CRITICAL TELECOMMUNICATION CABLE INFRASTRUCTURE UNDER THE LAW OF THE SEA CONVENTION (UNCLOS 1982)

Utpal Kumar Raha[*]
Raju KD[**]

I. INTRODUCTION

Submarine cable is the backbone of global telecommunication networks which facilitates interdependent economies.[1] The dependency on submarine cables of the global economy and security is ever increasing so does the challenges associated with the submarine cable infrastructure.[2] Other marine interests and activities including fishing, shipping, exploration, and exploitation of marine resources have the potential to cause interference to the cable operation and cable injury to telecommunication networks. The United Nations Convention on the Law of the Sea, 1982 (UNCLOS) and domestic laws sought to regulate activities relating to submarine cables. However, submarine cable regime is continuously stressed by conflicting interests of the nations and other marine uses.[3] Interestingly, at the domestic level, states may not be aware of the critical nature of the submarine cables and remain negligent to ensure the protection of cables at their respective jurisdictions due to lack of domestic legislation or policies.

For centuries submarine cables have been in use. The first transatlantic cable was laid in the 1860s. From telegraphic communication cable to telephonic cables, submarine cable has redefined e-communication system. Now, the submarine cables have become the key communication line for telecommunication, data traffic, marine scientific research, energy transmission, offshore energy infrastructure, etc. It is the submarine cables that transmit data which become accessible with the support of the internet. Submarine cables facilitate sending email, making a call or message, placing an order for dinner to international transactions.[4]

The various activities relating to submarine cables are the key to the free flow of communication. Submarine cable operation includes a survey of optimum cable routes, laying, repair, and maintenance of cables. The cable operation includes activities relating to the survey of cable route, laying, repair and maintenance of submarine cables *cable operation*. Presently there are 1 million kilometers of optic fiber cable connecting the whole

[*]Research Scholar, Rajiv Gandhi School of Intellectual Property Law, IndianInstitute of Technology Kharagpur, Kharagpur, India.
[**] Professor of Law, Rajiv Gandhi School of Intellectual Property Law, IndianInstitute of Technology Kharagpur, Kharagpur, India.
[1] Eric Wagner, "Submarine cables and protections provided by the law of the sea" 19 *Marine Policy* 127 (1995).
[2] Submarine cables or cables represent telegraph cable, telephonic cable, power cable, military and scientific marine cables, etc. Law on submarine cables applies to all of these cables. In this essay, submarine cable/s or cables are used interchangeably.
[3] Tara Davenport, "Submarine Communications Cables and Law of the Sea: Problems in Law and Practice" 43 *Ocean Development and International Law* 201-242 (2012).
[4] Lionel Carter, Douglas Burnett, *et.al*., "Submarine Cables and the Oceans – Connecting the World" 8 (2009), *available at*: http://www.iscpc.org/publications/icpc-unep_report.pdf (last visited on November 30, 2018).

world is the nerves of the internet.[5] Anything happens to the network may paralyze the economic activities of the entire universe.

The central theme and objective of this paper are to analyze the laws on submarine cable operation, protection of submarine cables, jurisdictions of states parties and their rights thereof. Under the law of the sea, one of the key components of the freedom of sea is freedom of laying submarine cables. Though adoption of this High Seas freedom in the Exclusive Economic Zone (EEZ) and Contiguous Zones remains uncontested, the accommodation of respective rights and responsibilities of states under both laws of the sea and domestic laws has become a real challenge. It stresses the conflict between coastal states and noncoastal states over the 'inclusive use' of the ocean that benefits the international community and 'exclusive use' of the ocean by the coastal state.[6] Similarly, submarine cable infrastructure is also stressed by the traditional law of sea challenge, i.e., creeping jurisdiction or territorialization of ocean.

