FREEDOM TO USE THE SEAS:
INDIA'S MARITIME MILITARY STRATEGY
Foreword

"India’s growing international stature gives it strategic relevance in the area ranging from the Persian Gulf to the Strait of Malacca…. India has exploited the fluidities of the emerging world order to forge new links through a combination of diplomatic repositioning, economic resurgence and military firmness.”

Dr Manmohan Singh, Prime Minister

Current projections indicate that India will be among the foremost centres of power - economic, technological and cultural, in the coming decades. This repositioning in the international geopolitics would call for a concomitant accretion of national power, of which the military power will be a critical dimension. Enhancing national security, encompassing both national defence and foreign relations, is what will allow the national leadership to protect nation’s territory, its people and institutions from external threats as well as internal dangers. Our primary national interest therefore is to ensure a secure and stable environment, which will enable continued economic development and social upliftment of our masses. This in turn will allow India to take its rightful place in the comity of nations and attain its manifest destiny. As far as our overall defence policy is concerned, we do not harbour any extra-territorial ambitions, but aim to safeguard our vital national interests. Therefore, within this overall national and defence framework, our primary maritime military interest is to ensure national security, provide insulation from external interference, so that the vital tasks of fostering economic growth and undertaking developmental activities, can take place in a secure environment. Consequently, India’s maritime military strategy is underpinned on 'the freedom to use the seas for our national purposes, under all circumstances'.

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The Indian Navy is the primary maritime means by which the state ensures the use of the sea for its own purposes, while at the same time ensuring that others do not use it in a manner prejudicial to its interests. The Indian Navy, by virtue of its capability, strategic positioning and robust presence in the Indian Ocean Region (IOR), can be the catalyst for peace, tranquility and stability in the IOR. It can be used to engage other maritime nations and extend our hand of friendship and co-operation. Also, it can act as a strong deterrent to prevent conflict, or to respond, should it become inevitable. All these facets have been articulated in the document – “Freedom to Use the Seas: India’s Maritime Military Strategy”, with the singular purpose of providing greater clarity and understanding on various facets of maritime military power, to our own people in particular and the world community, at large.

First, the obvious military objectives. Naval forces have traditionally been the instrument of choice for crisis management and deterrence of conflicts because of their inherent characteristics. The Indian Navy is structured to comprehensively subdue a range of potential adversaries in a conflict. Hence, our maritime military strategy is predicated to preparing for a possible conflict whilst maintaining a deterrent posture that ensures peace. Strategic deterrence is a part of this spectrum.

Fortunately, armed conflicts are rare occurrences, and to ensure that they remain so, during the long years of peace, the Indian Navy needs to project power; catalyse partnerships; build trust and create interoperability; and when required use convincing power to achieve national aims. Our strategy recognises that the sea lines of communication passing through our region are critical for our economic growth and to the global community. Smaller nations in our neighbourhood as well as nations that depend on the waters of the Indian Ocean for their trade and energy supplies have come to expect that the Indian Navy will ensure a measure of stability and tranquillity in the waters around our shores. Ensuring good order at sea is therefore a legitimate duty of the Indian Navy. This task will require enhanced capabilities, cooperation and interoperability with regional and extra regional navies. Hence, our strategy stresses the need for adequate forces, in concert with our Coast Guard, for undertaking the constabulary role in our maritime area of interest. Apart from combating piracy and terrorism at sea, this also includes responsibilities of surveying the waters around us, providing SAR facilities to those in distress, coordinating navigational warnings over a vast oceanic area and a myriad of minor but vital tasks that keep the global maritime-related industry, and the global economy, in good health. These facets of our strategy make the peace time objectives abundantly clear.

Our role in the 2004 Tsunami relief operations is a classic example of the positive power of navies in 'winning friends and influencing people.' The thousands of people whose lives were touched by the assistance provided by Indian seamen remains etched in their mindsets. The Naval effort in successfully evacuating our countrymen and afflicted citizens of friendly nations from Lebanon in 2006 reaffirms the utility of naval forces in crisis response for the national leadership. These two specific operations demonstrated the capability and resolve of the Indian Navy as a stabilising professional force in the region. Consequently, our maritime capabilities are being augmented to provide humanitarian assistance, in our own territories, and if required, to our friends abroad.

The Indian Navy is destined to enhance its capabilities to discharge its role in the region. The direction appears abundantly clear – a compact but capable Navy. The emphasis would be on force multipliers, quality of weapons, sensors and networking of platforms. In other words, the focus would be on critical capabilities than on the number of ships or aircraft. The strategy has also attempted to rationalise the reasons and the direction of our maritime capabilities in the future. This public articulation of the force build-up strategy, we hope will act as a confidence building measure, by providing an insight and the rationale for our capability enhancement.

“Freedom to Use the Seas: India’s Maritime Military Strategy”, is intended to be read in conjunction with the “Indian Maritime Doctrine” and the “Joint Doctrine – Indian Armed Forces” to provide a comprehensive understanding of strategic thought process. Since strategy is meant to show the way to employ forces and build capabilities in pursuit of national political aims and military objectives, it must remain sensitive to the changing circumstances, environment and threats. It should therefore be revisited and revised to keep it contemporary and relevant.

In conclusion, I must acknowledge my gratitude for RAdm K Raja Menon (Retd), for the time and effort he spared in guiding the team of officers into producing this pioneering document. In the absence of any precedence to this strategy, enunciating this document was an arduous task. I also commend the team of officers at the Integrated Headquarters of the Ministry of Defence (Navy), who worked tirelessly to make this abstract vision into a credible framework. Their labours have produced a worthy manuscript, which I strongly recommend to all those interested in maritime security and the Indian Navy.

(Sureesh Mehta)
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28 May 07
Admiral
Chief of the Naval Staff
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Maritime Military Strategy in Perspective

Strategies in Context

National Interests flow from a set of national values and the national purpose, which in our case are contained in the Constitution of India and the directions given by the political leadership. From these National Interests, our the National Security Objectives can be derived. These objectives when exposed to the components of national power, the prevailing and predicted domestic and global environment, lead to the formulation of National Security Policy. This policy would synergise all the components of the national power to achieve the objectives through the Grand Strategy.

Grand Strategy

In the modern context, Grand Strategy has to increasingly take into consideration the complex amalgam of globalised economies, modern societies juxtaposed with conflicting ideologies of fundamentalism and obscurantism. Thus it is necessary to consider non-military aspects – economic, political, psychological and sociological – in any Grand Strategy. Thus, the Grand Strategy is more than just a military concept, tending towards the coordinated execution of statecraft in support of national interests and involving numerous agencies besides the Armed Forces. Joint Military Strategy is one instrument of the Grand Strategy along with
The Maritime Strategy of a country can be defined as the overall approach of a nation to the oceans around it, with the aim of synergising all aspects related to maritime activities, to maximise national gains. A maritime strategy would thus have economic, commercial, political, military, scientific and technological facets and will be influenced by the Grand Strategy. Being a nation with vital maritime interests, India's Maritime Strategy defines the country's role in its maritime area of interest, and outlines the national maritime objectives for clarity in execution of this role. Since most maritime activities take place outside the country's sovereign jurisdiction, they often need to be supported militarily, either directly or indirectly. The military dimension of India's Maritime Strategy is termed the Maritime Military Strategy. Consequently, the Maritime Military Strategy is not only an inseparable and integral part of the overall maritime strategy, but simultaneously draws strength from the Joint Military Strategy. India's Maritime Military Strategy outlines the guiding principles to provide the protective framework for the use of the oceans in all aspects, for our national benefit. The Maritime Military Strategy is primarily meant to be executed by the Indian Navy, with the Armed Forces and other government agencies of the union playing supporting roles.

The "Joint Doctrine – Indian Armed Forces" and the "Indian Maritime Doctrine" lay the foundations for the employment of Naval Forces in peace and conflict by elucidating Roles, Missions and Operational Tasks for the Indian Navy. India's Maritime Military Strategy will complement these two publications to provide the contextual framework for employment of forces in a specified time frame. The Maritime Military Strategy will have three major facets: a strategy for force employment in peace; a strategy for force employment in crisis/conflicts, and a strategy for force build-up.

Relation between Doctrine and Strategy

The terms Doctrine¹ and Strategy² have been defined in numerous publications and the relationship between them is shown in Diagram 1.2. Doctrine is evolved from government's policies. Strategy is derived from doctrine. If a strategy brings success, it reinforces the doctrine. If on the other hand it leads to failure, the doctrine is modified to achieve the laid-down National interests and objectives.

Maritime Strategy

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FREEDOM TO USE THE SEAS: INDIA'S MARITIME MILITARY STRATEGY
In sum, Doctrine is a body of thought, and a knowledge-base which underpins the development of strategy. Without a Doctrine, strategists would have to make decisions without a point of reference or guidance. Strategy, on the other hand, is an overall plan to move from the present situation to a desired goal in a given scenario. Its most critical attribute is that, it is set in the context of a given politico-military situation and within the ambit of an overall set of interests and objectives.

**Time Frame and Objectives for the Maritime Military Strategy**

**Time Frame**

The time frame for changes in geopolitics, geoeconomics and technology is altering at a pace faster than ever before. Since any strategy is set in the context of its times and existing technology, a 15-year time frame is considered optimum for this Maritime Military Strategy. The chosen time frame is based on the following additional factors:

- India is a developing country; 'tomorrow' is expected to be better than our 'today'. We are yet to build-up or achieve our full potential. In the coming decade India can be expected to establish herself as an acknowledged maritime power capable of exercising strategic maritime influence. New technologies and innovations for military uses of the oceans are also expected to significantly transform the way operations are conducted today. Our Maritime Military Strategy must cater for future developments in order to creatively exploit the maritime strengths of the country which are expected to mature in the near future.

- Technologies for harnessing the potential of ocean resources, which are in a nascent stage today, can be expected to mature during this period. With the world as a whole now increasingly turning towards the oceans, the maritime orientation of human activities is also expected to increase exponentially.
Since a Maritime Military Strategy is intimately related with the creation of maritime capabilities, it must have requisite longevity to allow for the long lead time required for their induction. It also needs to encompass the time required for the maturing of operational expertise while exploiting these capabilities.

Looking too far into the future, i.e. beyond 15 years, may make the strategy speculative, thereby distracting from short term force employment.

Objectives

The Maritime Military Strategy has been written to meet the following objectives:

• **It is a design for relating ends to means.** The ends are clear: deterrence – conventional and/or strategic. Should deterrence fail – war-fighting and conflict-termination on terms favourable to India. The means are also clear: a three-dimensional, versatile, blue-water Navy, manned by our skilled human resource.

• **It is a significant tool in maritime planning because it provides the rationale for the application of maritime power flexibly over a range of contingencies and areas.** It also offers a strategic perspective to operational commanders and provides a foundation for the planning and conduct of operations. It does not, however, purport to be a detailed operational plan simply because operational commanders plan and conduct operations during peace, or conflict under guidance from higher authorities specific to the circumstances prevailing at that time. It is of equal value as a vehicle for shaping and disseminating a professional consensus on war-fighting and operations during peace.

