WORLD MARITIME UNIVERSITY
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MARITIME SECURITY - TERRORISM THREAT TO SHIPPING, PORTS AND OIL FIELD

By

CAPTAIN C.M.SRIVASTAVA

India

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DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own views, and are not necessarily endorsed by the university.

(Capt.Chandra Mouli Srivastava)

30th of August, 2002

Supervised by: Professor Patrick Donner,

Associate Professor (Shipping Management),

World Maritime University,

Internal Assessor: Lt Cdr Maximo Q. Mejia, Jr., PCG

Lecturer (Maritime Administration),

World Maritime University

External Assessor: Mr Gunmar knudsen

Manager (Ports and Terminals section),

INTERTANKO, Oslo, Norway

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ABSTRACT

Title of Dissertation

MARITIME SECURITY - TERRORISM THREAT TO SHIPPING, PORTS AND OIL FIELDS

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This dissertation is a study of the security needs of the maritime field in view of the renewed threat from terrorism and also a study of developments to secure shipping and port industry in post September 11th scenario. The developments in the aviation industry have been studied and progress made in legislation and new methods to improve security at the airports and in airlines have been noted. Lessons learnt from the aviation industry are to be absorbed in the shipping industry to bolster security and ensure prevention and suppression of terrorism.

Threats and dangers posed by terrorism in the international arena and from using ships and ports as carriers of men and material and for causing destruction and loss of life have been looked into in great detail. New proposals on legislation being drafted by the experts at the IMO on initiatives and feedback from the United States Coast Guard have been incorporated. These proposals will be the basis of mandatory and recommendatory regulations in the International Maritime Security Code to be brought in as an amendment to SOLAS 1974 in Chapter XI Part B which will become effective from July, 2004 or December, 2004 after the diplomatic conference alongside the seventy sixth session of the Maritime Safety Committee of the IMO scheduled from 2nd to 13th December, 2002.

Terrorism has had its impact on economy and policy decisions of various nations. Real estate, insurance, currency exchange and effect on human psychology are some of the factors affected. Various regional organizations, governments and economists are still formulating their new strategy to prevent terrorists from disrupting trade and shipping activities.

In conclusion, concerted efforts are to be made by all countries to prevent and suppress any act of terrorism against shipping, ports and terminals in oilfields and at the same time to create awareness amongst people to be cautious and report any suspicious activities to law enforcing agencies. Joint efforts by various countries to share intelligence and coordinate counter measures would go a long way in establishing peace in the world.

Keywords
Terrorism, Maritime Security, Container Security, Passenger Security, Port Security, International Maritime Security Code

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Table 1.1 Global Terrorist Attacks

LIST OF ABBREVIATIONS

AIS	AUTOMATIC IDENTIFICATION SYSYTEM
AG	ARABIAN GULF
APEC	ASIAN PACIFIC ECONOMIC COOPERATION
ATC	AIR TRAFFIC CONTROLLER
CSI	CONTAINER SECURITY INITIATIVE
CBD	CENTRAL BUSINESS DISTRICT
CFR	CODE OF FEDERAL REGULATIONS
CCTV	CLOSED CIRCUIT TELEVISION SYSTEM
CSO	COMPANY SECURITY OFFICER
DSC	DIGITAL SELECTIVE CALLING
DOC	DOCUMENT OF COMPLIANCE
ECST	EUROPEAN CONVENTION ON SUPPRESSION OF TERRORISM
ICAO	INTERNATIONAL CIVIL AVIATION ORGANIZATION
ICC	INTERNATIONAL CHAMBER OF SHIPPING
ICS	INTERNATIONAL CHAMBER OF SHIPPING
IMO	INTERNATIONAL MARITIME ORGANISATION
INMARSAT	INTERNATIONAL MARITIME SATELLITE ORGANIZATION
IMB	INTERNATIONAL MARITIME BUREAU
ILO	INTERNATIONAL LABOUR ORGANISATION
IMSC	INTERNATIONAL MARITIME SECURITY CODE
ISF	INTERNATIONAL SHIPPING FEDERATION
ISM	INTERNATIONAL SAFETY MANAGEMENT
ISWG-	INTERSESSONAL WORKING GROUP
LPG	LIQUID PETROLEUM GAS
LNG	LIQUID NATURAL GAS
LTTE	LIBERATION OF TAMIL TOGER EELUM
MMT	MILLION METRIC TONNES
MSC	MARITIME SAFETY COMMITTEE
OPEC	ORGANIZATION OF PETROLEUM EXPORTING COUNTRIES
PFSO	PORT FACILITY SECURITY OFFICER

RO RO	ROLL ON ROLL OFF
RCC	RESCUE CO-ORDINATION CENTER
SG	SECRETARY GENERAL
SSP	SHIP SECURITY PLAN
SSO	SHIP SECURITY OFFICER
SSC	SHIP SECURITY CERTIFICATE
SMS	SAFETY MANAGEMENT SYSTEM
SMC	SAFETY MANGEMENT CERTIFICATE
SOLAS	SAFETY OF LIFE AT SEA
STCW	STANDARDS TRAINING CERTIFICATION WATCHKEEPING
SUA	SUPPRESSION OF UNLAWFUL ACTS
UNO	UNITED NATIONS ORGANISATION
UNCLOS	UNITED NATIONS CONVENTION ON THE LAW OF THE SEA
USCG	UNITED STATES COAST GUARD
USA	UNITED STATES OF AMERICA
VLCC	VERY LARGE CRUDE CARRIER
WMU	WORLD MARITIME UNIVERSITY

CHAPTER ONE

Introduction

Innocent passage for ships is permitted as long as it does not interfere with the security of the coastal state "…so long as it is not prejudicial to the peace, good order or security of the coastal State."- Art. 14 of 1958 Geneva Convention on the territorial sea and the contiguous zone. (UNCLOS 1982 defines innocent passage similarly)

Every ship plying through shipping lanes in various parts of the world has lived with the threat from armed robbers and pirates. Piracy and armed robbery in coastal waters has to be dealt with by coastal states under national criminal laws where the crime has been committed.

When a maritime crime is committed on the 'high seas', The International Convention on Suppression of Unlawful Acts against the safety of maritime navigation 1988 is to be used to take direct action against hijacking of a ship to release the ship with the use of force. Comite Maritime International (CMI) has drafted a model national law on acts of piracy and maritime violence in December 2001 where the definition of the 'high seas' has been suitably changed so that coastal states cannot exonerate themselves from the responsibility of the crime committed during their jurisdiction. As advised by the Joint international working group, parts of the text has been harmonized the United Nations Convention on the Law of the

Sea, 1982 for better applicability. This new law when adopted and put in practice will go a long way in fighting maritime crimes. UNCLOS 1982 lays down a comprehensive regime of law and order in the world's oceans and seas establishing rules governing all uses of the oceans and its resources.

The prime concern in the operation of a shipping company until the very recent past has been to ensure *maritime safety.* This basically meant minimising losses from vagaries of nature and human failure. One was achieved by building robust ships and the other by imparting proper training to the crew. Due to the complexity of new technology and accidents in high tech ro-ro ferries, with reference to the Herald of Free Enterprise and Estonia, which caused many loss of lives due to human negligence, an element of management systems was also brought in to rope in the shore administration of ships. Due to advancement in the maritime field, the prudent seamanship practice used for decades was no more effective in controlling safety and pollution matters as the ships now were moving at faster speed and short port stay, and manned by crew of only about 18 on board.

Investigations into accidents revealed major errors on the part of the management. Showing concern about poor management standards International Maritime Organization (IMO) Assembly adopted resolution A.596(15) in 1987 and called upon Maritime Safety Committee (MSC) to develop guidelines concerning shipboard and shore-based management to ensure the safe operation of ro-ro passenger ferries. These guidelines further developed and finally, the International Management Code for the safe operation of ships and for Pollution Prevention or International Safety Management Code (ISM code) was adopted by the IMO in 1993 as Resolution A.741(18). 1994 amendments to the International Convention of Safety of Life at Sea (SOLAS) 1974 introduced a Chapter IX into the convention making the code mandatory with effect from 1st July 1998. Safety Management System (SMS) as evolved under the ISM Code has been fully implemented on 1st of July 2002 even on phase II ships. The Safety Culture cultivated by some companies and their rich

experience were merged together in SMS and helped them achieve better levels of safety awareness and reduced claims from insurance.

Just then the tragedy struck in USA on September 11th, 2001 that brought focus on Maritime Security. *Maritime security is defined as those measures employed by owners, operators, and administrators of vessels, port facilities, offshore installations, and other marine organisations or establishments to protect against seizure, sabotage, piracy, pilferage, annoyance, or surprise.* Two main goals of maritime security are, therefore, adequate warning and timely action. (Hawkes, 1989, p 9)

The act of terror in the USA on September 11th by terrorist groups sent shockwaves throughout the world. See figure 1.2 and 1.3. Various heads of states condemned the gruesome killing of innocent people. The United Nations, its Security Council and the IMO condemned the attack and vowed to initiate steps for prevention and suppression of such acts of terrorism against shipping and ports by all means.

Tragic day of September 11th,2001 when terror raised its ugly head on United States of America, a country known for freedom and democracy.

Source; www.bbc.co.uk

Figure 1.2

1.1 History of terrorism

One man's terrorist is another man's freedom fighter. It makes distinguishing between revolutionaries and terrorists more difficult. Terrorist groups have worked hard at

making the above stated cliché cloud the difference between revolutionaries and terrorists in public opinion. However, revolutionaries attack military targets and terrorists attack civilian targets. No matter what political front groups for terrorist organizations, such as "Al Quaeda", claim, terrorists will target and attack civilians if it serves a political purpose. Revolutionaries attack military targets. The classification of political groups under revolutionary or terrorist labels is a matter of identifying who was attacked and why.

Terrorism is a criminal act, with political motivation, which often results in the murder of the terrorist victim. Motivations for committing terrorist attacks can originate in any one of many different social, economic, religious, or political philosophies. Any organization that intentionally targets civilians, no matter what the social, economic, political, or religious justification, is guilty of terrorism. However, a violent attack against innocent civilians with no political goal is not terrorism.

The tragic attack at a High School in Germany recently in mid 2002 was the mad, criminal, act of a disturbed student and there have been many such cases even in the USA when students with access to guns have gone berserk and killed many innocents having gone insane. Such acts, however, have nothing to do with terrorism.

Terrorism can be broken down into four basic acts of terror. Terrorists may target an individual, or group, who represent a symbol to the terrorists but who are not political leaders. Terrorists can also target public officials or policy leaders for attack. Terrorists may also attack public targets with the purpose of spreading fear in the general population in the pursuit of a political goal. The bombing of the World Trade Centre in the United States by Islamic extremists in 1993 was such an attack. Finally, terrorists may attack public targets with the purpose of spreading fear in a specifically targeted group of individuals. For example, some anti-abortionists have bombed health clinics or killed doctors that have performed abortions.

The cowardly and deadly bombings of the US Embassies in Kenya and Tanzania in August 1998 were powerful reminders that the threat of international terrorism still confronts the world. These attacks contributed to a record-high number of casualties of terrorism during 1998: more than 400 people died and almost 6,000 were wounded. It is essential that all law-abiding nations redouble their efforts to contain this global threat and save lives.

Despite the Embassy bombings, the number of international terrorist attacks in following years actually continued a downward trend till September 11th. It also reflects the improved political climate that has diminished terrorist activity in recent years in various parts of the world. Global terrorist attacks came as follows. See Table 1.1.

Global terrorist attacks

September 11th, 2001 - World Trade Center - New York, Pentagon-Washington and Pennsylvania. – 3,000+ killed

2000 - USS Cole –19 killed; 37 wounded

2000 - Our Lady of Mediatrix –40 killed; 50 wounded

1998 - U.S. Embassies, Kenya/Tanzania -257 killed 5,500 wounded

1996 - Khobar Towers, Saudi Arabia -19 killed 280- wounded

1988 - Attack on City of Poros - -9 killed 98 wounded

1985 - Achille Lauro - 1 killed

Table 1.1 Source: The Terrorism Research Center. www.terrorism.com

Following the bombings of the two US Embassies in East Africa, the US Government obtained evidence implicating Osama Bin Ladin's network in the attacks. To preempt additional attacks, the United States launched military strikes against terrorist targets in Afghanistan and Sudan on 20th August 1998.

US Secretary of State Madeline Albright declared in August 1998 shortly after the US military strikes against terrorist targets in Afghanistan and Sudan: The terrorists

should have no illusion: Old Glory will continue to fly wherever we have interests to defend. We will meet our commitments. We will strive to protect our people. And we will wage the struggle against terror on every front, on every continent, with every tool, every day.

Osama Bin Laden and his key associates were added to the list of terrorists in 1998, thus blocking their US assets-including property and bank accounts-and prohibiting all US financial transactions with them. Working closely with the Kenyan and Tanzanian Governments, the US Government indicted Bin Laden and 11 of his associates for the two bombings and other terrorist crimes. Several suspects were brought to the United States to stand trial.

US President Bush has branded Iraq as part of an "axis of evil," along with Iran and North Korea, backing international terrorism and trying to make weapons of mass destruction (chemical, biological and nuclear weapons) —(Axis of Evil, 2002)

Such forces are likely to use maritime transport to carry their men and material and also to directly harm ocean transportation units as a whole. At such juncture, it is the prime objective of the maritime community to prevent and suppress such disruption in ocean transportation, which is an essential service for international trade.

It is clear that terrorism is an issue that will remain with us for quite some time. It is prudent for all the nations to focus the future policy on this issue and learn to use counter measures in the most effective manner.

No one definition of terrorism has gained universal acceptance. The Code of Federal Regulations defines terrorism in the U.S. as follows:

> "*…the unlawful use of force and 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." (28 C.F.R. Section 0.85).

International terrorism means terrorism involving citizens or the territory of more than one country. The term terrorist group means any group practicing, or that has significant subgroups that practice, international terrorism.

Some of the groups are highly mobile and operate globally, raising large amounts of money, training in various countries, and possessing sophisticated technology. All the like-minded nations must continue to work together to close down such terrorist networks wherever they are found and make it more difficult for them to operate at any place in the world.

Targeting terrorist financing is a key element in the fight against terrorism. All like-minded nations must take whatever measures are necessary to ensure that no country anywhere in the world can get away with giving support to terrorists. And those who freely choose to raise funds to sustain terrorist organizations bear the same guilt and responsibility as those who actually carry out the terrorist acts. This distillation of terrorism into its basic elements makes no effort to ascribe value to the motives of the actors, and gives equal weight to terrorist acts directed toward foreign states and to persons who provide support for such acts. Terrorist violence and such activities in support of violence may be carried out in the name of independence, freedom, or religious belief.

Over the past fifteen years, a disturbing trend has been witnessed as terrorists move from significant support roles, such as fundraising and procurement, to actually planning and preparing terrorist acts. In order to carry out these efforts, terrorists and their supporters use intimidation and other coercive methods in immigrant communities.

1.2 Background of the study

Prior to September 11th, 2001 the issue of maritime security was related to stowaways, armed robbery and piracy especially focussed in various parts of the world such as Indonesia, Somalia, Brazil, Argentina and Nigeria where armed attacks on shipping interests were carried out for economical gains. This caused terror in the shipping community where loss of life and property was ever increasing. IMO had been trying to address the matter of maritime security with due attention to piracy, and armed robbery, issuing guidelines and circulars to shipping interests. Armed robbery is committed in third world countries by thieves primarily for stealing stores to make some money. Piracy is carried out by professionals with sea background with ulterior motives of killing the crew and selling away the ship. The International Maritime Bureau was established in 1980 under the aegis of the International Chamber of Commerce (ICC) to deal with maritime fraud, the menace of piracy and armed robbery and to educate the ship owners and operators about precautions to be taken in this regard. This body has been responsible for many developments in maritime security including the Commercial Crime Bureau, Counterfeiting Intelligence Bureau and Cyber Crime Unit. IMB has a piracy-reporting centre at Kuala Lumpur. It even helps ship owners in securing the release of a hijacked ship by mobilising war ships.