Most importantly, the protection of submarine cable infrastructure is vital for uninterrupted telecommunication and its multiple uses. A submarine cable network is vulnerable to the natural and anthropogenic causes.[7] As many as nine cables were cut Hengchun Earthquake in 2006. Cable repairing process engaged nine cable repair hips for forty-nine days to complete the work.[8] It catastrophically disrupted internets services in many countries in Asia causing serious interference in financial transactions. Incidents of cable breaks from anchoring and other marine activities are increasing with the growth of marine activities that include fishing, shipping, exploration, and exploitation of marine resources, etc. Submarine cables are in high risks in the marine spaces near to the coasts. The potential growth in marine technology increases marine activities in coastal regions. Therefore, the vulnerability of the cables near the coast continues. Cable injury may be caused due to negligence (primarily fishing, shipping, exploration and exploitation activities) and intentional activities (shipping, theft, a threat from terrorist activities) as well. As the economic value of submarine cables is attractive, the incidents of theft of submarine cables have increased. Further, submarine cables in the vital chokepoints may be a high target for terrorist attacks. Therefore, much depends on the submarine cable protection regime within the national jurisdictions of coastal states.

At the domestic level, only Australia and New Zealand have specific legislation for the management and maintenance of cables in their respective national jurisdictions. Other countries primarily rely on scattered measures which include regulations, notifications, directives, etc. A survey of legal instruments on submarine cables arguably reveals that both international and domestic legal orders for cables are not adequate to ensure stability in the underwater submarine cable network. Moreover, in most of the jurisdictions, the law does not define the act of cable breaks as illegal. Therefore, marine activities are mostly negligent of

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[5] Eric Hand, "Seafloor cables that carry the world's internet traffic can also detect earthquakes"*The Science*, June 14, 2018, *available at*: http://www.sciencemag.org/news/2018/06/seafloor-cables-carry-world-s-internet-traffic-can-also-detect-earthquakes (last visited on November 30, 2018).

[6]*Supra* note 3 at 202.

[7]Between January 1990 to January 2015 there were 18 cable breaks in Japan, 71 in Taiwan and 7 in Indonesia, Malaysia and the Philippines from the earthquake. See Ed L. Pope, Peter J. Talling , *et.al.*, "Which earthquakes trigger damaging submarine mass movements: Insights from a global record of submarine cable breaks?" 384 *Marine Geology* 134, 135 (2017).

[8] Keith Ford-Ramsden, Douglas Burnett, "Submarine Cable Repair and Maintenance" in Douglas R. Burnett, Robert Beckman, *et.al.* (eds.), *Submarine Cables: The Hand Book of Law and Policy*170 (Martinus Nijhoff Publishers, Leiden, 1st edn., 2014).

the cables. Lack of awareness among state parties about the role of this cable system adds to its poor protection regime. The study examines the role of international law on submarine cable operations with special reference to the submarine cable protection regime within the national jurisdictions.

The first part deals with the brief overview of the submarine cables; Second and third part analyses the international law and institutional framework on submarine cables respectively. Part IV deals with the legal analysis of the protection of submarine cables at the domestic level. The paper ends with a conclusion and suggestions.

II. INTERNATIONAL LAW ON SUBMARINE CABLES

In the 1860s, it was for the first time that the Trans-Atlantic telegraphic cables established a link between Ireland and Newfoundland.[9] Next hundred years, the cable industries have faced technological constraints and market challenges.[10] It is in the 1990s, with fiber optic cables and internet, the submarine cable system becomes the champion communication network. Besides the need for high bandwidth, the demand for cable is increasing for undersea oceanographic research, digital technology in oil and gas exploration, offshore energy parks, and green energy.[11]

Submarine cables are the largest marine business after offshore energy extraction, global shipping, and naval expenditures. Today, education, health, banking, share market, trade, insurance, entertainment, addressing emergencies, national security-related activities intensely rely on telecommunication system[12] that comprises 213 independent cables.[13] There is no doubt these 'unseen and unsung cables are the true skeleton and nerve of our world, linking our countries together in a fiber optic web'.[14] The cables have become the arteries carrying lifeblood of the communication. However, major cable damage produces significant loss (direct and indirect).[15] A cable connecting numerous stakeholders, if breaks, may lead to hue and cry globally.

The concern for the protection of submarine cables from damage was expressed since the 1870s. International submarine cable regime comprises the Convention for the Protection of Submarine Telegraph Cables, 1884, Geneva Conventions on the Law of the Sea, 1958 and

[9] First Trans-Pacific submarine cable was laid in 1902. Again first underwater telephone cable service connected San Francisco and Oakland in 1884. The following years with the developing technologies and efforts, Trans-Atlantic telephone cable in 1956 and fiber-optic cables in 1988 were in service.