• **Preparation for conflict is critical for ensuring that deterrence is effective.** Similarly, peacetime operations and response in crisis also make crucial contributions to deterrence by conveying resolve and readiness. Lessons learnt from exercises, war-games, and operations, can then be used to improve and enhance the tenets of the strategy. Maritime Military Strategy also provides a framework to conduct exercises and war-games in a likely scenario.
In summary, the objective of the Indian Maritime Military Strategy is to provide the overarching rationale for creation and utilisation of maritime capabilities of the Indian Navy during peace, crisis and conflict.

Key Determinants for Shaping the Maritime Military Strategy

While the major factors that impinge on formulating the maritime military strategy are addressed in detail in subsequent chapters, a few key determinants that define the contours of the strategy are highlighted here.

An Era of Violent Peace

The volatility of international geopolitics characterises the current era which can be said to be a permanent state of 'violent peace'. A principal feature of this era is the existence of localised conflicts and crises, many of which are in the Indian Ocean Region (IOR). There is widespread proliferation of modern, high-technology weapons and sensors in our neighbourhood, including the possession of nuclear weapons, which fundamentally affects the nature of conflict and threats that we face. The scenario is further complicated by the rise of terrorism and its maritime component, where the global scope and anonymity afforded by the seas makes it a most insidious threat. The Maritime Military Strategy therefore caters for the availability of Naval Forces at short notice, prepared to counter threats, across the full spectrum of conflict.

Growing Sea Dependence

Among other factors, India’s economic resurgence is directly linked to her overseas trade and energy needs, most of which are transported by sea. The Maritime Military Strategy draws a clear linkage between our economic prosperity and our naval capability, which will protect the nation’s vast and varied maritime interests. The primary task of the Indian Navy towards national security is, therefore, to provide insulation from external interference, so that the vital tasks of fostering economic growth and undertaking developmental activities can take place in a secure environment.

India’s Maritime Geography

India is singularly blessed in terms of maritime geography. We have unimpeded access to the Indian Ocean on both our coasts besides two advantageously located island groups, in the east and the west, which permit forward deployment. The Maritime Military Strategy exploits these geographical advantages available to India by adopting an oceanic approach to its strategy, rather than a coastal one. On the flip side, it also places much greater demands on maritime security agencies to safeguard our maritime interests.

Supporting Foreign Policy

The Maritime Military Strategy recognises that the major task of the Indian Navy during the 21st Century will be to use warships to support national foreign policy. During the long years of peace, we need to project power and show presence; catalyse partnerships through our maritime capability; build trust and create interoperability through joint/combined operations and international maritime assistance. The strategy also highlights the Indian Navy’s role in helping to maintain peace and tranquillity in the IOR and in meeting the expectations of our friends when needed.
Influencing Operations Ashore

The Maritime Military Strategy recognises that the use of maritime power to influence operations ashore is a primary, and not a subsidiary, role of maritime force employment. This could be undertaken through commodity denial or by directly supporting the land campaign through the delivery of ordnance by naval platforms or amphibious and/or expeditionary capabilities.

The Importance of Joint Operations

The capability to conduct joint operations in the littoral is essential to an effective Maritime Military Strategy. 'Maritime Manoeuvre from the Sea', involving joint sea-land-air operations which allow forced/benign entry using sea-based forces are an important part of the strategy.

Maritime Domain Awareness

Awareness of entities and happenings within the maritime domain is the key to effective operations by the Indian Navy, and the Maritime Military Strategy recognises the importance of this aspect. The challenges arising due to the presence of neutral warships and mercantile marine in maritime warfare are outlined in the "Indian Maritime Doctrine." The associated complexities and consequence of such presence requires Naval Forces to enhance Maritime Domain Awareness (MDA) for effective operations by the Indian Navy.

Role of Air Power

The role of air power including space-based assets is an integral part of operations envisaged to support the Maritime Military Strategy. Air power will be used to achieve synergistic effects, through its inherently superior reach and precision, to enable surveillance, strike at vulnerabilities, and to overwhelm adversary’s defences. Satellite-based surveillance, unmanned surveillance vehicles and networked capabilities will have significant impact on our strategy in the envisaged time frame.

Capability Prioritisation

It has been assumed that at the current rate of growth of our economy, allocations of funds for naval budgets will be just sufficient for induction of ships, submarines, aircraft and space-based assets. The
The Evolution of Indian Maritime Strategy

Independent India’s maritime vision was expressed in the first Naval Plans Paper of 1948. The Indian Navy was to consist of cruisers and destroyers, structured around small aircraft carriers and would protect India’s Sea Lines of Communications. Sea power would be built commensurate with India’s maritime interests, and the need to protect merchant shipping and trade. The maritime threats envisaged were from aircraft and submarines of unknown origin, deployed in a sea denial role.

Pakistan’s attempts to force a military solution in Kashmir pulled the Indian Army and the Indian Air Force (IAF) into a war to ‘defend territory’. This rationale was to dominate Indian Military thinking for the next half century. Fortunately, territorial defence failed to distract any of India’s early maritime thinkers, and for that succeeding generations should be grateful. Maritime thinking continued to cast its net wider, possibly back to earlier eras when colonial trade had not distorted the Indian Ocean maritime picture. Despite the permanence of ‘territorial defence’ in the national mindset, the Indian Navy refused to lose hope and believed that a country as large and diverse as India would one day realise that it has substantial maritime interests.

Indian Naval officers were reasonably sound tactically in 1947. For lessons at the Operational level, they had to wait to see the settings for the Annual
Commonwealth Exercises held off Trincomalee and Singapore. An analysis of these exercises now clearly shows that all of them were centred around fighting convoys through submarine waters with occasionally a large powerful surface raider thrown in. The induction of the aircraft carrier INS Vikrant brought in opportunities to exercise fleet battles with carriers on both sides. The purpose of these battle exercises indicated that they were meant to achieve Sea Control.

The 1965 War

The war that actually occurred in September 1965 could have been foreseen in June/July that year. After the Kutch attacks in May, India had retaliated in Kargil in June. An examination of the orders issued showed that the Indian Navy was not ready for participation in a war which originated 'somewhere deep inland'. The NHQ operations directive had stated that the aim was 'the protection of own trade', and that had been achieved. This contention was hotly debated subsequently and the demand for reform eventually resulted in a changed strategy for the 1971 War.

The 1971 War

The primary tactical success of the war had come from the missile attacks in the Arabian Sea, a venture hotly debated within the Navy. Objections ranged from apprehensions of devastating retaliatory air attacks to the possibility of international repercussions arising from sinking neutrals in a confused night melee. The likely international repercussions against Exclusion Zones were also overestimated. The identification of neutrals turned out to be much simpler than anticipated, with interested shipping lines requesting permission from Indian Naval authorities for safe passage.

End States

It was clear that, as in all previous wars and operations, no End States had been visualised. While there is merit in pressing for political directives or End States to conflicts, the reality is that they may not be forthcoming. Hence, the End State definition may be hazy and strategies must be prepared for that contingency.
Joint Planning and Amphibious Assault

An opportunity for conduct of an outflanking amphibious assault was missed in 1971. When undertaken, it was done without adequate preparation and assets, thus limiting the overall effect in the outcome of the conflict. It must be reiterated that amphibious operations merit attention as such capabilities enhance options and opportunities that exist in the many IOR scenarios of interest to us.

Investments in Maritime Domain Awareness versus Ordnance - Delivery Platforms

The Navy entered the war with only five Alize aircraft, which were the main source of maritime domain awareness. The ratios of investments in surveillance versus weapon-delivery platforms had an adverse impact on the conduct of maritime operations. While any platform with its captive air reconnaissance capability will eventually find targets on its own on which to unload ordnance, other platforms can effect encounters only if directed by the maritime domain awareness infrastructure. A natural outcome of the conflict resulted in enhanced investment on maritime domain awareness capability.

Sustainability and Reach

Democratic countries rarely choose the timing of wars. They are consequently reactive. Even if the duration of actual hostilities is short, navies remain at sea for a considerable duration of time, both before and after. Ships with machinery that require major maintenance at intervals of less than 60 days x 24 hours (1440 hrs) are a liability regardless of their weapon capabilities. Acquisition criteria, therefore, are being corrected in our staff requirements. The Navy will need ships with long 'sea-legs' duly supported by logistics support ships. The alternative is to acquire large number of short-legged ships and programme quicker Operational Turn Rounds, but this is a more costly and risky proposition. The tanker to warship ratio was inadequate in 1971. With two fleets and larger areas of interest a much higher ratio would be beneficial.

Submarine Campaign

Knowledge in this area was largely undeveloped in 1971. There is a vast difference between merely deploying submarines and conducting a campaign. With conventional submarines, the number of boats on actual patrol can rarely exceed 60% of the force level. Their use in future wars must be part of an all arms strategy that synergises aerial surveillance, air-to-surface interdiction and mining. Support papers for a submarine campaign would aid the overall effectiveness of these assets.
Operations Other Than War

Operation Pawan

Extensive literature that is available on the conduct of land operations in Sri Lanka has brought out the inadequacies of the higher direction of the conflict as a whole, both politically and strategically. Therefore, it is intended here to dwell purely into the maritime aspect of this long campaign – providing support to the Army and analysing Maritime Strategy.

Supporting Aspect. Whilst the Indian Navy solved the Army’s transportation problem, it often deposited the troops ashore in an unfit condition to fight. The Army’s task begins at the ‘end’ of the voyage and troops must in future be provided enough rest and other facilities during the sea transit. Staff requirements for amphibious assets, sealift and airlift must be alive to these requirements. The Navy also lacked capabilities to provide direct fire in support of Army operations. These are being addressed by induction of suitable capabilities.

Maritime Strategy. In retrospect, the Liberation Tigers of Tamil Eelam (LTTE) was able to fight the Indian Army for two-and-a-half years and the Sri Lankan army for many years because of a steady supply of arms from abroad, transported by LTTE-owned small merchant vessels. Considering that Sri Lanka is an island, it should have been possible to isolate and quarantine it. This would have taken a massive Indian naval effort, been very expensive and may not have elicited ready Sri Lankan cooperation.

Operation Cactus

Few operations can equal Operation Cactus undertaken in the Maldives for the speed and boldness of its execution. The action by Indian Navy ships in rescuing hostages from MV Progress Light brings out the valuable lessons pertaining to command and control, intelligence, rules of engagement, negotiation skills and strategic communications.

Operations Vijay and Parakaram

Both Operation Vijay and Operation Parakaram were undertaken with a nuclear backdrop. The Indian Navy short-listed three goals, namely, to ensure safety and security of our maritime interests against a surprise attack, to deter Pakistan from escalating the conflict into a full-scale war and to win the war convincingly at sea. Shifting strike elements of the Eastern Fleet to the North Arabian Sea and mobilisation of all naval assets prevented escalation and contributed towards quick termination of the conflicts. The lesson that emerges for the Indian Navy is on two counts. Firstly, there will be space and scope to conduct conventional maritime operations below the nuclear threshold. Secondly, a window of opportunity would exist to influence the land battle.
Bound by landmasses on three sides, the Indian Ocean has some unique features. These include the absence of seas beyond about 25°N, while land areas south of 10°S exist only in Africa, Australia and Antarctica. Dominated by the monsoons and tropical systems, the area is hydrologically extremely difficult for operations. Extensive clouding during the monsoons, limits the efficacy of optical surveillance for up to four months in a year. Operations by small vessels during this period are also hazardous due to high sea states. The density of traffic at choke points makes surveillance irrelevant unless backed by suitable means of identification. Access to the Indian Ocean can be controlled by several choke points, through which much of the world's commerce flows.

