

## Shipping and port security: Challenges and legal aspects

Zillur Rahman Bhuiyan

Managing Director, Marinecare Consultants Bangladesh Ltd.  
Marine Consultant in Maritime Safety and Security

### Key Words

Globalization, ISPS Code, maritime transport system, security threats, UNCLOS.

### Abstract

*The current trend of globalization provides intense impact on access to resources, raw materials and markets, expedited by modern maritime transport system comprising shipping and port operations. Security of ships and port facilities, thus, discernibly an enormous challenge to the globalized world. The international maritime transport system is vulnerable to piracy, terrorism, illegal drug trafficking, gun-running, human smuggling, maritime theft, fraud, damage to ships & port facilities, illegal fishing and pollution, which can all disrupt maritime supply chains to the heavy cost of the global economy.*

*This paper discusses the nature and effect of the security threats to the international shipping and port industry with impact on the international trade & commerce and governmental economy, taking into consideration of the emerging geopolitics, Sea Lines of Communication, chokepoints of maritime trading routes and autonomous ships. The existing legislative measures against maritime security appraised and evolution of automation and digitalization of shipping and port operations taken into consideration.*

*Studying the contemporary maritime transport reviews, existing legislation and the threat scenarios to the shipping and port operations, this paper identifies further advancement to the existing maritime security legislation in respect of piracy and terrorism at sea, and recommends amendment to the International Ship and Port Security (ISPS) Code under the SOLAS Convention.*

### 1 Introduction

Globalization is based on the unrestricted movement of commodities, resources, information and people enhancing international trade and commerce through connectivity between the places of production and places of consumption. Connectivity depends on modes and means of global transportation.

Nearly three quarters of the planet is covered by water, 90% of the world's commerce travel by sea and most of the world's population lives within a few hundred miles of the oceans and seas. Hence the maritime transportation can be considered as the backbone of globalization and extremely vital for all "just-in-time" economies. There is a special and privileged relationship of global commerce and maritime transport. Shipping and ports are pivotal to the maritime transport and one of the global concerns for international business and logistics is the security of shipping and ports to maintain the integrity of supply chain. Security threats to world shipping and port facilities present an enormous challenge to the globalization in terms of international commerce.

Not mooting into the security aspects of the full maritime domain, this paper focuses on the nature of maritime crimes and maritime security threats which influence the shipping and port operations affecting the globalized trade and commerce. The security threats for the shipping and port operations and the challenges posed by them are identified and discussed. Thereafter, the characteristics of the security threat, the challenges posed by them and their respective legal aspects are described.

In conclusion, the nature and significance of the security threats to shipping and ports summarized, and this paper identifies the inadequacy and ineffectiveness of the existing maritime

security legislations. In view of the automation and digitalization of shipping and port operations, the new regime of cybersecurity is introduced.

## 2 Security threats to shipping and ports

### 2.1 Maritime piracy and armed robbery at sea

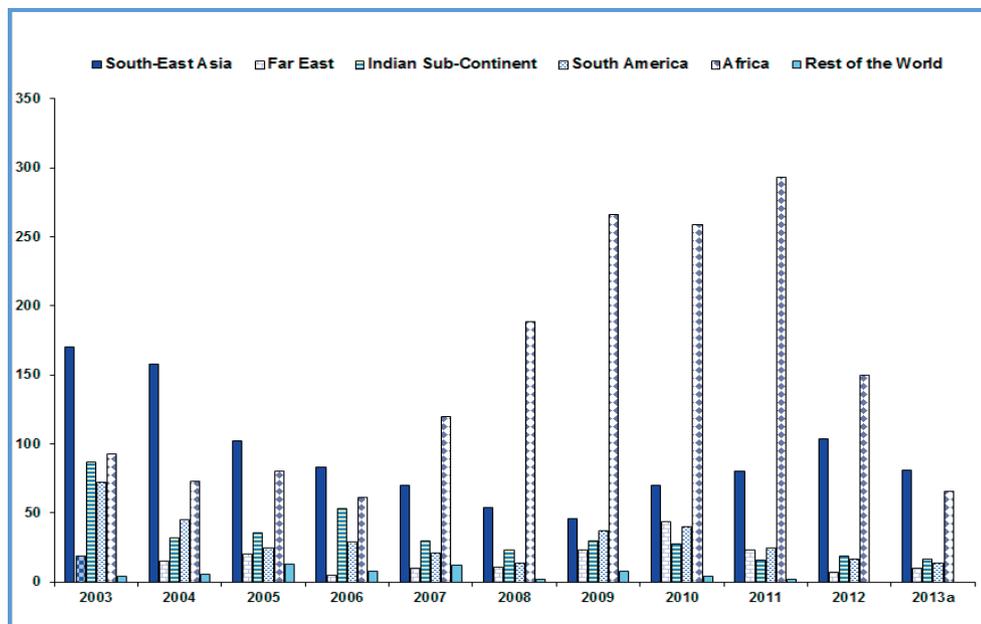
The basic common terms in the definition of maritime piracy and armed robbery at sea are ‘any illegal act of violence or detention or any act of depredation, or threat thereof, committed for private ends and direct against a ship or against persons or property on board such a ship’. The difference being the piracy takes place outside the jurisdiction of any State and the armed robbery takes place within a State’s internal waters, archipelagic waters and territorial sea. [UNCLOS 1982 Article 101 and IMO Resolution A.1025(26)]