[10] '…cables should be regarded as international utility agencies because their linking up with land telegraphs gives them an infinite radius of action'. See A. Pearce Higgins, "Submarine Cables and International Law" 2 *British Year Book of International Law* 33 (1921-1922).

[11] Emily Waltz, "Offshore Wind May Power the Future" *Scientific American*, *available at*: https://www.scientificamerican.com/Article/offshore-wind-may-power-the-future/ (last visited on November 21, 2018).

[12] "Cyberspace, in the physical form of undersea fibre-optic cables, carries an even greater value for trade [than shipping goods] through financial transactions and information". See Greenleaf, J. and Amos, J., "A New Naval Era", United States Naval Institute Proceedings at June 17, 2013.

[13] Douglas Burnett, Tara Davenport, *et.al.*, "Introduction: Why Submarine Cables?" in *supra* note 8 at 1, 2.

[14] U.N. GAOR, 65th Sess., 59th plan. mtg. at 4, U.N. Doc. A/65/PV.59 (December 07, 2010).

[15] For example, following the model, a fault in all landing points in Australia would entail direct costs (for cable repair) of US$ 2.2 million and indirect economic cost of US$ 3,169 million mostly due to the loss of 100% of international internet traffic. See Economic Impact of Submarine Cable Disruptions, 42 (2012).

UNCLOS 1982.[16] Additionally, the International Regulations for Preventing Collisions at Sea, 1972 (COLREGS)[17] and the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972provide measures for the safety of cable ships and submarine cables.[18] The UNCLOS 1982 included *ad verbatim* the relevant provisions on the submarine cable of the Geneva Convention on Law of the Sea 1956 which in its time had adopted relevant provisions on cable from the Cable Convention of 1884.[19] However, UNCLOS 1982 represents the present international law on submarine cables. On the customary international law, there is a wide acceptance that the relevant provisions of the UNCLOS 1982 including submarine cables protection have achieved the status of customary international law. During war submarine cables are not inviolable. The international practice remains consistent with the principle that international cables are legitimate wartime target.[20] The literature shows that State parties are reluctant to drag other states to enforce rights regarding submarine cables.[21]

The coastal States' sovereignty extends over its adjacent waters up to 12 nautical miles (nm) recognized as territorial waters (TW)[22] and archipelagic waters. Submarine cable operation has its major difficulties in these waters.[23] The submarine cables laid on the seabed of the Exclusive Economic Zone (EEZ) attract both the EEZ regime and continental shelf regime. In these marine spaces rights and jurisdictions of states are defined.[24] Still, there is no legal clarity on cable operations, leaving the places as a grey area of law of the sea.[25]Article 87 of the Convention provides that the freedom of laying submarine cables is one of the freedoms of High Seas. With the combined reading of Article 87 and Article 58 (2), it is clear that the freedom of laying submarine cable is applied in the EEZ as well. The result is that there are two provisions, i.e., Article 58 and Article 79, assuring other states' rights of laying submarine cable within the EEZ of a coastal state. The freedom of laying cables includes maintenance and repair operations. However, freedom of laying submarine cable must be exercised in compliance with the other provisions of the Convention.[26] Additionally Articles 77 and 78 also prescribe limitations on coastal states to facilitate submarine cable operation.

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[16] For the United Nations Convention of the Law of the Sea 1982, UNCLOS 1982 or UNCLOS used interchangeably.

[17] The International Regulations for Preventing Collisions at Sea 1972 (COLREGs) provides rules to govern, among other issues, the operations of ships including cable ships as a preventive measure.

[18] The Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (London Convention) provides that "'Dumping' does not include abandonment in the sea of cable placed for a purpose other than the mere disposal thereof" (art. 1, para. 4.2.3).

[19] The United Nations Convention on the Law of the Sea, 1982, 1833 UNTS 3.

[20] Reports of International Arbitral Awards, Recueil Des Sentences Arbitrales, "*Eastern Extension, Australasia and China Telegraph Company, Ltd. (Great Britain)* v. *United States*" vol. VI, p.no. 112 (November 09, 1923), *available at*: http://legal.un.org/riaa/cases/vol_VI/112-118_Eastern_Extension.pdf (last visited on November 26, 2018). See also Douglas Burnett, Tara Davenport, *et.al*., "Overview of the International Legal Regime"in *supra* note 8 at 66.

