

A Study on Security System and Counterterrorism in Korean Maritime Domain

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I. Introduction

In the aftermath of the September 11, 2001 terrorist attacks on the United States, concerns over terrorism, nuclear weapon proliferation and maritime security have become increasingly intertwined. Terrorism has clearly become the primary threat of the 21st century. The September 11 attacks not only exposed the loopholes in airport and airplane security but also alerted the world to the gaping security vulnerabilities in other transport sectors. The very nature of international shipping has made it far more vulnerable to potential abuses and yet also far more difficult to protect. International maritime vessels are often owned by companies in one country, registered in another, manned by crew from several nations and call at ports around world. Shipping, ports and terminals are vulnerable targets for terrorist action.

Accordingly, the new political realities have altered the seascape for the maritime industry. Throughout the history of maritime industry, it has had to contend with piracy, but it is only during 20 years that it has had to contend with terrorism. The goals have shifted from illicit profit to political hegemony. Therefore, any country tries to seek a solution to the risks of terrorism and prepare maritime security contribution program to prevent maritime security threats economically, efficiently and safely with minimum risk.

In this paper, I would like to introduce the implementation of new maritime security across the country designed to build upon the layers of maritime security to reduce risks and the counterterrorism to prevent maritime threats and to minimize the damage and to recover from attacks that may occur. In addition the maritime strategy for safety and security to keep our water safe, secure and open for business is proposed.

II. Maritime importance and security vulnerability

2.1 The importance of maritime realm

The marine areas of South Korea jurisdiction are 4.5 times larger than the areas on land, covering about 130,000 square miles of ocean area and extending 900 miles of coastline. Figure 3 shows the maritime jurisdiction of South Korea in detail. It composes of territorial waters, Exclusive Economic Zones including Korea-China Joint provisional waters. The common waters between Korea and Japan is established. With the extension of jurisdiction to 200 nautical miles, almost marine area in East Asia is left unclaimed, and many claims overlap.

South Korea is geographic region unlike any other in its maritime significance and sounded by ocean except the north side faced to North Korea. The waters give us not only the natural resources but also the safe passage of vessels through which the 98 percent of trade volume transported. The waters made it possible to be the country of the most capability of building ships and the eighth shipping country in the world. Korea strait is an important regional navigational route connecting the East Sea and the East China Sea and is a strait used for international navigation which means the transit passage regime applies. Through a high sea corridor, ships may transit without entering the territorial seas of South Korea and Japan.

The Northeast Asian region contains two huge semi-closed sea: that is the Yellow Sea encompassing 362,000 square miles; the East Sea encompassing 445,000 square miles. In terms of marine pollution, the following general observations need to be made. First the littoral and adjoining areas have the heaviest population concentration in the world. Second, these areas have one of the heaviest concentration of industry in the world.

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Third this area has a heavy concentration of shipping routes of the world, with its susceptibility to pollution from collision, grounding, discharges from tank cleanings, leaks or human error. Finally, there is considerable for oil and gas in the offshore.

2.2 Security vulnerability

The vessels can be categorized into five possible threat scenarios such as vessel as a mean, vessel as a weapon, vessel as a bomb, vessel as a disruption tool and vessel as a target. In the first scenario the ship is used to smuggle goods to fund or support terrorist networks. They can also be employed to transport nuclear, chemical, biological or conventional weapons to terrorist groups or even the terrorist themselves. In the second case, a shipping vessel could be employed as the weapon itself. Terrorists having hijacked or assumed control of a large ship, particularly one laden with high explosive materials such as oil or liquefied natural gas, could then crash it into another ship or a port. The idea of modifying a shipping vessel as a floating bomb is simply taking as a weapon concept a step further. Detonating a weapon of mass destruction on board a ship, especially if rammed into a crowded port facility, is perhaps the most nightmarish scenario possible. If disrupting international trade and crippling the global economy is a goal for terrorists, there are several ways a ship could be utilized. The sinking of a large vessel in a major port or in any one of several shipping chokepoints could seriously impeded international trade, causing major economic losses, and significantly increasing transport and insurance costs. Were a vessel carrying oil or LNG to be used in such a scenario, or should an offshore oil facility be targets, the global environmental and economic impact would be far greater. Finally, ships can be the targets of maritime terrorists. Attacks on ferries or cruise ships carrying hundreds of passengers are one possibility.

