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This paper examines the concept of asymmetric warfare and Low Intensity Maritime Operations (LIMO). It identifies the actors as also the changing nature of their tactics. The paper argues for restructuring of naval forces as response and deterrence to asymmetric and LIMO actors that the Indian Navy will encounter in the coming years.

THE CONCEPT

Asymmetric Warfare

The Chinese can be credited with the evolution of the concept of asymmetric warfare. Sun Tzu, the ancient Chinese strategist, described the concept as one that, “refrains from intercepting an enemy whose banners are in perfect order, refrains from attacking an army drawn up in a calm and confident array.” Another of his military maxims is, “to fight and conquer in all your battles is not supreme excellence; supreme excellence consists in breaking the enemy’s resistance without fighting”. The basic theme of this strategy is that an enemy should be attacked at its point of vulnerability and not where it is the strongest.¹

The concept of asymmetric warfare became popular among security specialists during the Cold War. The US successfully pursued asymmetric advantage over the Soviet Union by choosing not to match “tank for a tank” or “missile for a missile”. Instead it chose to use helicopters to counter tanks and developed the Strategic Defence Initiative to counter the large arsenal of ICBMs.² Today, however, US strategists working on “Revolution in Military Affairs” (RMA) have further refined the concept. The concept is now built on the premise that the US has an overwhelming technological superiority over the conventional military forces of virtually any conceivable adversary but remains vulnerable to certain types of unconventional response: terrorist attacks, weapons of

mass destruction involving nuclear, chemical and biological attacks, or unpredictable actions in unpredictable places similar to the 9/11 attacks in the US. Asymmetric warfare, therefore, involves the use of unconventional tactics to counter the overwhelming conventional military superiority of an adversary.³ Counter asymmetric warfare is now practiced and appears in the US Joint Vision 2010, the Report of the Quadrennial Defence Review (QDR) and the National Military Strategy.⁴

The current strategic literature defines asymmetric warfare on the basis of capability and actor response.⁵ The capability-based asymmetric warfare involves the use of technologically advanced weaponry against an inferior enemy. For instance, during the Gulf War 1991, the US enjoyed technological superiority over Iraq thereby resulting in the latter's defeat. The actor-based approach is based on the premise that the weaker opponent such as a non-state actor does not possess technological superiority over a stronger power and therefore adopts asymmetric strategies and options to challenge a superior adversary. It is important to keep in mind that the term 'defeat' is excluded in the lexicon of actor-based asymmetric warfare since the weaker actor does not attempt to match stronger actors force for force.⁶ On the other hand, its aim is to challenge the national will of the powerful actor and gain psychological advantage by using the media to influence members of the public and shape the mindset of the public.

Put simply, "asymmetric threats or techniques are a version of not 'fighting fair,' which can include the use of surprise in all its operational and strategic dimensions and the use of weapons in ways unplanned by regular military forces. Not fighting fair also includes the prospect of an opponent designing a strategy that fundamentally alters the terrain on which a conflict is fought."⁷ Therefore, based on one's perception, asymmetric warfare includes terrorism, threat of use of weapons of mass destruction, unconventional and innovative warfare approaches as cyber-attacks and information warfare.

Low Intensity Maritime Operations (LIMO)

The term Low Intensity Conflict Operations (LICO) has gained wide currency among the Indian armed forces. It is a war waged by the State against guerrillas, insurgents and subversives, and includes a wide range of military initiatives that have a limited dimension of firepower. It also has political and economic instruments. All actors that engage in national liberation, insurgency, terrorism and guerrilla warfare come into this category. From the perspective of guerrilla/insurgents/freedom fighters the primary aim of these conflicts is to challenge the existing government or a political system. Individuals/groups that feel aggrieved or oppressed take recourse to violence and engage in conflicts to achieve political, social or even economic goals. These conflicts involve a protracted struggle of competing principles and ideologies.

The non-state actors aim to weaken/challenge state authority by application of force to an extent that it is short of conventional war. Such conflicts have proliferated in several developing countries and at times are supported, aided, abetted and directed by external forces to achieve political and ideological goals. To that extent, the identity of such actors has also gone through a metamorphosis resulting in debates that centre on expressions such as 'one man's freedom fighter is another's terrorist/insurgent'. In India, LICO is broadly divided into three categories: internal security, counter insurgency and counter terrorism. It is a limited politico-military action by the state to achieve political, social, economic or psychological objectives.

Warfare at sea is traditionally concerned with safeguarding Sea Lines of Communication (SLOCs), maritime interdiction, sea denial, sea control, and defence of maritime infrastructure. The post Cold War security environment is under transformation and the nature of future conflict at sea is undergoing a paradigm shift. These conflicts can be categorised into linear and non-linear conflicts.⁸ Linear conflicts involve conflicts between states i.e. historical pattern of warfare, whereas non-linear conflict are between the state and the non-state/sub-state actors. The non-linear actors rely on asymmetric strategies and their tools include terrorism, information warfare and threat of use of weapons of mass destruction.

Till the 1990s, the navies were structured to handle linear conflicts. The nuclear doctrines were based on 'counter value' and 'counter force' targeting while the conventional forces were tailored to engage in classical warfare involving sea control and sea denial. However, in the post-Cold War period, the spectrum of threats at sea has undergone a major transformation. Non-state actors, terrorist groups and insurgents/militants are challenging national security forces. These groups have modified their strategy from low intensity conventional terrorism to total destruction. The intensity and lethality of attacks have also reached extreme proportions. Besides, the numbers of such groups and networks have increased exponentially and mushroomed all over the world. Three attacks⁹ on warships in the space of a month in the year 2000 have exposed the vulnerability of naval vessels too. These incidents have forced naval forces to seriously reexamine the changing nature of unconventional threats as also the tactics and the modus operandi of its actors.

Indian Maritime Doctrine: Asymmetric Warfare and LIMO

Indian naval practitioners have examined the concept of asymmetric warfare and LIMO. The Indian Maritime Doctrine notes that the last decade [1990s] has seen a surge of asymmetric attacks in which terrorists and non-state actors have carried out devastating attacks on US warships on the coast as well as in the hinterland. The Doctrine also notes

that cheap, improvised and easy to obtain weapons have been used by suicidal groups to carry out destruction/damage to high value military targets. These groups also seek to target naval ships and establishments and other targets in the coastal areas. The Doctrine also observes that asymmetric actors would use man-portable missiles, explosive-laden boats, improvised submersibles and divers capable of planting mines and explosives on ships. There is also a threat from smuggling, poaching, gun-running along the Indian coast and distant island territories. Given these threats, the Indian Navy will be involved in Low Intensity Maritime Operations. For such operation the Navy should acquire a large number of low value petrol ships and be prepared to counter threats covering a wide spectrum of threats ranging from high intensity warfare to asymmetric warfare. Besides, the Navy should also be geared to combat piracy in the Indian Ocean and also its impact on the merchant shipping that transits through the region.

Given these articulations, Low Intensity Maritime Operations in the Indian context suggests application of force, in the maritime domain, against actors that engage in maritime terrorism, piracy, gun-running, drug smuggling, illegal fishing, poaching, marine pollution and criminal activities at sea that have the potential to disrupt order at sea. LIMO therefore involves use of force to an extent that it is short of conventional war against targets at sea.

It is true that asymmetric and non-state actors have developed sophisticated tactics that entail attacking ships both in harbour and at sea. Improvised explosive devices, submersibles, mini submarines and high-speed boats are weapons of choice. Off-the-shelf communication equipment and water sport/diving equipment are part of their inventories. In the absence of technological superiority over a stronger military, these groups have adopted asymmetric strategies and options to challenge maritime forces and inflict unacceptable costs.

Traditional naval missions continue to dominate the minds of naval practitioners but they now have begun to address multiple forms of conflicts spanning a wide spectrum of intensity levels ranging from safeguarding sovereignty to protecting the environment in terms of marine pollution. Although traditional maritime threats and responses occur in regional crises, more often maritime activity in the next century will focus on newer threats. These threats require new approaches and new methods. Therefore the new era of conflict at sea demands a freshly articulated maritime strategy based on newly defined maritime threats.