Since ancient times, maritime transport holds the “comparative advantage” over land transportation. Piracy is interrelated with the very first human efforts to conquer & tame the seas. As a “business model”, it significantly hampers the “freedom of navigation” and trade. The modern times piracy is considered in 2000s when Pirates based in the failed state of Somalia terrorize cargo ships and yachtsmen in the Indian Ocean. The acts of piracy include the attempted boarding ships, boarding ships, firing upon and hijacking of ships.

Relevant statistics of piracy for the period between 2003 and September 2019 are discussed in the next pages.

According to the website (*www.statista.com*), the height of piracy was in 2010 with 445 incidents and still hundreds of pirate attacks are taking place with the number being 201 in 2018. Pirate attacks largely occur in a few “hotspots” around the globe and are driven by several factors ranging from corruption and institutional weakness to fishing conditions and a lack of economic opportunities.

Presently, the major hotspots of piracy are in the Gulf of Guinea, Africa and the Gulf of Aden. In Southeast Asia, those hotspots are the Sulu and Celebes seas as well as the Malacca Strait. Piracy in the South East Asia – mostly in Malacca Strait, Singapore Strait, Indonesian waters and in Bay of Bengal waters are limited to petty theft, stealing of valuables and some hostage taking and is not a great economic concern.



Actual and attempted attacks by region, 2003–2013\* (Number of incidents)

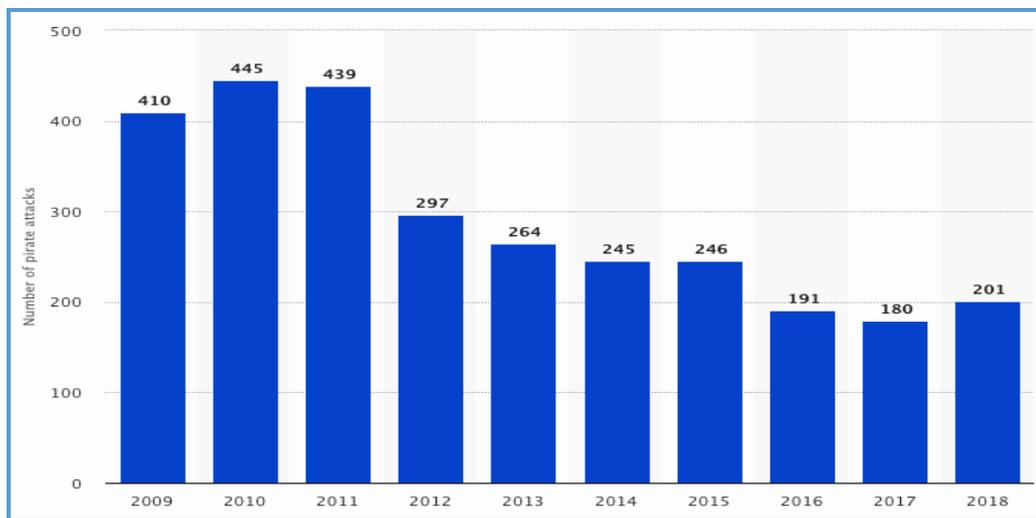
Source: UNCTAD secretariat based on ICC International Maritime Bureau. *Piracy and Armed Robbery Against Ships, Various Issues*. \* From 1 January to 30 September 2013

Category	2015	2016	2017	2018	2019
Attempted	21	15	11	32	10
Boarded	154	111	92	107	95
Fired upon		10	13	13	10
Hijack	15	5	5	4	4
<b>Sub total</b>	<b>190</b>	<b>141</b>	<b>121</b>	<b>156</b>	<b>119</b>
<b>Total at year end</b>	<b>246</b>	<b>191</b>	<b>179</b>	<b>201</b>	