2.3 Maritime security incidents

2.3.1 Maritime terrorism

The attack on the Achille Lauro in the mediterranean In 1985, the USS Cole in Aden in 2000, and The Silk Pride in Sri Lanka in 2001 demonstrated the interest of terrorist in maritime transportation as high profile targets. Security experts claim that AL-QAEDA is set to stage a waterborn 11 September attack. A terrorist act involving

chemical, biological, radiological or nuclear weapons at seaports could result in extensive loss of lives. Terrorist groups have warned the attack to the chokepoints such as used major sea lanes and critical straits as fig. 1. Security and access to sea lines of communication is of increasing importance, as these sea lines are the maritime highways for vast trade flows critical to the rapidly growing prosperity not only of South Korea, but also for the entire Asia-Pacific.

2.3.2 Piracy and armed robbery

The maritime industry faces a new threat. piracy is growing at 20% per year, thriving on a combination of vulnerable, undermanned ships carrying both dangerous and valuable cargoes sailing in unpoliced waters. However, the threat is not from traditional commercial pirates, but from a new breed of maritime terrorist, whose skills evolve from a conventional piracy base, but whose aims and goals are more sinister, and whose potential to wreak havoc with the global supply chain is still largely unrecognized. The ISPS code, coming into force on 1st July 2004, all help raise awareness of the security issue, but cannot hope to solve this fundamental problem in their own right.

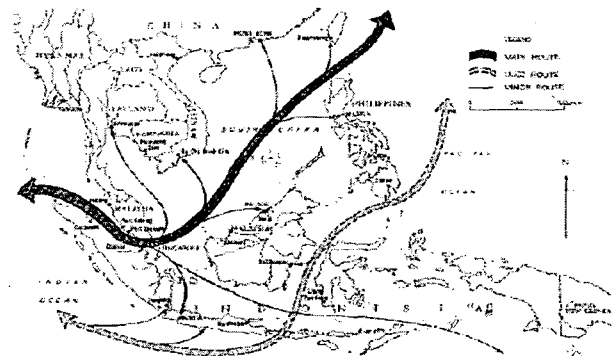


Fig. 1 Main Sea routes in South and Northeast Asia

The importance of the growth rate in piracy lies not in the quantity, but in the quality of the attacks. Figure 2 shows the numbers of piracy and armed robbery happened in Asia. There are increasing signs that piracy is becoming more organised, more intensive, more ambitious and better connected.

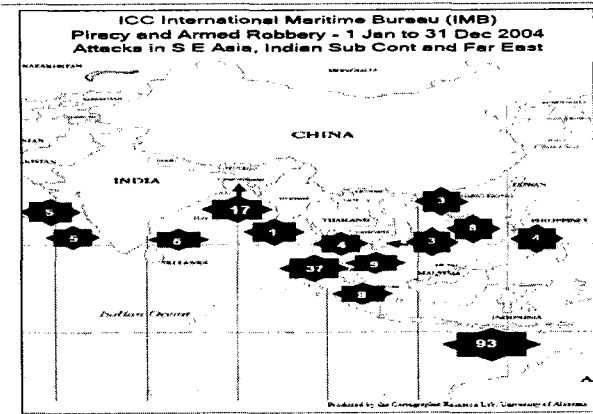


Fig. 2 Piracy and armed robbery in Asia.

Shipping is in the process of upgrading security awareness through ISPS and other efforts, but from a security perspective, the maritime world is a significant challenge. High value cargoes sail the world with minimal protection. There is a long culture which tolerates convenience at the expense of strict legality. Ownership structures exist to diffuse responsibility and risk. The narrow margins of shipping are used as an excuse to avoid correcting these problems and little investment is made in equipment or training. At the same time most of the world's trade moves through a number of crucial chokepoints where decisive action could restrict or even block traffic. If one factors in the world's reliance on Just-In-Time logistics systems and the volatility of markets, and the shipping industry is not only full of easy targets. It is full of strategically important targets. The maritime world has yet to wake up to the full implications of this threat. While neither high-profile nor particularly newsworthy, maritime terrorism represents a genuine threat to global economic stability. This may not be immediately evident. In its short history maritime terrorism has had little impact beyond its immediate target or geographical area. But the terrorist threat is a function of the terrorist's will, the terrorist's capability, and the target's perceived importance.