Indian Ocean Choke Points

Nine important passages provide access into the Indian Ocean, of which five are key energy Seas Lines Of Communications (SLOC). Diagram 3.1 shows the choke points in IOR. Choking any one of them would cause disruption of seaborne trade, and uncontrolled volatility in oil and commodity prices, leading to upheavals in the global economy. The major choke points are:

- **The Strait of Hormuz.** Hormuz is undoubtedly the world's most strategic choke point. Connecting the Arabian Sea to the Gulf of Oman and the Persian Gulf, it has channels 2 nautical miles (nm) wide for both inward and outbound traffic with a
Pipeline, forcing them to round the southern tip of Africa instead. This would add greatly to transit time and cost, and effectively tie-up spare tanker capacity.

- **The Malacca Strait.** The Strait of Malacca links the Indian Ocean with the Pacific Ocean. Being on the shortest sea route connecting the Persian Gulf with East Asia and USA, it is a critical choke point in the IOR. At its narrowest point, in the Philip Channel, the Malacca Strait is only 1.5 nm wide. This creates a natural bottleneck, with potential for blockage in case of collision or grounding of ships. Closure of the strait would entail re-routing of nearly half the world’s fleet, generating a requirement for additional vessel capacity and resulting in immediate increase in worldwide freight costs. The possibility of tanker accidents in this narrow strait also raises the spectre of oil spills and widespread pollution.

2 nm wide buffer zone in between. Closure of this strait would require the use of alternative pipeline routes at increased transportation costs. However, much of the vulnerability for consumers has been reduced by two giant pipelines to Yanbu, which provide off-take in the Red Sea.

- **The Suez Canal and Red Sea.** The Suez Canal is the gateway between Europe and Asia. It is 105.4 nm long and, being entirely at sea level, does not require any locks for its operation. Closure of the Suez Canal would cause traffic to be diverted around the Cape of Good Hope, thereby increasing the transit time and transportation costs.

- **The Strait of Bab-el-Mandeb and Horn of Africa.** The Bab-el-Mandeb connects the Gulf of Aden and the Red Sea. Closure of the Bab-el-Mandeb would keep tankers loaded in the Persian Gulf from reaching the Suez Canal or the Sumed.
The primary passage through the Andaman and Nicobar Islands to the Strait of Malacca is through the Six Degree Channel or Great Channel.

- **The Lombok Strait.** At a minimum channel width of 11.5 nm, the Lombok Strait has sufficient width and depth and is far less congested than the Malacca Strait. Ships too large for the Strait of Malacca use this passage.

- **The Sunda Strait.** An alternate route to the Malacca and Lombok Straits is the Sunda Strait, which is 50 nm long and 15 nm wide at its northeast entrance. Large ships avoid passage through this strait due to depth restrictions and strong currents.

- **The Six Degree Channel.** The primary passage through the Andaman and Nicobar Islands to the Strait of Malacca is through the Six Degree Channel or Great Channel. Stretching from Indira Point on Great Nicobar to the northern tip of Aceh on the Indonesian island of Sumatra, it is an easy and wide passage without any depth limitations.

- **The Nine Degree Channel.** The Nine Degree Channel is the most direct route through India's Lakshadweep Islands for ships sailing from the Persian Gulf bound for East Asia.

- **The Cape of Good Hope.** The Cape of Good Hope is not a conventional choke point since adequate depth of water lies to its south and the passage of ships is not restricted by land. However, economic sense and unfavourable currents demand that ships pass close to land, which makes them susceptible to attack and grounding.

**Geopolitics**

The sea power of a nation is a result of a number of principal conditions. Mahan enunciated these as: Geographical Position, Size of Population, Physical Conformation and Character of the Government. Today we string them under one umbrella term: geopolitics. These factors are worthy of close attention while painting the backdrop of a maritime strategy in the Indian Ocean region.

**Ongoing Foreign Policy Initiatives**

India's foreign policy has adapted to the demands of the rapidly changing global, regional and domestic environments. The main drivers for reshaping our foreign policy have been the sustained dynamism of the Indian economy, emergence as a responsible Nuclear Weapon State, global expectations of India's role on the international stage and the capability to shoulder both regional and global responsibilities. India's engagement with the world community has grown to ensure a peaceful and supportive international environment that contributes to India's development goals. India advocates the need to evolve a new paradigm of cooperation, relevant to the contemporary world, in which global threats are addressed by global responses, and multilateralism becomes the preferred norm for addressing global challenges.

Geographically, India is in an unique position in the geopolitics of IOR, with its interests and concerns straddling across the sub-regions of IOR. This geopolitical reality and India's belief that enhanced regional cooperation is mutually advantageous, is driving the active participation in the SAARC, the ASEAN, the East Asia Summit and the Shanghai Cooperation Organisation.

**Immediate Neighbourhood**

India has accorded the highest priority to closer political, economic and other ties with its neighbours. India has a vision of South Asia, unshackled from historical divisions and bound together in collective pursuit of peace, and prosperity. India views the SAARC process as a stimulus to strengthen economic inter-linkages through initiatives such as the South Asia Free Trade Agreement.

There is a strong national consensus on improving and developing relations with China, India's largest neighbour. Through a range of dialogue mechanisms, India and China have been able to appreciate each other's point of view and sustain the bilateral dialogue on outstanding issues.

**South East Asia**

The Look East policy, launched more than a decade ago, is now an essential element of India's foreign policy. The key to ensuring long-term security and stable equilibrium in Asia lies in the collective ability of Asian countries to build mutual economic stakes in one another. India's partnership with the ASEAN and its active engagement with BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation) are part of an irreversible process of integration of India's economy with that of South East Asia.

India has accorded the highest priority to closer political, economic and other ties with its neighbours. India has a vision of South Asia, unshackled from historical divisions and bound together in collective pursuit of peace, and prosperity.
India attaches great importance to its relationship with the EU member countries, as also with the other countries of the European Continent. The shared values and beliefs in democracy, human rights, pluralism, independent media, and rule of law make India and the European Union natural partners.

**The Gulf and West Asia**

India has devoted considerable energies to build the traditional and historical bonds with this region, which is of crucial importance to India. The Look West policy is premised upon the facts that the Gulf region is a major economic partner, a host to over 4 million Indian expatriates, and a vital source of India’s energy security.

**Africa**

India accorded high priority to rejuvenating its traditional ties with nations of the African Continent. Several high level visits exchanged reflects the commitment on both sides to strengthen the partnership. India aims to partner the African nations in their march towards progress and prosperity.

**Eurasia**

India’s relations with Russia and other CIS countries were characterised by traditionally close and extensive interaction. Regular exchange of high level visits, enhanced trade and economic cooperation and extensive people to people contacts have strengthened India’s engagement with this important proximate region.

**Europe**

Europe figures prominently in India’s external relations. India attaches great importance to its relationship with the EU member countries, as also with the other countries of the European Continent. The shared values and beliefs in democracy, human rights, pluralism, independent media, and rule of law make India and the European Union natural partners. India-EU relations have been upgraded to a strategic partnership.

**The Americas**

The transformation of India-US relationship has been a very significant development in India’s diplomatic outreach. The bilateral relationship is anchored on common values and common interests. Engagement with the nations of Latin America and the Caribbean has intensified and the thrust is premised upon strengthening and widening the existing relationship, setting up a mechanism for political dialogue and cooperation and enhancing trade and commerce.

**Geopolitical Factors Contributing to Conflict**

**State Failure and the Genesis of Conflict**

In the IOR, the macro-factors that may lead to state failure include territorial disputes and inadequate governance or even misgovernance. Over-population combined with rising expectations and the consequent luring of unemployed youth into terrorism/crime can be another factor. Among other plausible causes of conflict seen repeatedly in history is the collapse of states, and the turbulence that it
creates in the neighbourhood. In the Indian sub-continent, for example, the impending split between East Pakistan and West Pakistan, which should have been a purely internal problem of Pakistan, dragged India into war in 1971. If uncorrected, such state failure will have adverse consequences for other countries in the region. Some factors leading to state failure are examined below.

**Territorial and Maritime Disputes**

Purely maritime issues may contribute or lead to a conflict, but since human beings live on land, unresolved continental disputes have a greater probability of resulting in conflict. Continental wars invariably spill over into the maritime domain. On analysis some trends specific to IOR become apparent:

- Disputes of non-delineation of boundaries or counter-claims are remnants of settlements made during the colonial era.
- Very few disputes are large enough to feed the fires of national hostility, leading to open war. Most of them are dormant, but in the medium to long term, some can turn ugly with rapidity, and are clearly of strategic concern.
- A perceived backlash in domestic politics is one of the main cause for a lack of sincere efforts to resolve most territorial claims, as disputants cannot easily renounce their positions. This is also one of the prime reasons for quiescent disputes which occasionally erupt into localised conflict.
- When a state's internal dynamics go out of balance, usually through bad governance, governments are compelled to politicise dormant disputes to relieve domestic pressure and channelise public frustration.

**World Population Trends**

Population projections are a useful tool with which to predict instabilities that may take myriad forms. Recent UN projection envisages an increase in World's population from the current 6.7 billion to 9.2 billion by year 2050. Nearly 60% (1.5 billion) of the projected increase of 2.5 billion will be absorbed by eight countries, viz, India, Nigeria, Pakistan, Congo, Ethiopia, USA, Bangladesh and China. Despite this relative increase in world population, many parts of the developed world will witness declining populations. The projections envisage decline of population in 46 countries, including Germany, Italy, Japan, South Korea, most of the countries in the former Soviet Union, and several small island countries. Another critical projection is that declining fertility and increasing longevity would result in half of the increase in the world's population during 2007 to 2050 (2.5 billion) to be through rise in population aged 60 years or over, whereas the number of children (<15 years) would decline slightly. The existing and future trends in population share in 2007 and 2050 are depicted in Diagram 3.2 for comparison.

**Population Risks for the IOR**

A runaway population creates huge, unmanageable numbers that strain every aspect of governance. This has often led to the collapse of states, particularly in the IOR.
us to grade the regions into high, medium and low risk categories, based on the criteria of whether the region would be able to absorb the impact of such a large population by its geographical spread, water resources, level of governance, social support systems and migration. It is clear from looking at the projected populations that the regions of Africa and Asia, which mainly constitute the IOR littoral, are clearly in the high risk category.

As the world becomes increasingly globalised, developed countries would seek to mitigate the effects of their declining population by accepting immigrants from less developed countries, some from the IOR. The net movement of immigrants from developing to developed countries, at an average, is projected to be 2.3 million people annually.