Comparison of the type of attacks, January - September 2015 - 2019

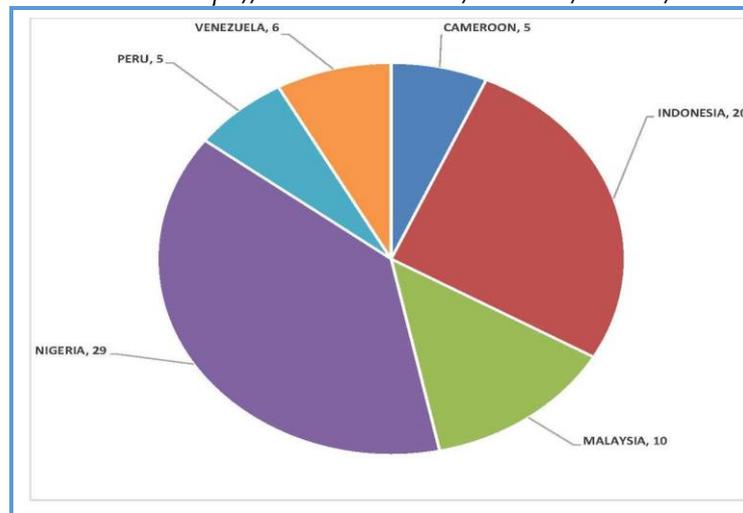
Source: ICC IMB Piracy and Arm Robbery Against Ships-Report - 01 JAN to 30 SEP 2019

The Gulf of Guinea remains increasingly dangerous for seafarers. Reports of attacks in waters between the Ivory Coast and the Democratic Republic of Congo more than doubled in 2018, accounting for all six hijackings worldwide, 13 of the 18 ships fired upon, 130 of the 141 hostages taken globally, and 78 of 83 seafarers kidnapped for ransom. (IMB 2018)



Number of pirate attacks against ships worldwide from 2009 to 2018

Source: <https://www.statista.com/statistics/266292/>



The six locations contributed to 63% of the total attacks reported in the period JAN - SEP 2019

Source: ICC IMB Piracy and Arm Robbery Against Ships-Report - 01 JAN to 30 SEP 2019

### 2.1.1 Challenges posed by piracy and armed robbery

While the shipping companies are mostly immediately affected financially and lose confidence of seafarers, the reputation and business of ports are undermined by maritime piracy. Ports are the facilities associated with the transfer or interchange of waterborne commerce and are 'gateways' to international trade and provide non-cargo related services to commercial ships, naval ships, offshore crafts, yachts & pleasure crafts and fishing vessels.

Cost Factor	2010	2011	2012
Ransom	\$176 million	\$160 million	\$3 1.75 million
Insurance	\$460 million - \$3.2 billion	\$635 million	\$5 50.7 million
Re-routing Ships	\$2.4 - \$3 billion	\$486 million - \$681 million	\$2 90.5 million
Security Equipment and Guard	\$363 million - \$2.5 billion	\$1.064 - \$1.16 billion	\$1.65 - \$2.06
Naval Forces and Military Operations	\$2 billion	\$1.27 billion	\$1.09 billion
Prosecutions and Imprisonment	\$31 million	\$16.4 million	\$14.89 million
Counter Piracy Organizations	\$19.5 million	\$21.30	\$24.08 million
Cost to Regional Economies	\$1.25 billion	N/A	N/A
Labour	N/A	\$195 million	\$471.6 million
Increased Speed	N/A	\$2.71 billion	\$1.53 billion
<b>Total Estimated Cost</b>	<b>\$7 - \$12 billion</b>	<b>\$6.6 - \$6.9 billion</b>	<b>\$5.7 - \$6.1 billion</b>

The economic costs of maritime (Somalia) piracy

Source: One Earth Future (OEF), *Oceans Beyond Piracy* □ Project (OBP): *The Economic Cost of Piracy 2010; The Economic Cost of Somali Piracy 2011; The Economic Cost of Somali Piracy 2012*

Ports in the high-risk areas lose profit due to loss of traffic and high operating costs. Even the ports may lose their business partners in sharing the port facilities. Maritime piracy not only harms the maritime nations and coastal states but also affects the landlocked countries critically dependent on transport services through the ports of neighbouring countries. In the globalized trading system, this is a matter of international concern.

Cost of trade is also affected by maritime piracy when the ships carrying cargo are intercepted by the pirates and delivery of the cargo at destination is delayed. Sometimes the cargo gets damaged due to prolonged storage condition. The cost of cargo transportation and insurance premium increases when ships are diverted to avoid high-risk and unstable areas.

International energy trade (Oil & Gas) can be affected by pirate activities by disruption or delays in energy trade flow resulting in increased energy prices and can have serious implication of the energy intensity economic activities in the global trading system.

Oil companies in the Gulf of Guinea are investing heavily in maritime security to protect oil installations. These additional security expenditures borne by oil companies could however undermine the feasibility of oil related investment projects, discouraging potential investors, raise the cost of doing business and, in some cases, drive out some established companies.

By threatening the profitability of energy exploration, maritime piracy puts at risk existing and future investment both in terms of level and quality – in the West African oil industry as well as in the East Africa. (UNCTAD: *Maritime Piracy Part I 2014*)

Fishing is an important resource for many countries. Disturbance in the fishing activity by piracy can create significant social and economic effect on the local and regional economy.