2.4 Non-military security force

Korea Coast Guard is the lead governmental agency for non-military maritime security in Korea maritime jurisdiction. It has 1 deputy commissioner, 4 bureaus, 14 divisions, 3 directors, 1 workshop, 1 Korea Coast Guard academy and 13 stations with 71 offices and 266 branch offices of entrance and clearance notice. It also possesses various kinds of patrol boats, disaster response vessels, fire boats and rescue helicopters in the Fig. 3. About

10,000 men and women of KCG are doing their best to intensify the marine security patrol and surveillance in order to reduce security risk and to prevent any maritime terrorism. In addition, KCG will strengthen the investigation of maritime crimes of violence and criminals of economic difficulties, as well as illegal fishery and pollution.

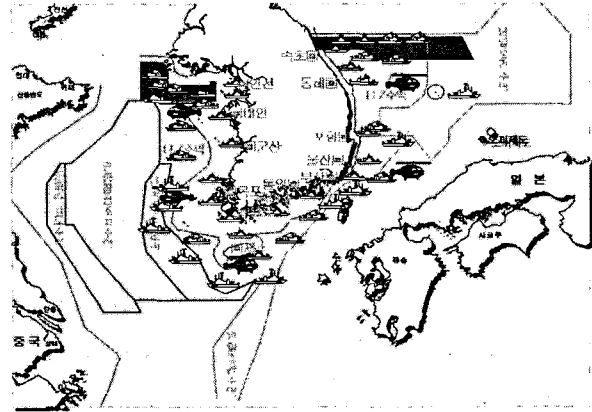


Fig. 3 the distribution of security resource

III Maritime security initiatives

3.1 Security threats and risks

Traditionally, the risk have been measured in the following:

$$\text{Risk} = \text{Frequency}(F) \times \text{Consequence}(C)$$

where Frequency(F) = Initiating Event frequency
 × Probability all safe guard fail

In security risk management, the frequency element is separated into two parts as shown in the following

$$\text{Risk} = [\text{Threat}(T) \times \text{Vulnerability}(V)] \times \text{Consequence}(C)$$

where Threat(T) is a measure of the likelihood that a specific of attack will be initiated against a specific target(or scenario), Vulnerability(V) is a measure of the likelihood that various types of safeguards against a scenario will fail and Consequence(C) is the magnitude of the negative effects if the attack is successful.

3.2 The proliferation security initiative(PSI)

The proliferation security initiative(PSI) most directly tie together concerns over counter-proliferation and counter-terrorism. The PSI is an exercise in

supplementing the right to self-defence under international law; pre-empting unclear terrorist attacks. The basis of the PSI lies in the principle of interdiction, the ability for the U. S. and other members states to stop and search ships, aircraft, and other means of transport suspected of illegally carrying or transporting weapons of mass destruction, delivery systems and related technology. members states agree to meet on a regular basis in order to facilitate cooperation and information sharing and to take part in multilateral land, air and sea interdiction training exercises.

3.3 The container security initiative(CSI)

The CSI aimed at tightening the security of containers consists of four main elements:

- ◇ using intelligence and automated information to identify and target containers that pose a risk for terrorism
- ◇ pre-screening those containers that pose a risk at the port of departure before they arrive at U. S. ports
- ◇ using detection technology to quickly pre-screen containers that pose a risk
- ◇ using smarter, tamper-evident containers

The CSI works by stationing U.S. CBP(Customs and Border Protection) officers in foreign ports to work with host nation counterparts to target and screen all containers that pose a potential threat.

