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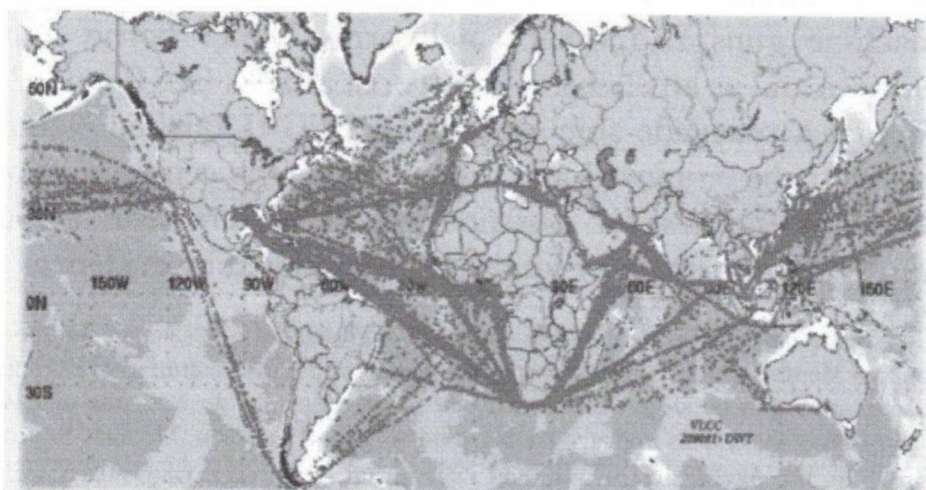
Security and Safety Aspects of the Maritime Logistics Chain of Supply

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2.1. Introduction to the maritime logistics chain of supply

Maritime transport is of fundamental importance to the modern world and logistics chains of supply. Over 90% of transcontinental external trade goes by sea and billions of tonnes of freight a year are loaded and unloaded in world's ports (see fig. no. 2.1). This means that shipping is the most important mode of transport in terms of volume. Furthermore, as a result of its geography, its history and the effects of harmonization, maritime transport will continue to be the most important transport mode in developing global trade for the foreseeable future. In this context all engaged in this process parties have the right to expect their maritime passenger and goods transport to be safe, secure and clean.

Figure 2.1. The world main shipping routes



Source: *Maritime Security Primer, Global Maritime Security Cooperation in the Age of Terrorism and Transnational Threats at Sea*, Copenhagen 2005.

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A significant breakdown in the maritime transport system would send shockwaves throughout the world economy. In fact, under the worst-case scenario, a large attack could cause the entire global trading system to halt as governments scramble to recover. Drastic and inefficient solutions may be put in place, such as the complete closure of some ports and duplicative and lengthy cargo checks in both originating and receiving ports. Maritime security involves hundreds of ports, thousands of miles of coastline, tens of thousands of commercial and private crafts, and millions of shipping containers. The maritime domain is truly global in nature, encompassing every ocean and the peoples and property of many nations.

Having this said, we should not underestimate the role of safety at sea. So, in support of these goals, and particularly in the wake of the Erika and Prestige oil tanker accidents in the European seas, the set up of EMSA¹ (under Regulation (EC) N° 1406/2002 of 27 June 2002) is one of the key EU level initiatives aimed at improving the situation on the field of safety.