The maritime tourism industry using pleasure crafts, yachts, diving and the cruise liners are affected regionally by the pirate activity and affects the economy of the countries providing such tourism activities.

## 2.2 Maritime terrorism

The FBI's definition ([www.lafd.org](http://www.lafd.org)) for the terrorism is "the unlawful use of force or violence against persons or property to intimidate or coerce a Government, the civilian population, or any segment thereof, in furtherance of political or social objectives".

The terrorism inflicted in maritime domain is the maritime terrorism and is one of the significant maritime security threats. There are two aspects of maritime terrorism significant to the shipping industry – manifestation of terrorism and crucial effect of maritime terrorism.

The two important elements in respect of manifestation of the threat of maritime terrorism are – motive and opportunity. The influence of geography leading to traffic density, slow steaming of ships, good weather conditions, nearness to coast etc. provide opportunity for perpetrating maritime terrorism.

Depending on the motive, maritime terrorism can take various forms and consequences thereof:

Smuggling chemical, biological, and radiological, explosive materials in containers and carry out attack at the vital port facilities disrupting the international trade.

Concealing weapon or explosives in small crafts and attack ships and shore establishments affecting maritime transportation system;

Hijacking or seizing a vessel by force to gain political, financial, religious or separatist motives causing disruption of vessel movement in that area and putting the seafarers onboard in adversity.

Sinking a ship in a narrow sea lane and disrupt commercial trade and shipping movement.

Placing mines or floating explosive devices on the hull of ships and achieve the intention of sabotage disrupting ship movement.

Use small boats to destroy oil tanker or oil terminals influencing the global oil price and causing oil pollution for the coastal state.

Causing mass killing onboard cruise liners or passenger ferries upsetting the business.

Cyber-attack onboard the computer system and realizing ransom or diversion of the vessel causing collision or grounding.

Terror on board Achille Lauro (1985) first well known act of terrorism at sea when four heavily armed terrorists representing the Palestine Liberation Front (PLF) hijacked the Italian cruise ship. They shot and killed a disabled American 69-year-old tourist.

On the evening of 11 July 1988, the cruise ship "City of Poros" was attacked by a Palestinian gunman, who killed eight tourists before dying himself in a subsequent explosion and 98 people were left injured. Preceding the attack on the ship, a car bomb explosion at a pier killed two people. The subsequent investigation into the operation uncovered evidence which pointed at both the Abu Nidal Organisation.

On the morning of 12 October 2000, United States Navy guided-missile destroyer USS Cole, docked in the harbor of Aden (Yemen) for a "routine" fuel stop, was attacked by a small fiberglass boat that was carrying C4 explosives and two suicide bombers. Seventeen (17) sailors were killed on the spot, with thirty-nine (39) more injured as a result of the blast. This attack was organized and directed by the terrorist organization al-Qaeda. The attack caused the short-term collapse of international shipping in the Gulf of Aden; it is also interesting to note that this resulted into Yemen losing \$3.8 million a month in port revenues. (*DNV GL & WMU Rev. 001*).

On 12 May 2019, Saudi Arabian flagged vessels 'Amjad' and 'Al Marzoqah', the Norwegian flagged vessel 'Andrea Victory' and the UAE flagged vessel 'A.Michel', were attacked off the coast near Fujairah and suffered sabotage damage, and on 13 June 2019, the Marshall Islands flag 'Front Altair' and Panama flag 'Kokuka Courageous' were attacked, suffering hull damage and fire, while located in the Sea of Oman near the Strait of Hormuz.

On 19 July 2019, the British flagged Swedish owned oil tanker "Stena Impero" was detained by Iran's Islamic Revolution Guard Corps while passing through international waters in the Strait of

Hormuz. Iran accused the vessel of colliding with a fishing boat and failing to respond to calls, but the ship's owners said there was no evidence. The UK said it deployed a Royal Navy frigate to come to the tanker's aid and warned Iranian authorities that their actions were illegal, but the frigate was unable to reach the scene in time. The vessel was taken in the Strait of Hormuz two weeks after an Iranian tanker "Grace 1" was held off Gibraltar with the help of the UK Royal Marines. The "Stena Impero" was released by the Iranian authorities on 27 September 2019. (*BBC online news 27 September 2019*)

### **2.2.1 Challenges posed by maritime terrorism**

Commercial shipping is a complex multinational network and a part of universal supply chain system. The principal shipping routes pass through several narrow straits and canals, and large number of ships use these international sea lines of communication (Malacca Strait, Strait of Hormuz, Strait of Bab El Mandeb, Suez Canal, Strait of Bosphorus et al.) carrying significant quantity of commodities destined for the countries in demand. These are vessel transit chokepoints and any maritime terrorist incident in one or more of these sea lines of communication would disrupt energy and commodity supply affecting the global economy with the consequence of downturn in the international shipping.