3.4 The international ship and port facility security code(ISPS)

Unlike the PSI and CSI, the ISPS is not a U. S. program but is promoted through the International maritime Organization, though there has been considerable U. S. pressure on the IMO to implement these measures. The ISPS Code identifies three security levels. Security Level 1 corresponds to the normal level or the minimum appropriate protection security measures to be maintained. Security Level 2 equates to a medium degree of security risk and the corresponding security measures to be maintained. Security Level 3 indicates the highest level of concern when a security incident is probable or imminent, even if the specific target cannot be determined. Contracting governments agree to set appropriate security threat levels for ships and ports, with the goal to operate at Security Level 1 at all times.

The process begins with a risk assessment exercise by

contracting parties to 1) identify and evaluate important assets and infrastructures that are critical to the port facility as well as those areas or structures that, if damaged, could cause significant loss of life or damage to the port facility, 2) identify the threats to those critical assets and infrastructure in order to prioritize security measures, 3) address vulnerability of the port facility by identifying weaknesses in physical security, structural integrity, protection system, procedural policies, communication systems, transportation infrastructure, utilities, and other areas that may be targeted.

IV. Maritime Counterterrorism

4.1 Enforcement of ISPS Code in Korea

4.1.1 The plan specified in the domestic law

- 2003. 3 : workshop with shipping companies and related agencies
- 2003. 3 - 2003. 6 : project on a draft of domestic law \
- 2003. 4 - 2003.10 : training experts and manpower for verification
- 2003. 4 - 2003.10 : making the budget required
- 2003. 7 - 2004. 3 : making a draft for the notice by the ministry of maritime affairs and fisheries
- 2004. 3 - 2004. 6 : inspecting and certificating ship and port security plan
- 2004. 6 : reporting to International Maritime Organization
- 2004. 7. 1 : effectuating of ISPS specified in domestic notice

4.2 Ships and companies in application

Table 1 shows the number for company and ship to be applied to ISPS Code.

Table 1 numbers of ships and companies in application

company	ship				
	total	passenger ship	cargo ship	tanker	MODU
115	383	6	269	107	1

4.3 Comparison with U. S.

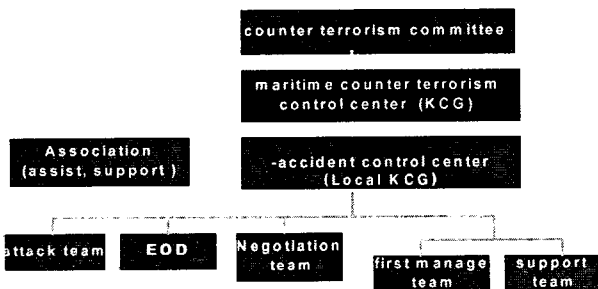
Table shows the comparison with U. S. in enforcing the Code.

Table 2 comparison with U. S.

contents	Korea	United States
Lawmaking	Notice of MOMAF	MTSA(Maritime Transportation Act 2002)
Vessels	425 ships passenger ship and cargo ships over 500T	10,000ships all flag ships foreign ships over 100T
Ship alert system	MOMAF	USCG
port security	MOMAF Port administration	USCG
Port State Control	MOMAF	USCG
Reporting security info.	MOMAF	USCG
Response Team	Rapid Response Force(KCG) 121 KCG men	Port Security Unit 870 USCG men

4.4 Maritime counter-terrorism system

Figure 4 shows the maritime security system to response maritime terrorism.



4.5 Layers of surveillance

The layered security measure are designed to protect the three phases in the following table 3. Figure 5 shows the layered maritime security operation in USA.

Table 3. surveillance in the three phases

	first layers	second layers	third layer	over 80 boats a day
guard zone	around subjects	around port limit	territorial sea	
security force	39 patrol boats	27 patrol boats	14 cutters	
remark	speed boats and patrol boats in 3 T	patrol boats in 20 T	cutters in 250 T	