The acts of terror in USA on September 11th by terrorist groups sent shockwaves throughout the world. Various nations and USA in particular wrote to IMO to take up issues of maritime security in changed scenario to bolster ship and port/terminal security. Various issues relating to ship security, port/terminal security, and lessons learnt from airport security and impact of terrorism on economy/policy evoke keen interest for in-depth study. Existing international legal and technical measures to prevent and suppress terrorist acts against ships at sea and in port need to be reviewed to improve security aboard and ashore. The aim is to reduce risks to passengers, crews and port personnel on board ships and in port areas and to the vessels and their cargoes.

1.3 The role of IMO in fighting terrorist threat

IMO has as an integral part of its mandate the duty to make travel and transport by sea as safe as possible. The aim is to reduce risks to passengers, crews and port personnel on board ships and in port areas and to the vessels and their cargoes.

Concern about unlawful acts which threaten the safety of ships and the security of their passengers and crews has been addressed by IMO since the 1980s.

After the *Achille Lauro* incident in 1985, The United Nations General Assembly called upon IMO in December 1985 to study the problem of terrorism aboard or against ships with a view to making recommendations on appropriate measures.

IMO adopted Assembly Resolution A.545(13) Measures to prevent acts of piracy and armed robbery against ships, to address the specific problems relating to piracy and armed robbery.

In 1985, IMO's 14th Assembly adopted resolution A.584(14) on Measures to prevent unlawful acts which threaten the safety of ships and the security of their passengers and crews.

Resolution A. 584(14) notes "with great concern the danger to passengers and crews resulting from the increasing number of incidents involving piracy, armed robbery and other unlawful acts against or on board ships, including small craft, both at anchor and under way". The resolution invited the Maritime Safety Committee (MSC) to develop detailed and practical technical measures to ensure the security of passengers and crews on board ships, taking into account the work of the International Civil Aviation Organization (ICAO) in the development of standards and recommended practices for airport and aircraft security.

In September 1986, the MSC approved MSC/Circ.443 on Measures to prevent unlawful acts against passengers and crew on board ships, intended for application to passenger ships engaged on international voyages of 24 hours or more and the port facilities which service them.

Apart from drafting and revision of technical preventative measures advocated by IMO, it is also important to ensure that criminals who have perpetrated acts of violence at sea be properly brought to trial and punished. IMO's Legal Committee is to review the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation, 1988 and the Protocol for the Suppression of Unlawful Acts against the Safety of Fixed Platforms Located on the Continental Shelf, 1988 (the SUA treaties).

The Legal Committee, which met for its 83rd session from 8 to 12 October 2001, has agreed to include the review of the SUA treaties as a priority item in its work programme for the years 2002-2003.

The main purpose of the SUA Convention is to ensure that appropriate judicial action is taken against persons committing unlawful acts against ships, which include the seizure of ships by force, acts of violence against persons on board ships, and the placing of devices on board a ship which are likely to destroy or damage it. The convention obliges contracting governments either to extradite or prosecute alleged offenders. The Protocol provides similar regulations relating to fixed platforms located on the continental shelf.

The measures state that Governments, port authorities, administrations, ship owners, shipmasters and crews should take appropriate measures to prevent unlawful acts that may threaten passengers and crews. The measures stress the need for port facilities and individual ships to have a security plan and appoint a security officer. The measures describe in detail the way in which security surveys should be conducted and the security measures and procedures, which should be adopted. Another section covers security training.

Terrorist acts in Europe in the 1970s such as attack on Israeli athletes in 1972 Munich Olympics, 1977 kidnapping and murder of German industrialist Hans Martin Slayer and later in 1978 abduction and assassination of former Italian Prime Minister Aldo Moro laid the groundwork for the European Convention on the suppression of

terrorism (ECST 1978), sponsored by the council of Europe. It was a cooperative effort to mesh extradition policies and laws of signatories in order to enhance the prosecution of terrorists on the principle of *aut dedere aut judicare* (either extradite or prosecute). ECST however allowed the states to 'register a reservation' which then permits to deny the request for extradition preserving state's prerogative to grant asylum to terrorists. ECST is not considered successful in reducing terrorism. Although many states (UK, Germany, Denmark, Norway, Sweden, Austria, Spain, Cyprus and Iceland) have ratified the convention, but France and Ireland have not done so due to obvious reasons. Terrorism was not defined in this case and no jurisdiction of International court set up.

Organization of American States (OAS) Convention on Terrorism in 1981 and many such multi lateral agreements and conventions such as Nordic league in 1962 have not been effective in curbing terrorism. (Schlagheck, 1988, pp 126-129)

1.4 Regional Terrorism

The government of India has a new law for prevention of terrorism after the promulgation of the POTA (Prevention of terrorism act 2002) on 15th December 2001 where action can be initiated on crimes related to terrorism.

This law was passed by the parliament only after extensive discussions in both houses. There were allegations from political rivals that the possibility of misuse of this law for political gains cannot be ruled out. This law replaces the TADA (Terrorist and disruptive activities) Act, which was enacted in 1994 after serial blasts in Mumbai, India in 1993. The new law had become a neccesity after the repeal of the TADA Act a few years ago due to accusations of abuse against minorities. Such unlawful activities have been on the increase in the northeastern part of India (Assam), southern part of India with neighbouring Sri Lanka (LTTE) and neighbouring Nepal saddled with problems of Maoist Rebels. There are also massive

terrorist activities in Jammu and Kashmir having moral, political and diplomatic support from Pakistan. Fortunately the Mr K.P.S. Gill, a senior Sikh police officer, known as super cop of Punjab had eliminated acts of terrorism sponsored by the neighbouring country in Punjab (India). Though retired, he has offered his services to government of India to tackle terrorism, as it exists now in Kashmir.

Terrorism has cost the lives of two prime ministers of India, Mrs Indira Gandhi in October 1984 slain by her own Sikh bodyguards due to actions against the Sikh golden temple and her son Mr Rajeev Gandhi in May, 1991, killed by a human bomb from LTTE due to the Indian army's incursions into Jaffna to assist Sri Lankan government.

1.5 International security initiatives

In the wake of the tragic events of 11 September 2001 in the United States of America, UN Secretary-General Mr. Koffi Annan and all state heads condemned the acts of terrorism in all their form. UN passed on the responsibility of initiating steps to ensure maritime security to its specialized body IMO. IMO has since then been working on the need to review the measures already adopted by IMO to combat acts of violence and crime at sea. USA introduced security initiatives at the IMO by writing to the Secretary General (SG) for hasten the process of new regulations for early implementation due to persisting threats in many regions of the world. Meanwhile container security initiatives by the US government are progressing well with many nations cooperating and 20 mega ports exporting to USA are likely to be covered soon. US government has stated that it reserved its right to go ahead and unilaterally legislate on maritime security incase of failure of the international forum within a specific timeframe. And then all the ships, ports and the cargo with exports to US will have to comply with the new law.

(Similar move has earlier been taken by USA after Alaskan grounding of MT Exxon Valdez in March, 1989 about Oil Pollution damage by making Oil Pollution Act

1990. The oil spill from the tanker had resulted in heavy ecological damage and heavy claims on EXXON evoking very critical response from the politicians. The concept of double hull tankers and very high fines in case of pollution of US waters originated from this act.)

The 22nd Assembly of IMO, which met at the Organization's London headquarters from 19-30 November 2001, by adopting resolution *A.924(22) on 29.11.2001* agreed to hold a Diplomatic Conference on Maritime Security in December 2002, to adopt new regulations to enhance ship and port security and avert shipping from becoming a target of international terrorism. The Assembly also agreed to a significant boost to the Organization's technical co-operation programme of UK£1.5 million, to help developing countries address maritime security issues.

This decision followed the adoption of a resolution put forward by Secretary-General William O'Neil on Review of measures and procedures to prevent acts of terrorism, which threaten the security of passengers and crews and the safety of ships.

An Intersessional Working Group (ISWG) was formed to draft new security measures as per submissions from the USA and other countries. An ISWG meeting was held in February 2002 well in advance of the next session of the MSC in May 2002, and started on the review called for in the Assembly resolution. ISWG prepared a list of subjects to be further discussed. These subjects were forwarded to the MSC. The Legal and Facilitation Committees would consider proposals and information on maritime security issues submitted by Member Governments and international organizations; and prepare a work plan and timeframe.

ISWG meeting would be funded by the United States, It will submit a report to the MSC – which itself would convene a special Working Group at its May meeting to progress the work further.

The efforts for making new regulations enabling protection of ships and cargo from acts of terrorism continued during the 75th session of the MSC held from 15th to 24th May, 2002. During the session, ISWG submitted its interim report to MSC 75. ISWG

will meet again in September 2002 to review MSC deliberations and finalize its proposals such as the International Maritime security Code (IMSC). The Diplomatic Conference will be held from 2nd to 13th December 2002 alongside MSC 76.

As decided by the MSC the new regulations would be incorporated in the International Convention for the Safety of Life at Sea (SOLAS) Chapter XI on Special Measures to Enhance Maritime Safety – the title of which will be amended to include maritime security. It was discussed during the MSC 75 meeting that the special measures to enhance maritime safety will remain in Part A. And special measures to enhance maritime security measures will be covered in Part B as regulations 5 onwards up to 16 and IMSC will be added as an annex with its mandatory and recommendatory parts. It was also discussed that IMSC will be meshed with the ISM code in future. It was not considered appropriate by the MSC to interfere with ISM code at this stage as Phase II implementation was going on and the deadline of 1st July 2002 had to be met.

Other amendments might be proposed in relation to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), which will involve training of security officers on board ships. An amendment to Chapter V Regulation 19 on safety of navigation (Carriage requirements for shipborne navigational systems and equipment) is also proposed.

1.6 Research methodology

The development of new efforts on maritime security by international fora to take action aiming at prevention and suppression of terrorism against shipping and ports has been studied in depth by online research and otherwise. The threat to shipping, ports, and oilfield terminals from terrorism and counter measures will be studied in detail. Through interaction with the shipping and port industry and by visits to the local and nearby ports an aim of security arrangements and assessment of awareness of people has been undertaken. Airports and airlines have taken security measures in

the recent past; these improvements could be used to modernize maritime security. The impact of terrorism on economy and policy has been studied with the latest repercussions that may have long-term effects. Extensive research in context of attacks on America has been conducted to find and suggest recommendations and conclusions.

In order to complete the work within the time limits, it has been necessary to decide upon a point in time up to which evolving news can be taken into account. Topic is still in the news and evolving. The cut off date for research has been decided as 26th of August 2002. Any further developments after this date may not be covered within this dissertation.

CHAPTER TWO

THREAT TO SHIPPING SECTORS AND COUNTER MEASURES

2.1 Brief history

The Achille Lauro was an Italian cruise ship hijacked off the Mediterranean coast of Egypt on 7th October 1985 by members of the Palestinian Liberation Front (PLF), who demanded the release of Palestinian prisoners in Israel. The hijackers were induced to surrender by Egyptian President Hosni Mubarak and PLF leader Mohammed Abbas (alias Abu Nidahl). More than 400 passengers and crew of the Achille Lauro were released, but the hijackers had killed an invalid Jewish American passenger, Leon Klinghoffer. When Abbas and the hijackers boarded a commercial airliner to Tunisia, United States jet fighters forced the aircraft to land at a NATO air base in Sicily. An Italian court sentenced the Palestinians who carried out the hijacking to prison terms ranging from 15 to 30 years.

The effect on the cruise industry was dramatic and as a result the International Maritime Organization (IMO) of the United Nations was tasked to produce an international standard of security for passenger ships. A Security Resolution was adopted by the IMO in 1986 and this has been followed by a series of maritime security legislation enacted by the USA, the UK and Canada. It is therefore true to say:

Achille Lauro was to security as the Titanic was to safety.

A new dimension has been added to the threat to the shipping sector after the September 11th incidents. Maritime transport is always exposed to the perils of the sea. Now one has to also think about frightful possible use of a ship for carriage and launching of nuclear (dirty bombs), biological (release of bacteria and the viruses in environment) and chemical weapons (release of harmful gases such as in the nerve gas in environment) by unlawful terrorist organizations.

How best to design and implement effective maritime security measures that will successfully defend the trading and transportation system from terrorism – while preserving the efficiencies and benefits which consumers, businesses and every national economy derive from today's globalized system. Meeting that challenge is not a simple task. "Maritime security" covers a variety of different, distinct industries and elements, including inland waterways, port facilities, marine terminals, non-maritime facilities located on navigable waters, even bridges, cruise ships, tankers of various types, and the liner industry.

The immediate challenges are to design security processes and deploy the capabilities necessary to minimize, detect and intercept security risks as early as possible – before they are loaded aboard a ship for delivery to their destination, and to have the systems and international protocols in place to ensure the efficient flow of international commerce during all possible security conditions. The system that facilitates world trade must be protected and to prevent transportation assets from becoming means of delivering destruction. Protect the lives of people who make the international trade system operate and who work and reside in areas through which trade flows. It is imperative to protect a nation's ability to continue its trading relations in the event terrorists do attack. Further, it must be recognized that this

terrorist threat is not going to go away, but only become more challenging to address as world trade volumes grow. It must be prevented.

For that reason, what is at issue is not just maritime security, or the even global, intermodal transportation system, but the flow of international trade and the world's economic health. Everyone agrees with the need for transport operators to practice a "safety culture". However, there can be some confusion as to what it really represents, especially as the effective implementation of the STCW 95 and ISM Code should achieve the same broad results.

There is no single solution for this problem. No single government agency can solve this problem. No single government can solve this problem on its own. Every commercial party involved in the transportation of cargo has a role to play. Every government has a role to play. Designing and implementing an effective maritime security program will require cooperation, information sharing, and coordination between government and industry.

That is the reason why International Maritime Organisation has been assigned the role of bringing together all nations on a common platform to find a solution to the new challenge of maritime security. There should be clear, mandatory rules informing all responsible persons in the transportation chain what is required of them. Voluntary programs designed to provide enhanced security levels and to expedite the transportation of low risk cargo are important and should be pursued .

Shippers, consignees, carriers, ports and terminal operators all fear that in the endeavour to address these security concerns, the free and efficient flow of commerce will be impeded. Such requirements may be imposed that unnecessarily impede commerce and raise operating costs, but do little to improve security. This is an entirely legitimate concern. The answer, however, is not to delay action. What is needed is for the governments to clearly identify the level of perceived threat in the

region and define new security requirements, so that the entire maritime industry may work cooperatively with the government within a time frame to determine the best, most efficient way to meet them.

It is too early to be certain which measures will be approved later this year by the IMO and thus become internationally binding requirements, but the reports on the IMO effort was very optimistic. As an international industry operating vessels with multinational crews, and under the jurisdiction of many different flag administrations, and calling ports in many different countries, many companies representing maritime interests would prefer that, to the greatest extent possible, mandatory vessel security measures be agreed to at the international level. Clear and uniformly applied and enforced rules would create certainty and clarity for the vessels and their crews and help protect against breaches in, and of, the international supply chain.

2.2 Issue of transparency of ownership

The ownership of merchant ships is not always known by the flag administration and is often not relevant when the owner places responsibility for a ship in the hands of a third party, assigning full management of the vessel.

The author during a field trip from World Maritime University to Piraeus, Athens, Greece came across ship management companies who have a number of ‘One ship companies’. They manage these ships as a conglomeration of companies and pass on the benefits to the owners. These are private limited companies and as per existing rules their annual accounts are not to be published. So, no one actually comes to know the real beneficiaries. Rich men, including politicians using Swiss accounts invest large sums of money into the shipping business and never really get involved with the day to day nitty gritty of conducting shipping activities. A quality registry must endorse and certify ship data. However, the need for operating transparently with respect to all ships in a fleet would not necessarily include ownership details. It

is not appropriate for countries to make hue and cry about sovereignty of the flag state when important issues such as this are raised for the sake of security.

Greeks opine much of the concern about not going too deeply into beneficial ownership, suggesting that the focus should be on obtaining information, which would be most relevant and efficient for the enhancement of maritime security. (Issues of ownership, 2002, May 3rd)

The chairman of the IMO's ISW Group on Maritime Security, Mr Frank Wall, suggests the issue should be deflected away from the complex issues of ownership and boiled down to just three questions. Who appoints the crew? Who fixes the use of the ship? Who signs the charter party on behalf of the owner? Answer these and we have identified those who have "responsibility", and that surely is an advance. (IMO NEWS 2002)

Exactly the same logic applied with the implementation of the International Safety Management Code, where the managers were deemed the controlling interest and a designated person who had true responsibility was identified.