The acts of terrorism can lead to global political decisions in terms of sanctions to the suspected regime(s) and this can be a red alert for the shipping industry.

The consequential adverse effect on international shipping business leads to less charter hire for ships and less freight rate, affecting the charter party terms, spot fixtures and other shipping related contracts. The ship sale & purchase rate is also adversely influenced.

The maritime terrorism leads to declaration of 'risky area' by the maritime insurance industry and war risk premium imposed and other insurance premium goes up for the vessels plying in this area for maritime trade affecting the charter hire or freight rate.

The seafarers suffer for the maritime terrorism activities on both short term and long-term basis. They can suffer injury or death due to attack by terrorist on the ships. The innocent seafarers can be kept hostage onboard hijacked/seized ships and interrogated causing mental distress while they have nothing much to do with the trading of the vessel.

### **2.3 Drug trafficking, Illicit firearms trafficking (gun-running), human smuggling, maritime theft, fraud, damage to ships and port facilities**

On 17 June 2019, container ship 'MSC Gayane' was boarded by US federal, state and local law enforcement agents while docked in Philadelphia port Packer Marine Terminal. Authorities found the cocaine, worth more than \$1 billion, in seven shipping containers. They officially seized the ship on 9 July 2019. Eight crew members have been charged and remain in custody. The ship owner provided USD 50 million financial security to release the vessel.

Gun-running, human smuggling, maritime theft & fraud are organised crimes and uses maritime transport system as a part of the whole activities. These crimes are threat to global security rather than only to maritime security.

UNODC (United Nation Office on Drugs and Crime) Global Firearms Programme was created to assist states in building adequate criminal justice systems to effectively respond to the challenges posed by organized criminality specifically related to trafficking in firearms its parts and components. (*UNDOC website pages*). The convention related to such crime is The United Nations Convention on Transnational Organized Crime, 2000.

Theft, fraud, damage to ships and port facilities and stowaway cause disruption to maritime transport and is controllable by the preventive measures as per the ISPS Code.

### **2.4 Cyber security**

Maritime cyber security is concerned with the security of information technology (IT) and operational technology (OT) onboard ships and deals with the techniques of protecting computers,

networks, programs and data from unauthorized access or attacks that are aimed for compromise the ship operation, cargo operation or port operation.

The motivation for the cyber-attacks can be the followings:

- Cyber misuse by vandalism and disruption of systems, defacement of web sites and unauthorized access to systems.
- Activist groups seeking publicity for creating pressure to secure a specific objective or cause. The target may be the ship itself, operator/charterer or the cargo interests.
- Espionage for unauthorized access to sensitive information and disruption for commercial purposes.
- Organised crime for financial gain in the form of criminal damage, theft of cargo, smuggling of goods and people.
- Terrorism by using the ship to instill fear and cause physical and economic disruption.
- Warfare resulting from conflict between nation states by disabling ships carrying vital cargoes.

In 2013, the hackers obtained access directing spear phishing and malware attacks at Antwerp port authority workers and shipping companies. A Netherlands-based drug ring hired hackers to manipulate systems in the major port to arrange pickups of drugs they had hidden in certain containers of legitimate products. ([www.supplychaindive](http://www.supplychaindive)).

2013 Houston - oil rig stability/security compromised-malicious software unintentionally downloaded by offshore oil workers. Malware brought aboard by laptops and USB drives infected on land. (*Maritime Cybersecurity*)

In 2017, in A. P. Moller Maersk, a cyberattack was among the biggest-ever disruptions to hit global shipping. The malware surfaced in Ukraine after being spread by a malicious update to MeDoc, the country's most popular accounting software. Maersk picked up an infection that hooked into its global network and shut down the shipping company, forcing it to halt operations at 76 port terminals around the world. The attack had a \$350 million impact, and 40,000 devices had to be updated. ([www.supplychaindive](http://www.supplychaindive)).

### **3 Legal aspects of shipping and port security**

#### **3.1 Piracy**

Under the United Nations Convention on the Law of the Sea (UNCLOS), 1982, States enjoy broad universal jurisdiction over those who commit acts that fall within the definition of piracy. States are also under a general obligation to “cooperate to the fullest possible extent in the repression of piracy on the high seas or in any other place outside the jurisdiction of any State”. Relevant provisions in UNCLOS are, however, not in all respects comprehensive. Thus, piracy committed in the territorial waters of any State does not fall within the ambit of UNCLOS, nor do criminal acts which are not covered by the definition of piracy. Moreover, UNCLOS does not provide procedures for the investigation or prosecution of pirates or regulate liability issues arising in the context of modern anti-piracy measures.