[21] However, there is an example where cables companies are approaching the domestic court to enforce rights. *Ninety-Four Consortium Cable Owners* v. *Eleven Named French Fishermen*, Tribunal de Grande Instance de Boulogne Sur Mer (1st Chamber) August 28, 2009 [File No 06/00229 DG/LM]. In this case, cable repair by cable ship was interrupted by the fishing vessels' action to extract financial payment form the cable owner to allow the cable ship for cable repair. According to the French Civil Code, fishermen are requiring to keep one nautical mile away from the cable repairing ships. The French court held the fishermen liable.

[22] United Nations Convention on the Law of the Sea, 1982, art. 3.

[23] Davenport, *supra* note 4, para. 206.

[24]*Supra* note 22, art. 56.

[25] Robert Beckman, *1982 UNCLOS: A legal framework for cooperation between cable companies and coastal States*, International Cable Protection Committee (ICPC) Plenary Meeting, Mauritius, 2010.

[26]*Supra* note 22, arts. 58, 79.

In the EEZ, freedom of submarine cable operation is stressed by various emerging claims such as the extension of domestic environmental law, measures for pipelines to cable lines, adoption of annual fees for laying cables, not in TW, application of complex and uncertain domestic measures on cable operation in EEZ, etc. Additionally, the extension of domestic environmental laws to cable operation and declaration of Special Areas of Conservation (SACs) and Maritime Protected Areas (MPAs) are among the recent trends of coastal states' excessive claims which interfere with the cable operation. These are few examples of the incidents of creeping jurisdiction and coastal states' extended authority over their marine spaces.

Article 79(2) provides that the coastal states' laws in both EEZ and the Continental Shelf must be reasonable. These measures interfering cable operation are arguably not supportive of free communication regime. Coastal states are required to reconsider this principle of free communication regime before they advance their claims. Here, interpreting phrases like 'reasonable measures' and 'internationally lawful use of sea' to support their claims may, in turn, weaken international communication regime provided by submarine cable infrastructure.

With regard to the protection, there are two issues, i.e., protection of cable ships and the protection of submarine cables. The ships engaged in fishing activities may come into conflict with the cable ships. Here the conflict of competing for marine use, i.e., to catch fish and to repair cables, is a problem. Fishing vessels engaged in fishing may cause interference to the cable ship engaged therein with the cable repair operation. Such interference may hamper quick cable repair and lead to disturbing urgent telecommunication link. The Cable Convention provides for measures to avoid such interference. It requires that the other ships are to maintain a minimum distance from cable ships, provided they give advance notice to the local guards of the area of cable operation. The 1972 COLREGs also requires cable ships to show signal and sound to keep other vessels especially fishing vessels away from cable ships in operation. However, the UNCLOS did not include these measures of the Cable Convention. Nevertheless, cable ships maintain those measures. But, the coastal states neglect to implement these mandates and the cable repair operation continues to be hampered by fishing vessels.

The protection of cable is a matter of real concern in the EEZ. Three provisions of the Cable Convention prescribing a penalty for cable breaks had been adapted by the Convention on the Continental shelf, 1958 and the UNCLOS. Articles 113 to 115 of the UNCLOS prescribe the liability of the state for cable breaks by its persons or ships on whom it has jurisdiction and hold cable owner liable for breaking existing cable and indemnity for sacrificing fishing net, fishing gear, etc. catching cables. All of these provisions apply to the High Seas and EEZ. However, most of the coastal states do not implement those provisions through their domestic laws. So, breaking of cables within their jurisdictions is not illegal, and the fishermen are reluctant to sacrifice their nets in the absence of indemnity for the loss.

The point is that without any deterrent, fishing, shipping, and other marine activities hardly cares about the safety of the cables. The cable companies are helpless and compelled to bear an enormous cost for cable repair operation. It is time to rethink whether such a loss is limited only to the cable companies? Further, there are incidents of the theft of submarine cables. Certain unanswered questions come up. Whether theft of cable is piracy under the law of the sea? Whether piracy as defined under Article 101 of the Convention includes the act of

the theft of submarine cable? The answer is not clear. Therefore, legal treatment of the theft of submarine cable is uncertain. Even more, there is a concern for the safety of the critical submarine cable infrastructure from terrorist activities. One incident of a terrorist attack against any chokepoint of the undersea network may cause serious interruption to the telecommunication and traffic of data. Such an incident will have a serious impact on the international economy and security and may cause a hue and cry globally. The recent or current terrorism Conventions have not taken into consideration the possible terrorist attacks on submarine cables. Considering the impact of the terrorist attack on internally important submarine cables, it required for the global community to take initiatives for appropriate measures for the protection of submarine cables from terrorist attacks.