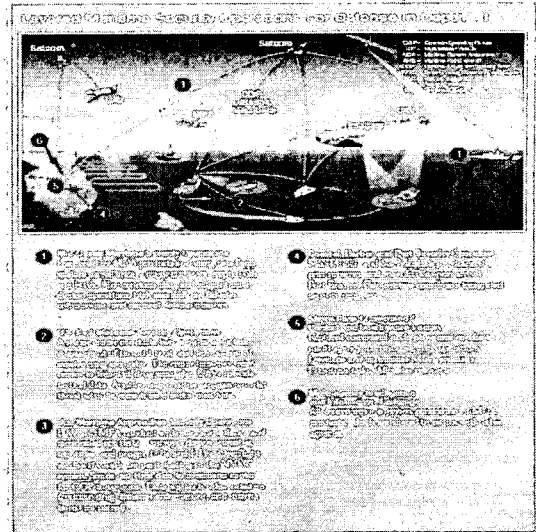


Fig. 5 the layered maritime security operation in USA

4.6 Counterterrorism in 2004

In the 2004, Korea Coast Guard took preventive measures to counter maritime terrorism as following;

- ◇ Inspecting tankers and cargo vessels carrying dangerous cargo: 1,677 ships
- ◇ Watching suspicious vessels: 101 ships
- ◇ Patrolling facilities and international ports: 78 places
- ◇ Drills and practices with domestic agencies: 46 times
- ◇ International cooperation drills and practice : 4 times (Korea to Japan, Korea to Russia, Korea to Malaysia)

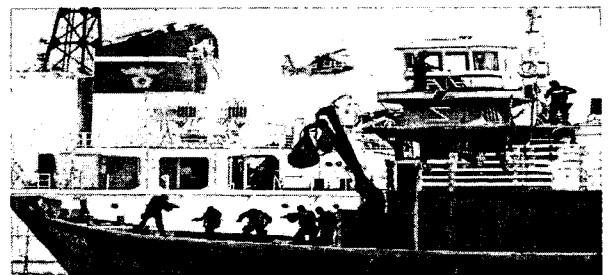


Fig. 6 Special operators from Korea Coast Guard in a joint counter-piracy, counter-terrorism training exercise held near the Langkawi Islands in Malaysia

V. Strategy of maritime security

5.1 Maritime security strategy objectives

The strategic objectives of maritime security can be set as

(1) preventing terrorist attacks within, and terrorist exploitation of the Korea maritime domain.

(2) reducing Korean vulnerability to terrorism with the Korea maritime domain.

(3) protecting critical infrastructure, maritime borders, ports, coastal approaches, boundaries and seams.

(4) protecting Korea maritime transportation system while preserving the Korea maritime domain for legitimate pursuits

(5) minimizing the damage and recovering from attacks in the Korea maritime domain.

5.2 Maritime security strategy elements

The Korea maritime security strategy consists of the following seven elements, which serve as the method to achieve the strategy objectives.

(1) Building the security culture of seafarers and persons employed in maritime domain.

(2) Increasing maritime domain awareness to create a comprehensive knowledge base or maritime security operation.

(3) Conducting enhanced maritime security operation by establishing and maintaining a new threshold level of maritime security readiness, including layered maritime security operation.

(4) Closing port security gaps by strengthening the port security posture and reducing the vulnerability of strategic economic ports.

(5) Building critical security capabilities by developing

required capabilities and improving core competencies.

(6) leveraging partnerships to mitigate security risk by organizing and sustaining a public-private sector partnership, while increasing international cooperation.

(7) Ensuring readiness for security defense operations by preparing, equipping and training forces.

VI. Conclusion

The security vulnerabilities in Korea maritime domain were mentioned and analysed. The counterterrorism and initiatives to reduce the security risk and to minimize the damage were introduced. Finally, the objectives of maritime security strategy in Korean sea and ports were set and the countermeasure were proposed.

References

- [1] United Coast Guard, " Maritime strategy for homeland security", 2002. 12.
- [2] Kent Calder, Fereidun Fesharaki, " Maritime shipping in northeast Asia", 1998.
- [3] Mark J. Valencia, " Navigational issues and possible cooperative responses", 1998.
- [4] Anne Korin, Gal luft, " Terrorism goes to sea", 2004, 12.
- [5] "Korea Coast Guard" homepage
- [6] "Global maritime security systems company" homepage.
- [7] Homeland Security, " Secure Sea, Open sea".