Domestic law plays a critical role in the establishment of a legislative framework that allows for effective and efficient prosecutions of pirates. Both UNCLOS and the SUA Convention require the implementation of relevant provisions into the domestic legislation of States Parties. The United Nations Security Council noted in resolution 1918 (2010) that the domestic laws of several States lack provisions criminalizing piracy or are deficient in criminal procedural rules needed to effectively prosecute pirates. Therefore, a number of patrolling navies that have caught pirates have been forced to release them again. It has also been argued by academic commentators that the adoption of national legislation relating to piracy is fully a manifest precondition for States to fulfil their general obligation to cooperate in the repression of piracy in accordance with article 100 of UNCLOS.

The ability of States to enforce both national and international laws on piracy is essential to repress acts of piracy at sea. Accordingly, it is important for national legislation to include the necessary provisions to authorize the enforcement measures set forth in article 105 of UNCLOS.

One of the fundamental responses to the rise in acts of piracy was the development by industry organizations of specific advice in relation to the situation in waters off the coast of Somalia and, in particular, the development and publication of Best Management Practices to Deter Piracy off the Coast of Somalia and in the Arabian Sea Area (BMP). The BMP include preventive, evasive and defensive measures that shipowners are recommended to implement and follow.

The BMP include three fundamental requirements which urge shipowners to register at the Maritime Security Centre - Horn of Africa (MSCHOA) prior to entering the High Risk Area, to report to the United Kingdom Maritime Trade Operations (UKMTO) office in Dubai, when entering the UKMTO Voluntary Reporting Area and to implement ship protection measures (SPMs). Selected SPMs include additional lookouts and enhanced vigilance during watchkeeping, increased bridge protection including controlled access to the bridge, accommodation and machinery spaces, the construction of physical barriers at vulnerable access points on the vessel, the use of water spray and/or foam monitors, the use of alarms and closed-circuit television (CCTV) and the installation of safe muster points or citadels.

The BMP also refer to the use of unarmed and armed private maritime security contractors, though such use should remain in accordance with the national laws of the flag State, which may differ considerably from one State to another. In addition, the respective national laws on the use of unarmed and armed guards must be followed when sailing in the territorial waters of a State.

In 2011, IMO developed interim guidance on the use of PCASP (Privately Contracted Armed Security Personnel) on board ships in the High-Risk Area.

An agency was formed in December 2008 directly involved in deterring, preventing and repressing acts of piracy and armed robbery off the coast of Somalia is the European Naval Force Somalia - Operation Atalanta (EU-NAVFOR Atalanta).

To deter attacks in the Gulf of Aden and protect shipping in this area, CTF-151 (Multinational Task Force-151) was formed in 2009, in cooperation with the United States navy and IMO established the International Recommended Transit Corridor (IRTC), which stretches from the Bab- el-Mandeb strait separating the Red Sea from the Gulf of Aden, 464 nautical miles, to just north of the Archipelago of Socotra.

In June 2008, Security Council unanimously adopted resolution 1816 (2008), and decided that the States cooperating with the Somalia's transitional Government would be allowed, for a period of six months, to enter the territorial waters of Somalia and use "all necessary means" to repress acts of piracy and armed robbery at sea, in a manner consistent with relevant provisions of international law. In November 2018 the Security Council Adopted Resolution 2442 (2018), Authorizing 12-Month extension for allowing international naval forces to join in the fight against piracy in the waters off the coast of Somalia.

The Regional Cooperation Agreement on Combating Piracy and Armed Robbery Against Ships in Asia (ReCAAP) was adopted on 11 November 2004. The Agreement entered into force on 4 September 2006 and currently has 19 Contracting States. Under ReCAAP, Contracting States are fully required to prevent and suppress piracy and armed robbery against ships possible. (*UNCTAD Maritime piracy: Part II 2014*)

### 3.2 Maritime terrorism

Specific international agreements attempt to fill the gap in the suppression of violence at sea left by the narrow definition of piracy in the Convention on the Law of the Sea and its predecessor, the Geneva Convention on the High Seas, the Convention on the

Suppression of Unlawful Acts Against the Safety of Maritime Navigation of 1988 (SUA Convention) and the below mentioned Protocols were developed.

Title	Date of adoption	Date of entry into force	Contracting Parties	Percentage of World Tonnage
Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation (SUA), 1988	10 March 1988	1 March 1992	161	94.51
Protocol for the Suppression of Unlawful Acts Against the Safety of Fixed Platforms Located on the Continental Shelf (SUA PROT), 1988	10 March 1988	1 March 1992	149	88.51
Protocol of 2005 to the Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation (SUA 2005)	14 October 2005	28 July 2010	28	36.05
Protocol of 2005 to the Protocol for the Suppression of Unlawful Acts Against the Safety of Fixed Platforms Located on the Continental Shelf (SUA PROT 2005)	14 October 2005	28 July 2010	24	35.29

The SUA Convention was, in fact, the result of a diplomatic initiative taken by the Governments of Austria, Egypt and Italy in response to the Achille Lauro incident, which had made it clear that the rules of international law existing then were not appropriate for dealing with maritime terrorism.