Geostrategic Considerations

India's geostrategic sea areas encompass the Arabian Sea and the Bay of Bengal. These are home to important sea-lanes. A large volume of international long haul maritime cargo

from the Persian Gulf, Africa, Asia Pacific and Europe transits through these waters. They are home to important straits: *Hormuz* and *Malacca*. The primary cargo through the *Hormuz* strait is oil/gas, which virtually affects every aspect of the daily lives of most people of the world. *Hormuz* is fairly deep and vessels of 1,60,000 dead weight tonnage can pass through the waterway and nearly 15.5 million barrels of oil flows through it daily.¹⁰ From the Persian Gulf, the sea-lane transits through the Indian Ocean almost hugging the Indian coast towards the Strait of *Malacca*. *Malacca* is the busiest with over 200 vessels transiting through it everyday. Each day, about 10.3 million barrels are carried through the Strait of *Malacca*.¹¹ Virtually all ships destined for East Asia carrying LNG and LPG pass through *Malacca* and the issue of safety is likely to grow in importance as East and South East Asia's energy imports grow. It is estimated that the number of tankers transiting through *Malacca* would increase to 59 per day in 2010 from 45 in 2000. Similarly, the LPG tanker traffic is expected to increase to seven per day in 2010 from five in 2000 and LNG are expected to rise to 12 per day from eight in 2000.¹²

According to military experts, future conflicts will take place in the littorals i.e. where sea meets the land.¹³ A large proportion of the world population is located in the littoral. Besides, much of the industrial infrastructure and wealth are concentrated in these areas. Coastal regions serve as the nodes for transport of trade, culture, as also the hub of illegal activity, be it contraband trade, drug smuggling, gun-running and even human smuggling. The sea serves as an easy highway and acts as a catalyst for promoting such activities. A quick look at the geography of the Indian Ocean region indicates that terrorist hubs are located in the littoral: LTTE in Jaffna, Sri Lanka,¹⁴ Al Qaeda in Yemen, Somalia, Pakistan, Bangladesh¹⁵ and Indonesia and Jemaah Islamiyah¹⁶ and Free Aceh Movement in Indonesia. Some of these are also home to pirates. The centre of gravity of piracy and terrorism at sea is currently located in the Indian Ocean region. This is further flavored with the Golden Crescent and the Golden Triangle, hubs for drug smuggling and gun-running.

Terrorism at Sea

Threat of terrorism to maritime security is not a new phenomenon. In the past there have been several instances when ships have been taken over by insurgents or attacked by terrorists.¹⁷ 1988 can be termed as a seminal year heralding the modern age of maritime terrorism.¹⁸ Terrorists attacked *City of Poros*, a Greek cruise ferry carrying 500 tourists.¹⁹ But it was the *Achille Lauro* incident that caught the attention of the international community with regard to the menace of terrorism at sea and the formulation of an international convention under the United Nations.²⁰ Similarly, on November 3, 1988, two trawlers carrying 150 PLOTE (People's Liberation Organisation of Tamil

Eelam) mercenaries landed in the Maldives.²¹ An Indian Navy maritime reconnaissance aircraft detected the ship and Indian navy vessels later captured it.²²

In October 2000, terrorists attacked *USS Cole*, an Arleigh Burke-class destroyer. As a matter of fact, the plot to attack US warships was conceived in January 2000 against *USS Sullivan* in Yemen. It was planned to ram an explosive filled boat into the ship. However, due to a miscalculation of the weight of the explosive charge, the boat sank when the explosive charge was put on board. The operation was delayed by ten months and was finally accomplished in October 2000 against *USS Cole*, an Arleigh Burke-class destroyer equipped with the Aegis system, which arrived at Aden port for a short fuelling halt. While the ship was refueling, two men on board a small craft (packed with 400-700 pounds of explosives) approached the ship and exploded leaving the ship with a 40 feet hole on its side. The attack resulted in 17 fatalities and an estimated \$100 million in damage. The attack highlighted the meticulous nature of planning, infrastructure built by a local professional figure trained in handling explosives, use of one or more suicide bombers supervised from a long distance, in this case Afghanistan. The bombers had links with Al Qaeda and America's No. 1 terror suspect, Osama bin Laden.²³

These incidents have exposed the vulnerability of warships too. The terrorist attack off Yemen on the French oil tanker *Limburg* is a chilling reminder of the vulnerability of maritime enterprise to asymmetric threats.²⁴ A speedboat packed with explosives rammed into the ship leaving it disabled and leaking oil. The attack was similar to the one against *USS Cole*. Traces of military explosives (C4) were found on the tanker as also debris of the speedboat that exploded. Al Qaeda has publicly called for attacks on economic centres and attacks on oil supplies to the west. Reportedly, Abu Laith, claiming himself as the spokesperson of the Al Qaeda, has issued a statement, "We, the fighters of the holy war, in general, are hoping to enter the next phase...It will be a war of killing, a war against business which will hit the enemy where he does not expect us to".²⁵

As part of campaign against terrorism, the Singapore authorities arrested 15 suspected Islamic militants, with links to Al Qaeda, who were planning to blow up US naval vessels and a bus that was to transport American military personnel.²⁶ The Singapore government's White Paper 'The Jemaah Islamiyah Arrests and the Threat of Terrorism' noted that the Jemaah Islamiyah had intended attacks on US naval vessels and personnel off Changi naval base and Pulau Tekong. The discovery of topographic maps with Fiah Ayub, a JI operative, revealed that the group had good operational plans and targeting data. The attack was to be carried against US ships transiting the shallow waters by ramming a small vessel packed with explosives. The 'kill zone' was meticulously established at a point where the channel was the narrowest and the fast approaching boat would leave no sea room for the target to avoid collision with the suicide boat. Reportedly, the plans to attack US ships were conceived sometime in 1995 but kept on

hold due to limited experience and operational capability. Investigations have revealed that JI operatives had monitored the Singapore coast guard patrolling routes and had even video recorded the naval ships at Changi naval base.

Close on the heels of *Limburg* incident, a Greek warship operating near the entrance to the Persian Gulf was approached by a small, high speed boat. The ship fired warning shots and the boat turned away. A nearby flotilla of Japanese support ships were put on alert, fearing the incident indicated another Al Qaeda attempt to attack ships from nations supporting the war on terror.

Similarly, in April 2002, six small powerboats approached *USNS Walter S. Diehl*, a US Navy tanker of the Military Sealift Command, while transiting through the Persian Gulf. The tanker first fired flares to warn the small boats away but the boats appeared determined. Finally, it fired its .50-calibre machine gun and the boats then sped off. Soon after, in June 2002, three Saudis were arrested in Morocco in connection with an Al Qaeda plot to use boat-bombs against US and British warships transiting through the Strait of *Gibraltar*.

On January 19, 2003, Palestinians tried to blow up an Israeli Navy vessel using a small boat-bomb. Israeli sailors noticed a suspicious raft approaching them in waters banned to vessels off the northern Gaza coast (near the beach of the Jewish community of Dugit). Warning shots were fired first and then fired for effect, which caused the raft to explode. It is not known how many persons were aboard the raft-bomb. In November 2002, four Israeli sailors were wounded when terrorists detonated a boat-bomb off the coast of Gaza. The Israeli patrol boat was damaged but managed to return to base.

The above incidents clearly show that the terrorist groups have built up capability and expertise in suicide attacks against ships. An important question arises: where from this capability was obtained? It is fair to argue that it was obtained from the Liberation Tigers of Tamil Eelam (LTTE). The LTTE, fighting for a separate ethnically cleansed Tamil enclave in Sri Lanka, had developed a sophisticated strategy of attacking maritime targets like Sri Lankan navy ships and other commercial vessels. Sri Lanka has lost at least a dozen naval vessels, both in harbor and at sea, as a result of LTTE attacks. The LTTE has engaged in wolf pack tactics, using high-speed boats filled with explosives that rammed into naval vessels. Sea Tigers, the naval wing of the LTTE, has emerged as one of the most ruthless and dangerous maritime capable groups in the world. The LTTE was reported to have developed a human suicide torpedo. The Maritime Intelligence Group, a Washington-based think tank, has noted that members of the Jemaah Islamiyah, had been trained in sea-borne guerrilla tactics developed by the LTTE.