The US has taken up this issue very strongly with the view of finding dubious owners who may indulge in use of a ship as the carrier of men and material of terrorists. One would hope that the US will be convinced that to determine the identity of those responsible for the crew, the ship and the charter party will be sufficient in establishing those in control. The worst of all possible worlds will be the imposition of some sort of unilateral regime, in which the operators of a ship bound for the US find they have to jump through costly and impractical bureaucratic hoops that in reality do nothing to deter terrorists from any dabbling in ship ownership.

2.3 VDR retrofitting

Proposals concerning the retrofitting of Voyage Data Recorders (VDR) will be very beneficial as is the case with the airline industry. The industry recognizes the benefits

of the mandatory fitting of VDR on new buildings (which will apply to most new ships after July 2002). This new equipment with possible float free arrangement will go a long way in casuality investigations (especially if linked to terrorist activities) and help ascertain actual causes of an accident that then can be remedied.

Some continue to have doubts about IMO and EU proposals to require retrofitting of VDR on existing ships. In addition to estimated costs of some $100,000 per ship, expensive and relatively modern bridge equipment may have to be replaced due to incompatibility with VDR being marketed. It seems unlikely, moreover, that the high costs involved will be offset by the benefits. Unlike aviation, it is very rare for there not to be a survivor after a casualty who can recollect preceding events, and given that data concerning ship structure will not be recorded by the type of VDR which it is practical to retrofit, the value of any information retrieved is likely to be limited.

2.4 International Maritime Security Code

Upon initiations by the United States of America and directives from the United Nation's Security Council, IMO's assembly in December 2001 appointed an Intersessional Working Group under MSC to look into maritime security issues and suggest measures for prevention and suppression of acts of terrorism against shipping and ports. The ISWG met in London from 11th to 5th of February 2002 for its first meeting to discuss and prepare its proposals.

The International Maritime Organization reported that its Maritime Safety Committee has made progress in its work on maritime security during its meetings on May 15th to 26th, 2002. The ISWG of MSC will have a second series of working group meetings on security on September 9-13 in final preparation for MSC76 and a diplomatic conference in December 2002. The Maritime Safety Committee has accepted a new "International Maritime Security Code," which would be implemented through the Safety of Life at Sea Convention. The new regulations will be incorporated in Chapter XI Part B as mandatory and recommendatory rules. The

security code takes the approach that ensuring the security of ships and port facilities is basically a risk management activity and that an assessment of the risks must be made in each particular case to determine what security measures are appropriate. The purpose of the security code is to provide a standardized, consistent framework for evaluating risk, enabling governments to offset changes in threat with changes in vulnerability for ships and port facilities.

To begin the process, each government would need to conduct port facility security assessments. This risk management concept would be embodied in the IMO security code through a number of "minimum functional security requirements" for ships and port facilities. For ships, these requirements would include ship security plans, ship security officers, company security officers, and certain onboard equipment.

> Because each ship (or class of ship) and each port facility present different risks, the method in which they will meet the specific requirements of this code will be determined and eventually be approved by the administration or contracting government, as the case may be. (IMO 2002 A)

To communicate the threat at a port facility or for a ship, the relevant government would set the appropriate security level. *Security levels 1, 2, and 3 correspond to low, medium, and high threat situations,* respectively.

> "The security level creates a link between the ship and the port facility, since it triggers the implementation of appropriate security measures for the ship and for the port facility,"(IMO2002c).

The draft preamble to the proposed security code states that, as threat increases, the only logical counteraction is to reduce vulnerability.

IMO's Maritime Safety Committee requested the IMO Secretary-General to communicate with the World Customs Organization concerning the coordination of work, in particular with regard to container security.

2.5 Automatic Identification System

Automatic Identification System should be installed on all ships as soon as possible within the provisions of amendments to SOLAS chapter V/19, which entered into force from 1st July, 2002 with a phase-in schedule that begins in 2002 and ends in 2008 depending upon the ship type and tonnage.

ISWG has recommended an accelerated installation of AIS by July, 2004 and during the discussions there were indications from the representative of the International Radio-Maritime Committee (CIRM) that they did not have a problem with the equipment manufacturers meeting the accelerated AIS carriage date of July, 2004 for all of these ships. Accordingly new amendments to rule 19 of chapter V are proposed by the ISWG that would require AIS to be installed not later than the first survey for safety equipment on or after 1st July, 2004 or 31st December, 2004 which ever occurs earlier retaining the date of 2008 for the installation of AIS on ships not engaged on international voyages. (See Figure 2.1)

The provision of future long-range interface has been discussed and further technical details are being worked out and evolving. This suggestion will be subject to ratification by the MSC 76 and the diplomatic conference in December 2002.

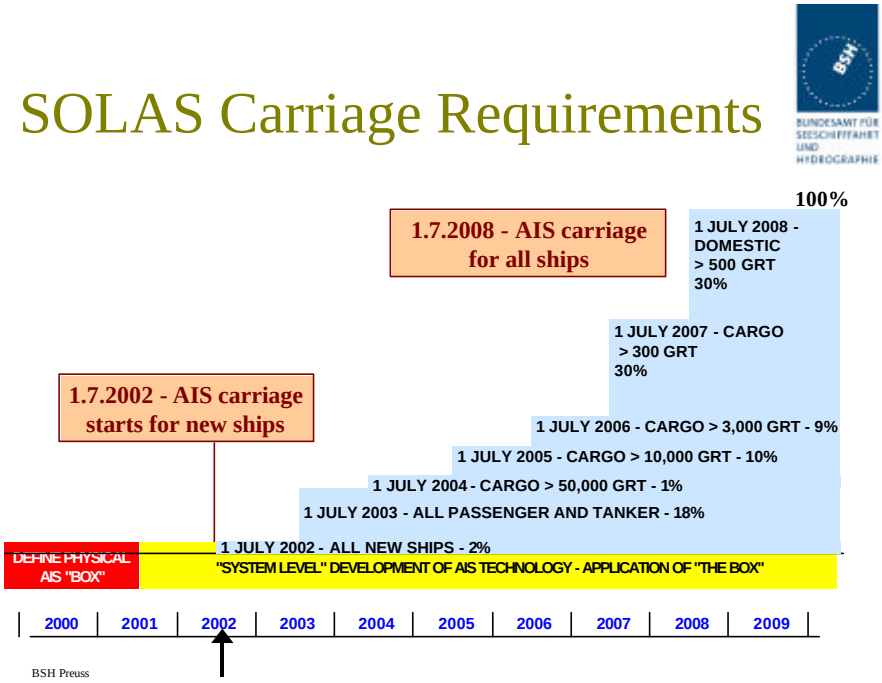

Figure No. 2.1

Source: BSH, Germany

2.6 Seafarer's Identity

Verification of a seafarer's identity has until now been based on his national passport and continuous discharge certificate which serves the purposes of travel as well as service records. This has been an internationally accepted procedure. The post September 11th scenario is talking about biometrics applications such as unique finger printing with digital signatures.

The ISWG on maritime security has suggested to the MSC to include in SOLAS a requirement for seafarer's identity verification. It was agreed that there was a need for an updated seafarer identification document. The Secretary General of IMO has written to the Director General of the ILO requesting early action on this matter. As

an alternative arrangement to this it was agreed to incorporate text for Seafarers Identity Documents into Chapter XI of SOLAS in case the first plan failed. There was detailed discussion on this matter in the MSC 75 meeting on 15th of May 2002 in IMO, (when the author was witnessing proceedings of the MSC during the field trip from WMU). ILO was urged to make this matter a top priority.

ILO conveyed to member states a plea for faster ratifications to proposed amendments by the ILO after the international labour conference in June 2003. The ILO Director-General would bring a new protocol to amend the ILO Seafarers' Identity Documents Convention of 1958 (No. 108) to be developed for adoption by the ILO General Conference in June 2003.

It is proposed that the seafarer's identity document should have the following elements contained in the document or in the system supporting it; digital photograph, holder's signature, issuing authority, proof of nationality, positive identification of mariner's qualification, permission to enter other countries and biometric templates. It must have the ability to gather and exchange information among member states to assure entry and exit of seafarers, which is only allowed to those with valid and properly issued documents. This would ensure that no unlawful persons gain entry under the guise of being a seafarer to the member states to indulge in unlawful activities and harm the nation.

During the discussions in the MSC 75 meeting some countries opined that tamper proof national passports with digital signatures and biometric templates could also be used instead of a new document.

The US Government has already severely restricted the issue of visas by the Coast Guard to ship's crew on arrival at a US port. They are expected to obtain a visa like a supernumerary prior to the entry into a US port and the tired and secluded seafarers are being denied shore leave. Certain exceptions to non-suspect ships and friendly nations are made while issuing limited visa depending upon the background of the persons on board.

2.7 Means of Alerting

The ships crew has felt the need for discreet means of alerting shore authorities when under attack by pirates or potential terrorist. This is required because the unlawful elements after boarding the ship, seizing the control of navigation and communication from the Master of the vessel. The intersessional meeting of the MSC Working Group on Maritime Security that met from 11th to 15th February 2002, considered a comprehensive set of proposals to improve maritime security. One of these proposals was for a means of providing a capability for seafarers to activate an alarm to notify authorities of a pirate or terrorist hijacking. The ship's crew, through GMDSS, should be able to send a piracy alert and this same facility could be used to provide a terrorist alert. The Maritime Safety Committee has issued a circular MSC/Circ 623 (Guidance to ship owners and ship operators, ship masters and crew on preventing and suppressing acts of piracy and armed robbery). MSC's subcommittee on communications and search and rescue (COMSAR) has reported to MSC75 and provided guidelines to Rescue Coordination Center (RCC) actions when receiving a piracy alert. These issued instructions advise RCCs to be aware that when a piracy alert is received, to avoid communicating with the ship to verify the alert or to broadcast the information to other ships in the vicinity may endanger the ship's crew. MSC's subcommittee on ship design and equipment (DE45) agreed that carriage requirements for a ship security alarm would be necessary and based upon this prepared a draft text of the new Safety of life at Sea regulation for a ship security alarm.

The International Maritime and Satellite Organization (IMSO) and INMARSAT Ltd during discussions with subcommittees, indicated that ship security alarm facilities would be available in 2003. The modifications to a ship necessary to install this means of alerting are quite minor and involve electric cabling and switching systems. Some method of indication of alert having been sent is also proposed. A deactivation provision is not required since this system will send a single alert signal and not a

continuous alert signal. Instructions on procedure to cancel a false alert will also be incorporated in the new regulations.

2.8 Ship Security Plan (SSP)

All ships of 500 Gross Tonnage (GT) and above engaged in international voyages will be required to carry ship security plans (SSP). A ship-by-ship approach is critical because few ships are built the same; thus, the security plan will vary from ship to ship. The type of cargo and the sailing route are also critical factors. A security plan which has been scrutinised by competent authorities to ensure that it provides adequate measures to safeguard the vessel, cargo and crew against any identified threat. Providing a security for ships is essentially about providing adequately trained people to do the job properly. It is interesting to see the focus on SOLAS and the link with ISM Code but no consideration being given to upgrade safe manning levels.

It is required under the IMS Code to maintain a current security plan, in writing, on board the ship, containing a description of security precautions implemented. The plan must contain a summary of actions to be taken in the event of a bomb threat, a threat or occurrence of armed attack, hostage taking or hijacking

Shipping companies need to ensure that a ship security plan is drawn up and made thoroughly known to the crew. The ship security plan should cover anti-boarding measures to be taken against pirates, methods to minimize damage, notification to the appropriate authorities, education and training. The ship security plan should cover stronger security measures, which take into account brutal and organized incidents including hijacking.

Considering that many incidents have occurred while ships are berthed, anchored or adrift in or near ports, shipping companies should develop countermeasures, such as checking suspicious persons while loading or unloading, as ship-security measures while mooring in port or immediately before and after leaving port, particularly at night.

In order to be able to cope with brutal and organized incidents including hijacking, shipping companies should plan for the introduction of high-tech devices such as pirate intrusion alarms, and increase their security surveillance with regard to pirates. Shipping companies should develop means of monitoring their ships' movements so as to be able to detect oddities as fast as possible in the event that an incident of piracy and armed robbery against ships occurs at sea, particularly in case of a hijacking incident where the ship cannot alert relevant authorities. While the ship is in an area where piracy and armed robbery against a ship is frequent, regular reports from the ship to the related shipping companies should be made more frequently.

The list of security personnel, including a screening officer, Master and ship operator has to be kept and means of contacting each of them. Methods of searching and screening should be implemented at checkpoints, to be able to detect any weapon, explosive or incendiary device. Search methods may range from hand searches, to metal detection and X-ray equipment.

Break bulk cargoes need to be visually examined in the warehouse prior to the vessel coming alongside and definitely at the pier. Container security is being talked about all the time but it is highly possible to hide unlawful cargo in a packaged cargo such as project cargo or even in vehicles. Exercising caution while loading cargo especially in vulnerable areas need not be over emphasised.

Access to the bridge, engine room, and communication room must be restricted to authorized personnel. A prominent notice in at least the official languages of the country and in English at each access point must indicate restricted areas.

The report of the occurrence or the threat of occurrence of any security related issues should be passed on to company's security officer for assessment and necessary action.

IMO has defined security levels as follows,

Security Level I means the new maritime security normal state. This is the risk level for which protective measures must be maintained for an indefinite period of time.

Security Level II means there is a heightened threat of an unlawful act against a port facility or ship and intelligence indicates that terrorist activities or unlawful acts are likely to occur within a specific area

Security Level III means an unlawful act against a port facility or ship is probable or imminent. Intelligence may indicate that terrorist activities or unlawful acts are going to occur to specific targets, though it may not be possible to identify such targets. Additional protective measures are not to be sustained for substantial periods of time. (IMO, 2002 c)

The security measures initiated on board may include but not be limited to the following**.**

Access control

• Hardened doors and windows to restricted spaces;

• Locks as a means to secure access to restricted spaces, access points to the Vessel, and unmanned spaces accessed from the weather deck;

Surveillance

• Cameras and transmission equipment to permit shore-based monitoring of incidents on the bridge;

• Radar, closed circuit television or other devices to detect potential threats approaching or accessing the ship from all directions;

Lighting

• Lights to illuminate decks and access points, and to illuminate the ship's hull and water surface surrounding ship at the highest security level;

Screening

• Equipment, such as metal detectors, to assist in screening persons, personal effects, stores, non-containerized cargo, and vehicles;

Alarms

• Automatic intrusion alarms to alert crews of entry to restricted spaces;

• Alarms to alert crews of security incidents at access points; and

Communication

• Hand held radios as means of immediate communication with security patrols and other watch keepers. UHF portable radios may be preferable to VHF portable radio telephones which are very common and susceptible to monitoring of on board communication by unlawful elements.

2.9 Ship Security Officer (SSO)

IMO has defined the ship's security officer (SSO) as;

the person on board the ship responsible to the master/person in charge and operator for on-board security, including implementation and maintenance of the ship security plan and for liaison with the Port Facility Security Officer and the Company Security Officer. (IMO, 2002c)

It has been proposed that a ship security officer be appointed. This proposal raises several questions. Are ships currently adequately staffed to assume the additional responsibilities of a ship security officer? Will he have the authority to reject joining crew or reject a port facility should there be a threat to the vessel? There are many unanswered questions at present which perhaps will emerge more clearly after IMO adopts the Maritime Security Code.

A model course for training of SSO is under development presently at the IMO. The first course will be conducted in the autumn of 2002 by IMO to train the first group of officers who will then carry forward the course in their own countries. The course will deal with IMO guidelines, the role and responsibilities of the company and ship security officers, the role of the ship security team, the use of secure areas, threat and vulnerability assessment, communication inside and outside the ship, defensive and preventive measures, the ship/port interface, port security and interface control, lighting, alarm, contingency planning, reporting procedures and legal aspects. (Videotel, 2002)

Maritime Administrations will be left with a lot of inspection of ships and port facilities and approval of plans to be carried out. SSO will be responsible for coordinating training of the crew on board.