In the developing countries of the IOR, the problem is projected to be quite the reverse, wherein a significant rise in population density will occur. Simultaneous rise of megapolises, would fuel mass migration to urban centres and bring forth its associated problems of essential resource scarcity (food, water and shelter) and falling-apart of social support systems. Migration of skilled labour to the developed countries would further complicate the matrix. Many countries in the IOR are at risk due to population-shift.

**Terrorism**

*Al Qaeda and its Linkages*

The activities of the Al Qaeda are too well known to merit repetition. During the last five years the geographic location and the area of operation of Osama Bin Laden has been fairly well established, but that cannot be said of his deputy, or of the new crop of leaders who have emerged. The net movement of immigrants from developing to developed countries, at an average, is projected to be 2.3 million people annually.

In order to overcome the menace of terrorism, drugs, arms and human trafficking, concerted regional initiatives would be desirable. The Indian Navy has invested in partnerships to map the activities of terrorist organisations in the IOR, with the aim of eventually disconnecting the geographical space between the major hubs of Al Qaeda and the Jemmah Islamiah.

**Diversities of IOR**

Some facts about the IOR, which contribute to its unique position in global geopolitics are summarised here:

- The IOR houses one-third of the world's population, whereas it has only 25% of the world's landmass.
- It holds 65% of the known reserves of strategic raw materials, 31% of the gas and accounts for more than half of the world's oil exports. Abundance of natural wealth includes large deposits of uranium, tin, gold, and diamonds. The countries of this region are the largest producers of rubber, tea, spices, and jute. Other important minerals produced in the IOR include manganese, cobalt, tungsten, coal, iron ore, etc.
- It is the only region where extreme diversities of economies exist, where some of the richest countries and some of the fastest growing economies coexist with some of the poorest countries in the world. The IOR has 56 littoral and hinterland countries, most of which are developing countries.
- The IOR is the de facto home of global terrorism, with many regional states covertly or even inadvertently aiding and abetting subversive elements.

*Jemmah Islamiah*

In Southeast Asia, the equivalent of the Al Qaeda is the Jemmah Islamiah (JI), an umbrella organisation for a variety of terrorist groups. The JI is potentially more dangerous since it has territorial ambitions. Its overtly stated goal is to establish the Da'lah Islamiyah Raya, an Islamic state that would include Indonesia, Malaysia, Borneo, southern Thailand and southern Philippines.
The region has been the arena for a large number of internal and external conflicts post the Cold War. Sovereignty and national pride have resulted in enhancement of maritime capability.

- Some of the worst-hit areas, as far as incidents of piracy, gun-running, human and drug trafficking are concerned, lie in the IOR, particularly the Horn of Africa and Southeast Asia.

- The IOR is the locus of 70% of the world’s natural disasters.

Regional Maritime Assessments

Many characteristics of states failure apply to countries in the IOR. Poor living standards coupled with limited foreign exchange reserves, lack of good governance, non-democratic leadership, huge population rise, and a widening economic gap between the poor and the rich have the potential to destabilise the IOR littorals. Such instabilities in the Gulf, West Asia and the African regions have previously spilled over into the maritime domain. The future contours of an independent well-governed Iraq are still uncertain. Even though, the turbulence around Middle East has rarely affected the geopolitics of the IOR directly, this could happen if the war against the Hezbollah widens. The future of numerous separatist movements, and associated peace processes remains uncertain and these may add to the maritime instability in the IOR. Maritime terrorism will remain a major security-related concern for the foreseeable future. Isolated incidents have already begun to occur in the maritime areas of Red Sea and the Bab-el-Mandeb.

A combination of assertive sovereignty, national pride and increased availability of funds have been the drivers for maritime capability enhancement. This has resulted in the induction of modern naval assets. Most regional navies have or are in the process of acquiring potent sea denial capability, which includes missile armed ships, Maritime Patrol Aircraft (MPAs) and conventional/Air Independent Propulsion (AIP) submarines. Of strategic concern is the continued proliferation of a range of ballistic and cruise missiles. The IOR island nations have traditionally been our close partners. A majority of these nations however, do not have adequate maritime resources to effectively monitor their respective areas of maritime interest. The Indian Navy has regularly supported numerous endeavours to ensure ‘good order at sea’ in their respective areas of responsibility. Our constructive maritime cooperation has enhanced their security. It has been widely recognised that multilateral cooperation initiatives are essential for enhancing maritime security, tackling piracy, and in preventing illegal activity related to arms, drugs and human trafficking. Our existing friendly relations and defence ties with countries in the IOR are likely to be strengthened over the coming decade to promote even closer partnerships and mutually beneficial relationships.

Trends – Extra-Regional Navies

The most visible manifestation of the extra-regional presence in the Indian Ocean region is through their powerful and modern naval assets. These maritime forces are currently deployed in the IOR for operations connected with the Global War on Terror, Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). Maritime assets include Carrier Battle groups and Expeditionary forces with numerous naval, air logistic facilities, surveillance assets in terms of electronic and visual imaging satellites, MPAs and mobile UAV squadrons. These give extra regional navies an unparalleled situational awareness and an ability to influence operations in the IOR. The strategic objectives of a majority of extra-regional navies are broadly coincident with India’s own strategic interests, there is no clash of overarching interests in the IOR. Many of the concerns – such as the stability of mis-governed states, the fight against fundamentalism and terrorism, the safety of SLOCs and the use of state power to prevent WMD proliferation – are common interests of the navies in the region. Being crucially dependent on oil supplies from the Persian Gulf, extra-regional navies realise the importance of India’s maritime location and the role Indian Navy can play in ensuring peace and stability in the region. Mutual engagement of the extra-regional navies with the Indian Navy to further strategic interests are therefore being pursued.

The Chinese Navy is set on the path to becoming a blue water force. It has an ambitious modernisation program. Notable amongst those are the renewed interest in the aircraft carrier program, the nuclear submarines and the ballistic/cruise missile projects alongside the attempts to gain strategic toe-hold in the IOR.
War on an enemy’s economy by denying the use of the seas during hostilities has been an age-old strategy. Indeed, navies over the centuries have often treated enemy commerce as a worthwhile and lucrative target. Such action could be one of the primary options in the case of island nations, or those countries largely surrounded by sea. In a continental war, the strategy of attacking overseas trade also has historical antecedents as it serves the purpose of hurting the adversary’s economy and war effort. Maritime activities that can be taken to deny strategic commodities and commerce include: the imposition of blockade; disruption of shipping lanes; attacks on oil installations and strategic infrastructure in the littoral; and preventing a nation from exploiting its maritime wealth.

India’s Maritime Trade

India has the fifteenth largest merchant shipping fleet in the world. As on 01 July 2006, the Indian Merchant Fleet comprised 756 ships carrying 8.6 million tonnes of GRT. The average age of the Indian fleet is around 16.5 years, as against the world average of 12 years. While the total volume of trade has increased at a rate of 8-10% per annum, the tonnage has not been able to keep pace with it. The share of Indian ships in carrying Indian trade has declined from about 40% in 1987-88 to 14% in 2005. India needs a national tonnage of 18 million tonnes GRT to restore the earlier participation rate of 40%.
Disruption of ISLs

The ISLs crossing the Indian Ocean are of particular interest to the world for two important reasons. First, the world’s economy is increasingly dependent on crude oil and natural gas carried by tankers from the Persian Gulf across the Indian Ocean. Disruption in this flow of oil will have an immediate impact on the cost of energy and, thereby, the world economy. Second, the key Indian Ocean ISLs pass through geographic choke points as brought out in Chapter 3. By their very nature, crowded and constrained choke points expose shipping to a far greater risk than does the open sea. A disruption or closure of any of these choke points and/or ISLs will force ships to use longer and costlier alternative routes.

Security of Merchant Shipping – IMO Initiatives

In order to minimise the risks and to ensure the free flow of trade, the International Maritime Organisation (IMO) has regularly addressed the twin aspects of safety and security of maritime trade. In order to minimise the risks and to ensure the free flow of trade, the International Maritime Organisation (IMO) has regularly addressed the twin aspects of safety and security of maritime trade. Safety at Sea initiatives have been aimed at enhancing the safety of ships and seafarers, by coordinated action against unlawful activities in the maritime domain. These actions have been achieved through international agreements, regulations, protocols and customary laws.

Maritime security has come into sharp focus after 9/11, when the IMO instituted numerous global security arrangements. In the shore segment this includes the International Ship and Port Security (ISPS) code and the Port State Control incorporating security plans for ships and ports. India is fully compliant with the provisions of ISPS code. In the afloat segment it includes the promulgation of technology-enabled measures such as the VHF-range Automatic Identification System (AIS) and satellite-based Long-Range Identification and Tracking (LRIT) for tracking ships on passage. India is in agreement with these initiatives.
**Importance of Oil**

Hydrocarbons are the most important of all the commodities that are transported by sea today. Providing the overwhelming basis for energy and transportation requirements, they are the life-blood of modern industry and economies, and thus central to the functioning and well-being of contemporary societies. India’s entire development process also depends on the availability of energy resources and, therefore, energy availability and affordability is absolutely vital to the country. Ninety per cent of our oil comes either from offshore fields or from across the sea, principally from the Persian Gulf, disruption of which could critically affect the country’s interests.

The likely shortage of oil and gas supplies in the future could even lead to conflicts over this vital resource, as has happened in the recent past. Oil-related assets such as refineries and power plants have also become lucrative targets during a conflict. Wartime contingency planning therefore includes plans for the protection of oil-related infrastructure against internal sabotage and external attack. Since such infrastructure is invariably located in the littoral, this is a major maritime military task.

**Differentiating Energy Security and Security of Energy**

Hitherto, the concept of Energy Security had implied only the assured availability of the energy supplies in the event of a conflict. Today, Energy Security to a nation implies safeguarding the availability of requisite quantities and types of energy from any kind of disruption – physical or economic. The degree of Energy Security possessed by a nation is the excess of actual, or assured, availability of energy supplies over demand, at an acceptable price. There is, thus, a distinction to be made between the terms Energy Security and Security of Energy, with the latter being used as a subset of the former.

- Energy Security is a function of various interactive factors, which include (but are not limited to): the sources of supply of energy resources, both domestic and imported; the present and future availability of these resources at competitive prices; the projection of energy requirements based on present consumption levels and expected economic growth; the ratio between traditional and commercial energy, etc.

- Security of Energy encompasses the military and quasi-military means adopted to address the vulnerabilities of energy supply. This concentrates more on the safety and security of the energy assets in the littoral, lines of communication of imported and indigenous sources as also its storage and distribution networks.

**India’s Energy Demand versus Indigenous Availability**

**Energy Demand**

India is the sixth highest energy consumer in the world, with a total annual energy consumption of 294 MTOE (million tonnes of oil equivalent). But its current annual per capita consumption of 350 kgs...
of oil equivalent energy (KGOE) is less than 20% of the world's average consumption. This is set to increase to about 450 KGOE per year by 2010, with India's economy growing at an annual rate of around 8%\(^4\). The projection of the likely future demand for oil, based on key drivers of population, Gross Domestic Product (GDP) and technology, is shown in Diagram 4.1.