The LTTE remains active despite the reported peace talks with the Sri Lankan government. A mystery ship, reportedly controlled by the LTTE, was spotted 100 nautical miles north east of Mullaitivu; it offloaded weapons to small boats before the crew

noticed that they were being watched by Indian forces and began dumping items overboard. Sri Lankan naval forces intercepted a dingy with six-armed LTTE cadre and communications equipment. Reportedly, Indian and Sri Lankan navies have instituted a range of measures to step up surveillance to prevent LTTE smuggling arms across the narrow northern strait separating the two countries.

To that extent, the 'kamikaze' approach poses major challenges to naval forces. Navies will need to concentrate on newer threats, as these would require new approaches and new methods. There will be added demands on scientific innovation, planning and intelligence information. Therefore, the new threats demand a freshly articulated maritime strategy keeping in mind that the asymmetric approach is the most favoured strategy for the terrorists.

Piracy

Piracy at sea continues to top the list of threats posed to merchant shipping. The 2004 Annual Piracy Report published by the International Maritime Bureau (IMB) highlights the inability of maritime nations, particularly Indonesia (93 piratical attacks), to control sea piracy in their waters. There were a total of 325 piracy attacks on shipping in 2004. This figure is lower than the reported 445 attacks in 2004 but the most worrying part of the report is that the number of crew killed increased to 30 as compared to 21 in 2003. Besides, 86 shipping crew were kidnapped and pirates demanded ransom for their release. Many of these attacks were serious and involved vessels being fired upon and crew kidnapped for ransom. As many as 36 crew were kidnapped, four killed and three injured in the *Malacca Straits*.

Indonesia and *Malacca Straits* appear to be popular among pirates. This is due to geographical and operational reasons. The area around the straits attracts the heaviest maritime traffic concentration. As noted earlier, over 200 vessels of different types transit the *Malacca Strait* every day and the traffic density is very high. Although there is a traffic separation scheme, transiting vessels reduce speed to negotiate the traffic. Very Large Crude Carriers (VLCCs) transit the strait at safe speeds with only a metre or two of clearance under the keel. Besides, the strait is home to several shipwrecks and shallow areas. These navigational and operational conditions provide the right type of environment for pirates to undertake attacks as also manage a quick getaway. The number of attacks is fast increasing and is alarming.

In the recent past, the waters off Sri Lanka have witnessed frequent acts of piracy. In one incident, a merchant vessel, *M V Cordiality*, was captured and five Chinese crew were allegedly killed by Sri Lankan terrorists near the port of Trincomalee.²⁷ LTTE rebel forces are also reported to have hijacked ships and boats of all sizes, and kidnapping and

killing crew members is a common practice. In August 1998, a Belize flagged general cargo vessel, *M V Princess Kash* was hijacked by LTTE rebels.²⁸ While on its way to Mullaitivu, a LTTE stronghold, the Sri Lankan Air Force bombed the vessel to prevent the ship's cargo falling into the hands of LTTE. The status of the 22-crew members is still not known.

The International Maritime Bureau has warned commercial shipping transiting along the east coast of Africa not to come within 50 nautical miles of the coastline because of pirates. Most of the ports in the Horn of Africa are piracy prone and dangerous. Attacks occur in port, at anchor or during slow steaming off the coast. Somali waters in particular have been notorious for acts of piracy. This is primarily due to political instability. Somali militias operate speedboats and are reported to pose as coastguard. Their activities include kidnappings, vessel seizures and ransom demands. The most dangerous aspect of these activities is the frequent use of infantry weapons like mortars, grenades and small arms.

In January 2002, a Lebanese vessel, *Princess Sarah*, was attacked and hijacked twice off the coast of Somalia.²⁹ In the first instance, the vessel was fired at while underway. In the process it sustained some damage and was forced to stop after 20 miles to make repairs to the engine. Two days later a second attack took place and the pirates managed to take over the vessel. The initial ransom demand was for \$60,000, but later this was changed to \$200,000. An agreement was reached on an undisclosed amount and the crew was released. A French navy vessel was sent to oversee the release. The troubles of the vessel did not end there, because another attack took place and this time the pirates were scared away by a helicopter that was sent by the nearby French warship *Floreal*.

In June 2002, the Cyprus-flagged *Panagia Tinou*, a bulk carrier, was hijacked while it was at anchor off the North coast of Somalia.³⁰ The crew was taken hostage and the ship was moved to an unknown destination along the Somali coast. The United Nations entered into negotiations with the pirates on behalf of the Philippines since Somalia has no bilateral relations with it. After 16 days of captivity the crewmen were released in return for a ransom of \$400,000, paid by an international shipping insurance agency through the Protection and Indemnity Club. According to the commander of the German Naval Air Wing Detachment in Mombasa, the presence of three German vessels near where the hijacked vessel was anchored helped free it.

Pirates are like sharks. They breed and show up more often in some regions than others. They can strike anywhere but some areas are popular with them. Unfortunately, the Indian Ocean is home to the top three piracy infested regions. South East Asia, South Asia and the east African coast are hotspots of piracy and account for more than half of the worldwide reported attacks. It appears the centre of gravity of piracy keeps shifting, but pirate plagued areas remain active. It may simply happen that one area may record

more attacks than the others, but no area can claim itself to be free from pirates. The number of incidents, including violent attacks, continues to rise.

Notwithstanding the efforts of regional navies, the maritime community is growing pessimistic about the ability of States to counter piracy. They also appear to doubt the intention of States to take the matter seriously. Reportedly, piracy at sea costs the world's economy some US\$25 billion a year³¹ and the threat is growing as modern pirates equip themselves with the latest technology. The IMB has recommended a special anti-boarded system called the 'Secure-Ship', a non-lethal collapsible electrical fence around the ship when transiting danger areas.³²

'Flag of Convenience' Shipping

The world's 'most wanted terrorist' Osama bin Laden and the Al Qaeda operatives are known to own or have chartered at least 20 merchant vessels capable of undertaking ocean passage. These vessels are suspected to possess 'flag of convenience' (FOC) registry in Liberia, Panama and the Isle of Man.³³ Recent reports suggest that Osama's secret shipping fleet, flying a variety of flags of convenience, allows him to hide the ownership of vessels, transport goods, arms, drugs and recruits with little official scrutiny.³⁴ A shipbroker in Germany has admitted acting as a translator when Wahid al Hage, an Al Qaeda operative, sought to buy a merchant vessel. Wahid is sought in connection with the 1998 bombings of two US embassies in East Africa.³⁵ Reportedly, one of bin Laden's cargo freighters unloaded supplies in Kenya for the suicide bombers who weeks later destroyed the US embassies in Kenya and Tanzania.³⁶

The presence of FOC (Flag of Convenience) vessels has indeed exposed chinks in the armor of security and posed new challenges for the maritime forces.³⁷ Several terrorist organisations are known to possess merchant ships. For instance, LTTE has a flotilla of ships that are engaged in maritime trade. Most of these are registered in FOC countries known as "pan-ho-lib" i.e. Panama, Honduras and Liberia.³⁸ Operating under flags of convenience and staffed with a Tamil crew, these cargo ships carry out their activities between Asia and Europe. They are also known to regularly transport illegal immigrants or indulge in any kind of traffic on behalf of LTTE. For instance, LTTE vessels ship narcotics from Myanmar to Turkey. In order to give legitimacy to their fleet as also to generate revenue, LTTE ships move general cargo such as fertilizer, timber, rice, paddy, cement and other dry cargo.³⁹

The capture by the Israeli Navy of *Karine -A*, a Palestinian Authority ship, carrying 50 tons of lethal ammunition, offers a classical example of a change of name. According to Lloyd's of London, the vessel was owned by the Beirut based Diana K Shipping Company and registered in Lebanon. Its original name was *Rim K* and was purchased

by Ali Mohammed Abbas, an Iraqi national for \$400,000. It was re-registered in Tonga as the *Karine -A*.⁴⁰

Similarly, *Prestige*, the tanker that sank off Spain, had been chartered by an oil brokerage in London - headquartered in Geneva but owned by one of the infamous Russian "oligarchs" in Moscow.⁴¹ FOC registries are a complex web of tax shelters, front companies, nationalities, and overlapping jurisdictions and are known to play messy games. The world's biggest oil companies - Shell, Exxon Mobil, and BP - routinely charter vessels like the *Prestige* to ship oil around the world.