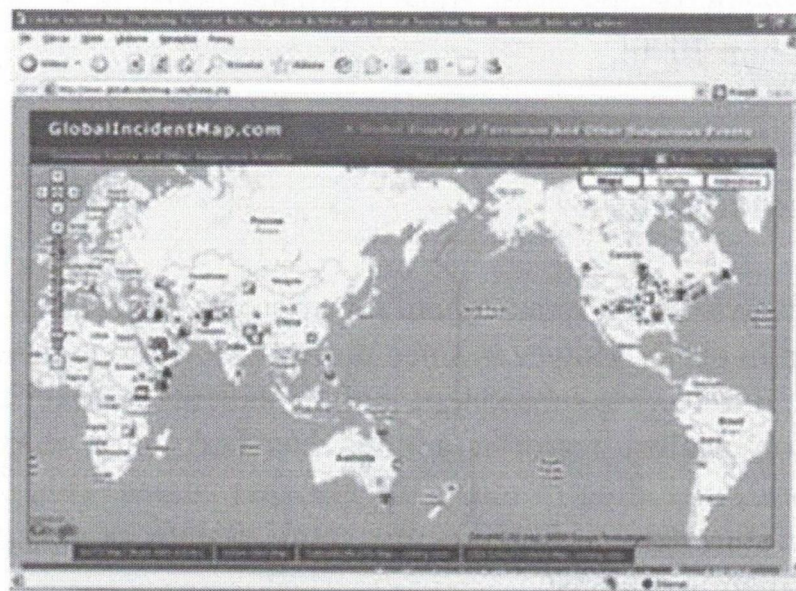
Finally, the idea of Maritime Security Operations (MSO) as the European inter-agency latest response on maritime threat seen from wider perspective has been launched. MSO from definition covers all initiatives leading to achieve synergy of civilian and military maritime security activities, and in this light might be seen as an additional support for security of logistics chains of supply [Kościelski, Miler, Zieliński 2008].

2.2. The real threat to the maritime logistics chains of supply

The seas has already been used for terror attacks by boats armed with rockets, machine guns and other small arms, water borne improvised explosive devices and as an enabler for terrorist attacks (see fig. no. 2.2). It is conceivable that a renegade ship such as an LNG (Liquefied Natural Gas) carrier could even be employed as a weapon near the centre of population. Continued use of the sea for logistic support to terrorism through the movement of arms, personnel or funds is substantiated by evidence.

¹ The Agency's main objective is to provide technical and scientific assistance to the European Commission and Member States in the proper development and implementation of EU legislation on maritime safety, pollution by ships and security on board ships. To do this, one of EMSA's most important supporting tasks is to improve cooperation with, and between, Member States in all key areas. In addition, the Agency has operational tasks in oil pollution preparedness, detection and response. As a body of the European Union, the Agency sits at the heart of the EU maritime safety network and collaborates with many industry stakeholders and public bodies, in close cooperation with the European Commission. For more information see: M. Kościelski, R. Miler, M. Zieliński, *European Maritime Safety Agency (EMSA) in the way to enhance safety at EU seas*, Zeszyty Naukowe AMW, edition 2/2008.

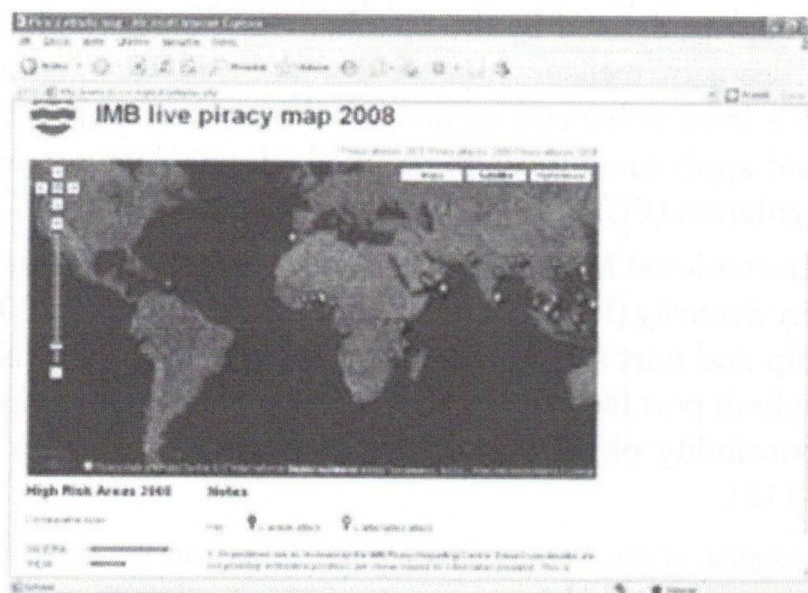
Figure 2.2. Global Incident Map



Source: www.globalincidentmap.com/home.php

The maritime environment provides a potential conduit for CBRN (Chemical, Biological, Radiological, and Nuclear) material, both for the small high technology items, but also for larger items associated with weapon delivery. Other threats include cross-border illegal migration, which is forecast to increase significantly, and criminal activity including narcotics, human trafficking and piracy, all of which is increasing in sophistication and volume (see fig. no. 2.3).