![Diagram 4.1: Data on Oil Demand, Production and Imports](image)

Source: India Hydrocarbon Vision (IHV) 2025 and data from MoPNG

### Energy Status

Natural oil reserves, based upon current estimates of national consumption, are expected to last around 20 years\(^4\). The situation with regard to fossil fuel energy is much better; India has around 6% of the world's reserves, which could last for another 40 years under present rates of consumption\(^4\). Hydroelectric power accounts for 25% of total power generated. Only around one-third of the captive hydroelectric power has been harnessed in India\(^4\). The contribution of nuclear energy to India's total energy mix remains below 3%\(^4\). Serious efforts are being made to identify and develop alternate sources of energy like shale oil, biogas, solar and wind energy apart from the most significant source, atomic energy. However, for the foreseeable future, oil and gas will remain the most important sources of energy for India and maritime security for supply lines and installations will remain a primary responsibility of the Indian Navy.

### Offshore Oil and Gas Installations

Offshore oil production on the West Coast commenced as a small-scale operation by the Oil and Natural Gas Commission (ONGC) in the mid-1970s and was limited to Bombay High. Domestic exploration for new sources of oil, especially offshore, with the participation of private sector companies, has started yielding results with several new discoveries having been made. Today, the offshore infrastructure of ONGC includes over 25 Process Platforms and more than 125 Well Platforms. In addition, over 3,000 km of pipeline has been laid on the seabed for the flow of oil and gas from the Process Platforms to onshore terminals\(^5\). Offshore oilfields are national assets of vital economic importance and any breakdown in either production or distribution of oil/gas is likely to have long-term adverse effects on the national economy. Since there are no physical barriers at sea, our offshore infrastructure is extremely vulnerable to disruptive attacks. It should be obvious that there is a need for constant surveillance and protection of these assets.

### Major Sources and Handling of Crude Oil

According to the data provided by Ministry of Petroleum and Natural Gas (MoPNG), 124 MMT of crude oil was processed in our refineries in 2004-05. Of this amount, 95 MMT (77%) was imported and the balance 29 MMT (23%) was sourced from domestic production. The dependence on imported crude oil is expected to increase from 77% in 2004-05 to nearly 95% by 2024-25\(^6\). Indian hulls carry 14% of the total Indian cargo. Of this amount, oil accounts for approximately 95% of the cargo. The major sources of India's import of crude oil, based on 2004-05 statistics, are depicted in Diagram 4.2. In the coming decade, the major sources of crude oil import are unlikely to change significantly. The only difference that may occur is the replacement of dwindling domestic supplies by production from OVL Joint Ventures in Russia, Africa and South America.
ONGC Videsh Limited (OVL)

OVL has made substantial investments abroad, by entering into Joint Ventures (JVs) with the oil companies of other countries to acquire varying percentages of Participating Interests (PI) in those projects. India Hydrocarbon Vision 2025 has targeted the availability of 60 MMT of oil through equity oil from abroad by 2025. The acquisition of valuable assets overseas in the strategic hydrocarbon sector by India is a significant development. This implies that the creation of interests as well as liabilities away from home whose security would have implications for the Indian Navy.

Strategic Reserves

Stocking of reserves to overcome commodity denial efforts is a common strategy adopted by most countries. India is no exception and stocks reserves. These would be used to overcome shortages and provides a buffer during crisis/conflicts.

Strategy for Security of Energy

The strategy for 'Security of Energy', which encompasses safety and security of energy assets in the littoral, the energy SLOCs and onshore storage-cum-distribution networks will considerably enhance Energy Security. Our multi-faceted approach therefore, has both domestic and international components.

Domestic Issues

An ongoing and institutionalised dialogue between Ministries of Defence, External Affairs, Shipping and Petroleum and Natural Gas on the aspect of 'security of energy' would address the emerging challenges associated in the maritime domain. The various elements include:

Diagram 4.2: Major Sources of India's Crude Oil Imports

Security of energy being a common concern of the international community, the issue is best tackled through a multilateral approach. Being the major maritime power in the IOR, a large part of the responsibility for ensuring the safety of ISLs devolves upon the Indian Navy.

- **Investment in Assets.** Focused investments in maritime capabilities (assets and infrastructure) for protection of oil infrastructure in the littoral areas of the country to prevent disruption by non-state and state actors.

- **Protection of Shipping.** Enhanced protection will be provided to Indian mercantile marine and hulls under foreign flags carrying essential or critical national commodities during a conflict. Altered routing or convoying operations would be resorted to, based on the ports that are planned to be kept open. This would necessarily involve assigning naval assets with adequate reach and endurance for undertaking tasks.

- **Information Sharing.** Institutionalised information sharing mechanisms with multifarious agencies will enhance the security of mercantile marine. Suitable structures and mechanisms are being created to promote data sharing.

- **Networking.** Within the ambit of the ongoing effort to establish a navy-wide network for enhancing maritime domain awareness, the energy assets will be networked.

- **Security of Overseas Assets.** Institutionalised procedures/SOPs for provision of security for overseas assets acquired by OVL and other agencies would be dovetailed within the ambit of maritime security.

**International Issues**

Security of energy being a common concern of the international community, the issue is best tackled through a multilateral approach. Being the major maritime power in the IOR, a large part of the responsibility for ensuring the safety of ISLs devolves upon the Indian Navy. Hence, the international component of our strategy for 'security of energy’ is based upon the following:

- **Cooperation for Enhanced Maritime Domain Awareness (MDA).** Facilitate regional and bilateral alliances with the objective of enhancing MDA and availability of information. Data-sharing linkages with trans-regional data centres, particularly in the Asia-Pacific and Black Sea-Mediterranean regions would also be beneficial.

- **Multinational Response Capability Development.** Engage in multinational/bilateral maritime exercises to achieve interoperability in communications, and equipment operating procedures for enhancing response capabilities in case of a crisis.

- **Leverage Peacekeeping Effort.** Where possible, leverage the presence of Indian Peacekeepers to provide security and improve stability.
Maritime Areas of Interest

The maritime statistics of India are listed in Table 5.1 while Diagram 5.1 displays the Exclusive Economic Zone (EEZ) of India.

<table>
<thead>
<tr>
<th>Total Length of Coastline:</th>
<th>7,516.6 km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mainland</td>
<td>5,422.6 km</td>
</tr>
<tr>
<td>Lakshadweep Islands</td>
<td>132 km</td>
</tr>
<tr>
<td>A &amp; N Islands</td>
<td>1,962 km</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Island Territories:</th>
<th>1,197</th>
</tr>
</thead>
<tbody>
<tr>
<td>A &amp; N Islands</td>
<td>572</td>
</tr>
<tr>
<td>Lakshadweep Islands</td>
<td>27</td>
</tr>
<tr>
<td>Off West Coast Mainland</td>
<td>447</td>
</tr>
<tr>
<td>Off East Coast Mainland</td>
<td>151</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maritime Jurisdiction:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Territorial Waters</td>
<td>UNCLOS Ratification dated 29 June 1995</td>
</tr>
<tr>
<td>Extent of EEZ</td>
<td>45,450 sq nm/155,889 sq km</td>
</tr>
<tr>
<td>Deep Sea Mining Area</td>
<td>587,600 sq nm/20,13,410 sq km</td>
</tr>
<tr>
<td>Antarctica</td>
<td>150,000 sq km, Pioneer Investor – 1987</td>
</tr>
<tr>
<td></td>
<td>Posn – 180 Cape Comorin 1080 nm</td>
</tr>
<tr>
<td></td>
<td>Dakshin Gangotri – 1983</td>
</tr>
<tr>
<td></td>
<td>Maitri – 1989</td>
</tr>
</tbody>
</table>

Table 5.1: Maritime Statistics of India

India shares maritime borders with more countries than those with which it has land borders. The demarcation of maritime boundaries with five countries – Maldives, Sri Lanka, Myanmar, Indonesia and Thailand
has been completed. Problems in delimitation of maritime boundary with Pakistan and Bangladesh are being addressed for early resolution. A list of maritime boundary agreements with neighbouring countries is given in Table 5.2.

### Delimitation of Continental Shelf

<table>
<thead>
<tr>
<th>Country</th>
<th>Date of Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>17 December 1974 (Extension 15 August 1997)</td>
</tr>
<tr>
<td>Thailand</td>
<td>15 December 1978</td>
</tr>
</tbody>
</table>

### Bilateral Boundary Agreements

<table>
<thead>
<tr>
<th>Country</th>
<th>Date of Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sri Lanka</td>
<td>10 May 1976 (Extension 05 February 1977)</td>
</tr>
<tr>
<td>Maldives</td>
<td>08 June 1978</td>
</tr>
<tr>
<td>Myanmar</td>
<td>14 September 1987</td>
</tr>
<tr>
<td>Thailand</td>
<td>17 January 1996</td>
</tr>
</tbody>
</table>

### Trilateral Agreements

<table>
<thead>
<tr>
<th>Country</th>
<th>Date of Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sri Lanka, Maldives</td>
<td>31 July 1976</td>
</tr>
<tr>
<td>Indonesia, Thailand</td>
<td>02 March 1979</td>
</tr>
<tr>
<td>Thailand, Myanmar</td>
<td>24 May 1995</td>
</tr>
</tbody>
</table>

### Historic Waters

<table>
<thead>
<tr>
<th>Country</th>
<th>Date of Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sri Lanka</td>
<td>08 July 1974</td>
</tr>
</tbody>
</table>

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The Areas of Focused Interest

**Areas of Interest**

Portuguese Governor Alfonso Albuquerque had in early 16th century opined that control of the key choke points extending from the Horn of Africa to the Cape of Good Hope and the Malacca Strait was essential to prevent an inimical power from making an entry into the Indian Ocean. Even today, whatever happens in the IOR can affect our national security and is of interest to us. Since our area of operations is extremely large, areas of primary and secondary interests need to be identified with immediate attention being devoted to the former.

**Primary Areas.** These include:

- The Arabian Sea and the Bay of Bengal, which largely encompass our EEZ, island territories and their littoral reaches.
- The choke points leading to and from the Indian Ocean – principally the Strait of Malacca, the Strait of Hormuz, the Strait of Bab-el-Mandeb and the Cape of Good Hope.
The Roles, Missions and Operational Tasks of the Indian Navy have been outlined in the “Indian Maritime Doctrine”.

**Secondary Areas.** These include:
- The Island countries.
- The Persian Gulf, which is the source of the majority of our oil supplies.
- The principal ISLs crossing the IOR.

Keeping in mind our existing resources, the present strategy will only focus on areas of primary interest. Areas of secondary interest will come in where there is a direct connection with areas of primary interest, or where they impinge on the deployment of future maritime forces.

**Likely Scenarios for the Use of Military Force by the Indian Navy**

The Roles, Missions and Operational Tasks of the Indian Navy have been outlined in the “Indian Maritime Doctrine”. The likely scenarios for maritime operations over the coming decade could be:

- Conflict with a state in our immediate neighbourhood or clash of interest with an extra-regional power.
- Operations in the extended and or strategic neighbourhood in response to a request for assistance from a friendly nation.
- Anti-terrorist operations – conducted multilaterally or unilaterally.
- Actions to fulfil international bilateral strategic partnership obligations.
- Ensure good order at sea which includes Low Intensity Maritime Operations (LIMO), to combat asymmetric warfare, poaching, piracy, and trafficking in arms/drugs.
- Ensuring safety and security of ISLs through the Indian Ocean.
- Actions to assist the Indian diaspora and Indian interests abroad.
- Peacekeeping operations, under the aegis of the United Nations (UN), independently or as part of a multinational force.