2.10 Ship Security Survey

Since a security survey can be a double-edged sword, so far as negligent security issues are concerned, it is imperative that those responsible for conducting and reviewing such surveys understand the industry standards that apply, as well as the ramifications of applying them. The only recognized industry standards for maritime security are the IMO security recommendations. A standard ship security survey checklist should be available to the industry. In fact, the classification societies are already at work and planning to take on this responsibility should it not be possible for administrations to undertake this work.

2.11 Ship Security Certificate

Initially a security survey as per IMO guidelines will lead to the issue of an International Ship Security Certificate by the Maritime administration, valid for 5 years or duly harmonized with other statutory certificates. Annual surveys will then be carried out within the window period of plus-minus three months of the anniversary date of the certificate. The sample of a certificate will be available from the IMO after promulgation of the new regulations in early January 2003 applicable from July 2004 or December 2004 depending upon the outcome of the diplomatic conference at the IMO along with the MSC 76 meeting in December 2002.

2.12 Company Security Officer

IMO has defined a Company Security Officer (CSO) to mean the person; "Designated by the operator to develop and maintain the ship security plan and liaise with the Port Facility and the Ship Security Officer". (IMO, 2002c)

His responsibilities are enormous. There are indications that he will also be responsible for proper sealing of containers prior to the shipment from the shipper's premises and it will be necessary to maintain records of such events. He is likely to be a key person such as the Designated Person Ashore (DPA) in respect of ISM Code implementation.

The International maritime security code under chapter XI part B of SOLAS will provide full future guidance regarding responsibilities and functioning of CSOs.

2.13 Continuous Synopsis Record

Every ship will be obliged to maintain a Continuous Synopsis Record (CSR) in the format and as per guidelines being developed by IMO, from 1st July, 2004. It should record the history of the ship in the official language; a copy should be available in English, French or Spanish. It should provide updated and current information together with the history of changes. A CSR will be issued by the flag administration and must contain the name of the ship and flag state, ship's identification number as per SOLAS regulation XI-1/3, date and port of registry, the name of registered owners and their addresses, details about bareboat charterers if any, the name of the company and its addresses from where it carries out the safety management activities, the name of all classification societies with which ship is classed, the name of the administration or organization which has issued DOC to the company and the SMC to the ships and details of the auditors and finally the date on which the ship has changed registry.

As stipulated in new security regulations in SOLAS Chapter XI and the IMSC regarding security certification, the name of the administration or the recognized security organization who will issue the International Ship Security certificate and name of the body who carried out verification should be provided.

Any changes in details must be recorded. No entries shall be modified, deleted, erased or defaced. Whenever the ship is sold or registered again, CSR has to be left on board. Flag state administrations may exchange and share information amongst each other when flag change takes place. It must be kept on board at all times and be available for inspection by authorities as and when required.

Security problems and issues involved on various types of ships will be briefly discussed in the following:

2.14 Cruise and ro-ro / Passenger ferry security

Some of the cruise lines in Florida area are reportedly operating at Level III security mode. Not since October 1985, when four armed terrorists seajacked the Italian cruise liner *Achille Lauro*, have cruise passengers been so concerned about safety.

The cruise lines have instituted stricter security procedures, some of which are enumerated below:

1. No guest visitors will be permitted aboard any vessel. Only visitors authorized in advance through company's security department will be permitted on board.
2. Identification of every person embarking a ship will be carefully checked. Proper photo identification is required in all instances to board the ship.
3. All hand-carried items of both crew and passengers are hand searched in every port.
4. All pieces of luggage are to be scanned.
5. All packages and provisions to be brought onboard are to be scanned with hand-held detection equipment.
6. Security personnel should be stationed at all points of entry to the ship.

7. In addition, every ship should have professionally trained security officers on board as well as many other measures in place to ensure the safety of all on the ship.

Most of the security personnel are former navy or marine officers with extensive maritime experience. Some companies recruit on board security personnel from the ranks of former British Gurkha Regiments. From Nepal, the Gurkhas are renowned as soldiers of the highest caliber.

With tightened security, passengers can expect to experience some delays, both during the initial boarding process and when coming and going in ports of call. Vehicles may be searched before entry into the port area and luggage will be scrutinized, either by hand or x-ray. Travelers should be prepared to carry a photo ID along with their boarding pass at all times. Another very important aspect is that passengers once embarked on departure must remain on board, the same concept as for airline and airport norms. This must be done to eliminate someone planting a bomb and disappearing from the scene of carnage.

By nature of their work, Ro-Ro ships carry the cars of passengers. There is a potential risk of car bomb attacks. A ferry operator has to be cautious about security risks from the cars or trucks and determine what checks are to be carried out now. Physical checks on vehicles must be carried out as terrorist very often indulge in using it as a means of an attack. The checklist for a bomb threat needs to be prominently placed in the wheelhouse and followed in case of a report or threat. Security precautions embrace the safety management system and a failure of shore based shipping executives will reflect badly.

Other ships with special cargoes like hazardous materials, nuclear materials or nuclear waste or other cargoes that could have a significant environmental impact and also remain vulnerable to terrorist activities. Imagine catastrophic outcome of terrorists acquiring nuclear material and making a dirty bomb (stolen or home made) with even a few kilotons capacity. Thousands of innocent people may loose their

lives. This is most dangerous form of nuclear proliferation and poses an exceptional danger. The possibility of nuclear terrorism remains low; the consequences for urban and industrial societies are unimaginable. The facilities that process nuclear materials, nuclear power plants and weapons assembly and storage units must equip their security forces with weapons of firepower better than that a terrorist group might have. (Leventhal and Alexander, 1987, p xiii and 201)

Futuristic biometric devices, which involve fingerprints, eye characteristics, or facial landmarks, may some day have to be utilized by cruise lines as well as airports. A common database created by law enforcement agencies could provide instant identification.

If an easygoing passenger now considered showing up at the pier with the luggage in hopes of booking a last minute discounted cruise ticket, it would not work. Cruise lines no longer accept cruise bookings at the dock. Nor are they booking reservations for cruises with less than a 7-day lead-time. This would prevent any last minute boarding with ill intentions.

2.15 LNG and LPG vessels

Liquefied Natural Gas (LNG) and Liquefied Petroleum Gas (LPG) carriers carry highly dangerous cargo at very low temperatures such as minus 55 to 155 degrees Celsius in liquid form. LPG ships are of various sizes but many of LNG ships are big and carry up to 135,000 cubic meters of cargo. They are being seen as potential bombs if they fall prey to terrorism. These ships are very expensive and cause heavy damage and loss of life if caused to explode, even though they have a very high degree of in-built safety systems for normal ship operations.

It has quite often been heard about LPG domestic gas leakages, explosions in storage godowns and refinery fires in the vicinity of LPG storage. These fires and a *boiling liquid expanded vapor explosion (BLEVE)* have caused heavy damage and loss of

life. One can very well imagine the consequences if a whole ship containing thousands of tonnes of LPG or LNG were to catch fire and explode. The fire could well be carried to the terminal and storage sites in an industrial town where a power plant, refinery or fertilizer industry may be located. This would have a snowballing effect and causalities would be very heavy.

2.16 Crude oil, product oil and chemical tankers.

The crude oil VLCCs of 300,000 MT and the ULCCs of up to 500,000 MT deadweight capacities are plying the seas carrying vital fuel from production sites to refineries. The crude oil with flashpoints down to minus 40 degrees Celsius can pose a major threat to the port and city infrastructure including the refinery even though protected with inert gas controlled atmosphere in the cargo tanks. The petroleum product tankers with cargo of naphtha, petrol with very low flash points have to be provided a high level of security as many of these terminals are in big towns and can cause heavy damage.

Chemical tankers carry highly corrosive and obnoxious cargo e.g. sulphuric acid and ammonia. A cargo of ammonia, if adulterated with something else and released into the atmosphere in zero wind condition may cause debility of the nervous system.

2.17 Container ships

Container ships of the capacity of 6600/7500 TEUS are the main line ships running from continent to continent-carrying bulk of the liner cargo. The feeder ships of about 300-400 TEUS capacity are used to connect smaller ports to hub ports. During multimodal transport a container is stuffed at the shipper's warehouse and trucked to the railway terminal, reaches a sea port and is stacked in the yard, and then it is eventually loaded on board a liner ship for sea transportation. The reverse process of

the same occurs at destination from discharging port to its final journey to the consignee's warehouse where the container is destuffed within a week or so, beyond which detention charges have to be paid by the consignee to the multimodal operator or directly to the carrier depending upon the contract of carriage. The box then awaits its new cargo for a new destination.

Now it is becoming mandatory to have electronic bills of lading and the cargo manifests arriving at the discharging ports few days prior to the ship's arrival (96 hours notice) so that these can be scrutinized by the Customs prior to release of cargo. If the cargo documents get delayed, the discharge of cargo may commence only after scrutiny of documents unless authorized authorities have done preloading checks for free flow of cargo. The US government has their Customs officers already based at Hongkong, Singapore, Canadian ports and Le Havre in France with new arrangements with these countries. The US government is apprehensive of shipment of weapons of mass destruction in containers are therefore and making new federal regulations. International regulations are being discussed at the IMO and in the process of legislation at present. The new maritime law on maritime transportation is likely to be promulgated after the diplomatic conference at the IMO in December 2002.

US government's container security initiative now looks forward to 24 hours notice of the contents before being loaded in a container. The issue has been left open to carriers and shippers for 30 days to find their reaction. International Chamber of Shipping secretary general Chris Horrocks, has described this initiative as the most potentially disruptive and challenging of a range of recent US-brokered moves to craft a more watertight international maritime security regime. He has said that this new move could deliver a real shock to the system. Efforts to tighten maritime security by requiring 24-hour advance notice of the contents of US-bound containers before loading at a foreign port will have a major impact on carriers, leading industry executives have commented. (Horrocks, 2002, August 13th)

It is proposed in new US federal anti terrorism law concerning transportation that any state not cooperating with the international maritime community on carriage of cargo, may be subjected to boycott of the country, or economic sanctions imposed on it. Such unilateral step must be avoided for facilitation of trade unless there exist evidence for involvement of that nation in terrorist activities.

However the author is of the opinion that area of vulnerability and perceived threat from the region should be the criteria to assess the threat levels. Particular ports and the nation have to be treated on par and flow of free trade through the supply chain in the world not impeded. Otherwise the call for unified world and globalization will go disarray.

Some countries such as USA, UK and Canada have new maritime security act already passed and in place to fight terrorism. Even India, a subcontinent with large maritime boundary is facing renewed threats from terrorism, and will to have to pass the Maritime Security Act. Prevention Of Terrorism Act to deal with the terrorist was passed by the Indian parliament in December 2001. Security to the ships and terminals in all such cases must be enhanced to high level, as terrorists are not likely to relent. The will of alert and vigilant citizens to fight terror will help minimize risk of any future attack. Awareness and preparedness and security drills practiced periodically will convey the message that people are ready to face it.

CHAPTER THREE

THREAT TO PORTS, TERMINALS AND COUNTER MEASURES

Ports are important national infrastructure and valuable assets for free movement of goods in times of peace, natural calamities, internal strife and war. They are a vital component in national security and economy. It is necessary to have best practices and innovative strategies for balancing the competing needs of economic efficiency and risk containment. It is essential to have new technology and methods that will allow the inspection officials to substantially increase the successful scrutiny of millions of containers as they get ready for shipment or they reach destination for delivery to the consignee, the buyer of goods.

A scaring scenario was described in a newspaper: A huge ship packed with explosives or carrying a cargo such as oil or gas, docks in the centre of a large city. It has been hijacked by terrorists and explodes. Thousands of civilians are killed.

It sounds like sick fantasy - but so did bringing down the World Trade Center.

Now, after the raid on the MV Nisha and news of the hunt for at least 20 boats linked to Osama bin Laden, it is a prospect being taken seriously. (Bright, Harris & Walsh, 2001)

British forces in the English Channel captured MV Nisha, a ship owned by Great Eastern Shipping Company being suspected of carrying unlawful cargo, loaded with bagged sugar. Three days of search off the Isle of Wight did not reveal anything and she was let off.

It could make a terrible mess of a city and would be relatively easy to do, it is perfectly possible and there are clearly people who want to do it. Said David Cockroft, general secretary of the International Transport Workers Federation in the interview. (Bright, 2001)

He also said that the flag of convenience system offered a 'curtain of secrecy' to terrorists or criminals wanting to use shipping for illicit purposes. (IMO bid… risks, 2002)

The maritime community in the world has to prepare for maritime security and ensure the use of shipping to cause terror does not happen. It is hoped that threat to ships as carriers of merchandise dies down and shipping and trade can flourish together in peace.

The security of ports and marine terminals in many countries has been analysed by governments and found wanting. Most port operators have not fulfilled their obligations. Port security is often focused on preventing goods leaving a port rather than preventing unauthorized people and their weapons getting to the ship. In many ports, access to a ship is completely open, and in some cases port authorities even insist that this is a traditional right of their citizens. When ship owners request security, this is seen to be an opportunity to make money.

Governments of various states have agreed to the IMO "Guidelines," on port and maritime security. They should ensure security standards in ports are reviewed in the

same routine manner as safety, health and hygiene. The cost of security should be an integral part of port fees applicable to all ships. The US government sets standards for airports and publicizes those who do not meet the US safety standards. The same policy should apply to seaports as well.

Some of the countries e.g. India, having long maritime boundary and also posed with the threat from terrorism have taken a proactive approach and formed committees comprising maritime experts to draft new legislation needed to bolster maritime security to dovetail with IMO's diplomatic conference to be concluded in December, 2002.

U.S. seaports could be tempting targets for terrorists bent on killing large numbers of people, grabbing media attention, and disrupting the U.S. economy. Port, ferry, and cruise-ship terminals are often located in cities downtown areas, where people live and work. Refineries that produce highly volatile petrochemicals and convert crude oil into gasoline and heating oil are also often nearby towns. Given the importance of foreign trade to the U.S. economy, an attack that shut down a major American port for even a few days could devastate the regional economy that it serves. "Dirty Bomb" threat is being heard about, especially after someone was caught in the US with plans for detonating one. "Dirty bombs," are also known as radiation dispersal devices (RDDs). These are weapons that use conventional explosives to disperse radioactive materials, thereby augmenting the injury and property damage caused by the explosion. The capability of an RDD to cause significant harm is strongly dependent on the type of radioactive material used and the means used to disperse it. Other important variables include location of the device and prevailing weather conditions. However, an effective dispersal of the material would tend to dilute the concentration downwind of the site of detonation to relatively low levels quickly. (Levanthal & Alexander, 1987, pp 231-256)

America's seaports are the on-ramps and off-ramps that connect U.S. producers and consumers to global markets. Some 7,500 ships with foreign flags make 51,000 calls on U.S. ports each year, carrying around 1.1 billion tons of goods in 11.5 million containers, 175 billion gallons of oil and other fuels, and millions of cruise-ship passengers and crew members. The sheer volume of traffic gives terrorists the chance to smuggle themselves or their weapons into the country with little risk of detection. There are frequent reports that extremists may have entered the United States by hiding in shipping containers. At current staffing and funding levels, U.S. Coast Guard personnel and Customs agents can thoroughly inspect only the tiniest percentage of ships and shipping containers (2 percent) arriving in the country. Even though manifests of all arriving containers are reportedly checked of balance 98 percent, there is a likelihood of one of those odd ones slipping through the security net.

3.1 New Strategy of USA in maritime transportation

The outlined strategy of President George W. Bush, recognizes the importance of international trade and the movement of people in and out of the US. Despite the increase in terrorism, it stresses the need to "promote the efficient and reliable flow of people, goods and services across borders". Major initiatives will include the reinforcement of immigration and customs services, working with other countries to improve the flow of information to the appropriate agencies and prevent smugglers and terrorists. It suggests that "non-intrusive" inspection technologies are developed to this end.

With regard to the security of about 6 million containers, which carry 50% of the US, trade flow, the strategy provides for the establishment of security criteria to identify high-risk containers and develop and use "smart and secure" containers. It confirms the establishment of an overseas force of inspectors to screen freight in the "top 20" overseas ports, through which pass 68% of the 5.7 million boxes that arrive in the US

by sea each year. The plan includes security force to screen freight at overseas ports. (Michael Grey, 2002 July 18).