According to US Navy officials, Al Qaeda had used its shipping fleet flagged in Tonga to transport operatives around the Mediterranean Sea.⁴² A firm called 'Nova' incorporated in Delaware and Romania had for years engaged in smuggling illegal immigrants. The company has, on a regular basis, changed names and registry. In February 2002, eight Pakistani men jumped ship off one of Nova's freighters, the *Twillingter*, at the Italian port of Trieste after a trip from Cairo. These men carried false documents and large sums of money and suspected to have been sent by Al Qaeda.

In August 2002, the master of another of Nova's renamed freighters *Sara*, had radioed to Italian maritime authorities that 15 Pakistani men whom the ship's owner had forced him to take aboard in Casablanca, Morocco, were intimidating his crew.⁴³ Although the Pakistanis claimed they were crewmen, the master said they knew nothing about seafaring. Reportedly, the US officials found tens of thousands of dollars, false documents, maps of Italian cities and evidence tying them to Al Qaeda members in Europe; they were possibly on a terrorist mission. The 15 were charged in Italy with conspiracy to engage in terrorist acts. In October 2002, as part of the international coalition against terrorism, European navies set up a dragnet and boarded in Greek waters another Nova freighter, the often-renamed *Cristi*, but found nothing amiss.⁴⁴

According to the International Transport Workers' Federation (ITWF) Fair Practices Committee, a union of seafarers and dockers campaigning against FOC, there are 30 countries that are known to offer FOC registry.⁴⁵ These are essentially developing or small island states. Interestingly, Bolivia, a landlocked country, also offers FOC registry. The ITWF believes that there should be a genuine link between the vessel and its flag, which would increase accountability and force ship-owners to maintain international shipping standards, a practice that does not commonly occur with FOC ships. According to industry experts, flag hopping is a common practice and ship-owners tend to switch registry at the first sign of a crackdown by authorities or when engaging in activities involving gun-running, drug smuggling, transporting illegal cargo or human beings.⁴⁶

FOC vessels have the capability to challenge sea-lane security. Their presence clearly highlights the dangers involved when strategic cargo like oil is transported. It is also a

reminder that countries need to revitalize national fleets and challenge FOC vessels. If the maritime community is serious about challenging the forces of terrorism, then it must establish a framework for a genuine link between the flag a vessel flies and the state it belongs to.

Crew

Though merchant ship crew are trained to handle emergencies onboard ships, they have been found wanting in professional competence. According to the International Maritime Bureau (IMB), it is virtually impossible to verify the authenticity of the identity of the crew.⁴⁷ Besides, there is a major problem of counterfeit and improperly issued mariner documentation. IMB has issued a warning to ship operators about thousands of unqualified crew and masters working illegally with false papers, and has called for tighter security by authorities issuing certificates.

The alert follows the release of statistics showing that, of 54 maritime administrations surveyed, more than 12,000 cases of forged certificates of competency were reported.⁴⁸ These figures highlight the gravity of the situation. Ships are sailed by crewmen with false passports and competency certificates. The IMB also believes that at times the issuing authorities themselves are to blame. For instance, the Coast Guard office in Puerto Rico was reported to have issued nearly 500 suspicious certificates of competency.⁴⁹ Such cases usually escape detection by the port authorities.

At times, crews themselves can act as potential threat. Both the Philippines and Indonesia are the largest suppliers of merchant ships. These states are home to radical groups like the Abu Sayyaf and the Gerakan Aceh Merdeka (GAM).⁵⁰ In December 2002, a joint Indonesian navy-military patrol seized a barge manned by seven Indonesian crewmen, some 10 km off the coast of East Aceh, northern Sumatra, Indonesia. The vessel was reportedly carrying explosives and detonators from Penang in Malaysia to Aceh.⁵¹ A search of the barge yielded 46 detonators and 55 sticks of 'power gel', an explosive material that is usually combined with other explosives. A month before, the Indonesian navy's western fleet had destroyed two ships carrying smuggled arms for GAM. The separatists had seized the vessels from Thai fishermen to smuggle arms to Aceh province. The action was taken after the rebels controlling the ships opened fire. The crew, who were held hostage by the rebels, had been freed.

Earlier, in August 2001, a general cargo carrier, *M V Ocean Silver*, while transiting through the *Malacca* Strait, a piracy prone area, was captured by GAM rebels. The six crew members of the vessel were taken hostage. In an attempt to rescue the vessel and the crew, the Indonesian security forces engaged in a gun battle with the insurgents, that resulted in the death of a soldier and three rebel insurgents. But, the hostages could not

be rescued. What was more disturbing was the fact that the GAM issued a warning that all ships transiting through the straits between Sumatra Island and Malaysia must first get permission from the insurgents.

It is virtually impossible to detect potentially undesirable crew members. The situation gets more complicated in case of vessels that fly 'Flags Of Convenience' and employ multi-national crews. It is difficult to verify the identity of the crew. Interestingly, the ship itself is a safe den for undesirable elements. There are several hidden spaces, holds and compartments in the ship that are difficult to inspect. Some spaces are so unfamiliar that it may be difficult to locate them without the help of the ship's compartment drawings. Modern-day tankers, bulk carriers and cargo vessels are very large and can easily carry dangerous devices, substances and stowaways within.

Drug Smuggling

It is well known that South East Asia along with South West Asia are the two top opium and heroin producing regions in the world. Myanmar tops the list with an annual production of more than 2,500 tonnes. Heroin produced by Myanmar is largely trafficked through unmarked transit land routes and through sea routes. Traffickers move heroin through Myanmar's seaports such as Moulmein for sea-borne passage to the west. The 'Golden Triangle' and the 'Golden Crescent' surround India. By virtue of its geographic location, India has emerged as an important transit route for drugs.

Sri Lankan port of Jaffna is home to Tamil pirates and drug dealers. They provide security and courier for Myanmar drug shipments. Importantly, they have developed an integrated network of drug production and shipment by the sea route. Bulk quantities are transported over the seas to mainland US and Europe. Reports also suggest that '*ganja*' cultivation is being resorted to by some Acehnese in the remote areas of Aceh in Indonesia. If the "Free Aceh" rebellion catches on, drug cultivation and drug running could be used by them to finance their insurgency.

'Golden Crescent', with its centre of gravity in Afghanistan is the other important source of opium. A large quantity of opium is routed overseas through land routes in Pakistan to Karachi. Part of this consignment also find its way to India through land routes along the India-Pakistan border as also through the sea routes to Gujarat.⁵²

As part of Operation Enduring Freedom, a Canadian warship patrolling the Arabian Sea seized a wooden vessel carrying *hashish* off the coast of Pakistan.⁵³ The Canadian boarding party found 20 packages of the size of cement blocks (wrapped in blue plastic and stamped with 'Freedom for Afghanistan'). The vessel was towed into international waters and destroyed using heavy machine guns. It is believed that drug trafficking profits have been used to finance Al Qaeda.

Gun-Running

The linkage between drug trafficking and proliferation of small arms is well established. According to experts, it may not be possible to control the spread of small arms unless there is a corresponding control of drug trafficking. Myanmar offers a classical example of the linkage between drugs trade and small arms proliferation.

In recent times, Myanmar drug king Khun Sha is known to command a well-equipped private army of over 10,000 troops to guard his opium cultivation territory. Also, insurgent movements like Karen rely on drug sale proceeds to equip their army. In Bangladesh, small arms smuggling is quite common. The porous land borders and the coastline of Bangladesh offer an easy inflow of weapons and drugs.⁵⁴

The LTTE has established a very sophisticated network of gun-running. It has contacts in several South East Asian countries, particularly Thailand, Myanmar and Bangladesh and conducts its business with impunity.⁵⁵ The LTTE gun trade route passes through the Bay of Bengal and Andaman Sea. Arms originating from Cambodia are loaded onboard small fishing trawlers in the southern Thailand port of Ranong.⁵⁶ These vessels then transfer the consignment to larger vessels at sea for onward passage to Sri Lanka.