The SUA Convention covers not only acts of terrorism directed against ships but all imaginable acts of violence at sea but only to a limited extent the Convention deals with the use of ships as weapons.

The 2005 Protocol to the SUA Convention developed in direct response to 11 September 2001 and attempts to define the offenses to be covered by the SUA Convention more broadly.

Although the SUA Convention is broad in respect of its territorial scope of application and has been broadened as far as the offenses covered are concerned by the 2005 Protocol, the sanctions mechanism it provides for is limited.

### 3.3 ISPS Code

With the background of 11 September 2001 twin tower incident, the December 2002 SOLAS Conference of IMO adopted a number of amendments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended, the most far-reaching of which adopted the International Ship and Port Facility Security Code (ISPS Code), under Chapter XI-2 of SOLAS Convention and it entered into force on 01 July 2004.

The ISPS Code provides the international framework for detecting and deterring the acts which threaten the security of the maritime transport industry, by cooperation between contracting governments, government agencies, local administrations and the shipping and port industries. The security standard of ports varies with the types of port, types of activity/cargo, location, local administration and the attitude of the government towards security of maritime domain of the country.

It appears that in the ISPS Code less importance is given for the security of the port facilities and it is left for other national or international regimes. Limiting matters to ship/port interface indicates a narrow vision of the ISPS Code not considering the full activities of port facility such as cargo/container security and vulnerability of the supply chain. The approach of the ISPS Code has been preventive in nature and it does not address the response to attacks or remediation actions after an attack.

At the design state, the ISPS Code ignored the container security in the maritime sector of the global supply chain system. According to the UNCTAD: Review of Maritime Trade 2019, the world

container ports throughput in 2017 was 793 million TEU which accounted for 18 % of the total seaborne trade and the annual growth being 4.7%.

In the containerization of cargo, it is not only the port facilities but remote 'port related areas' like container freight stations, cargo consolidation depots etc. need to be ISPS Code compliant. Storage and transportation of empty containers are security threat in terms of illegal immigration and with false bottom or sides for smuggling drugs and weapons. There are regional initiatives like Container Security Initiative (CSI) but the vulnerability of container security in respect of drug smuggling has recently been demonstrated by the drugs of hundreds of millions USD value seized from containers carried onboard large container ships at the ports of USA and Europe. Similar security concern is there for the dry break bulk cargoes while being packaged or handled, entailing criminal and terrorist activities, originating or destined for locations outside the designated port facilities.

In port facilities with inland water hinterland connectivity, large number of local ISPS Code non-compliant vessels interface for ship to ship operation. The Code does not provide any procedure or guideline in respect of compliance of the mitigating activities against the security threat the inland water vessels may pose while alongside an ISPS code complied vessel.

There is no international regime like PSC for maritime security control measures for the port facilities in the form of an external inspection or audit. The USCG International Port Security (IPS) Program is probably only body to assess ISPS Code compliance in foreign ports in respect of developing best practices in port security among the countries having international trade.

Now a days, cyber security is a great concern for the ships and port facilities but the ISPS Code has not addressed the cyber security directly.

### **3.4 Maritime cyber security**

Due to the multifaceted manifestation of cyber threats and complex nature of ship operation using information technology and operational technology, cyber threat is a matter of great concern at the present. It is also an issue of future concern due to its nature of fast evolution.

It is encouraging to find that the shipping industry has taken the cyber security seriously and stakeholders showing interest in taking initiatives and adopting measures from ship's building through her trading period.

'The Guidelines on Cyber Security Onboard Ships' produced and supported by BIMCO and other stakeholders is comprehensive and useful in implementing cyber risk management while the IMO 'Guidelines on Maritime Cyber Risk Management' will be incorporated with the existing Safety Management System after 01 January 2021 making assertive compliance of the safety and cyber security issues.

## **4 Conclusion**

### **4.1 Piracy**

Maritime piracy has evolved over the ages into an organised crime with change in the level of intricacy and level of violence. Piracy in the East African (Somali Coast) has its own 'business model' of gaining large ransom money and cargo theft with various stakeholders including financiers, political leaders' instigators and pirates. With the escalation of pirate activities in the Gulf of Guinea, West Africa water are also emerging as a dangerous spot for piracy. Piracy directly affects ships, ports, terminals and seafarers and it imposes economic constraints to coastal states, landlocked countries, and thus have broader implications on trade across global supply chain, as well as on global supply of energy and food security.