The U.S. Commissioner of Customs has proposed a container security initiative which would pre-screen containers before shipment, identify high-risk containers, use technology to pre-screen high-risk containers, and require the use of "smart and secure" containers. He proposes concentrating first on the "mega-ports" of the world,including Hong Kong, Singapore, Rotterdam, Bremerhaven, Tokyo, Genoa, and Pusan, to begin to build, in his words, "a new international security standard for sea containers." His concept is to push the border outward to ensure that cargo is secure from the point of origin, and to have complete information about incoming vessels long before they enter port. (Grey, 2002, July, 18)

To manage the risk involved in carriage of cargo through a port, an assessment of the risk needs to be made considering the threat, vulnerability and the criticality. Once this assessment has been completed, contracting government can accurately evaluate risk. This can be expressed as a formula,

Risk = (Criticality) x (Threat) x (Vulnerability)

To manage the risk, the goal of the IMS Code is to maintain a consistent level of risk, by offsetting changes in threat with changes in vulnerability for ships and port facilities.

Federal customs officials will start operating a new high-tech X-ray container inspection system in near future at the port of Bremerhaven. However, the system is likely to resemble one already in use at the port of Hamburg, which enables customs officials to screen containers without opening them.

"With these measures one can safely say that Bremen has met its international responsibility of tightening security at Bremerhaven," said Andreas Jacobsen, a spokesman for Bremen's economics and ports ministry. (Lloyds list, 19th July, 2002)

Belgium, Germany, France and the Netherlands have, however, signed up to the US initiative, paving the way for US customs officials to be stationed at the ports of Antwerp, Bremen, Hamburg, which compete fiercely in the container handling business.

Washington is preparing a formal request to station customs agents in Chinese ports to ensure security of container shipments to the US. A delegation of customs officials will present a petition to Beijing next month, according to the South China Morning Post's Washington bureau. (Grey, 2002, July, 19).

3.2 Threat from a hijack of LPG, LNG and VLCC

A seminar held recently in Tokyo by the Asia Pacific Energy Research Center warned that the threat of terrorism was real and explored the potential impact of an attack.

The scenario involved the hijack by terrorists of a VLCC or an LPG or LNG carrier in the Malacca Strait. It was noted that gas carriers made ideal targets due to the highly flammable nature of their cargo. The hijacked tanker could then be rammed into offshore oil terminals causing huge amounts of damage.

The seminar concluded that a VLCC attack in the Singapore Strait would have "enormous impact", with economic and environmental consequences equivalent to that of the attacks on the World Trade Center. (VLCCs susceptible, 2002, May 3)

The U.S. Coast Guard has included in its submission to the IMO a proposal that all port facilities are required to develop and maintain security plans, and that these plans would have to be approved by the government in whose jurisdiction the facility

is located according to internationally agreed standards. In addition to this proposal, the Coast Guard has also proposed that IMO agree to a mandatory requirement that every port undergo, by the government in whose jurisdiction it is located, periodic port vulnerability assessments based on internationally agreed vulnerability assessment standards. Member states of IMO generally fully support the efforts of the Coast Guard at the IMO to raise enhanced terminal security. The Coast Guard has also begun the process of preparing to conduct vulnerability assessments of U.S. ports, and, towards that objective, is developing a so-called "Model Port" security concept.

The ISWG reporting to MSC has been working on proposals to strengthen maritime security in ports and terminals and continues on its assignment. The proposed Maritime Security Code duly incorporated in SOLAS chapter XI will provide all the necessary guidelines after the diplomatic conference at the IMO.

3.3 IMO's initiatives

The Maritime Safety Committee also requested the Secretary-General Mr O'Neil to communicate with the World Customs Organization concerning the coordination of work, in particular with regard to container security.

The liner shipping industry is giving widespread support to the Customs Trade Partnership Against Terrorism that is being opened up to ocean carriers in July 2002. The carriers can apply to enroll in the C-TPAT programme.

Member lines of the World Shipping Council have confirmed their intention to join the new programme as part of the industry's effort to support the US government's anti-terrorism fight.

> "The overwhelming majority of lines will be applying for this programme, and we expect others to apply soon thereafter. The liner shipping industry – from A to Z – will be supporting the Customs Service's efforts,"

said Christopher Koch, president and chief executive of the world shipping council. (Koch, 2002, July 16)

Intersessional Working Group on Maritime Security (ISWG), which met from 11-15 February 2002, has progressed work on all items on its agenda and its report contains the following recommendations to the May 2002 meeting of the Maritime Safety Committee. (IMO defines set of measures for improving security of ships, 2002, February,21)

1. To accelerate the implementation schedule for the mandatory fitting of Automatic Identification Systems for all ships of 500 gross tonnage and above, on international voyages. The final implementation date would be decided by the diplomatic conference on maritime security, scheduled for December 2002 along with MSC's 76th meeting.

2. To amend SOLAS chapter XI to include special measures for maritime security and to amend the title accordingly. The general idea for consideration by MSC 75 was to incorporate new regulations XI/5 to 7 containing definitions, requirements for ships and requirements for port facilities respectively, supported by a draft International Code for the Security of Ships and Port Facilities, which should have a mandatory section.

3. To require by the Code all ships of 500 gross tonnage and above engaged in international voyages to carry ship security plans (SSP). The need for such plans to be ultimately incorporated in the ISM Code was acknowledged. It was considered essential that the mandatory requirements relating to such plans should be developed prior to the diplomatic conference on maritime security.

4. To include a requirement for a Ship Security Officer (SSO) in the Code. The training needs of this officer should be developed in the context of the STCW Convention and initially, his/her responsibilities should include any necessary instruction to the crew of the ship. Training requirements for the SSO would need to be developed as a matter of urgency.

5. To incorporate a requirement for a Company Security Officer (CSO) including responsibilities and training requirements in the Code.

6. It was recommend to MSC 75 to incorporate a requirement for port facility security plans (PFSP), but addressing only the Ship Port Interface, which needed further identification and definition and to stipulate which ports it would apply to. MSC was invited to authorize more detailed work to be undertaken in close co-operation with ILO on comprehensive PFSP requirements. There was concern that it may not be appropriate to require.

7. Port Vulnerability Assessment (PVA) was considered an essential part of the port facility security process and it was agreed to incorporate a new requirement for PVA in the Code and develop guidance/criteria for PVA based on the existing level of threat.

8. Urgent action on an up-to-date seafarer identification document. The Secretary-General of IMO has written to the Director-General of the International Labour Organization (ILO), emphasizing the importance the Member States of IMO give to updating the ILO seafarer identification document as a significant contribution to enhanced maritime security and requesting early action on this matter, offering the assistance of IMO in this process. It was hoped that the ILO Director-General would bring this matter to the attention of his governing body in March 2002, proposing that a new protocol to amend the ILO Seafarers' Identity Documents Convention of

1958 (No. 108) be developed for adoption by the ILO general labour conference in June 2003.

9. Information on the ship, its cargo and people: full transparency of ownership information was desirable, but could be difficult to achieve. Nevertheless the owner of a ship needed to be defined in the future, bearing in mind that many IMO instruments place responsibilities on the shipowner, who may, however, not be easy to identify. Proposals were referred to the Legal Committee for comments on the effective control of the ship; the issue was further considered at MSC 75, based on substantive proposals submitted.

An appropriate mechanism with the aim of establishing international measures needs to be in place that would enhance the integrity of all cargo. In view of the annual volumes of containers being moved globally (about 150 million full and 40 million empty container movements in 2001), the ISWG considered this issue to be a particularly complex and difficult one to solve in the short term. Facilitation of maritime traffic needed to be balanced against the desire for maritime security.

12. The design and equipment subcommittee (DE 49), which met in March, 2002 consider the issue of maritime security equipment to prevent unauthorized boarding in ports and at sea and report to MSC 75. It was recognized that the kind of equipment to be used on board would largely depend again on risk assessment (e.g. ship types, trading areas, etc.) and impacted on the SSP and the interface between the SSO and the CSO. If appropriate, a new regulation may be incorporated in the Code requiring ship security equipment.

Now the threat perception and vulnerability will be discussed threadbare along with measures being initiated, or to be taken up.

3.4 Risk To port property

The seaports, major or minor were designed and built mostly by governments to cater to hinterland needs for export-import of merchandise and raw materials and other goods needed by the consumers of the region. Finally it is the consumer who pays for it all.

The basic security need built in the system, has been fencing off the port areas with suitable manned cargo warehouses and stacking areas to prevent theft or pilferage of cargo and smuggling of drugs and gate checks to screen people having business with the port. An industrial security force or the local police are usually assigned the responsibility of providing security cover to the ports. In emergencies, police force reinforcements or if required the Coast Guard or the Naval Police are rushed in.

The threat levels have been increasing over a period of time due to covert and coercive activities going on in various parts of the world, especially in regions such as Middle East Asia, South Asia and Far East Asia. Organisations involved in terrorism have acquired finances from their followers abroad or otherwise to procure arms and ammunitions, which seem to be easily available these days with negotiable payment terms. Such unlawful goods in bigger volumes need to be transported by the sea using ocean transport units. That is where it affects shipping, ports, terminals and even more so when ships are likely to be used as a carrier and the launching platform to inflict damage to the port in a particular continent. The intent of such unlawful organisations is to retaliate and draw media attention doing maximum harm to the general public.

3.5 Entry Barriers

"Smart card" technology has been in use in some places for the identification of people conducting business with the port. Its increased use will raise the security level and create a first effective barrier for entry into the premises.
Smart cards need to be issued to the following:

- people with access to restricted terminal cargo areas
- people with access to the ship e.g. shipping company and port personnel
- truckers hauling containers
- other security sensitive positions to be defined

A uniform technology standard such as unique finger printing (biometric standards) should be adopted for such cards that can be commonly used and accepted at different locations.

Government performed background checks should be undertaken for those people classified as being in security sensitive positions including the adoption by international agreement of a uniform, consistent credentialing and "smart card" identification system for seafarers from all nations.

3.6 Port Facility Security Survey

To begin the process, each government would need to conduct port facility security assessments.
Security assessments would have three essential components:

(1) They must 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's economy or environment;

(2) The assessment must identify the actual threats to those critical assets and infrastructure in order to prioritize security measures;
(3) Finally, the assessment must address the vulnerability of the port facility by identifying its weaknesses in physical security, structural integrity, protection systems, procedural policies, communications systems, transportation infrastructure, utilities and other areas within a port facility that may be a likely target.

For port facilities, the requirements would include port facility security plans and port facility security officers. In addition, the requirements for ships and for port facilities would include monitoring and controlling access, monitoring the activities of people and cargo, and ensuring security communications are readily available.

3.7 Port Facility Security Plans

The security code takes the approach that ensuring the security of ships and port facilities is basically a risk management activity, and that an assessment of the risks must be made in each particular case to determine what security measures are appropriate. The purpose of the security code is to provide a standardized, consistent framework for evaluating risk, enabling governments to offset changes in threat with changes in vulnerability for ships and port facilities.

Each ship (or class of ship) and each port facility present different risks, the method in which they will meet the specific requirements of this code will be determined and eventually be approved by the administration or contracting government, as the case may be. The Coast Guard or the maritime administration as authorized by the government must examine and approve the security plans for vessels and terminals and provide oversight to ensure that the plans are being properly implemented. High risk LNG, LPG carriers and passenger vessels may only be allowed to handle cargo

and embark from or disembark to terminals that hold an examined Terminal Security Plan.

To communicate the threat at a port facility or for a ship, the relevant government would set the appropriate security level. Security levels 1, 2, and 3 correspond to low, medium, and high threat situations, respectively.

> "The security level creates a link between the ship and the port facility, since it triggers the implementation of appropriate security measures for the ship and for the port facility," (IMO, 2002c)

The draft preamble to the proposed security code states that, as threat increases, the only logical counteraction is to reduce vulnerability.

3.8 Port Vulnerability Assessment

The Coast Guard or maritime administration as authorized by the government, will be conducting port vulnerability assessments. The goal of the US Coast Guard's Port Vulnerability Assessment Program is to determine the vulnerabilities of the marine transportation system with respect to intentional acts, accidents and natural disasters. Assessments will have to be conducted by teams of individuals with specialized knowledge in areas such as terrorism, structural engineering, communications, security and emergency operations to name a few.

The US Coast Guard in partnership with the Defense Threat Reduction Agency has already conducted vulnerability assessments in Baltimore, Guam, Honolulu, Charleston and Savannah. Future assessment plans consist of using contractor support in order to complete assessments as quickly as possible. The Coast Guard earlier estimated that the new assessment teams would be in place and operating in June, 2002. By the end of fiscal year 2004, the CG will have assessed 55 ports for vulnerabilities. Initially, medium sized ports will be assessed in order to refine the process before moving on to assessments of the larger ports.

As assessments are completed, the Coast Guard's Captain of the Port will work with port stakeholders as well as other appropriate Federal, State and local Government agencies to address and correct vulnerabilities identified by the assessment process.

A similar process will have to be set in motion in other countries where such infrastructure may be lacking. The naval authorities may be able to assist coast guards in nations where coast guards are in formative stage and still growing. It is possible to always learn from US lawmakers and the USCG.

3.9 Port Facility Security Officers

Port Security is just what the name implies -- the job of safeguarding ports and keeping them operable under all types of situations. Port Facility Security Officers have a major role in safeguarding critical or vital ports of commerce (major or minor), against the threat of terrorism and other acts of maritime crime. As a specialist in the field of port security, he will be responsible for enforcing maritime laws and regulations to ensure the physical security of the port. The PFSO will need to be trained in general law enforcement and defensive combat techniques to provide limited shore side and waterside security. This may include providing protective security for their own unit and restricting access to vessels, waterfront facilities and waterways through the enforcement of security zones. Such training will have to be coordinated by competent naval or coast guard officers who have had ample expertise in this area combating intrusion of enemy in and around harbour limits.

The PFSO will be responsible for conducting surveys and inspections to evaluate owner/operator capabilities in providing security for waterfront facilities and vessels in the handling of passengers and cargo.

The training of PFSO will involve five elements such as: maritime interests, law enforcement, physical security operations, threat overview and assessments, and Field trips to various locations for practical demonstration.

A model course for this training is understood to be under development at the IMO and should be available by end of 2002. A course is likely to be conducted by IMO to train PFSO initially who will further carry out the training in their country.

3.10 Risk To Ships

Ships have always been at greater risks, the perils of the sea, and the seafarers have learnt to cope with it with developments in the shipping sector. Just at the time when the industry was trying to put up brave fight against piracy and armed robbery with all available means, the terrorism raised its ugly head in the USA on September11th, 2002, when airplanes were used as missiles to strike the WTC (twin towers) in New York and the Pentagon Building in Washington allegedly by Talibaans and Al-Quaeda to harm US interests. Such attacks are heinous crimes, unimaginable for this civilisation and beyond the wildest thoughts, condemned by the entire world.

Ocean transport units are being seen as possible carriers of terrorists in the form of crew, passengers or stowaways and weapons of mass destruction in the form of nuclear, biological and chemical devices in the form of cargo. Shipping companies have been in the business of carrying cargo across the seas and the oceans ensuring that no shortage or damage to the cargo occurs during its carriage. Their responsibility ends when full cargo is delivered in good shape to the consignees on time.

A carrier now has an added responsibility of ensuring that nothing else but the cargo is shipped on board and also having someone to certify that no unlawful goods are loaded on the ship at loading port.

3.11 Risk To cargo interests

Several members of congress in the US have expressed concern that terrorists could hide nuclear, chemical or biological weapons in the shipping containers and detonate them after arrival in bays, rivers or ports of the United States causing heavy loss of life and damage to infrastructure facilities. The containers can also be used during the land-bridge leg of multimodal transportation to cause harm to bridges and other important structures. Improving the quality and timeliness of cargo information is very significant to enable tighter access control before the vessel enters US territorial waters, i.e. 12 NM from the coastline. Every ship has to give 96 hours notice of arrival and the USCG has now been authorised to carry out checks on suspected ships prior to their entry into USA waters using aircrafts, helicopters and coastguard cutters. The USCG and the navy are maintaining surveillance over maritime traffic within their exclusive economical zone. (Verton, 2002, p 1)

If a container arrives in the US port with contraband (weapons of mass destruction), it is probably too late for any action to be taken. Detecting terrorists and weapons of mass destruction in more than 6 million containers entering USA through various ports on the west coast and the east coast could be a daunting task. The Federal government has taken necessary steps to prevent smuggling of unlawful men and material in containers.

