the Indo-Pacific. The cables themselves, if regarded as ships, would extend the jurisdiction of Quad states into international waters, and possibly act as virtual bridges between them. The shared obligations that arise from the agreements and the existence of the virtual bridges will inevitably give rise to joint surveillance and defense of the cables, which, when taken together across the Indo-Pacific, is likely to enliven a synthetic hardened shell for the cables.

Should ASEAN member-states be included in the agreements, surveillance and defense of cables located in the South China Sea in conjunction with Quad members would follow as a matter of course.

As illustrated in the map, cables connect ASEAN member-states such as Malaysia and Indonesia, and it may well be in their own domestic interest to have Quad members deploy assets to surveil and defend their cables.

## Conclusion

The exegeses above, while couched in the language of national security, are, in fact, based on the concepts of commerce and commercial law. It has been demonstrated that contractual joint ventures or strategic alliances can provide the framework for the creation of a network of legal instruments that, when taken together, can provide protection for cables that are currently lacking in international law.

However, without a method of enforcement, that network of legal instruments would be of no

practical value, and here, States will have to provide naval, air, and ground assets for surveillance and defense. That having been said, the network of agreements and amendments to domestic laws with regard to cables and ships gives form in international waters to the network of cables so that they may be protected and defended. Taken together, a synthetic hardened shell may be created for the protection of cables.

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