Earlier, in December 1990, port authorities at Penang impounded *MV Sunbird*, an LTTE commercial vessel, and seized diving and communication equipment and some ammunition. The *Sunbird* had also called regularly at Phuket. Reportedly, a large proportion of LTTE military hardware like artillery, mortar rounds, surface-to-air missiles, big-calibre machine-gun ammunition is bought in Bulgaria, the Czech Republic and North Korea. These consignments are transferred off Thailand from ocean-going vessels to smaller craft and then transited 1,900-km to Sri Lanka through the Bay of Bengal.⁵⁷

Small boats to Cox Bazar in Bangladesh are known to transport weapons. Several vessels engaged in gun-running have been captured in the region.⁵⁸ In 1996, Bangladesh authorities seized 600 rifles onboard a fishing trawler originating in Thailand. In 1997, the Royal Thai Navy seized an arms shipment for the People's Liberation Army (Manipur) following a chase off the port of Ranong in the Andaman Sea.⁵⁹

Intelligence sources believe that more than two-dozen notorious local underworld gangs are engaged in gunrunning in the Bangladesh port city of Chittagong. The major groups are: BDR Selim, Habib Khan, Sunil Dey, Chandan Biswas, Abdul Kuddus alias Kana Kuddus, Mafizur Rahman Dulu, Shafiqul Islam Shafiq, Morshed Khan and Iqbal. They possess over 15,000 illegal arms, including AK-47, AK-56, G-3, M-16 rifles and large stocks of ammunition. Besides, there are several arms manufacturing workshops. Chittagong and Cox Bazar are a major transit point for arms smuggling.⁶⁰ The Bangladesh navy seized 123 foreign made fire-arms and 146 rounds of ammunition from

the three off-shore islands, Sandwip, Moheshkhali and Kutubdia. They recovered huge number of local made firearms and unearthed 30 local arms manufacturing workshops from Moheshkhali and Kutubdia.⁶¹

On April 2, 2004, following a tip-off, nine truckloads of arms and ammunition were seized from the port of Chittagong.⁶² Reportedly, the haul comprised of two consignments; one consignment originated from the port of Hong Kong and was of Chinese origin and the second was loaded at Singapore and consisted of weapons of both Israeli and US manufacture. The shipment originated in Hong Kong and was then transported through the Strait of *Malacca* to be transhipped in the Bay of Bengal to two trawlers, *Kazaddan* and *Amanat*, which ferried the weaponry to a jetty in the port of Chittagong. According to Jane's Intelligence Review sources, the shipment involved two key insurgent movements from India's northeast - the United Liberation Front of Assam (ULFA) and the Isak-Muivah faction of the National Socialist Council of Nagaland (NSCN-IM), which since 1997 has been in protracted peace talks with the Indian government, held mostly in Bangkok.

On the western seaboard, Indian security agencies intercepted a North Korean vessel, *M. V. Kuwolsan*, that had docked at Kandla port to discharge a cargo of sugar. Examination of the cargo of 148 boxes (declared as Machines and Water Refining equipment) revealed that the boxes contained equipment for production of tactical surface-to-surface missiles with a range in excess of 300 kilometres.⁶³

In July 2002, the Indian Coast Guards apprehended an abandoned merchant ship *MV Al Murtada* adrift off Ratnagiri in the Arabian Sea. On boarding, two AK-47 rifles with 'Allah' and 'Yusuf' inscribed in Arabic script, were discovered. The ship had two different sets of papers and had been stripped off its furnishing, including bunk-beds. The investigations revealed that Somali gun-runners had hijacked the ship in January 2002.⁶⁴

Earlier, in 2000, Indian security forces had intercepted a major gang of international gun-runners supplying weapons to different secessionist groups in the northeast. A joint operation involving the Indian army, navy, air force and the Coast Guard captured a clandestine shipment of weapons valued at around US \$ 1 million.⁶⁵

Illegal Fishing

As traditional fishing grounds are exhausted due to overexploitation and pollution, competition for newer stocks has intensified. Fishermen now sail to distant and foreign Exclusive Economic Zones (EEZ) to catch fish. Most of their activities are illegal resulting in their arrest. Fishermen from Thailand are by far the most enterprising and 'aggressive' fishermen in this part of the world who encroach into EEZs of neighboring

states. Thai fishermen regularly plunder fish in EEZs of Myanmar, India, Malaysia and Indonesia. In 1995 Thai warships clashed with Vietnamese patrol crafts that were trying to arrest Thai fishing boats. Two Vietnamese sailors were killed.⁶⁶ Similarly, Myanmar Navy, Malaysian Navy, Indian Navy have fired on Thai vessels.

At times it may become difficult for states to enforce EEZ laws. The Myanmar government says it simply cannot enforce its prohibition on fishing by Thai vessels. Myanmar maritime patrol aircraft see hundreds of Thai boats in the Gulf of Martaban. The navy can do nothing about it as they cannot sink all boats⁶⁷. Throughout the Sri Lanka-LTTE crisis, the Indian Government spared no effort to ensure that fishing ground off Kachaitivu was not denied to its fishermen. Also, the Sri Lanka Navy had to factor in the requirement of these fishermen while combating coastal hopping by LTTE.

Underwater Warfare

It suits terrorist requirements of low technology and unconventional means to challenge a superior force. The recent capture of Abd al-Rahim al-Nashiri, an alleged mastermind of Al Qaeda's nautical strategy has revealed some disturbing trends.⁶⁸ US officials are on alert for signs that Al Qaeda would use small submersibles, underwater motor-propelled sleds that divers use and "human torpedoes" (these were developed by LTTE against Sri Lankan Navy) to carry out underwater attacks. Apparently, as a result of confessions by a captured Al Qaeda operative, Omar al-Faruq, it was revealed that he planned scuba attacks on US warships in Indonesia. This forced US officials to visit hundreds of scuba shops in Indonesia seeking information about suspicious visitors.

Mines are the cheapest form of maritime warfare. Ships, boats, aircraft and divers can help lay these. Reportedly, sea mines stalled the amphibious assault at Wonson during the Korean War and a US admiral noted "we lost control of the seas to an enemy without a navy, using World War weapons deployed from vessels that were built before the birth of Christ"⁶⁹ There are 48 navies with capability to undertake mining operations.⁷⁰

The mere threat of mine is sufficient to deter any ship from entering any channel or strait. Mines laid in the Red Sea in 1984 and the Persian Gulf in 1987 clearly demonstrate the lethality of mines. Several ships were damaged and it needed an international effort to clean the area. 18 merchant ships were damaged in the Red Sea in July 1984 due to mines laid 'as an expression of Libyan indignation with Egypt'.⁷¹ During the 1991 Gulf War, *USS Princeton* and *USS Tripoli* struck sea mines that cost the US \$21.6 million while the cost of the mines was only \$ US 11,500.⁷² Commodore Teo, Chief of Singapore Navy was quoted as saying that sea mines can be used to disrupt freedom of navigation in the *Malacca Strait*.⁷³ The sea mines, therefore, offer the cheapest form of

asymmetric warfare.

Similarly, limpet mines can be effective against ships. Recent reports suggest that Al Qaeda has the capability to use limpet mines. This revelation comes after the discovery of an Al Qaeda naval manual that specifies use of limpet mines. The manual explains how these mines are to be attached to hulls of ships, where to attach them on different classes of ships as also the amount of explosive to use.⁷⁴ Besides there is now ample evidence that indicates Al Qaeda has been experimenting with "mixed gas and oxygen" in preparation for an underwater attack. Besides the presence of scuba equipment in Al Qaeda inventory, there is evidence to suggest that it has planned for oxygen 'rebreathers', a closed circuit breathing apparatus that does not give off any bubbles. Mixed gas techniques allow deeper dives with less probability of detection.

Following a tip-off, the Colombian Police have chanced upon an indigenously built mini submarine in the port of Tumaco, near the Colombian border with Ecuador. Reportedly, the vessel can carry up to 10 tonnes of cocaine valued at about \$US200 million in the international market. According to Eduardo Fernandez, head of the Administrative Security Department (DAS), a detective force, "They started building the submarine about six months ago, using small pieces so as not to make people suspicious. They wanted to have it ready for Easter because they thought the police would drop their guard".

This is the third time that the Colombian Police discovered a mini submarine in the country. Earlier, in 1995, a relatively unsophisticated mini-submarine to transport drugs had been discovered. But in 2000, a similar vessel was confiscated in a mountain workshop in Facatativa, just 18 miles west of Bogota. Facatativa is a rural town and is roughly 7,500 feet above sea level in Andean region. The mini submarine had hydraulic tubing, a protected propeller, a double hull and diving rudders that would allow it to dive to 325 feet. The vessel could carry 11 tons of cargo. The discovery had stunned both the US Drug Enforcement Administration and the Colombian police who noted that in the past drug cartels had used high-speed boats and low-flying planes to smuggle cocaine. This was indeed a huge leap.