- Humanitarian Assistance and Disaster Relief (HADR) in our extended neighbourhood, or in response to a request for assistance from a friendly nation.

In order to fulfil the Roles, Missions and Tasks, awareness of the Maritime Domain is considered a prerequisite. Elements of Maritime Domain Awareness are outlined below.

**Maritime Domain Awareness**

A key national security requirement is the effective understanding of all activities, events, and trends within the relevant domain – air, land, maritime, space, and cyberspace – that could threaten safety and security of countries. Domain Awareness is critical to
At the strategic level, Domain Awareness demands that the government and the Armed Forces stay abreast of geopolitical developments and activities of its likely adversary preventing adverse events. Knowledge of an adversary’s capabilities, intentions, objectives, ideology and organisational structure is used to assess adversary’s strengths, vulnerabilities and centres of gravity. Domain Awareness also enables the early identification of potential threats, planning of responses, supporting decision-making and prioritising resource allocation.

Domain Awareness, as it pertains to the Indian Navy, is being cognisant of the constantly evolving multi-dimensional picture of the maritime and littoral environment of our interest. Domain Awareness is essential for effective decision-making at all levels of operations – strategic, operational and tactical – though at each level the nature, application, and modes of collection differ. Intelligence, search, tracking and identification form the important elements in the situational awareness development chain. In this chapter, relatively greater stress will be laid on the tactical picture because the sum total of the tactical pictures of the environment forms the basis on which maritime strategy is implemented.

Strategic Level

At the strategic level, Domain Awareness demands that the government and the Armed Forces stay abreast of geopolitical developments and activities of its likely adversary – be they economic, diplomatic or the activities of military forces. As far as military awareness is concerned, at the highest levels there needs to be a clear understanding of the personality and traits of the adversary’s important leadership and the character of the organisations they lead, so as to be able to predict how they would react to different circumstances. Particularly important at the strategic level is awareness about budgetary allocations, infrastructure developments, acquisition plans, hardware inductions and their state of training. Achieving this will require effective satellite, ground and human-based intelligence. The Cabinet Committee on Security, supported by the National Security Advisor, who in turn is supported by the Joint Intelligence Committee (JIC) and other National Security apparatus, would perform this function and disseminate matters of interest to the Indian Navy.

Operational Level

At the operational level, Domain Awareness entails the extraction and review of the adversary’s likely operational plan and any military build-up. This forms the basis on which our own concepts of conflict management are drawn up. This often implies not so much a rapid analysis of the developing picture, but the estimation of enemy intentions, strengths, vulnerabilities, centres of gravity, etc. which drive his operational and tactical plans. While much of this in the past needed to be derived from inputs from higher authorities, and from intelligent guess-working, it is possible today to build up the overall picture by piecing together the results of tactical surveillance and the results obtained from National Technical Means.

Tactical Level

At the tactical level, Domain Awareness encompasses all activities related to Maritime Domain Awareness within the area of the battle-space centred on a force – be they air, surface or subsurface.

Satellite Communication Capability

The existing connectivity enables a near real-time Maritime Domain Awareness plot to be maintained at all Maritime Operation Centres (MOCs) enabling exchange of positional awareness and networking sensor information of own assets. In the short term, the Indian Navy intends to achieve a satellite-based comprehensive communications capability in the IOR. In the long term, an all-encompassing surveillance and communications capability will be achieved through a constellation of satellites.

Degrees of Surveillance

Though it is desirable to maintain equal levels of multi-source surveillance in every area of interest, the quantum of resources required will always render such a goal unattainable. Therefore, prioritisation of areas based on their operational importance, and accepting different degrees of surveillance in different areas, is inescapable. Based on developing situations or operations in progress, various locations would need

The existing connectivity enables a near real-time Maritime Domain Awareness plot to be maintained at all Maritime Operation Centres (MOCs) enabling exchange of positional awareness and networking sensor information of own assets.
FREEDOM TO USE THE SEAS: INDIA’S MARITIME MILITARY STRATEGY

A network of coastal radar chains duly supplemented by satellite-based surveillance capability could also be used to augment the inputs for maintaining maritime domain awareness.

to be upgraded or downgraded as regards the quantum of surveillance provided, thus facilitating optimum allocation of resources. The various degrees of surveillance required are enumerated here.

**Surveillance in Support of Tactical/Theatre-level Operations**

Fleets at sea, smaller forces engaged in critical operations, and high value ships being convoyed in conflict would need round-the-clock surveillance to ensure complete situational awareness up to significant distances around them. This needs to be achieved through all available means, including satellite inputs, integral/shore-based aircraft, helicopters and Unmanned Aerial Vehicles (UAVs).

**Surveillance of Choke Points and Vital Areas/Vital Positions**

A reduced grade of time-specific surveillance may be mounted at choke points or other areas through which potential adversary units are likely to pass. For instance, a patrol established across a strait or a channel would necessitate sustained and gapless Maritime Reconnaissance/UAV effort. For anti-submarine operations ASW sensors fitted on manned/unmanned platforms, laid on the sea-bed or deployed using buoys would be required for continuous surveillance. Such surveillance would also be required over our offshore energy assets in peacetime and could be more economically achieved by using platform-based sensors where possible. A network of coastal radar chains duly supplemented by satellite-based surveillance capability would augment the inputs for maintaining maritime domain awareness.

**Periodic Peacetime Area Search**

Building maritime domain awareness in peacetime will require regular visits by our units, mainly long-range aircraft, to the entry/exit points of our area of interest. The surveillance efforts required will involve tasks like tracking warships of potential adversaries transiting our waters in peacetime, and assessing the nature and quantum of trade-flow over important SLOCs and through choke points in the north Arabian Sea, Dondra Head and the Malacca Strait. Activities around our island territories would also need to be monitored.
Electronic Surveillance

Real Time Data Fusion

Surveillance efforts are based on a large number of sensors which function on a spectrum which may range from Optical to Microwave. The information from active and passive sensors needs to be correlated, associated and fused to provide a comprehensive representation of the overall maritime domain picture without causing an information overload or an erroneous indication of the actual number of objects/targets in the area of interest. This will be facilitated by data fusion technology, networking of sensors and would be taken forward through the initiatives of Network Centric Operations.

Identification Process

Identification at sea will continue to be the biggest hurdle. While a common database of all contacts in a theatre would reduce the identification problem, the long ranges and lethality of modern weapons necessitate higher degrees of certainty in identification prior to engagement. To aid identification, modern technology coupled with correct target identification procedures and data fusion techniques will be used. The IMO mandated Automatic Identification System (AIS) and Long-Range Identification and Tracking (LRIT) will be critical enablers for ascertaining neutrals in our area of operations. However, these are not fool-proof methods, and cooperation with maritime neighbours, use of Human Intelligence (HUMINT) and Technical Intelligence (TECHINT) and collation of inputs by units at sea will have to be merged to obtain an accurate picture of the maritime domain.

Networked Operations

The initiatives being pursued in compliance with networked objectives include seamless connectivity between shore and afloat segments, standardisation of databases, and protocols for development of three parallel grids – the Sensor, Information and Planning. The aim of these grids is to provide a common level of enhanced maritime domain awareness in a secure networked environment.
Owing to their unique characteristics, such as mobility, three-dimensional capability, reach, versatility and sustained presence, maritime forces have application in a wide range of operations at sea. These extend from nuclear conflict or high intensity war fighting at one end of the spectrum, to humanitarian relief and stable peace at the other. These operations can be classified into four types of roles, which in general terms have been termed as Military, Diplomatic, Constabulary and Benign.

The Military Role is the traditional role of navies and encompasses all situations which require the use of military force. This is principally a war-time task. The Diplomatic Role involves the use of maritime forces to support national political objectives and foreign policy, and assumes the availability of force to back up and support diplomatic efforts at various levels. Maintaining 'good order at sea' is the primary objective of the Constabulary Role; and Humanitarian Assistance and Disaster Relief (HADR) operations are undertaken under the Benign Role. The Diplomatic, Constabulary and Benign roles are essentially peace-time tasks. The missions and operational tasks that flow from these roles have been outlined in "Indian Maritime Doctrine". In this chapter, the strategy for employment of naval forces in peace, and to some extent in crises, is examined. Table 6.1 enables clarity on various missions that can be undertaken under the four main roles. It depicts the types of Naval Missions that can be carried out by navies worldwide under each task. The individual capability of large, medium and small navies worldwide under each task.
### Types of Naval Missions and Individual Mission Capability

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<th>Types of Naval Missions</th>
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| Source: Adapted from a thesis on 'Role of Indian Navy as an Instrument of India's Foreign Policy in the Asia-Pacific Region', by Capt AK Chawla, IN. | |
troops; evacuating civilians; establishing a blockade or quarantine; and
preventing intervention by other forces.

- Naval Forces can be sustained indefinitely at distant locations, with
logistics support relatively independent of foreign basing or over-
flight rights.

- Naval Forces have unique escalation control characteristics that
contribute to effective crisis management. They can be intrusive or
out of sight, threatening or non-threatening, away from media glare
or right in its middle, and easily dispatched but just as easily
withdrawn. The flexibility available in employing naval forces
provides escalation control in any crisis.

- Naval Forces can maintain consistently high states of readiness
because of forward deployments, ensuring operational expertise and
day-to-day preparedness.

- Naval Forces increasingly operate with friendly navies and other sister
Services and, therefore, are easily adaptable to joint/combined
operations.

- Deployment of Naval Forces outside territorial waters does not
require concurrence or consent of littoral states.

Deterrence Postures

The most important task of the Indian Navy during peace and in
 crises is to deter war. The essential attributes of forces for effective
deterrence are enumerated in the “Indian Maritime Doctrine” and are,
therefore, not being repeated in this document. The Indian Navy must
possess sufficient maritime power to deter a military maritime challenge
posed by any littoral state in the IOR. Our posture should also
significantly raise the threshold against hostile extra-regional powers with
inimical intentions.

Strategic Deterrence

Strategic deterrence aims primarily at maintaining the status quo, by
creating the perception that initiation of any level of conflict by the
adversary would be infructuous. Strategic deterrence, therefore, is a national strategy that synergises and
effectively leverages all elements of national power (diplomatic, economic, informational and military) and
international influence.
**Nuclear Deterrence**

Nuclear deterrence is a subset of strategic deterrence, whose long-term goal is to ensure stability. Since nuclear weapons can radically change the cost-benefit equation in warfare and produce destruction on a scale that can easily shatter the enemy’s will and ability to fight, nuclear deterrence is an extremely powerful tool for attaining a safe security environment. Nuclear deterrence in the Indian context, therefore, primarily aims at preventing conflict, should conventional deterrence fail to do so.