Therefore international law on submarine cables is increasingly challenged by the issues arising from multiple jurisdictions along with the conflict between coastal state and noncoastal states over traditional challenges of the law of the sea, i.e. 'exclusive sue' and 'inclusive uses'.[27] The submarine cable infrastructure is further challenged by the inadequate cable protection regime and poor implementation issues. Such gaps in international laws and domestic laws offer a potentially lucrative, consolidated target for sabotage.

III. International Institutional Framework For Protection of Submarine Cables

The existing authorities do not adequately support the cause of the protection of submarine cable. Among the international institutions, first, the International Telegraph Union (ITU) was founded in 1865 to manage affairs related to telegraph. Later the agency concentrated on the standardization of the telecommunication. Under the umbrella of the UN, the International Maritime Organization (IMO) was given the responsibility to deal with the international shipping activities which included cable ships. Other important international organizations such as the United Nations Division for Ocean Affairs and the Law of the Sea (UNDOALOS) and Food and Agriculture Organizations (FAO) are also responsible for ocean affairs including underwater cables. However, none of these organizations are dedicated to the submarine cable operations and the protection of cables. In the absence of a lead agency, supervision and review of submarine cable operation remained poor. Thereby international submarine cable protection regime continues to be impaired. The recent developments show that issues of the protection of submarine cables are increasingly getting attention at international organizations including the UN.[28] In recent past, few international nongovernmental bodies like International Protection for Cable Communication (IPCC), regional bodies like Asia-Pacific Economic Cooperation (APEC), and research under the academic and other institutes are increasingly getting involved with the submarine cables related research work and workshops.[29] Nevertheless, the submarine cable protection regime is required to be supported by the lead agency.

IV. National Legislations And Other Instruments On Submarine Cables

Since the very beginning of the subsea communication design, there has always been a concern for the protection of cables.[30] With the ever increasing developments in the marine

[27] Davenport, s*upra* note 4, para. 202.
[28] The issue of submarine cable has been recognized by the UN as 'critical infrastructure' in 2010.
[29] Davenport, s*upra* note 4, para. 223.
[30] 'I feel that the greatest difficulties will not be in the deep sea but after reaching the shallows at either end of the line'. *Supra* note 1 at 129. Wagner's statement was 'prophetic'.

affairs in the waters near the coast, the potential threats to the cables have also increased. Majority of the incidents of submarine cable damage are reported in the marine space within the national jurisdictions.[31]As mentioned, the UNCLOS does not impose any obligation on state parties to adopt legislation on submarine cables within the territorial waters or archipelagic waters. Therefore, the adoption of measures for the protection of cables remains optional to the coastal states.

It was thought that all the state parties would appreciate the importance of the submarine cables. The significance of the submarine cables on the economies and securities of the nations would require coastal states to adopt appropriate measures for the protection of submarine cables in the domestic spheres. The initial thinking was that the local regulators would give priority to submarine cables and they would take necessary steps for the implementation of appropriate measures. However, in reality, coastal states are yet to appreciate the critical nature of the submarine cable networks. Most of the jurisdictions of submarine cable operation and its protection, in particular, remain one of the neglected areas of the local regulatory regime. There are a few countries that have adopted specific legislation for submarine cables protection. Other countries deal submarine cables with various legal provisions, notifications, orders, directives which may be found in a scattered form. Moreover, under the UNCLOS 1982, state parties are required to adopt a law for the protection of submarine cables in its EEZ. However, the following study reveals that most of the states are yet to take measures for the implementation of the same. Therefore, in most of the jurisdictions submarine cable breaking is not illegal. Without deterrence, marine operators will continue to remain careless about the safety of the submarine cables.

Another problem relating to submarine cables is that the coastal states are not only negligent in facilitating cable operation and protection but also ask cable companies to meet prior requirements before they can commence cable operation. It may be approval from defense authorities, national security authorizations, environmental permits, permits for construction and land use, etc. Let us focus this part of the discussion on the submarine cable protection measures within specified national jurisdictions.