The viability of using “electronic seals” during shipping for cargo containers is being studied. Such a seal will immediately transmit an alert to shore establishments via GPS satellite systems whenever a container is opened or tampered with during its any leg of multimodal transportation.

Custom inspectors use computer based programmes and EDI on their network to compare the cargo manifests with shipping orders. They give special scrutiny to cargo that has not been ordered or otherwise raises inspector’s suspicions. Actual

checks on boxes account for 2 percent of all inward shipment in containers. Customs inspectors in importer's warehouses of doubtful antecedents carry out surprise checks. Some of the problems experienced in handling of containers and reported by the P and I club SKULD are enumerated below:

> Containers are increasingly being delayed for investigation and/or spot checks. Whilst the percentage being checked is still rather small, the checks are increasing, as is the risk of consequent delay. There are indications that container cargo may face clearance problems where the manifest states, "said to contain..." It is suggested that members implement in their charterparties clauses giving them protection against these risks. Should members need assistance in this regard, they should contact their respective syndicates. The US Customs Service maintains primary responsibility for inspecting and clearing containers. (SKULD, 2002)

Instead of relying on carriers' cargo manifests, it must be determined how best to obtain container cargo content information from the people who actually know it – the cargo interests – earlier in the transportation process, and certainly before it is loaded aboard a vessel for shipment.

3.12 Improving Container Security

The responsibility for the container stuffing and sealing must be fixed for its full period of transportation and most importantly prior to shipment on board from an inland container depot and also during the land bridge leg of the multimodal transport after discharge from the vessel. The carrier should bear responsibility only for sea leg. If this is not done properly, multitudes of blame and claim are likely to fall on the carrier in general and the ship Master in particular.

The author feels that following proposals to strengthen cargo security need to be given urgent attention.

• A legal requirement that the shipper must seal a container originating in or destined for the United States or their destinations upon stuffing it;

• The standards that such seals must preferably meet an internationally accepted standard);

• A requirement that the shipper provide the seal number to be recorded on all shipping documents;

• A requirement that the party receiving the container (e.g., trucker, railroad) at each interchange check and record the seal and its condition upon receipt;

• A requirement that the ocean carrier check and record the seal and its condition upon receipt;

• A requirement that when persons having custody must break a seal for legitimate reasons, they be responsible for affixing a new one, noting the reason, and recording the new seal number on the documentation;

• Procedures for when a carrier receives a container with no seal, a broken seal, or a seal discrepancy, and

• A requirement that no loaded container be stowed aboard a vessel without an intact, conforming seal.

The development of container inspection technology into new technologies that could identify chemical, biological, radioactive or nuclear cargo risks is an urgent need of the day. The port and terminals should be able to use such equipment at any

port, if required with some training. All shipping interests should support the deployment of such technologies at all ports around the world where containers are loaded.

An important part of such efforts should be to obtain and implement agreements providing that ports of origin have inspection equipment, that there be agreed standards for such equipment and for the training and utilization of personnel operating such equipment, and that there be agreed protocols amongst governments about the use of such equipment. The goal should be that issues warranting container inspection are addressed as early in the transportation process as possible and before a container is loaded on a ship. The shippers should use an approved standard seal on all containers, the carriers do not presently believe that container tracking technologies are sufficiently proven or workable, or of sufficient value in addressing terrorist risks.

Further, all the additional costs and time that is needed to achieve maritime security in transportation of cargo may be worthwhile for facilitation of trade. Time delay in delivery will make *just in time* deliveries much more difficult and escalate costs, which eventually are to be borne by the consumer.

3.13 Visit To A Scandinavian Port

The author visited the port of Malmö in Sweden to apprise of the security practices and the Port Captain gave the following details:

1. Proper fencing is provided all around the port with special attention to the petroleum products handling berths and storage sites.
2. Port users have been provided with smart cards, which are used for entry into port premises. Swiping of card at the main gate-registering unit is used to gain entry into the port.

3. Other people have to talk to private security guards who authorise entry as per guidelines of the port management.
4. Sufficient lighting is provided all over the port premises.
5. Surveillance video cameras with recording facility are installed at the gates and around the petroleum products harbour and oil storage facility. There are plans to install more remote controlled video cameras with night monitoring facility from Copenhagen Port (both ports function as one company, Copenhagen Malmö Port). These close circuit cameras will be of a revolving type and scan the entire port and harbour areas including the main channel and harbour limits.
6. Security guards take regular and frequent rounds in and around the port premises to monitor especially dangerous cargo container storage locations. They are supposed to be guarding port property against theft, pilferage, fire, and sabotage. Adequate means of communication is provided on a secure band of radio frequencies.
7. Port state control officers, immigration and custom officers boarding the ship on their routine duty also keep an eye on the security aspect.

The Port captain was fully aware about threat perception and had his plans in place about full security cover for the port. The port is under an ambitious expansion programme and maritime security will be given due attention. (Hall, 2002)

The telephone conversation with shore executives of one of the Ro-Ro ferries operating from Malmö and discussions with STENA Lines and SCANDLINES executives who visited WMU during their presentations did not reveal any security precautions being practised by them as yet. Yes! They are aware of the issues and they await the outcome of IMO's actions in this regard but the threat perceptions in this region are reported as being low.

The author visited the passenger terminal of Helsinborg in Sweden to apprise of the security steps initiated by SCANDLINES. The Ro-Ro ferries are operating there with 20 minutes daytime periodicity between Helsinborg and Helsinger (Denmark) and many trucks and trailers use them to cross the Öresund on their way to and from southern Europe. This is supposed to be an alternative route to the Malmö-Copenhagen Öresund Bridge. The terminal is provided with close circuit TV and guards keeping discreet vigil on the passengers. No further information could be obtained from the ferry operators.

In line with the airline industry using air marshals for flights under threat of hijack in areas prone to such activities, now a sea marshals concept has been heard in the maritime sector also.

A Sea Marshals program has been programmed in the Ports of San Francisco, Los Angeles, and San Diego. This program is designed to reduce the threat of using a commercial vessel as a terrorist instrument. The Sea Marshal concept employs preventive measures to neutralize tactics that could be employed by terrorists attempting to gain control of a large commercial carrier. The Sea Marshals armed escort provides security for the pilot, master, and the bridge navigation team on board a vessel during its transit in U.S. navigable waters. A similar concept can possibly be used in ports such as Singapore, which have in past drawn the attention of terrorists.

3.14 Requirements for ships transiting Mississippi River

A report from the website of a P & I club SKULD, 2002 further makes this concept a requirement of New Orleans Port which is reached after navigating through the Mississippi river, an important waterway in the southern part of USA

Messrs Kerr, Norton, Strachan Agency, Steamship agents in New Orleans have provided following information.

At the July 10th, 2002 meeting of the Steamship Association of Louisiana, Captain Ron Branch, Coast Guard Captain of the Port - New Orleans, discussed the Coast Guard's requirement for requiring security guards on vessels. Captain Branch clarified that,

Sea Marshals will still be placed on High Interest Vessels. Security guards will be required on vessels where certain crewmembers are not to be allowed ashore.

At the meeting, he provided two documents:

- Minimum Standards for Contracted Crewmember Security Services; and
- Standard Operating Procedures for Contracted Crewmember Security.

These two documents emphasize on requirements for security services, which may be engaged for the vessels in the river or in port.

(SKULD, 2002A)

3.15 Security measures in hand at Singapore

Mike Chenoy from CNN on 28th January, 2002 reported on a video clip about a plot of hitting at civilian targets and US interests; 13 Islamic groups were later arrested at Singapore in this connection.

Singapore being a free port had been heaven to shipping companies who had made it a hub for spare parts, stores supply, and for change of crew while the vessel was manoeuvring off the port, eastward or westward bound being tracked by the Vessel Traffic Management Service. Cheapest bunkering and machinery repairs within short period of 6-8 hours were attracting many ships to call at Singapore. The port is already cooperating with US customs initiative on container security to pre screen containers prior to shipments to US on huge mainline ships.

It seems these facilities to replenish the ships while moving will no more be available to passing ships. Landing will be restricted depending upon the port stay with stricter checks from the Immigration Department. Supply boats servicing ships have already been put on notice about the new restrictions.. Water police are keeping strict vigil on passing ships in traffic separation schemes. Arrival formalities now reportedly take six hours or so and vessels are monitored on VTMS. Cheap bunkers will however still continue to attract ships to Singapore.

Fairplay, daily news 14th August, 2002 has reported that security is being beefed up at Singapore in view of renewed threats. And also the customs dept of Singapore is acquiring two container-scanning machines to be installed by January 2003 as a measure to prevent smuggling.

Too much security will hurt the port and the region economically, especially free ports like this. Security will come at a cost and may entail delay in activities. Therefore proper assessments of the perceived threat and commensurate security on levels 1,2,3 have to be maintained as needed.

3.16 Threat to offshore oil fields and mobile oilrigs and counter measures

Exploration and Production of black gold (as it is termed by some), crude oil and natural gas, involves a lot of efforts and money in developing and commissioning new oil fields. Exploration may or may not result in finding a new oil field and new oil wells within them. At the same time, a rich find always brings in a good award for a considerable period of time.

Mobile oil rigs and offshore supply vessels will need to have security measures like any sea going vessel due to their mobile nature. However, offshore oil installations

will require slightly different counter measures as they are faced by two security threats, viz. sabotage and hijacking. The reason behind hijacking and threats to blow up the target could be extortion. Fuel storage areas near a refinery and pipelines over ground or under the sea coming from off-shore production platforms could be targeted due to the media attention it will command and also disrupting public life (domestic gas supply and petrol for vehicles). A huge refinery of 10 million metric tonnes (MMT) capacity per annum on the coast between crude oil production and distribution could be a target of terrorist attack.

Numerous oilrigs and production platforms sprawling in an oil field, each costing a few hundred million US dollars may become an interesting target. The Navy and Coast Guards usually provide protection against sabotage efforts by enemy country.

Normal basic security in oil fields will need to be controlled by owners and sub owners of all vessels so that unlawful elements do not gain entry of men and material. Entry of people from shore through offshore supply vessels, crew-change boats and helicopters will have to be controlled by the company security officer of that organisation. Materials being taken to the oil field from shore will have to be scanned visually and using metal detectors before being put on board supply ships. The men of the oil company and shipping companies going to storage tankers and production platforms will need to have proper identity documents. Exercising control on entry into the oil field will have to be supplemented by security measures on production platforms. Monitoring movement of crafts around the platform and listening to conversation on the VHF radiotelephone may be of help. Creation of security zones within the oilfield and a protection craft being stationed in a central area will boost security. Unauthorised crafts should not be allowed to come alongside. Personal experience of working in an oilfield storage tanker shows that many actions were already being practiced as far back as 1994 in Bombay high oilfield.

An increased threat perception to ships and offshore terminals has caused war risk coverage necessary and insurance premiums have generally gone up.

3.17 Human Element

The human element is one of the foremost factors in maintaining near perfect services in the shipping and port sector. Failure on the part of human beings is one of the main causes for deterioration in services and accidents causing damage or loss to goods carried on ships. It should be the endeavour of people to address this failure by proper human resources management in shipping companies, and on board ships using the tools of STCW 95 and the ISM Code, cultivating a safety culture as required by International Maritime Organisation. STCW 95 will need an amendment to deal with the training of ship security officers. This has been discussed in MSC 75 in May 2002 and will be appropriately dealt with at the IMO.

First of all, only physically and mentally fit people with suitable educational backgrounds should be inducted and basic training provided to them as per prevailing rules prior to sending them on their first assignment. The process should continue on board with on the job training in supervision of the departmental head and proper records maintained on board. Existing employees need to be run through refresher courses to be brought abreast latest developments.

CHAPTER 4

AVIATION INDUSTRY SECURITY SYSTEMS FOR ADOPTION IN MARITIME TRANSPORT

4.1 Air Traffic Control

Today's airline pilots tend to be more than a little intimidated by air traffic controllers. To the student pilot, after all, they represent the ultimate authority figure, cops of the sky whose very words make even the noble flight instructor quake. It was not always thus. During flight's formative years, intervention from the ground was considered an usurpation of the pilot's authority at worst, a frivolity at best. In an era when the very act of returning from flight to a safe landing was often a subject of open speculation, it was pilots, not controllers, who flew the planes.

The airlines, not the government, created the first air traffic control system in the United States Aircraft mechanic Archie League, probably the world's first air traffic controller, was hired by the city of St. Louis to direct takeoffs and landings at Lambert Field in 1929. League stood at the end of the runway and waved flags; the first radio-equipped control tower was not established until a year later, in Cleveland. Towers at Chicago, Newark and Washington DC followed shortly thereafter.

The first three federal air traffic control centers were established on 6 July 1936, and employed a total of eight controllers. At the same time the Bureau of Air Commerce designated 73 civil airways. Within months, a nationwide ATC strike was narrowly averted, when the Government promised to increase the controllers' $167-a-month salary.

During the following half century, as the number of active aircraft increased tenfold, the U. S. Air Traffic Control System grew to over 25,000 personnel, supporting over a million flights a year. Currently FAA personnel provide services within hundreds of terminal areas, as well as from 22 enroute air traffic control centers serving a quarter million miles of federally regulated airways. That is a mile of airway for each aircraft (airline, military and general aviation) in the country, and about one controller for every ten aircraft in existence. Some empire!

Somewhere along the way, as this system was evolving, the term "Air Traffic Controller" (ATC) was coined. Now there is no disputing that air traffic controllers provide a host of useful services to the flying public, including traffic advisories, weather updates, navigation assistance, traffic separation and sequencing, and emergency aid. However, "controller" is a misnomer. It must be remembered (by pilots and controllers alike) that the ultimate responsibility for the safe conclusion of every flight rests firmly with the pilot in command. The plane is flown not by controllers, but by the pilots behind the stick. ATC personnel should more properly be titled Traffic Advisors, just like the seaport pilots who only advise the ship captain without liability; for all the useful services they provide, *they control nothing!*

Aviation is served by a dedicated team of air traffic control professionals, operating as best they can with sometimes-antiquated equipment, under the most difficult of conditions. These well trained men and women have an unquestioned commitment to aviation safety. Yet anything one can do to ease their workload, to provide public with additional input without negatively impacting their established function, has got to make flying all the safer. The pilots need the continued goodwill and support of controllers.

ATC's in the towers and on the airwaves and at the radar screens can well be likened to gods. They see all and know all, hold our lives in the balance.

The ATCs went on strike in September 1981 demanding better pay and perks in parallel to airline's flight crews. Flight schedules were badly disrupted and the public was put in trouble and the safety of aircrafts put in jeopardy. Were the air traffic control system subject to market pressures, firing the strikers would have been much harder and banning them for life inconceivable. Seeing the nation and public suffer, President Reagan appealed to the ATCs to call off the strike and have a negotiated decent settlement, which possibly was refused. President Ronald Reagan announced that any controller who had not returned to work within forty-eight hours would be terminated. The impasse was not resolved. As a last resort President Reagan in 1981 fired all of the 11,600 air traffic control strikers after they refused to obey a court order to return to work. The defeat of the air traffic controllers in 1981 marked the beginning of Ronald Reagan's offensive against the trade union movement. Most never regained their positions. In the fall of 1981 the entire Professional Air Traffic Controllers Organization, was decertified by the U.S. government.

By the end of the decade, there were 2,500 fewer air traffic controllers employed in the industry. Meanwhile, U.S. air traffic had increased by a third and safety records had worsened. (Dr. Paul, 1991)

4.2 Cause Of Security Breach

Relaxation in airport security in the past and too much freedom in the USA are the main reasons for unlawful elements finding their way into secured areas. Terrorists to create terror, deliver their message to the world or achieve their objectives of media publicity hijacked those three aircrafts. However, the use of passenger aircraft as missiles was never thought of. The ever-increasing threat from human bombs along with the element of aircraft hijacking possibly created the idea of accurately ramming a fully fuelled and fully loaded plane into the commercial capital and

military headquarters of the USA on September 11th 2001, which shook the entire world with horror and grief.