The repression of piracy at sea has not been effective by the international legislation due to lack of developing national legislation against piracy in the light of UNCLOS 1982 and SUA Convention and the Protocol. Instead, cooperation at various international and regional level, and use of arm guards onboard together with Best Management Practice contributed in reducing piracy incidents.

While the current international and regional initiatives are encouraging, but not enough to repress the challenge of piracy. There should be cooperation and multilateral initiatives in term of information sharing, effective prosecution of pirates and those benefit from the proceeds of the piracy. In this regard, the legal and regulatory framework, particularly at the national level need to be taken into consideration and is recommended.

#### 4.2 Terrorism

Terrorism is a politically motivated maritime security threat and affects the maritime transport industry by its manifestation and subsequent effect. Terrorism at the maritime transit checkpoints can severely disrupt sea lines of communication leading to lack in energy and commodity supply affecting the global economy and downturn in shipping industry. Terrorism can result in global political sanction to suspected regimes adversely affecting the international shipping, port operations and productivity.

The SUA Convention and the Protocols were developed with a view to deter maritime terrorism but the main purpose of the SUA Convention is not the prevention of maritime terrorism but the apprehension, conviction, and punishment of those who commit such offences. In other words, the convention is not preventative but reactive in nature. The SUA Convention remedies some definitional limitations of the UNCLOS, it still has major limitations in terms of powers and obligations given to states. In addition, even if a state has jurisdiction, the prosecution and penalization of offenders is not mandatory under the SUA Convention. Therefore, even though the convention contains a provision for extradition, if the state that receives the offender does not have the political will to prosecute the offender, it certainly does not need to. Also, like the UNCLOS, in SUA the conduct of trials and penalties applied to pirates are determined by domestic law of a state. There is thus no uniformity among states in terms of trial processes and penalties applied to pirates. Many coastal countries Malaysia and Indonesia have not ratified SUA convention. (*Pulungan. 2014*)

Like piracy, international and regional initiatives are required for the legal and regulatory framework to control maritime terrorism, particularly at the national level and is recommended.

#### 4.3 ISPS Code

The ISPS Code is the international framework to detect and deter acts those can lead to terrorism onboard ships and at the port facilities. It provides preventive measures for security of the ships while at ports, the infrastructure and operation of the ports and security of cargo and personnel in the ports. It intends to provide measures for detection and prevention of shipment of drugs, illicit arms, contraband items (CBRN) and WMD form passing through the ports including stowaways.

However, the code lacks in overall vision of the security of the international supply chain and it provides preventive measures but not addresses the remedial issues. The Code needs to be overhauled to have enforceability and a regime for collecting, analyzing and distributing security performance of the ports. The Code should address cargo and container security the land segment of the maritime transport in the supply chain taking into consideration of the port related areas.

#### 4.4 Cyber security

Cyber security for the ships and port facilities has been taken up seriously by the international shipping industry and still at a developing stage. The challenge posed by the cyber threats that they have multifaceted manifestation and nature of fast evolution, and due to the complex nature of ship operation using information technology and operational technology. The initiatives taken by the industry and by the IMO in terms of 'Guidelines' is quite comprehensive and should be effective deterrent to the maritime cyber threats.

### 5 References

BBC online news <https://www.bbc.com/news/world-middle-east-49849718> - 27 September 2019

Course material of Postgraduate Diploma Maritime Safety and Security © DNV GL & WMU Rev. 001

IMB 2018: International Chamber of Commerce's International Maritime Bureau's (IMB) 2018 annual piracy report

---

Maritime Cybersecurity: Cyber Cases in the Maritime Environment – Blank Rome LLP  
Pulungan. 2014 Rheny Wahyuni Pulungan: The Limitations of the International Law on Piracy and Maritime  
Terrorism: Options for Strengthening Maritime Security in the Malacca Straits 2014  
UNDOC website pages: <https://www.unodc.org/unodc/en/firearms-protocol/index.html>  
UNCLOS 1982 Article 101 and IMO Resolution A.1025(26)  
UNCTAD Maritime Piracy Part I: Maritime Piracy Part I: An Overview of Trends, Costs and Trade Related  
Implications 2014  
UNCTAD Maritime piracy: Part II an Overview of the International Legal Framework and of Multilateral Cooperation  
to Combat Piracy 2014  
[www.lafd.org: https://www.lafd.org/about/special-operations/homeland-security-arson/terrorism-preparedness](https://www.lafd.org/about/special-operations/homeland-security-arson/terrorism-preparedness)  
[www.statista.com : https://www.statista.com/statistics/266292/number-of-pirate-attacks-worldwide-since-2006/](https://www.statista.com/statistics/266292/number-of-pirate-attacks-worldwide-since-2006/)  
[www.supplychaindive: https://www.supplychaindive.com/news/ocean-shipping-carriers-cyber-risk/522417](https://www.supplychaindive.com/news/ocean-shipping-carriers-cyber-risk/522417)

---