The coastal states have both territorial and extraterritorial jurisdictions in marine zones. The coastal states' sovereignty extends till territorial waters as mentioned earlier. In the EEZ, coastal states are entitled to specified jurisdictions and sovereign rights that are less than sovereignty. Domestic laws apply to the incidents of cable damage in the territorial waters and archipelagic waters. Regarding the enforcement of measures on submarine cable damage in EEZ, the coastal states may exercise extraterritorial jurisdictions for cable damage by its subjects.

In addition to cable regime in South Asian countries, the study focuses on the law regulating submarine cables in Australia and New Zealand (as they have specific legislations

[31] The cable repair data used here had been prepared by Verizon for the International Cable Protection Committee (ICPC), presented to the ICPC Plenary, Hamburg on 12 April 2016 and calculated from data between January 2008 and December 2015. See Anjali Sugadev, "India's Critical Position in the Global Submarine Cable Network: An Analysis of Indian Law and Practice on Cable Repairs" 56 *Indian Journal of International Law* 182 (2016). (compiled by the author from different sources)
The study reveals that every year there are one or more cable faults in the following jurisdiction including India: Portugal, Thailand, Qatar, Singapore, Turkey, Belgium, India and Vietnam - one or two; Egypt, Saudi Arabia, South Africa, Libya, Greece, United States, Iran, Spain, France - two to four; United Arab Emirates, Philippines, Malaysia, South Korea, Japan, Netherlands - four to six; Italy - more than six; Indonesia - more than twelve; United Kingdom and Taiwan - more than fourteen; and China - more than twenty-four.

for cables). The submarine cable regimes of China, Japan, Malaysia, Indonesia, Singapore, Vietnam respectively from Southeast and Far East Asia are discussed below. This region is considered strategically significant in the global submarine cable map. Moreover, there is ever increasing demand for bandwidth in this region which is growing fast with its vast young economies. Furthermore, the study has given a brief look into law on the protection of submarine cables in some of the other jurisdictions. The first part of the discussion deals with the legal instruments on the protection of submarine cables in some of the countries in this region and beyond. Then, the second part discusses the dedicated legislations on submarine cables in both Australia and New Zealand.

IV. COMPARATIVE ANALYSISON THE PROTECTIONOF SUBMARINE CABLES

A. Legal Instruments onthe Protection of Submarine Cables in Different Jurisdictions

The incidents of cable damage in Indonesian waters are relatively high, and the Ministry of Transportation of Indonesia issued regulation of submarine cables (1999) that prescribes for protective measures such as a restricted area for cable route corridor where activities like anchorage, dredging, mining or other underwater activities are prohibited. It also prescribes requirement of navigational buoys for cable routes and official approval for cable operation and restricts underwater activities. The regulations also recommend punishment for cable damage.

The Chinese Regulations for cables (1989)[32] require a permit for cable operation. Regulations for the protection of submarine cables (2004)[33] prescribe for preventive measures (report, protection zones, prohibition of certain activities there, the sacrifice of instruments that catch cables) and compensation for cable damage. When the 1989 Regulations authorize State Oceanic Administration (SOA), the 2004 Regulations empower the Administration Department of the State Oceanographic Bureau to ensure the compliance of the mandates.

The Info-communications Development Authority of Singapore (IDA) issues guidelines (2010) for deployment and repair operation of submarine cables. The Law of the Sea of Vietnam requires prior consent from its authorities for submarine cable operation in its waters and in 2007 the government has come with a directive, viz. *On Strengthening the Protection of SubmarineCables and Ensuring the Safety of International Telecommunications*.

In Japan, Articles 140 to 143 of the Telecommunications Business Law 1984 deal with the issues of protection of submarine cables. These provisions prescribe for approval for cable laying, preventive measures for cable damages, and compensation for revoking fishing in cable corridors.

South Asian marine space holds important international submarine cables. It is interesting to note that in this region, submarine cable operation meets with the cumbersome legal regime. However, still, none of the states of this region has adopted measures for the protection of cable ships or cables.

[32] Regulations on Management of laying Submarine Cables and Pipelines, 1989.
[33] Regulations of the Protection of Submarine Cables and Pipelines, 2004.