Figure 2.3. Piracy Attacks Map



Source : www.icc-ccs.org/extra/display.php

These factors impact world's physical and economic security either directly or indirectly [Richardson 2004; Brandon 2003, p. 3; Stubbs 2000, p. 95-99; Wrighston 2000].

2.3. Security measures

There has always been a requirement for appropriate levels of security on board ships and in ports. However, since the attacks on September 11th 2001 in New York, and following subsequent major incidents in Madrid and other cities, protection against terrorist actions has become a major concern around the world, including in many EU Member States. This concern has resulted in the allocation of significantly more resources and expertise to security issues than in the past.

The majority of terrorist surveillance, and response measures, set in place throughout the EU have been as a result of action at Member State level. These include measures to protect against terrorism in the maritime sector which vary significantly across the EU. In order to address the main issues for the EU as a whole, Directive 2005/65/EC was approved by the European Parliament and Council in October 2005. The primary objective of the Directive is to ensure that, as far as possible, appropriate levels of ship and port related security are provided in all Member States. An important element involves ensuring that security related best practice is effectively disseminated within the maritime sector².

In order to achieve the fullest protection possible for maritime and port industries, port security measures should be introduced, covering each port within the boundaries defined by the Member State concerned, and thereby ensuring that security measures taken pursuant to Regulation (EC) No 725/2004 benefit from enhanced security in the areas of port activity. These measures should apply to all those ports in which one or more port facilities covered by Regulation (EC) No 725/2004 are situated.

The new International Maritime Organization's (IMO) International Ship and Port Facility Security (ISPS) Code became effective July 1, 2004 – the first multilateral ship and port security standard ever created. The code requires all nations to submit port facility and ship security plans, making port security a shared responsibility of all nations and shipping authorities [Browesox 2003, pp. 104-110].

² Following the adoption of the Directive, the Member States and the European Commission determined the approaches to be taken in order to implement the legislation. As a result, EMSA has the task of providing technical support to the Commission in monitoring the implementation of Member State systems which aim to ensure appropriate levels of security on board ships.

Security measures are being layered onto the global maritime industry at significant cost. The burden on owners of ship-related security measures is estimated at over \$1.3 billion initially and nearly \$800 million annually thereafter³.

Port security costs have been more difficult to estimate because of the uncertainty regarding the hiring of new security personnel and system-wide procedural changes resulting from advance notification rules recently mandated by majority of national organizations. Additionally, the industry may see long-term effects if new security requirements make maritime careers seemingly less rewarding, thereby reducing the pool of potential candidates.

On the other hand, it should be noted that increased security might also produce economic benefits. For example, the Organisation for Economic Co-operation and Development (OECD) concludes that many of these security measures have distinct benefits, including reduced delays, faster processing times, better asset control, decreased payroll (due to information technology improvements), fewer losses due to theft, decreased insurance costs, etc. These savings can be significant and serve to counter-balance the increase in security costs⁴.

2.4. Safety measures

The European Union acted immediately following the Erika and Prestige accidents to set up a “defensive” mechanism to protect Europe against the risks of accidents and pollution. With the maritime safety packages, the Commission is proposing a more proactive policy aimed at restoring conditions for healthy and sustainable competition for those operators who comply with international rules.

*The quality of maritime services offered by operators is the key to competitiveness in the sector, and in that context, the ability to provide a safe and environmentally-friendly service is of utmost importance. Introducing stricter requirements for unscrupulous operators who distort competition, and maintaining high-performing maritime administrations and classification societies will also ensure the high quality of maritime transport*⁵.

³ Organization for Economic Co-operation and Development, “Security in Maritime Transport”.

⁴ For example, it has been estimated that the new automated, electronic customs-manifest handling systems have saved American importers in excess of \$20 billion over 20 years and have saved the U.S. government over \$4 billion.

⁵ Quotation from European Commission Vice-President, Jacques Barrot, Directorate-General for Energy and Transport website.