An unprecedented number of new security measures has been initiated that will probably make it safer to fly on commercial airlines in the United States. But despite these measures—many of which were mandated by the new Aviation Security Act approved in November 2001, no one can offer the public a blanket guarantee of safety in air travel. There are simply too many airports and commercial flights in the United States to ensure that determined terrorists willing to die would not find a way to use an aircraft in a future attack.

The good news is that new, more rigorous safeguards are being instituted at airports and airlines every day. Both federal officials and consumer advocacy groups are encouraging the public not to be afraid to fly.

4.3 New proposals to bolster Air Security

What has the government done to increase airline safety since September 11th? The Aviation Security Act, which President Bush signed into law on November 19, 2001, takes six major new steps.

1. It creates a new Transportation Security Administration within the Department of Transportation. This agency is responsible for the security of all modes of transportation, including aviation, rail, bus, and commercial shipping, as well as ports.

2. It requires that all checked bags be screened for bombs and explosives by January 2002. Previously, less than 10 percent of checked bags were screened by bomb detection systems.

3. It also requires that within one year, security at all U.S. airports is to be handled by federal employees and that all screeners be English-speaking U.S. citizens.

4. It creates a new system that will allow passenger names to be checked against law enforcement "watch lists" to identify potential terrorists.

5. As for changes in the skies, it calls for an increase in the number of sky marshals aboard planes, fortified cockpit doors that must remain locked during flights, and mandatory training for flight crews about how to handle a hijacking.

6. It allows pilots to carry guns, if given permission by their airline and the new Aviation Security Agency.

As a consequence of tightening security, several things are different at airports now. Beyond what is required in the new law, the government has imposed other aviation safeguards, including restricting carry-on luggage to one bag and one personal item, allowing only ticketed passengers access to gates, banning knives and box cutters, and randomly screening passengers and their carry-on luggage at the gates. Curbside check-in has been eliminated—except for with airlines that can provide the same level of security and screening on the street as they do at the ticket counter. Furthermore at many airports, travelers will see armed U.S. troops and members of the National Guard.

How do security officials pick which passengers to question more thoroughly? Aviation officials say they have beefed up a computer-screening program that is used to identify airline passengers who may pose a security risk. The program, known as the Computer Assisted Passenger Prescreening System, or CAPPS, uses a set of criteria that officials say was approved by the Justice Department to identify passengers who might be dangerous. These passengers are pulled aside and closely scrutinized, and their carry-on and checked baggage is searched thoroughly.

Are the passengers who are being pulled over mostly Arab or Muslim? Is this racial profiling? Aviation officials have said that new criteria have been added to the CAPPS computer program following the September 11 attacks. But they have declined to say exactly what factors or characteristics would cause a passenger to be singled out for search.

The new legislation requires for putting in place a system to screen all bags with bomb detection machines. These machines are very expensive, costing about $1 million each, according to aviation officials. In the past, airports and airlines could not afford enough machines to screen the 3 million bags a day that airline passengers carry in the United States. Cannot the government buy more bomb detection machines?

Aviation officials estimate that they will need 2,000 new explosive detection machines to screen every bag at the country's 453 airports. Nevertheless, there are only two companies certified to manufacture this sophisticated detection equipment to American standards. The earliest these two companies can produce the new machines is the year 2004, the officials say. In addition, the estimated total cost of the new detection machines is $2 billion. Yet the government is still trying its best to strengthen security at the airport (Airport security, 2002)

4.4 Airports Look To Biometrics For Security

There has been intense pressure from public to bolster security at the airports.

> U.S. airports under intense public and legislative pressure to revamp security checkpoints and prove passenger identities following the September 11 terrorist attacks are examining the role that biometrics and new IT security innovations can play in safeguarding air travelers. (CNN’s SCI-TECH of 5-3-2002)

In response, biometrics application manufacturers are stepping up their efforts with new offerings. Chyrsalis-ITS and AiT are pioneers in cryptographic digital signature and public and private key management solution capable of pinpointing forgery of or tampering with passports and travel documents.

Designed to plug into multiple biometrics templates and platforms, the AiT's GenIE secure document issuance system will correlate certified digital signatures with stored facial, fingerprint, or iris data to confirm that the personal document has not been altered.

It is possible to use a digital signature to authenticate the document, and then use biometrics to authenticate the individual. The idea here is to have an authenticated block of data. It is protected by digital signatures, and it can be verified wherever a person takes off or lands.

The call for heightened security at borders and air travel hubs is required everywhere now. For instance, the Enhanced Border Security and Visa Entry Reform Act of 2001, currently before the U.S. Senate, seeks to require countries participating or interested in joining the U.S. Visa Waiver program to institute tamper resistant passports equipped with biometric identifiers.

Biometrics will not be the sole technology being used for authentication, and it should not be. Security is about adding layers, it is not about substituting technology. The human element in security is extremely important, witnessing and watching by human eyes can not be dispensed with and machines can not replace it. It is achieved by a combination of biometrics, human identity checks, and smart card technology.

In order to be successful, the visibility of biometrics facial identification technology should be negligible and transparent to the average traveler to avoid inconvenience.

Inforonics ABS (Advanced Biometric Security), Viisage, and DynCorp announced a partnership to provide integrated facial recognition technology for assessment at Logan International Airport in Boston. Sponsored by the Massachusetts Port

Authority (Massport) and Logan Airport, the 90-day technology evaluation is designed to demonstrate for government agencies and the airline industry the role biometrics can play at Logan and other U.S. airports, according to Dave Gabree, managing vice president of Littleton, Massachusetts-based Inforonics ABS. (2002) The evaluation, is being monitored and coordinated by the regulatory authorities.

Logan Airport has fallen under intense scrutiny and criticism since two terrorist teams were able to bypass the airport's security screening system and take control of American Airlines Flight 11 and United Airlines Flight 175 on the morning of September 11th. The planes struck and destroyed the World Trade Center North and South towers, respectively.

Inforonics is combining its plug-in ready enterprise biometrics framework with Viisage's face recognition technology and DynCorp's software application management solution. Designed to work in conjunction with stationed National Guardsmen at airport security checkpoints, the technology lies within a camera located near the metal detectors. Captured images of passengers coming through the magnetic-scanning machine are compared against a database to screen for wanted or suspicious individuals.

Tom Sheehan, chief of police at Dallas/Fort Worth International Airport, said his facility is considering implementing a multi-factor fingerprint and facial recognition system to secure high priority access areas. The combination of biometrics and electronic entry system technology is needed to institute multiple methods to verify someone's identity.

"That's one of the reasons we're looking at putting a biometrics system in to our access to areas. It is difficult to circumvent," Sheehan remarked.

Biometrics application is in its infancy stage and not time proven technology. Finger printing and facial recognition gadgets have to be tuned properly in their sensitivity so as to make out right from wrong. Otherwise checks and rechecks will result in inordinate delay at the time of passenger check-in.

(Airports look to biometrics for security, 2002)

4.5 Lessons learnt from the aviation industry for shipping and ports

The author had an opportunity to visit Malmö-Sturup Airport in Sweden where the management explained and showed to WMU students the full functioning of the airport with special reference to security. The following was learnt from the aviation industry for inclusion in maritime transport.

- Biometrics should be used to provide smart cards for entry into ports and access to ships, keeping in line with the security plan and policy of the shipping company and the port.
- Bridge and communication areas should be out of bounds for passengers. Only crew on bridge duty should be in wheelhouse. No entry to the engine control room and steering compartment unless on duty. Prominent notices have to be exhibited on the door.
- Access to the bridge from the wings and inside to be fortified with double doors.
- Passengers checking in and accompanied baggage should be scanned prior to entry to the ship using X ray machines and metal detector frames.
- Passengers should be scanned and passed through metal detectors.
- Once passengers have embarked they should remain on board and not be permitted to disembark leaving something suspicious on board.
- Passengers should be ushered to their cabins and briefed on security matters.
- Last minute reservations should not to be accepted for cash payment. Credit card payment will ensure another check on identity.

- No guns to be permitted with the passenger.
- Sea marshals in plain clothes to be on board passenger ships and in touch with the bridge.
- A security agency with approval of the port authority to guard the ship in port from arrival to departure.
- Ships must use a reporting system like AMVER, AUSREP, INSPIRES during their entire voyage and also be familiar with the communication system with the navy of the country.
- Harbour control and VTMS to monitor vessel during anchorage approaches and departure.
- The captain may be provided with an automatic gun and ammunition. This matter has always been controversial whenever raised. Seamen's unions may object to the arming of vessels their members serve on.
- Work culture of the airport e.g. well trained staff and procedures to be adopted in training of crew and dockworkers.
- Shipyards may consider having standard design of the bridge lay out.
- Use of aero-bridge for passenger embarkation may be considered. However, direct boarding from the road has to be avoided.
- Increased use of simulators to be adopted in training of mariners.
- The concept of a Black Box in the aviation industry is already being implemented in maritime field such as VDR with a possible automatic release system from the vessel in case of sinking. Effective from 1st of july, 2002 on all new ships.

- An Electronic airway bill system is already conceived in shipping as BOLERO and in use, to be further enforced.

- Tagging and tracking of air containers and similarly marine containers and use of standard and electronic seals is under consideration and development.

- Automatic identification System is being fitted on ships, and a means of alerting is being debated at the IMO.

- ISWG is meeting in September 2002 to give the finishing touches to the International Maritime Security Code, which will be incorporated in SOLAS Chapter XI Part B at the Diplomatic Conference at the IMO in December, 2002 with specified implementation dates of July 2004 or December 2004

Some of these proposals also being discussed presently in international fora may be incorporated to bolster maritime security on ro-ro passenger ships in Europe in view of reported threats to them. IMO and International Civil Aviation Organization are cooperating in this matter to make aviation and maritime industries more secured.

There are passive ways of tackling terrorism also, which previous British PM Mrs. Margret Thatcher had adopted despite attack on her by terrorists. It would not be wrong to say that attacks diminished thereafter in the UK.

> In certain conditions quiet diplomacy has been of some help in issuing warnings that have pre-empted terrorist actions. The sponsors of international terrorism resemble in some respects naughty children trying to find out by trial and error how far they can go in provoking the adults without incurring punishment. (Laqueur, 1987, p 310)

Efforts by the terrorists to disrupt trade and maritime transportation have to be defeated by joint implementation of security measures by all countries.

CHAPTER 5

ECONOMIC AND POLICY IMPLICATIONS

If this were a perfect world there would be no risk to manage. The finance and insurance industry would loose out on innumerable business opportunities.

The enormity of the unfolding events on September 11th continued to work on the minds of people and made it impossible for bureaucrats and technocrats to perform their regular duties and normal domestic life in the aftermath of the tragedy as society attempted to return to some semblance of normality. Economists then refocused on the economic implications of the tragic events of September 11th. With (all) of the Americas already suffering from serious macroeconomic imbalances and teetering on the verge of recession, were the terrorist attacks the catalyst for an American or global economic downturn? But the terrifying spectacle of the collapsing Twin Towers has had a negligible impact on America's productive and financial capacity.

Even with industry's best efforts, the current transportation system is groaning under capacity constraints and congestion in many ports is increasing. To further complicate matters, container traffic, even with the current economic slowdown, is predicted to double in the next twenty years. Improvement in efficiency is one of the

key ways to help solve these capacity and congestion problems. Yet efficiency improvements must now be viewed through a security lens after the terrorist attack. The transportation system will need to operate both *efficiently* and *securely*. These twin goals of efficiency and security need to be addressed simultaneously keeping economics in good shape.

Terrorism has adversely affected many elements in trade economics and suitable policy changes are imperative to adjust to a new scenario. It is essential to carry out this exercise so that consumers continue to benefit and industry and trade do not suffer.

Cabotage law such as Jones Act in the US, which prevents a foreign ship and crew to run coastal service, needs to be strengthened for giving boost to maritime security. It provides economical, commercial, security, environmental benefits to the country.

5.1 Real Estate

The tallest buildings are located in the largest metropolitan areas and are prime targets due to the chance of perpetrating major disruption as well as loss of life and property. Suburbs provide less attractive targets. One of the likely effects is the movement of people from large to medium sized or small metropolitan areas where the risk of attack would be lower. Even office activities are likely to be dispersed from tall Central Business District (CBD) structures to smaller suburban structures in smaller cities unless the government intervenes in matching scale. Even the rents for space on high floors may become lower. Rents may become a decreasing function of floor height. The cost of office space and apartments has generally been higher with floor height, which may not be the case anymore. The business opportunities of construction companies in metropolitan cities where customers have a lot of purchasing power will fall, as skyscrapers will not be preferable due to the new risk they pose.

The height of buildings in new construction may have to be adjusted to suitable heights so as to minimize risk. Construction of high rises in the US is being redefined to enhance the safety and security of the occupants in the buildings. This will add to the cost of building. (New York plans code overhaul for high rises, 2002, August 2). An aircraft targeting a building and flying too low may loose control, miss the target and crash somewhere else. It is a possibility to fit passenger aircrafts with sensing devices at the nose so that they automatically steer away from a tall structure at a determined range.

Shipping interests, however, have to remain in a port for the sake of convenience in conducting business and to be able to liaise with cargo interests, port authorities and maritime administrations to service ships.

The governments have to embark upon a programme to keep terrorist dangers at a minimum to ensure political and economic freedom. Otherwise costs will escalate increasing consumer prices.

5.2 Insurance

The terrorist strikes in the US inflicted heavy damage in cost and severely affected the general insurance industry so much so that reinsurance companies are no longer interested in this business. General insurance cover also now excludes terrorist risks and separate terrorist cover for real estates and industry is to be obtained.

It has also affected maritime insurance where separate war risk cover for terrorism has to be obtained by the ship owners from underwriters when ships are operating in risk prone areas, or else there would be no cover and the owners themselves have to bear the brunt. Insurance companies have already conveyed to ship owners that separate cover needs to be arranged for terrorism risks. This is apart from the fact

that all insurance cover including war risk cover ceases to exist should there be any hostilities between five major powers, involving nuclear warfare.

This increase in premium for insurance concerning business over land and for ships of various types including cargo insurance will have a spiraling effect on the price of goods to the consumer including increased sea transportation freight.

Insurance analysts have said that further terrorist attacks could devastate the economy as the there may be no insurance available, due to the fact that nothing will be insurable and there would be no basis for calculating probabilities of risk. If there is no insurance, it is difficult and almost impossible to obtain loans and financing for new projects. This will further have a snowballing effect and cause recession, which was felt soon after the previous attacks. (Global Security Newswire, 2002, February 02)

5.3 Free flow of trade

The fight against terrorism should not stand in the way of free trade expansion. New formulas have to be evolved with governmental interaction to introduce security in each country to prevent terrorism from raising the costs of the trade. Maritime security in sea transportation is playing a lead role in safe carriage of passengers and cargo and new counter measures are being defined to streamline the system.

Some countries are making subtle changes in their imports, like USA has increased imports of crude oil from Mexico, Russia and Venezuela to reduce its dependence on Arabian Gulf oil supplies. Imports from AG mean longer tonne-miles and concentrated demand. This is likely to effect utilization of the tanker fleet at a time when VLCC rates are already at the bottom. The planned phase out of single hull tankers by 2004 will bring down tonnage and cause a rate recovery. The demand for oil in China and USA during the fourth quarter of 2002 with onset of winter is likely

to go up. The US is reportedly building up its strategic oil reserve to reach 700 million barrels (in mid July, 2002 stocks were 575 million barrels) which can help them sustain supply during further war on terror (an attack on Iraq to topple President Saddam Hussain's regime, which may pose a threat to the US or Israel using weapons of mass destruction). This may help VLCC tanker owners recover their losses. Crude oil prices have generally been stable in 2002 except for minor seasonal fluctuations with OPEC controlling production. Oil prices are likely to spiral upwards to USD 40 per barrel in case of outbreak of war, as was witnessed in 1992 during the operation dessert storm.
Oil producing nations had then termed it as a tax for maintaining oil supply line, and Saudi Arabia recovering most of their expenditure on war.