The countries such as Ghana[34] and Columbia established security areas along the lines of submarine cables within their waters.[35] Uruguay[36] and Argentina prohibited fishing in the areas where submarine cables or facilities exist and those methods of fishing that could cause damage to the cables.[37] Iceland prohibited activities within a quarter mile of the cables as protective measures.[38]

The European Union has adopted the environmental measures which apply to the cable laying operation within the region. It provides for Environmental Impact Assessment before cable laying. The measures also prescribe for zonal management like the Marine Protected Areas.

B. Dedicated Legislations on the Protections of the Submarine cables

A dedicated submarine cable regime is rare in the world. However, both Australia and New Zealand have adopted legislations for submarine cable in their respective jurisdictions. The following part analyses the provisions of these two legislations.

(i) Australia

In 1997 Schedule 3A has been added to the Telecommunication Act to ensure the protection of submarine cables in Australian waters.[39] Additionally, the Australian Communication and Media Authority Act 2005 provides for the Australian Communication and Media Authority (ACMA).[40] Relevant provisions for the protection of the submarine cables as provided by the law are as follows.

Australian Communications and Media Authority Act 2005 (the ACMA Act) establishes the Australian Communications and Media Authority (ACMA) as the nodal authority to deal with the issues of a declaration of the protection zone, mentioning of prohibited activities in the protection zone. The Federal Police of Australia is entrusted with the implementation of the legislation.

The legislation prohibits activities such as towing, trawl gear, anchoring, dredge, mining, etc. It restricts activities like anchoring in a protection zone, lowering, raising or suspending a shot line from a ship, demersal fishing using J-hooks, use of or towing, operating or suspending from a ship a net anchored to the seabed or a grapnel. Further activities like use of an explosive or explosive device are also restricted in the protection zone.

About the violation, the Schedule 3A provides detailed measures. First is the offense about a protection zone where cable has been damaged. In a protection zone, cable damage by conduct attracts imprisonment for 10 years or 600 penalty units or both. However, the penalty may be reduced, if the conduct causing cable damage is due to negligence, to imprisonment for 3 years or 180 penalty units or both. In both cases, the liability is strict

[34] Ghana Shipping (Protection of Offshore Operations and Assets) Regulations, 2012.
[35] General maritime direction – Resolution Number 204 of 2012.
[36] Maritime Provision No. 128.
[37] The Law of Navigation 20.094.
[38] Act on the Protection of Telecommunication Cables, art. 71.
[39] The new legislation replaced the Submarine Cables and Pipeline Protection Act in 1963.
[40] The Australian Communication and Media Authority Act, 2005.

which only allows defense on the ground of saving a life or ship; prevent pollution; reasonable steps were taken to avoid cable damage, and the defendant is the owner of the damaged cable. These defenses are also applicable to the liability that arises from engagement with the prohibited or restrictive activities.

Interestingly, the perpetrator may be the master or owner of a ship or conduct is done with the permission of another person. Liability attracts when the person is reckless as to the fact that the ship is used in the commission of the offense. In any case, the liability is imprisonment for 10 years or 600 penalty units or both. The next segment of the scheme is the engagement in prohibited or restricted activities by a person in the protection zone. Such engagement may attract imprisonment for 5 years or 300 penalty units. An even greater penalty of 7 years' imprisonment or 420 penalty units or both may be applicable to the conduct or engagement with the intention of making a commercial gain. The next phase of penalty arises from the activities like installing of both international and domestic submarine cables without a permit or breaching conditions of a permit and failing to comply with ACMA direction to remove the unlawfully installed international or domestic submarine cables.

For the loss of an anchor, a net or any other fishing gear which have been sacrificed to avoid damage to the submarine cable in the protection zone, the Schedule 3A provides for indemnity, provided that all reasonable precautionary measures have been taken. It is to be noted here that compensation is for the loss of equipment and does not include for the catches (fishes, etc.). Further, the cable operators are obliged to compensate to the person in case the activities of the former cause loss or damage to the property or interests (assets, sand, soil, water, etc.) of the latter. And it is expected, according to the law, there should be an agreed understanding between the cable operators and the person whose interests are in question.[41] Lastly, the legislation adopts strict liability that applies to the offense which attracts the Criminal Code 1995 of Australia.[42]