The maritime safety package contains seven actions structured around two major themes [ec.europa.eu/transport/maritime/safety 2005]:

1. Improved accident and pollution prevention.
2. Dealing with the aftermath of accidents.

Since the enlargement of the European Union to Member States has made it a major maritime power, the first of the Commission's proposals is to improve the conditions for granting the Member States' flags. The Commission's objective is to require Member States to thoroughly check that ships flying their flags comply with international standards, and therefore to have a maritime administration which strictly applies the quality criteria. Stepping up responsibility in this way is the precursor to the future development of a European flag⁶. By incorporating the rules of international maritime law into European law, including the Code of the International Maritime Organisation on the responsibilities of flag States, the audit plan of the States and certification of the quality of national maritime administrations, the proposal permits[ec.europa.eu/transport/maritime/safety 2005]:

- strengthening the application of international rules of maritime safety;
- establishing powerful and high-quality maritime administrations and an effective audit system for flag States;
- harmonized on of the application of international conventions between Member States;
- increased cooperation with third countries and the possibility to offer third country flags the same advantages as European flags (relaxing controls for high-quality flags);
- improving the image of the European fleet and to make it attractive to professionals.

These statements were immediately applied into day-to day practice as a "Black list of flags" (see fig. no. 2.4) announced by Paris Memorandum of Understanding (Paris MOU). The aim of this measure is to ensure that all Member States verify the application of international rules on the ships sailing under their flag.

⁶ The enlargement of the Europe Union to include 25 Member States, and in particular the arrival of Malta and Cyprus, has made the Union a major maritime power accounting for 25% of the world fleet. In this context, Europe has to guarantee that all the Member States effectively verify that international standards are upheld by ships sailing under their flag and that all Member States have maritime administrations at their disposal to undertake monitoring according to uniform quality standards.

Figure 2.4. Black List of Flags set up by the Paris Memorandum valid from June 2011

Flag	Inspections 2008-2010	Detentions 2008-2010	Black to Grey Limit	Grey to white limit	Excess factor
Black list					
Korea, Democratic People's Rep.	45	17	6	Very High Risk	7.31
Libyan Arab Jamahiriya	47	14	7	High Risk	5.09
Togo	150	37	16		5.02
Sierra Leone	570	114	50		4.44
Montenegro	34	10	5		4.43
Albania	222	44	22		3.86
Moldova, Republic of	461	77	42	High risk	3.31
Cambodia	863	135	73		3.22
St Kitts and Nevis	488	76	44		2.99
Comoros	644	98	56	Medium Risk to High Risk	2.99
Georgia	776	106	67		2.57
Bolivia	40	8	6		2.24
Lebanon	72	12	9		2.04
Syrian Arab Republic	246	33	24		2.02
Tanzania United Rep.	65	10	8	Medium risk	1.62
Ukraine	471	50	43		1.47
St Vincent and the Grenadines	1,957	168	156		1.19
Azerbaijan	69	9	9		1.07

Source: Paris MOU announcement Black List of Flags bgw target listing 2011.

Two other proposals aim to strengthen existing legislation on classification societies and port State control. These instruments have also been recast in order to make one consolidated text which is clearer and easier to read [ec.europa.eu/transport/maritime/safety 2005]:

The quality of the work carried out by classification societies will be improved by establishing an independent quality-control system and by introducing more gradual and proportionate financial penalties.

In terms of port State control, the current system has been made stricter with regard to substandard ships, in particular by strengthening the arrangements for banning them. Finally, the proposal introduces the principle of a far-reaching reform aimed at replacing the current system (based on each Member State inspecting 25% of ships entering its ports) with a Community target of inspecting 100% of ships, bearing in mind the need to reduce the burden of carrying out inspections on high-quality ships.

Lastly, the Commission proposed to amend the Directive on traffic monitoring. The proposed objectives include improving the legal framework on places of refuge for ships in distress. The obligation to designate an independent authority and the prior identification of all potential places of

refuge will speed up and improve the efficiency of decision-making in the event of maritime accidents. In addition, the Commission is proposing to equip all fishing vessels with automatic identification systems (AIS) in order to reduce the risk of collisions.