APEC economies trade ministers met in Mexico and discussed how to ensure that global anti terrorism measures do not hamper free trade and facilitation of growth in trade continues, reported Xinhua, Chinese news service. (Anti terrorism becomes top priority issue on APEC trade meeting, 2002, May, 30)

The Asia Pacific Economic Cooperation (APEC) was established in 1989 and represents 21 member states including China, USA, Russia, Australia, Japan and several emerging Asian economies. Commercial exchanges between them have accounted for 46.7 percent of world trade.

Together with lowered barriers to trade, advances in communication and transportation technology are enabling transnational criminal organizations and terrorist groups to operate globally, outside the jurisdiction of any one state. There have been reports about Osama Bin Laden owning the phantom fleet of 20 sea going ships and the threat of using these ships for further attacks can not be ruled out. The US, UK and European intelligence services have been desperately searching for them amid fears that they could be carrying chemical or biological weapons of mass destruction. (Bright, Harris, and Walsh, 2001, December, 23))

"Shipping must not be allowed to become a soft target for terrorism. Ultimately, however, a balance will have to be struck between the potentially conflicting demands of tighter security and the free flow of trade, and this will be an important consideration for governments and industry alike as discussions continue towards a conference in December 2002 to adopt the agreed amendments to SOLAS Chapter XI. (ICS, 2002)

5.4 Ports and terminals

Many ports across the Pacific and Atlantic Oceans have flourishing trade giving a boost to the hinterland due to globalization. The US initiative on container inspection by their customs or their authorized agencies in 20 major ports of the world is being generally accepted by ports, nations and regions who are cooperating in this matter.

New regulations on security measures to be adopted in shipping and ports include the obligations of having security plans, security officers, security survey and vulnerability assessments in shipping and ports. Enforcement of such new stipulations will entail lots of expenses. There are reports of the US government providing budgetary support to ports on their waterfront to strengthen security. Port users have to bear the cost of smart cards. A security tax has been levied on airline passengers in airlines and shipping companies are also initiating security surcharges on boxes to be shipped from some of the ports. Consumers have to bear all such additional expenses.

There is a provision in US Federal law on transportation that exporting nations, who do not cooperate in inspection of goods prior to shipment, may face a boycott or sanctions on import of goods by the US.

There should be no reason in general for stricter checks by an exporting country's customs and the carriers, except for US customs being stationed all over the world

(in major ports), as this brings in the question of sovereignty of the countries. Should this stand annoy the US Government, invoking the imposition of trade sanctions, the port, country and even the region will be a looser. Other friendly nations having *most favoured nation* status in nearby region will stand to gain in trade and transportation. Some ports may get branded as secure ports whereas others may not. Then essence of globalization would in fact be lost.

5.5 Currency exchange

One of the dangers of the current crisis involves the uncertainties that exist over the possibility of future terrorist attacks. In financial markets, uncertainty generally translates into market volatility. People and the market are apprehensive and uncertainty does exist. One of the huge problems during periods of uncertainty caused by specific conflicts within countries is the instability it causes on the exchange markets. The European currency EURO has substantially gained during the first half of 2002 and has come on par with the US dollar. Does it really indicate the influx of currency into Europe? It is possibly a little early to say that at this stage. The US has not initiated any aggressive measures in this regard.

Nations are obliged to work together on these matters in order to avoid a serious financial crisis all over the world. Once investors lose confidence in a currency, the decline in value of the currency can be unstoppable. After the incidents last September, there have been multiple proof of support for the United States and the world economy. The IMF is committed to maintain a stable exchange market after the attacks, monitoring the situation and assuring the membership that it will stand ready to assist its member countries as appropriate. They also stated that despite the human tragedy, these terrible events would have only a limited impact on the global economy and the international financial system. (Shah, 2002, January 12)

However, money laundering and transfers of funds by suspected groups have to be tracked and monitored in banking systems. Nations seeking financial assistance from the IMF or World Bank through standby arrangements and extended arrangements, could be required to take specific measures to avoid terrorism and its sponsorship, which is a world problem. They could express, through their Letter of Intention, that they would take the necessary measures to prevent terrorism, for example, by contributing or permitting adequate banking supervision and other related financial measures.

The use of counterfeit currency notes and fake cheques by unlawful groups have often been noticed and caught red handed. Such events and also cases of foreign funding of unlawful activities by individuals are regularly reported in press. However, even a small circulation may be enough for terrorists to utilize such methods for purposes of funding. Blocking and freezing assets of terrorist organizations is of utmost importance to cripple their capability of funding. For example the Indian government recently handed over to the British foreign secretary Mr Straw a list of 15 individuals who were funding Kashmir militants and requested for action against them. (NDTV News, 2002, July 25)

According to the Federal Reserve, counterfeits detected throughout the world in 1995 amounted to less than one-tenth of one percent of U.S. currency in circulation. (Gomez, B. 1996, February 29)

5.6 Terrorism of the mind

Given the scale of the events of September 11 – events that touched a whole nation and beyond – one should not underestimate their potential psychological impact. The perpetrators of terrorism prey not only on their immediate victims, but also on the minds of those left behind. The potential economic implications are immense, as a disturbed mind will not allow the efficient working of the body.

Horrible events have shaken the confidence of the people and sent many of them into depression across America and psychologically barred them from freedom of movement. It has instilled fear in the minds of people and they continue to think, when and where the next attack may follow. Media reports keep on surfacing about oncoming attacks, possibly prior to the anniversary date (9/11) to make matters worse.

Due to fear of flying, air transport has been limited to an absolute necessity and careful consideration is given in selection of airlines and routes on long haul flights. Many airlines have drastically lost business and grounded aircrafts and some have even closed down. Even suspicious behavior of passengers is reported and aircraft diverted to disembark them. In one case, a song and dance troupe rehearsing on flight was suspected to be potential hijackers. The anxious report to the flight crew caused scrambling of two fighter jets till safe arrival of the flight at New York. The dance troupe were questioned upon landing and later released. (NDTV, 2002, July 27)

Only time will heal the wounds of the mind as the war on terror takes a toll of terrorists and break their spine. Proactive intelligence and media is to be best used to overcome lost confidence.

My own reaction to the impact of terrorism on personal life in the Indian context has been to always keep the eyes and ears open. Being part of ship management in a ship owning company, we have to manage more securely and efficiently in order to keep out of the cobwebs of terrorism.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

The threat to the world from international terrorism is forever changing, and may yet become more serious. Cross border terrorism and domestic terrorism are keeping security forces busy, the enemy seem to be omnipresent. Joint efforts to thwart terrorist activities through regional organizations must continue —both those directed at mankind, and those targeting economic and military targets in our territory. The sharing of intelligence amongst countries and vigilance within the individual borders will show worldwide benefits. The quality of life depends in part on the quality of life of those who share this planet with us. A world where people are secure is a world where fewer people are forced to flee their homes, where there is less crime and no terrorism.

Priorities have to be focused and clear goals set. Public awareness is one of the most important things to counter terror. Strong will power and absence of fear from the likely future happenings is very important. People must think that terrorism would be countered and contained and definitely abstain from loose talking.

6.1 Container Security

The container security initiative of the US customs is getting cooperation from many countries such as Canada, France, Germany, Belgium, Holland, and Singapore. Other

countries such as China and UK are discussing and developing methods of implementation. The use of agencies authorized by US customs is also being considered in some countries. Ports are acquiring container-scanning machines to expedite the inspection process. More interaction with shippers and carriers is being undertaken by customs to streamline checking of cargo prior to shipment. New proposal by US customs to provide 24 hours notice of contents of a container is meeting lukewarm response from shippers and carriers. Mr Chris Horrocks, Secretary General of the International Chamber of Shipping has commented that this was this proposal is a problematic one and could deliver a real shock to the system. However, eventually the Container Security Initiative will smoothen the flow of trade, allowing for greater transparency and more complete data collection.

What can be seen is the development of about 20 megaports and hubs strategically located globally as US Customs security certified from where cargo will safely flow to US ports. These ports could also be used during transshipment and monitor what was passing through in containers. The cost for inspection and making the containers secure would cause an escalation of cost and some delay in transportation. Some of the lines are already charging USD 25 per box as a security surcharge. But it would be worthwhile for the consumers paying a slightly higher price for the goods to ensure security at the destination in the US. The US public supports moves by their government to enhance security and maritime security is an important part of it.

The process of checking containers prior to shipment could possibly be left to national customs depending upon perceived threat and strictness of their inspection. This would be necessary as stationing US customs in most of the ports worldwide would be a difficult task. IMO is taking up the matter with the World Customs Organization to cooperate in standardizing the inspection process.

6.2 Containing terrorism

In the author's point of view, the Talibaans in Afghanistan have gone astray after the recalling of USSR forces in 1991 and have gone much beyond the purpose for which they were actually created during the days of the cold war. If the Tallibaans had been controlled by the USA after the Soviet forces returned from Afghanistan and their activities curtailed and their manpower had been re-employed in developmental work, possibly the creation of Al – Quaeda could possibly have been avoided and their activities such as bombing of US embassies in Kenya and Tanzania in 1998 would have died down with the calming down of tempers. The US attack on Afghanistan in 1998 with missiles launched from naval ships in the Arabian Sea as a retaliatory measure added fuel to the fire. One can remember reading reports in newspapers when Al-Quaeda's head Mr Osama Bin Laden was swearing for JIHAD to hit back harder. Open human-to-human and religion-to-religion threats were being hurled in late 1998. Islamic fundamentalists were talking about taking revenge in due course.

Terrorist for one and freedom fighter for another is the plea for achieving their homeland in Jaffna, where the Liberation of Tamil Tigers Eeelam (LTTE) has been fighting government forces. There seem to be hope of peace with initiatives from Norway. Similarly in Kashmir, various organizations have been indulging in terrorism in the name of freedom struggle with assistance of Pakistan. Pakistan has been indulging in covert and coercive activities to avenge liberation of erstwhile East Pakistan in 1971 as Bangladesh by Indian intervention. Latest tension on Indo-Pak border in May-June 2002 was a result of cross border terrorism in Kashmir while USA is fighting terrorism in Afghanistan. US have been prey to terrorism in Pakistan but refuses to declare it a terrorist state because they need their help. Similar struggles are going on between Palestine and Israel where religious fanatism is used to recruit human bombs and use them to achieve desired results. Easy availability of arms and explosives to any individuals with comfortable payment terms is one of the very important factors. Moral and public support from states is the second major

factor. Growing opium, hashish, and ganja and producing various types of drugs is a method to generate money for funding of arms and the explosives.

The counter terrorist policy of the United States stresses three general rules:

- First, make no deals with terrorists and do not submit to blackmail.
- Second**,** treat terrorists as criminals, pursue them aggressively, and apply the rule of law.
- Third, apply maximum pressure on states that sponsor and support terrorists by imposing economic, diplomatic, and political sanctions and by urging other states to do likewise.

President Clinton had declared in April 97: "We will never surrender to terror. America will never tolerate terrorism. America will never abide terrorists. Wherever they come from, wherever they go, we will go after them. We will not rest until we have brought them all to justice."

And everybody needs to learn a lesson from it. Furthermore, terrorist acts are part of a larger phenomenon of politically inspired violence, and at times the line between the two can become difficult to draw.

Although the variety and complexity of terrorism and its dynamic quality are challenges to defining clear patterns, there has been a heartening trend among governments to condemn terrorism absolutely, irrespective of motive. One positive result of this growing policy of zero tolerance for terrorism is a decline in state-sponsored terrorism, even though Pakistan, the alleged primary state sponsor in Indian Jammu and Kashmir context, has not been deterred. As terrorism becomes more global, cooperation among states is indispensable.

Many countries such as the USA, the UK and Canada have new maritime security acts already passed and in place to fight terrorism. The terrorist attack in New Delhi on 12thDecember, 2001 on the parliament is still fresh in the minds of people. This

attack came at a time when the Indian parliament was discussing Prevention of Terrorism Bill and opposition parties were having fierce debate about possible misuse of it. If the four terrorists masquerading as policemen in an official car had gained entry into the lower house and caused bloodshed of parliamentarians, the reaction of the people and the government of India would have enormous. Anyway it caused full deployment of the Indian Armed Forces to take on the enemy forces that were aiding and abetting terror and hatred on Indian soil and now tried to harm the very democratic set up of the country. The exchange of threats and counter threats between India and Pakistan (both nuclear weapon countries) in May, 2002 when both countries forces were on war alert caused lot of tension in the region. Pakistan went to the extent of threatening use of nuclear weapons in case war was thrust on it and the Indian government kept their stand of going after the terrorists training camps in Pakistani Occupied Kashmir (POK) and no first use of nuclear weapons. The USA and the UK intervened with hectic diplomacy (in view of the campaign in Afghanistan and USA-UK forces operating from bases in Pakistan and Pakistan trying to take advantage of this) and pacified both sides not to let the situation get out of control thereby causing an eruption of war. Pakistan has agreed to stop cross border terrorism but their political, diplomatic and moral support for the freedom struggle of the people of Kashmir would continue. (Times of India, 20th – 25th May, 2002). The Jammu and Kashmir region has more significance since there are intelligence reports that 'Al Quaeda' was operating from Pakistan and they were trying to flee from the US and Pakistan forces chasing them by getting into Kashmir and creating new problems there. (NDTV.com and Times of India, 29th July, 2002)

It would be appropriate to remember in this context how terrorists had gunned down the Prime Minister Vasken Sarkisyan and his team of 7 ministers in the Armenian Parliament on 27th October, 1999 in a dastardly act of terror which was condemned all over the world. The President of Armenia somehow managed to retain power with the support of some senior government officials who had been linked to the slain prime minister. Some of the suspects and the accused were apprehended but nothing concrete emerged out of it. (Armenia parliament shootings, 2001)

Even India, which is facing renewed threats from terrorism and has a long coastline along the subcontinent, will to have to formulate and pass a Maritime Security Act. The Prevention of Terrorism Act (POTA) has since been passed and now there exists a law to deal with terrorists. There is no other option but to deal with terrorists sternly and decisively. Security training is to be undertaken for making ships, shipping companies and port facilities more secure. Vulnerability assessments for ports and security certification for ships have to be done as discussed in Chapters 2 and 3. This will have an added cost but has to be accepted and complied with.

6.3 IMO initiatives

The diplomatic conference at the IMO, London from 2nd to 13th December 2002 will be deciding on the adoption of regulations 5 to 16 in chapter XI part B of the International Convention for Safety of Life At Sea and the IMS Code as an annex with its mandatory and recommendatory part and compliance dates. The details of developments for initiating measures for prevention and suppression of acts of terrorism against shipping and ports have been discussed in chapters 2, 3 and 4 earlier.

The Legal Committee of the IMO met in its 83rd session in October, 2001 reviewing the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation, 1988 and the Protocol for the Suppression of Unlawful Acts against the Safety of Fixed Platforms Located on the Continental Shelf, 1988. It agreed to include the review of the SUA treaties as a priority item in its work programme in 2002-2003. This will further bolster security against piracy and armed robbery, which is rampant in many parts of the world.

Lessons have been learnt from airport and airline security, which are given as recommendations in chapter 4. Some of these such as consolidated security measures

are very important and can be considered for implementation. IMO and the International Civil Aviation Organization are cooperating in this matter to make the aviation and maritime industries more secure.

6.4 Socio-economic changes

The introduction of standard basic education not related to religion will lay the foundation for clean minds. Brainwashing the young and misguiding them for achieving selfish objectives of some of the organizations is wrong. Use of media to extensively cultivate friendship and prevent disharmony and hatred may possibly help. Joint celebration of festivals and mixing together will help.

The menace of stowaways caused due to economic conditions has a further potential to become a medium for placing terrorists on board the ship. Once there on the ship, they can try to capture or hijack the ship. Hence, stowaways are to be avoided by carrying out thorough searches prior to departure from a port as per guidelines being issued by Protection and Indemnity Clubs and must be dealt with properly if found on board keeping security in mind.

It is hoped that the risk of terrorist attacks will be minimized in the future and human beings can live safely in a secure world. Human to human bonds do not loosen anymore and boundaries of religion don not take us apart. Instead the unity of minds and secular democracies continue to provide safe heavens for people to live without fear. The late Prime Minister of India Mrs. Indira Gandhi had once said, *"Do not shed blood* sh*ed hatred."*

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