(ii) New Zealand

The Protection of Submarine Cables and Pipelines Act, 1996 of New Zealand is another pioneering example of dedicated legislation in the domain of national submarine cables legislations.[43] It defines the cable protective areas, adopts measures for regulating activities in those areas important for the protection of submarine cables, and prescribes liability for violation of the same. Further, along with these measures the legislation prescribes for enforcement measures. Additionally, Submarine Cables and Pipelines Protection Order 1992 (NZ) and the Submarine Cables and Pipelines Protection Order, 2009 support the objectives of the legislation.[44] The legislation applies to a New Zealand citizen or person ordinarily resident or the person from the New Zealand Ship.[45] Part II of the Act provides for the protection and enforcement of measures on submarine cables. The important provisions of the legislation for the protection of submarine cables are as follows:

[41] Clauses 87 and 88 of the Schedule 3A.
[42] Telecommunications and other Legislation Amendment (Protection of Submarine Cables and other Measures) Bill, 2005, Explanatory Memorandum and introduction of Schedule 3A to the Telecommunications Act, 1997.
[43] The Submarine Cables and Pipelines Protection Act 1966 has been superseded by the 1996 Act. Submarine Cables and Pipelines Protection Act, 1996.
[44] In the areas defined as Protection Areas under the Submarine Cable and Pipelines Protection Order 1999, it is illegal to fish or anchor. Likewise, it is unlawful to fish in areas defined as Marine Reserves.
[45] New Zealand Ship means a ship that is registered under the Ship Registration Act, 1992 and includes a ship that is not registered under that Act but is required or entitled to be registered under that Act.

The law prescribes the Governor-General may declare an area as a protected area. Under the provision of the legislation, the claimant may claim for indemnity for the loss he has met due to the sacrifice of fishing equipment. However, this measure also obliges the owner of the equipment to follow every reasonable precaution to avoid the catching of cables. Section 11 of the legislation defines the offense and prescribes heavy fine in case of cable damage. The offender may be strictly liable for causing cable damage. Further, he may be liable under this provision if he facilitates the cable damage by permitting to use his ship or equipment to be used for the damage of submarine cables. The acceded may absolve liability if it is shown that the damage of cable has been resulted due to the necessity of saving life or ship. Here also, reasonable exercises of shipman skills are required from the shippers. Defense to the reasonable application of shipman skills may be an effective tool to the accused under this legislation.

Certain activities in the declared protected area have been regulated to ensure the protection of submarine cable from damage. These activities include fishing. Both of the owner and the master of a ship is liable for anchoring in the protected areas. Section 13 of the Act also provides for the collection of evidence of the offense under it by the enforcement officer or protection officer defined empowered under it for this purpose.

For enforcement, currently, the New Zealand Police and Royal New Zealand are empowered for the same. For the enforcement of the provisions, the District Court or the High Court has the jurisdiction. Additionally, in some instances like the prosecution of a foreigner or foreign ship needs prior consent of Attorney-General.

V. CONCLUDING REMARKS

Submarine cable infrastructure and its stability is the key to the global telecommunication *vis-à-vis* economy and security of all states even though most of the cable infrastructure is owned by private companies. Nevertheless, the states are yet to appreciate it and respond accordingly. From the discussion so far, it is clear that only two countries have adopted full-fledged legislations for the protection of submarine cables. The analysis in this study reveals that most of the states are yet to take appropriate measures for the protection of submarine cables and cable ships. There is an urgency to seriously look into the consequence of cable damage, especially in the ‘chokepoints’, considered as the *Achilles Heel* of the global economy and security. As mentioned, the laws of submarine cables in both Australia and New Zealand may become the model legal framework for working further in that direction. For proposed submarine cable law the authorities may consider broad issues including those relating to cable operation and protection of cables. There is an urgency to establish a lead agency like ACMA at the national levels to look into the matter relating to submarine cables to support submarine cable operation especially urgent cable repairs. Defining jurisdiction over activities causing interference to cable operation and cable damage are amongst the positive measures. Additionally, protective and preventive measures in cable corridors may also be useful parameters to accommodate the conflicting marine uses. The UNCLOS provisions should not be used as a barrier by its members to obstruct the repair works of cables rather they should facilitate by adopting legislations and regulations at the domestic level.