Perhaps the most disturbing aspect of the find was that Russian-language manuals with Spanish translations were recovered. In 1997, Colombian gangs had been suspected of trying to buy a diesel-powered Russian submarine. Highly professional Russian engineers may have also been helping to build the submarine.

Similarly, the LTTE attempts to build a mini submarine in Phuket, Thailand were uncovered in April 2000. Christie Reginald Lawrence, a Sri Lankan born Norwegian citizen, was caught by the police while building a mini submarine with a Norwegian Engine at the Sea Craft Company a shipyard jointly owned by Lawrence, a Thai and an American national.

With the discovery of a mini submarine under construction at the Sea Craft Company yet another small submarine construction was sighted in the waters off Koh Hey Island, south of Phuket's Chalong Village. Chalong police found not one but three mini submarines at a boatyard in Moo , Rawai Village. The boatyard Sea Station Partnership is owned by Sithichai Wonsrivijit alias Go Chai. Go Chai also runs a diving and snorkeling business at Koh Hey and claims to be an inventor. He invented a helmet for sea walking and had completed building his latest invention.

Phuket has also served as an important base for LTTE arms procurement and smuggling. For instance, in February 1996 M V Horizon and M V Comex Jules were destroyed by the Sri Lankan Air Force as the vessels were believed to have onboard a huge consignment of arms that originated in Cambodia and were loaded at Phuket.

Reportedly, in June 1999, the Moro Islamic Liberation Front (MILF) had made enquiries with North Korea for a possible sale of a mini submarine. A brochure describing a mini submarine '45-foot long with the capacity to carry six persons, including two divers ... designed for special operations with a good tactical range and a low noise level' was found. North Korea has sold more than 10,000 automatic rifles and other arms to the MILF. In early 2003, Philippines forces had discovered some documentation from the MILF camp, which suggested that the MILF was considering purchasing underwater scooters from Scandinavia.

These developments are a clear indicator that both the terrorists and drug cartels are employing similar tools for their operations. Their focus now appears to be shifting to underwater capability. This raises two issues: First, availability and cost of underwater vehicles and second, their crew and operations. As regards availability, these are constructed by using commercially available off-the-shelf technology equipment. According to Dr. Giunio Santi, a naval architect, "a modified underwater barge can support two mini subs for six months at sea. The barges and all other support equipment are commercially available and are not considered to be weapons, so that any country - including those restricted in their arms purchasing capabilities - can buy them without supplying company filing purchase notification statements." The cost of a personal mini submarine can range from several hundred thousand dollars to tens of millions of dollars depending on the size. As far as crew is concerned, it is not difficult to train. All they need is good deep-sea diving training and basic engineering knowledge of batteries and underwater propulsion.

Some Working Propositions

History tells us that the first-generation warfare was defined by close-order formations armed with guns to repel sword-and-bayonet cavalry and infantry, what Napoleon

perfected. Second-generation warfare's winners were those who had the most, or the best-managed firepower, enabling their forces to win through attrition—an approach mastered by the Prussian army. Third-generation warfare saw second-generation armies being agitated by decentralized attacks that, though brilliant, ultimately failed by virtue of an opponent's ability to wear the attacker down.

Viewed in the context of military history, fourth-generation warfare is highly irregular. "Asymmetric" operations—in which a vast mismatch exists between the resources and philosophies of the combatants, and in which the emphasis is on bypassing an opposing military force and striking directly at cultural, political, or economic targets—are a defining characteristic of fourth-generation warfare. Its actors rely on asymmetric strategies and their tools include operations involving terrorism, information warfare and threat of use of weapons of mass destruction.

As noted earlier, traditional operational concepts of safeguarding SLOCs, maritime interdiction, sea denial, sea control, and defence of maritime infrastructure will dominate the minds of naval practitioners but it is this type of warfare that Indian navy will face in the coming decades. It will encounter a decentralized enemy in the form of non-state actors that may be supported by other nations. In order to prepare for and shape our responses to these threats we would need to predict specific asymmetric threats, build intelligent and imaginative generic strategy for response and develop deterrence. There will be demands on reshaping force structure that is designed to counter asymmetric threats.

Post 9/11, it is believed that the war against terrorism will neither be easy nor short. It is a different kind of conflict than any seen in the past: a struggle against an internationally networked enemy dedicated to destruction. This struggle promises to be global in scope and simultaneous in execution. It will require the full and sustained might of the Indian Navy.

The India Navy is modernizing and transforming to become a 21st-century navy of unique capabilities: strategically and operationally responsive, technologically and organizationally innovative, joint and networked at every level. Platforms will remain crucial to a 21st-century Navy. Building sufficient platforms is important, but equally important is building the right ships and aircraft for tomorrow's fleet--those that possess the capabilities needed to triumph over emerging threats. While we debate the doctrine of 'reach and reconnaissance' and build/acquire vessels to provide blue water capabilities, the threats that lurk closer home cannot be discounted. Roughly 60 percent of the ships in the navy today are designed for distant operations but in future, platforms for coastal operations would become more important. Precision capabilities will yield greater deterrence effectiveness by warning of swift and deadly response to aggression. In short, it will be a fleet that serves as the leading edge of naval defence. Some issues that need

deliberation/ augmentation in support of LIMO are:

- A balanced naval force for blue water operations as also for swift and deadly response to threats closer home.
- UAV/UCAV in support of LIMO.
- Augmentation of Special Forces.
- Examine the use of the capabilities of mammals/birds, their extraordinary senses, swimming or flying ability.
- Harness off-the-shelf technologies to support LIMO.
- Improving intelligence networks.
- Building database of terrorist organisations, drug cartels and gun-runners.
- Maritime cooperation with littorals and sharing of intelligence.
- Joint operations in support of LIMO.
- Develop common communication and operational doctrines.

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2. Ibid.
3. "Asymmetric Warfare, The USS Cole and the Intifada", *The Estimate*, Volume12, Number 22, November3,2001.
4. Robert L. Pfaltzgraff Jr. and Stephen E. Wright, N.1. pp.12-13.
5. Ibid.
6. Ibid.
7. This is the classic definition of "asymmetry" by the US National Defense University's Institute for National Strategic Studies in their 1998 Strategic Assessment available at <<http://www.ndu.edu/inss/sa98/sa98ch11.html>> .
8. Robert L. Pfaltzgraff Jr. and Stephen E. Wright, in ed. Richard H. Shultz Jr. and Robert L. Pfaltzgraff Jr., *The Role of Naval Forces in 21st Century Operations*, p.20.
9. Al Qaeda attack on USS Cole, Tamil Sea Tigers attack on Sri Lanka naval ship and the attempted Hamas attack on Israeli naval craft
10. See 'Worries Grow Over Tankers' Vulnerability to Attack' at <http://www.planetark.org>. According to Tatsuo Masuda, President of the Asia Pacific Energy Research Centre, the Strait of *Hormuz* in the Middle East and Strait of *Malacca* in South East Asia, are heavily used by tankers.
11. Ibid.
12. Ibid.
13. Edward Hanlon Jr, ' Taking the Long View: Littoral Warfare Challenges' in ed. Richard H. Shultz Jr. and Robert L. Pfaltzgraff Jr., *The Role of Naval Forces in 21st Century Operations*, p.156.
14. A mystery ship, reportedly controlled by the LTTE was spotted 100 nm north east of Mullaitivu and offloaded weapons to small boats before the crew noticed they were being watched by Indian forces and began dumping items overboard. Sri Lankan naval forces are reported to have intercepted on November 1, 2002, off Trincomalee , a dingy with six armed LTTE and communications equipment. The 6 men were brought to Trincomalee and handed over to police along with the communications equipment. Although truce talks are ongoing, the incident illustrates Sri Lanka's continued effort to prevent rebel re-supply or surprise attack. Reportedly, navies of Sri Lanka and India have agreed a range of measures to step up surveillance to prevent LTTE arms smuggling across the narrow northern strait separating the two countries. For details see ONI WorldWide Threat to Shipping reports dated 27 December 2002 and January 01, 2003 at <http://164.214.12.145/onit/onit_j_main.html>.
15. A recent Time Magazine report has noted that Bangladesh is "hotbed of radical Islam". Reportedly, 150 men belonging to "Taliban and Al-Qaeda fighters from Afghanistan had entered Bangladesh through Chittagong harbour in December 2001. They arrived by MV Mecca, and were seen carrying boxes of ammunition and AK-47 assault rifles. Harkat-ul-Jihad-al-Islami (HUJI) of Bangladesh, a force of about 2,000 men is closely linked with the Al Qaeda. Bangladesh Foreign Secretary Shamsheer Mobin Chowdhury rejected the Time article as baseless. Earlier in April 2001, the Far Eastern Economic Review ran a cover story depicting Bangladesh a 'cocoon of terror' - a haven of Islamic fundamentalist terrorists. The LTTE gun trade route passes through the Bay of Bengal and Andaman Sea . Arms originating from Cambodia are loaded onboard small fishing trawlers in the southern Thailand port of Ranong. These vessels then transfer the consignment to larger vessels at sea for onward passage to Sri Lanka. Some of these weapons are transported by small boats to Cox Bazar in Bangladesh . Several vessels engaged in gun-running have been captured in the region. In 1996, Bangladesh authorities seized 600 rifles onboard a fishing trawler originating in Thailand. In 1997, the Royal Thai Navy seized an arms shipment for the People's Liberation Army (Manipur) following a chase in the Andaman Sea off the port of Ranong. From 1984 to 1990 , a Malaysian island was used by the LTTE to train its Sea Tiger personnel. Gun-running by ships is by far the safest method.