The quality of maritime safety standards depends on the ability to analyse the causes of accidents and learn from them. The purpose of the new proposal for a Directive is to establish a harmonized European framework for carrying out investigations following accidents and to make the investigating bodies more independent [ec.europa.eu/transport/maritime/safety 2005].

The last two proposals in the package are aimed at improving the quality of the overall framework of liability and damage repair in the event of an accident. This involves incorporating the provisions of the Athens Convention (2002) into European law in order to extend the protection – introduced by this Convention – to cover all passengers on ships in the Union, including intra-European maritime and inland waterway traffic. The aim is also to make ship owners act more responsibly, and to oblige them to take out an insurance policy or other financial security for third-party damage, which will also cover the costs of repatriating seafarers in case of abandonment.

2.5. Maritime security operations (MSO) as an international and inter-agency response to the maritime threat

MSO are defined as those measures performed by the appropriate civilian or military authorities and multinational agencies to counter the threat and mitigate the risks of illegal or threatening activities in the maritime domain. They may be acted upon in order to enforce law, protect citizens and safeguard national and international interests [tide.act.nato.int/mediawiki/index.php – 10.09.2007].

Developing these operations will focus on terrorism, proliferation, narcotic trafficking, illegal migration, piracy and armed robbery. They might also include smuggling, the protection of national resources, energy security, the prevention of environmental impact and safeguarding sovereignty [White House 2004]. In defining these activities, it is to be understood that the lead in the majority of issues is not a military remit but that a successful strategy for an increasingly secure maritime domain lies in a coherent civilian and military partnership [Coffin 2003, p. 10]. In the European theatre of operations, nations are conducting MSO today as part of routine, peacetime duties in response to the threats mentioned above. Traditionally referred to as 'Constabulary' tasks,

these operations are generally either conducted independently by member states' navies and/or civilian maritime agencies in order to enforce legal powers and safeguard sovereignty or as part of multi-national military operations, which aim to safeguard common defence and security interests. In addition, there are a plethora of military and civilian initiatives at various stages of maturity which are seeking to enhance maritime domain awareness in parts of Europe [tide.act.nato.int/mediawiki/index.php – 10.09.2007].

A European inter-agency approach to MSO would better safeguard common prosperity and security interests by protecting and supporting legitimate activities while countering the threat of current and emerging terrorist, hostile, illegal or dangerous acts within the maritime domain. By ensuring freedom of navigation and commerce, it would also promote regional, and contribute to global, economic stability and protect maritime trade as the heart of the regional and global economy⁷. The proposed approach for implementing a European, inter-agency strategy to MSO envisages four related Lines of Development (LoDs) to be taken forward by a partnership of European military and civilian authorities. LoDs respectively address inter-government, inter-ministry and multinational co-operation including as follow [Marine Insurers Contemplate Increased Security Regulations 2008]:

- Legal issues – Diplomatic and Co-operation LoD;
- Information exchange and maritime picture sharing – Information LoD;
- the operational contribution – Operational LoD;
- the participation of the commercial shipping sector – Economic LoD.

* * *

The challenges for maritime security are complex and growing. Addressing vulnerabilities, ensuring access to the maritime domain, and maintaining economic competitiveness during protecting modern world economy's interests from sea-based attacks will be no easy task. Problem of safety at sea is also complex and demanding in terms of keeping world's ocean the most extensively used mode of transportation.

The strategic nature of the challenges requires a strategic response, and a good example is implementation of the concept of MSO. The next steps in that global and common response must include drafting a strategy, providing adequate resources to the International Bodies responsible for security and safety at sea, building a companion capability in the Departments of Defense

⁷ Organisation for Economic Co-operation and Development, "Security Maritime Transport," at www.oecd.org/statisticsdata/0,2643,en_2649_34367_1_119656_1_1_1,00.html (October 29, 2008).

of each engaged Nations cooperating with the private sector. Very important issue is to ensure that the developing world is introducing the same rules.

Of course, there are numerous hurdles to overcome in bringing such an approach to fruition such as gaining agreement on the perception of the threat, the scope of MSO activities, the willingness to share information and the international jurisdictional arrangements required for effective action [Svatefoos2002].