Our ‘No First Use’ (NFU) policy amply illustrates India’s intentions of using the nuclear deterrent only as a retaliatory measure of last resort. The sea-based leg of the nuclear triad enables a survivable second strike capability and is, therefore, a critical enabler for the nuclear doctrine of ‘No First Use’ to attain credibility. This mandates the maintenance of robust command and control systems, effective surveillance, good intelligence, sound planning and proper training. Our NFU doctrine also emphasises the need to maintain adequate conventional forces to maintain the nuclear threshold at an adequately high level.

Nuclear stability has acceptably been subdivided into crisis stability and arms control stability. The former is achieved by a mutual willingness to forego the ambition of achieving escalation dominance by early manoeuvring. The stealth characteristic of a ballistic missile submarine ensures that no advantage can accrue to the other side from positioning, escalating and manoeuvring. The second factor, arms control stability, is best achieved at the lowest arsenal levels so as to improve the cost-effectiveness of deterrence. Here again, the most ‘credible’ of all arsenals in a second strike is the nuclear-armed missile submarine. On both counts, therefore, the nuclear submarine option is the preferred arsenal for small nuclear forces.

**Conventional Deterrence**

Conventional deterrence is achieved through conventional maritime forces with superiority in terms of overall strength, capability and morale. Potential adversaries will not be deterred by empty threats or rhetoric, but by the possession of capabilities that cannot be matched by the adversary in conflict. When dealing with a more capable adversary, deterrence can also be achieved by the formation of partnerships or coalitions/alliances, thereby combining capabilities of partner maritime forces, or presenting a picture of solidarity. While the option of formal coalitions/alliances outside the ambit of United Nations is presently not available to the Indian Navy due to our national policies, we can however reach out to our maritime partners or collaborate with friendly nations to build deterrence. Some of the important elements which support or enhance the credibility of conventional deterrence are discussed below.

Diagram 6.1 depicts the Enablers for Deterrence.
Strategy for Enabling Deterrence

Improvement in Combat Efficiency

Every naval activity undertaken during peace (with the possible exception of HADR) should rightly contribute in some measure to preparedness for a possible future conflict. During times of peace, therefore, the most important task of the Indian Navy is to prepare for combat, thereby enhancing conventional deterrence against potential aggressors. This implies that settings for exercises and operations should simulate the conditions of war as closely as possible. They should also introduce realism in the form of uncertainty, stress and disorder. The last characteristic is most important as only opposed, free-play exercises will allow the near-realistic simulation of conditions of war. Conduct of peacetime operations, testing and firing of weapons, enhancing surveillance and shaping the maritime environment, all convey an underlying 'message' of readiness and resolve to potential adversaries, and should, therefore, be designed to enhance the deterrence potential of the Indian Navy.

Ensuring Forward Presence

'Forward Presence' is the enabling element of conventional deterrence. As stated in the "Indian Maritime Doctrine", 'presence' is a product of 'reach' multiplied by 'sustainability'. The term 'forward presence' is used to express a resolve to deploy forces for presence into or close to areas of interest or concern. In the Indian Naval context, forward presence is intended to:

- Demonstrate India's commitment to regional stability;
- Gain familiarity with overseas operational environments;
- Keep the area of interest under surveillance; and
- Promote interoperability among the forces of friendly nations.

Presence enables ready availability of Naval Forces, to prevent or control crises, as was demonstrated by Operation Sukoon, wherein Indian Naval Forces were involved in the evacuation from Beirut in 2006. Further, presence enables the political and military decision-makers to be proactive rather than reactive in dealing with situations. The index of the navy's presence is a complex function of strategic clarity, professional and tactical skills, human resource index or morale, the material state of the service, its repair and maintenance abilities, national shipbuilding and design competence, and the techno-strategic base available to support it.

Improving Reach and Sustainability

India's maritime interests and, consequently, its maritime objectives extend throughout the IOR. For the Indian Navy to ensure presence on a regular basis in most areas of our interest, the capability to operate at considerable distances from the Indian coast is a prerequisite. Other means for ensuring presence may include overseas deployments, port visits, and exercises and operations with our maritime partners in the areas of our interest. A major effort at improving the reach and sustainability of Indian Naval Forces is being undertaken currently.
Information Capability

The ongoing Revolution in Military Affairs (RMA) has enhanced the ability to achieve disproportionate effects in maritime operations, by exploiting the information domain. Information capability consists of three aspects – intelligence, surveillance and networking. These key elements require focused attention during peace to enhance the combat potential of our forces. Major issues in this regard are:

- **Intelligence.** Intelligence gathering is a key peacetime activity of the Indian Navy as the geostrategic environment becomes increasingly complex in an era of ‘violent peace’. Effective intelligence gathering and dissemination require coordination between naval and other military and governmental intelligence agencies. Organisationally, it requires investment in human resources and technical means, creation of data banks and networks for quick dissemination of information to units. Investments in analysts, linguistic skills, and area/country specialists will also be essential for effective intelligence gathering.

- **Surveillance and Networking.** India’s maritime neighbourhood is the most heavily traversed ocean area by both merchant vessels and warships. It is necessary that the normal peacetime traffic patterns in the oceanic areas of our interest must be determined before any deviation can be discerned and established. Maintenance of surveillance in areas of our interest requires a complex set of organisational interfaces between several sources and capabilities, including satellites, UAVs, naval aircraft and warships, augmented by merchant ship tracking and reporting systems. More importantly, surveillance information needs to be speedily processed in order to provide decision-makers with suitable and actionable information about a potential adversary’s capabilities and intentions. Transition to continuous surveillance with real-time network connectivity among naval assets should be the primary area of focus during peace.

Building Partnerships

Building partnerships is a mechanism available to us for enhancing the credibility of our deterrence and dissuasion. Enhancing interoperability with regional and extra-regional navies will also result in prevention of mutual interference. In peacetime, maritime forces must establish beneficial relationships with partners, to enable us to favourably shape the maritime environment both prior to and during a conflict.

Strategy for Diplomatic Role

**Maritime Diplomacy**

The main business of major navies in the 21st Century is to use warships to support foreign policy by less violent methods. During the long years of peace, we need to project power and show presence; catalyse partnerships; build trust and create interoperability through combined operations, and international maritime assistance. The range of options available extends from unilateral armed action, or coercion, at one end of the spectrum of naval diplomacy to bilateral and multilateral defence cooperation at the other end.

**Maritime Cooperation**

Maritime Cooperation, comprises those actions undertaken after mutual consent. This cooperation could be further sub-divided into ‘strategic defence security cooperation’, ‘defence industry and technology cooperation’ and ‘navy-to-navy cooperation’. Realising the importance of maritime cooperation, the Indian Navy has reorganised the structures dealing with these aspects. The succeeding paragraphs outline Indian Navy’s vision and identify the key drivers for enhancing international maritime cooperation.

**Vision for Maritime Cooperation.** It essentially encompasses:

- Shaping a favourable maritime environment in the IOR for operations in peace as well as during conflict.
- Preventing incursions by powers inimical to India’s national interests by actively engaging countries in the IOR littoral, and rendering speedy and quality assistance in fields of interest to them.
- Engaging extra-regional powers and regional navies in mutually beneficial activities to ensure the security of India’s maritime interests.
- Projecting the Indian Navy as a professional, credible force and the primary tool for maritime cooperation.

During the long years of peace, we need to project power and show presence; catalyse partnerships through our maritime capability; build trust and create interoperability through combined operations, and international maritime assistance.
Key Drivers for Maritime Cooperation

In order to eliminate misperceptions and pre-empt disinformation regarding the maritime cooperation initiatives of the Indian Navy in the Indian Ocean littoral, it is necessary to reiterate the benign and non-intrusive nature, and scope, of our activities. The various drivers that could influence the progress of our maritime cooperation initiatives are depicted in Diagram 6.2 and thereafter enumerated in their order of importance.

Political Direction

Maritime cooperation initiatives are totally governed by the importance accorded by the political leadership to a particular initiative/country. This is the overarching driver of maritime cooperation. The direction provided at the political level acts as a strategic tool which indicates the willingness to pursue broader cooperation and a commitment to overcome and manage differences that arise.

Ensuring Stability in the Immediate Neighbourhood

The self-evident need to ensure a favourable maritime security environment in our immediate neighbourhood is the most compelling driver for our current foreign-cooperation efforts.

Establishing and Retaining Influence over the Maritime Neighbourhood

There is a critical need to wean the littoral states of our immediate neighbourhood away from the increasingly pervasive influence of states hostile to Indian interests. The effects of our past inactivity in this area, which enabled some countries to exert their influence in our maritime neighbourhood, need to be reversed.

Shaping the Probable Battle-Space

This driver would aim at ensuring that the ‘probable’ battle-spaces, i.e., the Arabian Sea or the Bay of Bengal (and further eastwards), are ‘shaped’ in our favour. This implies active engagement of the countries, which ‘rim’ these battle-spaces, particularly those areas which control access to the Indian Ocean.

Ensuring the Safety of Indian Seaborne Trade in the Indian Ocean and Beyond

This driver is the amalgamation of two subsets, namely the Indian Ocean and beyond IOR, wherein the safety and freedom of Indian seaborne trade is of utmost importance to us, and can be ensured through active cooperation with other countries.

- Within IOR. Exercising linkages with countries located astride the maritime choke points in the IOR, is an important goal for naval foreign cooperation. These maritime choke points are defined by nine major strategic waterways which provide access into the Indian Ocean.
Beyond IOR. Appreciating the fact that the countries of Southeast and East Asia are today India’s largest trading partners, ahead of even the European Union and USA, it is imperative that we engage with all those countries that are important sources or destinations of our seaborne trade beyond the IOR.

Facilitating Technological Engagements

Today technology development has become a collaborative effort, especially in the field of defence. This implies that the growing needs of the Indian Navy for cutting-edge technology can only be met through cooperation (import, transfer of technology, joint development, joint production, etc.) with developed regional and extra-regional countries. In addition, if India is to develop its own defence industry, it needs the Indian Navy to engage actively with the resource-strapped regional maritime countries to export Indian platforms and equipment in the region, thereby also enhancing bilateral relations.

Enhancing Regional and Extra-Regional Interoperability

Another important factor of foreign cooperation is the need to standardise procedures and achieve interoperability in maritime areas ranging from disaster relief to anti-piracy missions and non-combatant casualty evacuation operations. These imperatives demand close engagement with advanced regional navies, as also extra-regional ones. We also need to engage with smaller regional navies in a similar manner, to enhance their interoperability capabilities. As these interactions increase, they will impinge on intra-IN work-up; and hence the final aim will be twofold: first, to convert as many bilateral interactions into multilateral ones; and second, to develop a degree of comfort and trust with some specific navies to enable the undertaking of weapon-sensor work-up at intra-IN levels.

Energy Security

Energy Security is another powerful driver for naval foreign cooperation, especially in view of the dynamic efforts of ONGC Videsh Limited (OVL) in various geographically dispersed countries.

Supporting the Indian Diaspora

The economic, cultural and political influence exerted by the Indian diasporas settled overseas is substantial, and its active engagement is another key driver for maritime cooperation. Even a simple port visit by ships of the Indian Navy gives the Persons of Indian Origin (PIOs) enough leverage and confidence to further the Indian cause in their host countries.