16. The Maritime Intelligence Group, a Washington-based think tank, has noted that members of the Jemaah Islamiyah, a Southeast Asian Islamic militant group, had been trained in sea-borne guerrilla tactics developed by the Liberation Tigers of Tamil Eelam (LTTE), one of the world's most feared rebel armies. The Singapore government has linked Jemaah Islamiyah to al Qaeda. For more details see, 'Shipping Threatened by Militants Trained in LTTE Tactics – Expert', *Asian Tribune*, January 23, 2003.
17. Samuel Pyeatt Menefee, 'Piracy, Terrorism and Insurgent Passenger' in Natoline Ronzitte, '*Maritime Terrorism and International Law*', (London : Maritnus Nijoff, 1991) ,pp.43 -55 . Between 1857 and 1876, there were at least eight recorded cases of acts of terrorism committed on board ships. In 1961, Santa Maria was taken over by 71 Portuguese political insurgents who embarked the vessel as passengers. In the ensuing scuffle, one officer was killed and eight crewmembers were wounded. On a request by the Portuguese government, the vessel was intercepted , escorted to Brazil and the insurgents were granted asylum. The vessel was returned to the Portuguese authorities.
18. Ibid.,pp.56-58.
19. 'Danish Newspaper Explains City of Poros Slaughter' at <<http://google.yahoo.com/bin/query?p=city+of+poros&w=dir&fr=op&o=a&h&g=0&n=20&hc=0&hs=0>>
20. Samuel Pyeatt Menefee, N.13.,p.vii. On 8 October 1988, a group of Palestine guerillas hijacked the Italian cruise vessel Achille Lauro. They threatened to kill American and British citizens and demanded release of a group of Palestine prisoners detained in Israeli prisons. Meanwhile the ship sailed in to international waters and anchored off Port Said. After two days of negotiations, the hijackers surrendered for a guarantee of safe passage out of Egypt. An Egyptian aircraft was chartered and the Palestine guerillas left Egypt. Meanwhile, it was learnt that the guerillas had killed an American citizen on board the cruise vessel. The aircraft was intercepted by American fighter aircraft when it was flying over the Mediterranean Sea and escorted to US airbase in Sicily.
21. "Operation Cactus", at <<http://www.bharat-rakshak.com/CONFLICTS/Operationcactus.html>>. The mercenaries quickly overpowered the Maldivian Militia using rockets and machine guns and attacked the President's residence. A 'panicked' Maldivian Government sent out calls asking for assistance and India responded. Operation Cactus was launched and a large contingent of paratroopers made an unopposed landing at Male. The island was secured within 30 minutes after the arrival of forces. Fighter aircraft of the Indian Airforce were also deployed to the island in a show of force and helicopters landed commandos to the outlying island to search for any mercenaries. Shortly afterwards, a vessel was seen fleeing Male with mercenaries and hostages including Maldives Minister of Education.
22. Ibid.
23. See " Those Responsible Caught", at <http://www.cargolaw.com/2000nightmare_cole.html>.
24. See 'Terrorists wanted to hit US Frigate' at <http://maritime.com/>. The Yemeni-based terrorists wanted to attack a US naval vessel but could not reach the ship. So they sailed a dinghy packed with explosives into the tanker. The tactic was the same as that used in the suicide attack on the USS Cole in Aden Harbour in October 2000.
25. See "Bin Laden Still Alive: Al-Qaeda" at <<http://www.tribuneindia.com/2002/20020711/world.htm>>
26. The tape, released by the Singapore government, features a man describing how explosives could be carried on a bicycle without arousing suspicion. One plot involved bombing US Navy vessels in a special "kill zone" along the northeastern shores of Singapore and the bus that was targeted carries US military personnel between a naval base used by visiting warships and a train station. The US Navy has a logistics unit in Singapore and warships going to and from Afghanistan have been docked for replenishment in the new naval facility specially designed to accommodate US aircraft carriers. See <<http://www.pilotonline.com/military/ml0112sing.html>> for details.
27. Xinhua (Beijing), " Report on Ship attack in Sri Lanka", FBIS, 11 September 1997.
28. Rohan Gunaratna, ' Trends in Maritime Terrorism - The Sri Lanka Case', *Lanka Outlook*, Autumn 98,p.13.
29. See Piracy Quarterly Reports at <<http://home.wanadoo.nl/tortuga/archive/modern/modern.htm>>.
30. Ibid.
31. Nathaniel Xavier, 'A Boost For Fight Against Piracy', *The Star Online* , December 30, 2002, available at <http://www.thestar.com_my/ Maritime.htm>

32. Ibid. The fence (9,000 volt) can be installed and dismantled by the crew at any time. When tampered with, it will trigger an alarm, activate floodlights and a very loud siren. According to the IMB, the gadget has been tested at various sea conditions including force 7 seas; with salt waves splashing over it and apparently, the system keeps working with no false alarms and side effects.
33. See ' Terrorism Probe Extends To Shipping', *American Maritime Officer* at <<http://www.amo-union.org/Newspaper/Morgue/10-2001/Sections/News/foc.html>>
34. See 'Murky Flag-Of-Convenience Ship Registry System Could Hamper Effort To Uncover Terrorist Assets' at <<http://www.amo-union.org/Newspaper/Morgue/11-2001/Sections/News/foc.html>>
35. See Knight Rider, ' US Ports Represent Weakness In Nation's Defence Analyses Show' at <<http://www.military.com>>
36. Ibid.
37. See ' What are FOCs', at <http://www.itf.org.uk/seafarer/foc/Body_foc..html>. A FOC ship is a vessel that flies flag of a country other than the country of ownership. It enables owners to avoid high registration fees, taxes and employ cheap labor under sub-standard conditions. In some cases, private companies rather than the administration may run the national ship registry. For instance, a US private company runs Liberia's registry. In some cases the registration of vessels can even be done online clearly indicating absence of any regulations. Among the 30 FOC registries, Bahamas, Liberia and Panama are known to possess large merchant fleets accounting for about half the total percentage of global merchant shipping tonnage. There are several benefits for terrorists in owning ships with FOC registry. It is the safest way to smuggle personnel and equipment and perhaps even biological or nuclear weapons into any port.
38. 'Killing Of Sea Bird Not A Big Blow to LTTE Shipping Operations', *The Sunday Times*, February 1996. The LTTE ships are difficult to keep track of as they keep changing names and registry. Lloyds, lists 11 merchant ships belonging to some Asian front companies but in fact are managed by the elusive Kumaran Pathmanathan (a businessman who is wanted in Colombo for half a million dollars).
39. Rohan Gunaratna, ' Illicit transfer of Conventional Weapons: The Role of State and Non-state Actors in South Asia', in ed. Jayantha Dhanapala, Ambassador Mitsuro Donowaki, Swadesh Rana, Lora Lumpe *Small Arms Control, Old Weapons, New Issues* (Aldershot: Ashgate, 1999), p.266.
40. See ' Arms seizures Backfires' at 2120GMT,020108 <<http://www.stratfor.com>>.
41. See 'Ripples from Oil Spill', December 02, 2002 at <<http://www.NewJersey.com>>
42. John Mintz, '15 Freighters Believed to Be Linked To Al Qaeda: US Fears Terrorists at Sea; Tracking Ships Is Difficult', December 31, 2002, available at <<http://www.washingtonpost.com>> . Also see 'Tonga Targetted as Home of bin Laden's Ships' at <<http://www.smh.com.au>>. Tonga's role in FOC goes back to 2000 and the arrival in Nuku'alofa of Peli Papadopoulos, who said he represented Axion Services Ltd in Piraeus, Greece. He persuaded authorities to allow him to run Tonga International Registry of Ships (TIRS) out of Athens. In January 2002 Israeli commandos seized Karine A, a Tongan flagged ship, in the Red Sea and found it was carrying 50 tonnes of mainly Iranian weapons allegedly meant to be given to the Palestinians. Tongan Police Minister Clive Edwards said then that police were investigating what happened. In June 2002 a Tongan government statement said TIRS was to be closed down. "The TIRS had also not lived up to commercial expectations," chairman of a cabinet committee, Noble Fielakepa said in a statement. "International terrorism and an increase in people smuggling and asylum seekers were clearly key factors. Even our own region has felt the impact of these problems." In October, Croatian police seized the Tongan registered ship Boka Star that they claimed was smuggling military explosives to Iraq.
43. Ibid.
44. Ibid.
45. See ' What are FOCs', at <http://www.itf.org.uk/seafarer/foc/Body_foc..html>
46. Ibid.
47. See 'IMB Calls For Clamp-Down on Fake Maritime Documents' at <http://www.iccwbo.org/index_ccs.asp>.
48. Ibid.
49. Ibid.