However, the timely fusing of maritime information, much of which is unclassified, would be the initial priority. Incremental gains in information sharing could allow operational co-operation to develop in slower time as mutual confidence builds. For an inter-agency approach to work it must draw together the strengths of the numerous organisations involved in addressing maritime security. The output would need to be seen as a valuable data to Governments, the commercial sector and the public. It must enable better use of limited resources to address the omnipresent, multi-national threat in the maritime domain in order to achieve real benefits.

Summary

As sea borne trade is recognized as the most important activity for the global economy, immediately aspects of its security and safety appear. Last ten years or so proved importance of these two categories.

Fear of terrorist's threat at sea caused by terrorists attacks on MS Limburg and USS Cole, is accelerating very expensive and large of its scale measures taken by modern world to counter this threat, such as ISPS code. Spreading piracy activities forces almost all countries to take additional measures to protect their own shipping.

Paralleled, congestion and use of old and fatigued vessels, such as single haul tankers cause possible tragedy and environmental disasters at sea. Cases of MV Erica and MV Prestige are good examples of negative effect this type of incidents.

To meet the threats of the maritime global security environment it needs a strong and enduring partnership between civilian and military authorities. This approach is build on separate initiatives already in place and the respective strengths of countries, NATO and the EU as well as any other relevant body such as the IMO. This leads directly to MSO (Maritime Security Operations) initiative which is being constantly developed by all countries involved in maritime logistics chains of supply.

This paper is an attempt to gather all relevant information having impact on the maritime trade particularly presents all important aspects of security and safety of the maritime logistics chains of supply.

Streszczenie

Wybrane aspekty bezpieczeństwa morskich łańcuchów logistycznych

Z uwagi na fakt, iż transport morski i morskie łańcuchy logistyczne są określane jako niezwykle ważne czynniki rozwoju globalnej gospodarki, coraz większego znaczenia nabiera problem zapewnienia tej działalności należącego poziomu bezpieczeństwa ogólnego (*security*) i nautycznego (*safety*).

Starch przed zagrożeniem terrorystycznym spowodowany atakami na MV Limburg i USS Cole przyspieszył implementację przez międzynarodową społeczność morską, kosztownych i zakrojonych na szeroką skalę przedsięwzięć służących ograniczeniu ryzyka (np. wprowadzenie kodu ISPS). Dodatkowo, rozprzestrzeniająca się na niespotykaną wcześniej skalę aktywność piratów powoduje kolejne poważne nakłady i koszty związane z zapewnieniem bezpieczeństwa (np. wzrost kosztów ubezpieczeń, międzynarodowe operacje antypirackie).

Równolegle, ze względu na zwiększenie wolumenu przewożonych drogą morską ładunków, zwiększa się kongestia, a dążenie do obniżania kosztów w dobie narastającej konkurencji zmusza niektórych operatorów morskich do użytkowania jednostek niespełniających nakazanych kryteriów technicznych i kadrowych. Sytuacja ta prowadzi niejednokrotnie do poważnych awarii okrętowych wraz z ogromnymi skutkami ekologicznymi (awarie MV Erica i Prestige).

Przy tak dużych kosztach zapewnienia bezpieczeństwa ogólnego i nautycznego morskim łańcuchom logistycznym oraz paneuropejskim i globalnym charakterze tych zjawisk konieczne staje się zrationalizowanie wysiłków, ich konsolidacja i ekonomizacja. Inicjatywą pozwalającą na kompleksowe (międzynarodowe, interagencyjne, cywilno-wojskowe) podejście jest problematyka zastosowania Operacji Zapewnienia Bezpieczeństwa na Morzu (MSO). Tylko połączone wysiłki, wspólne systemy gromadzenia i przetwarzania informacji służą podniesieniu efektywności i skuteczności działań zmierzających do osiągnięcia satysfakcjonującego poziomu bezpieczeństwa ogólnego i nautycznego morskich łańcuchów logistycznych.

Opracowanie jest próbą zgromadzenia, usystematyzowania i podkreślenia roli kluczowych czynników *security* oraz *safety* (również w znaczeniu zobrażowania sytuacji) w permanentnie i dynamicznie rozwijanym sektorze bezpieczeństwa morskich łańcuchów logistycznych.

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