50. See 'The World's Oceans Could Be The Next Target In The War On Terrorism' at <<http://www.emergency.com/cntrterr.htm>>. The Philippines, which is home of the Abu Sayyaf militant group, is the world's biggest crew supplier, while Indonesia is home to numerous radical Muslim groups and is the world's second biggest crew supplier.
51. "Indonesian Navy Seizes Boat Carrying Explosives From Malaysia", ABC News Online, December 9, 2002.
52. Recently, the Narcotics Control Bureau of India (NCB) seized about 50 kg of heroin, 300 grams of cocaine and 2 kg of smack in Chennai, Ahmedabad and Mumbai in three separate operations. The NCB has warned that recent seizures point to the fact that India had become a major staging point for operations. "With the Afghan route disturbed, the gap in supply is being made up with indigenous production," say officials. It has asked the north eastern states to increase vigil as they feel that drugs from Myanmar are being smuggled into India for shipment to Europe. Besides, the falling opium production in Afghanistan has prompted growers in the notorious "Golden Triangle" region to boost production to serve the rising global demand for heroin. See 'War shifts narcotics base to India' at <<http://www.hindustantimes.com.htm> for 13-11-2001>.
53. See 'High Seas Patrol Helps Deter Terrorism' at <<http://business-times.asia1.com.sg/storyprintfriendly/0,2277,37840,00.html>>
54. Muhammad Shahedul Anam Khan, 'Linkage Between Arms Trafficking and the Drug Trade in South Asia', in *Small Arms Control Old Weapons, New Issues*, Jayanth Dhanapala, (Vermont; Ashgate Publishing Ltd, 1999), p. 248 .
55. LTTE was forced to close its base in Myanmar in 1996 due to protests from Colombo. Consequently, Thai seaports in the Andaman Sea became very important. Since then the Tigers have been active in Phuket, Thailand. The discovery of a large sophisticated boat equipped with sonar and global positioning system, satellite phones, combat-training videos in Tamil, and LTTE calendars and uniforms forced Thailand to look for LTTE operations in its territory. The rude shock came after Thai navy officers searched Phuket's shipyards and discovered a half-built mini-sub at Koh Si-rae. (<<http://www.asiaweek.com/asiaweek/magazine/2000/0616/nat.security.html>>)
56. Ibid.
57. The recent operations by the Thai police in Songkhla netted two sergeants of the Royal Thai Army (RTA) and two pick-up trucks loaded with landmines, sticks of TNT, hand-grenades and ammunition . Investigation revealed that Thailand's illicit arms flows generally involve groups of local "middlemen" that purchase from insurgents such as the Karen. The middlemen then sell to buyers who typically include LTTE and insurgent factions from the Indian northeast. A key player in the arms black-market is the Arakan Liberation Party that has a small fleet of fishing vessels operating in the Andaman Sea and Bay of Bengal. They are known to enjoy good working relationships with both the LTTE and several northeast Indian groups. Thai naval chief Admiral Prasert Boonsong has confirmed that an island off the coast of Thailand's Satun province had been used as an arms dump-cum-transshipment point by gun-runners. According to the Thai Armed Forces Security Centre's intelligence unit, some boats can be hired for an illicit arms run for as little as Baht 50,000 (US\$1,100). See 'Thailand Cracks Down On Arms For Aceh' at <http://www.iansa.org/news/2001/jun_01/thai_crack.htm>.
58. Ibid.
59. Ibid.
60. See "Terrorists get weapons from the underworld" at <http://www.matamat.com/fullstory.php?gd=19&cd=2003-09-09>
61. Ibid.
62. No reliable list of the seized weapons has yet been made public. However, the shipment - altogether worth an estimated US\$4.5m-\$7m - is known to have included around 2,000 automatic and semi-automatic weapons, among them 1,290 Type 56-1/Type 56-2 Kalashnikov-type assault rifles; 150 T-69 rocket propelled grenade (RPG) launchers; quantities of 40mm RPG ammunition; 25,000 hand-grenades; and 1.8m rounds of small-arms ammunition.
63. The catch also included special materials and equipment, components for guidance system, blue prints, drawings and instruction manuals for production of such missiles. <http://www.indianembassy.org/pic/PR_1999/July_1999/PR_July_10_1999.html>.

64. 'Ship Used for Nefarious Acts?', The Hindu, Jul 09, 2002. Reportedly, sometime in January 2002, the ship was hijacked by Somali warlords who had been using it for gunrunning. The al Qaeda operatives are known to have close contact with Somali warlords and it is believed that the ship was used to "extricate al Qaeda operatives" after the US attacks on Afghanistan. The International Maritime Organisation (IMO) found two merchant ships by the name of Al Murtada — one with a displacement of 2,178 tonnes and the other with a displacement of 499 tonnes. According to official IMO records, the latter was to be sold as scrap in Mumbai last December. But it vanished and was reportedly moving under two different names, one of which was Al Albatross.
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65. The operation resulted in six gun-runners killed, 73 arrested and four vessels with a huge cache of arms and ammunitions impounded. The operation was the biggest seizure of sophisticated weapons on Indian territory since the Purulia arms drop in December 1995. See, 'Leech: What really happened?' at <<http://www.rediff.com/news/1998/jul/14cbi1.htm>Operation>.
66. Gorden Flaircough, "Floating Flashpoints ", *Far Eastern Economic Review*, 13 March 1997, p.54.
67. bid.
68. John Mintz, '15 Freighters Believed to Be Linked To Al Qaeda: US Fears Terrorists at Sea; Tracking Ships Is Difficult', December 31, 2002, available at < <http://www.washingtonpost.com>.>
69. Andrew F. Krepinevich Jr., "The Impact of Precision Weaponry", in ed. Richard H. Shultz Jr. and Robert L. Pfaltzgraff Jr., *The Role of Naval Forces in 21st Century Operations* , p.198.
70. Henry J Kenny, *An Analysis of Possible Threats to Shipping in Key South East Asian Sea Lanes*, Centre for Naval Analysis, Virginia, p.22.
71. James Cable, *Navies in Violent Peace*, (London : Macmillan press,1989), p.98.
72. Andrew F. Krepinevich Jr. N.43.p.198.
73. Ibid.
74. Stefano Ambrogi, ' Iraq War Could Spur al Qaeda Sea Attacks in Gulf', Reuters, 21 Feb 2003.
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