Strategy for the Constabulary Role

A graded application of maritime power against state-sponsored or non-state actors undertaking hostile activities is an important role, which consumes considerable time and effort of navies in peace. Long considered a ‘brown water’ task, more attention is being accorded to the constabulary role due to its growing importance and frequency of occurrence in the recent past. Over the years, the Indian Navy has been occasionally involved in constabulary operations such as anti-poaching, anti-smuggling, anti-piracy and coastal security, etc. With the establishment of the Indian Coast Guard in 1978, many law enforcement aspects of the constabulary role within the Maritime Zones of India (MZI) have been transferred to it. While the Coast Guard looks after all law enforcement activities within the MZI, the Indian Navy is responsible for ensuring defence of our maritime economic assets. Currently, the constabulary role for the Indian Navy can be divided into two broad tasks: Low Intensity Maritime Operations (LIMO); and Maintaining Good Order at Sea. Diagram 6.3 depicts the Constabulary Role for Indian Navy.

Over the years, the Indian Navy has been occasionally involved in constabulary operations such as anti-poaching, anti-smuggling, anti-piracy and coastal security, etc.
LIMO involves the graded application of maritime military power against both state-sponsored or non-state actors undertaking anti-national activities. It includes counter and anti-terrorist operations. The epicentre of world terrorism and nuclear proliferation lies in our immediate neighbourhood. In the coming decade, the use of the seas by terrorist organisations is likely to see an increase, as their movements on land become more difficult. As a major maritime power, the Indian Navy is duty-bound to work towards improving the maritime security environment in the region. Since terrorist activities are trans-national, extensive cooperation with other maritime nations will be essential to achieve success. Successful execution of such operations will first require good intelligence ashore backed by effective surveillance, interdiction capabilities afloat, and specific training to personnel carrying out these tasks. The progressive transfer of responsibility for these operations, closer to our coast, to the Indian Coast Guard will allow the Indian Navy to focus on combating low intensity threats further out at sea.

Diagram 6.3: Constabulary Role

Maintaining Good Order at Sea

A significant dimension of the constabulary role relates to the tasks associated with the maintenance of good order at sea. In the coming decades, the challenge of threats such as piracy, gunrunning and drugs smuggling are likely to grow, thus requiring the cooperative use of maritime forces to counter them. Further as majority of the nations in the IOR do not have adequate maritime capabilities to safeguard their interests, they look upon the Indian Navy to ensure stability and tranquillity in the maritime domain. Some tasks, which may be required of the Indian Navy to maintain ‘Good Order’ in the Indian Ocean Region, are:

- **Anti-terrorism Operations.** India is an affected party and an important partner with most developed nations in the ongoing Global War on Terrorism. As the major regional power in the IOR, India is duty-bound to improve the maritime security environment in the region. India straddles the geographic space between two major terrorist hubs – the Al Qaeda based in Afghanistan and Northwest Pakistan and the Jemaah Islamiah in the East. A majority of other international terrorist groups are based on the fringes of the IOR. Indian support already exists for the Container Security Initiative (CSI) and the Suppression of Unlawful Activities (SUA) Convention, and maritime forces would intervene on specific occasions to prevent, or respond to terrorist incidents.

- **Anti-piracy Operations.** The International Maritime Organisation has assessed that two-thirds of all piracy cases occur in the IOR, in areas such as the African coast or the Malacca Strait, where either the authority of the state is weak or heavy traffic provides cover for unlawful activities. Even though there has been considerable decrease in pirate attacks in recent times, several recent piracy attacks on Indian craft and merchant vessels underline the need for the Indian Navy to not just patrol, but also prevent piracy and, if required, interdict pirated vessels. India being a ‘contracting government’ and a signatory to international norms, the Indian Navy will induct capabilities to be an effective partner in the fight against this scourge.

India is an affected party and an important partner with most developed nations in the ongoing Global War on Terrorism. As the major regional power in the IOR, India is duty-bound to improve the maritime security environment in the region.
The Indian Navy’s constabulary role mandates good intelligence, keeping a check on such activities, in coordination with the Coast Guard and shore-based authorities.

- **Anti-trafficking Operations.** With the Golden Crescent to the west and Golden Triangle to the east of our country, sea-borne trafficking in arms and narcotics has major implications for our internal security. The modus operandi of such traffickers is to generally trans-ship the consignments on the high seas into smaller craft capable of high speed which, subsequently, mingle with fishing vessels offshore. Several terrorist organisations in and around the IOR are known to possess merchant fleets of various sizes. Our west coast is used by various militant organisations to smuggle in arms and ammunition, and the waters of the Bay of Bengal and Andaman Sea are similarly prone to trafficking of arms for Indian Insurgent Groups (IIG) in the North-Eastern states. The Indian Navy’s constabulary role mandates good intelligence, keeping a check on such activities, in coordination with the Coast Guard and shore-based authorities. The Joint Patrols initiated with Indonesia and Thailand are significant steps to check this menace. Their scope is likely to be expanded in the future.

**Strategy for the Benign Role**

Benign tasks such as humanitarian aid, disaster relief, diving assistance, hydrography, etc. will continue to occupy the attention of the Indian Navy in the foreseeable future. Some of the benign roles within the Maritime Zones of India (MZI), most notably Search and Rescue (SAR) and pollution control, are in the mandate of the Coast Guard but the Indian Navy will remain prepared to lend assistance if the situation so warrants. The ambit of operations envisaged to be undertaken under the benign role is depicted in Diagram 6.4 and is highlighted in subsequent paragraphs.

**Humanitarian Assistance and Disaster Relief (HADR)**

The Indian Navy has an impeccable record of contributing to HADR operations in the IOR. Its role in providing succour to both our own countrymen and other affected people in Sri Lanka, Maldives, and Indonesia in the aftermath of the December 2004 Tsunami has been widely acclaimed by the national and international community. It is incumbent upon the Indian Navy to prepare for similar tasks and build capabilities to undertake such operations with alacrity.

**Non-combatant Evacuation Operations**

Naval Forces are used by nation states for noncombatant evacuation operations from crisis-afflicted areas. They may also be used to posture in an area as a precaution, should an evacuation become necessary as a result of local instability. This task for the Indian Navy assumes greater significance because the Indian diaspora extends across the continents. The Indian diaspora is an important contributor to the economy and the government has accepted the responsibility of assisting its citizens in distress. The example of the June 2006 Beirut evacuation shows that this responsibility will often fall on the Navy, which has the capacity for the task and needs to be ready at short notice.
**Hydrography**

The Hydrographic Department of the Indian Navy carries out hydrographic surveys, prints charts and coordinates Navarea warnings. This is a vital peacetime naval task for which naval resources are constantly deployed. Besides surveying our own waters, this capability should be used to meet the requirements of friendly IOR littorals. The recent survey operations carried out within the waters of Indonesia, Oman, Mauritius, Maldives and Seychelles are examples of such tasks. Besides surveys, assistance in training and in supply of hardware would be provided to friendly countries.

**Building Maritime Consciousness**

India is not just unique that it has an ocean named after it; she is, in all respects, a maritime nation. Having been constrained by the traditionally continental outlook of our countrymen, the Indian Navy needs to ensure the spread of maritime consciousness through a vigorous campaign. Elements of this could include the setting up of institutions to study and promote maritime thought, the funding of maritime education and research in universities apart from and strategic communications.

**Strategic Communications**

The information age has brought about fundamental changes in the organisation of human affairs, including the use of purposive violence. Arguably, information warfare is one of the most important factors influencing contemporary military operations. It has created more options for military leaders than were available before. It is important that the Indian Navy understands and takes advantage of the options available through the concept of strategic communications⁶ to ensure the success of its missions.

The ultimate aim of strategic communications is to positively influence the perception of our target audience – to win the ‘hearts and minds’ battle. Strategic communications, therefore, need to be aimed at both internal (domestic) and external (international) audiences. Retaining the support of the home population is as important as attempting to turn hostile or neutral public opinion. In wartime, the objectives of the media campaign have to be synchronised with the overall aim of prevailing over the adversary, and would require to be pursued seamlessly at the strategic, operational and, sometimes, at the tactical levels.

In peacetime, as far as the internal audience is concerned, it is largely a public relations exercise, with the major aims being, first, to educate our own people and decision-makers about the utility of maritime power, and second, to project a positive image of the Navy. These actions aim to achieve results which could range from issues as diverse as recruiting better manpower, allocation of an optimum budgetary share, enhancing morale of our own personnel, etc. For the external audience, the peacetime aim is to convey our readiness and resolve so as to psychologically dominate our opponents, deter potential adversaries, reassure our friends, and positively influence neutral nations.
Against the backdrop of the discussions, propositions and postulations contained in the earlier text, this chapter will endeavour to outline a paradigm, within which we must begin to think, plan, order, and execute maritime operations during conflict.

A people's power, historically, was gauged either by the extent of territory that they commanded, or by the number of nations that they could impose their influence (or will) upon. It is for this reason that defence or control of territory has been one of the major reasons for war. This is unlikely to change in the near future. Even as we assiduously attempt to focus the attention of our countrymen on the importance of the maritime dimension, India's national security perceptions in the next 15 years are likely to be largely driven by continental threats.

In times of war, navies have two ways in which they can influence its outcome. The first is to afflict such damage upon the enemy war-machine that the national will to continue the fight is broken. This may be achieved directly or by undertaking indirect operations, such as strangulating the overseas trade of the adversary or by denial of strategic commodities which enhance or sustain the war effort. The ability to use commodity denial techniques against a target nation hinges on three major facets: the extent of dependence on overseas trade; vulnerabilities of specific commodities; and the duration of war. In order to hedge against such an activity by a potential adversary, nations have created strategic reserves and partnerships, which can
provide a buffer in times of crisis. Due to these reasons, this indirect method of affecting a territorial conflict or war has limited uses, especially in a short duration conflict.

The direct method of affecting a continental war aims to target the adversary’s territory from the sea by the delivery of ordnance. The target of that ordnance may be either hostile combatants (counterforce), or the enemy assets at large (countervalue). One method is to deliver the ordnance from platforms at sea (ships, submarines and aircraft). Another method is the insertion of a force ashore in adequate quantity, with associated material, which will deliver the ordnance. Use of land attack missiles, weapons carried by aircraft, naval gunfire, etc. are examples of the former, while expeditionary or amphibious operations are a typical example of the latter method. Therefore, to be an instrument of national security in conflict, the Indian Navy will need the capability to utilise both direct and indirect means to address the land battle with the aim of influencing events ashore. This will imply the acquisition of expeditionary capabilities. As can be seen in Diagram 7.1, success in the conduct of expeditionary operations will be enabled by sea control and sea denial operations in the open ocean and littoral environment, adequately supported by enhanced domain awareness. They would also require the ability to undertake amphibious assaults or raids, using stand-off beaching and vertical envelopment capability to progress fighting ashore.

The Old Strategy

An earlier document on strategy entitled “A Maritime Military Strategy for India 1989-2014” had laid down the following tasks for the employment of Naval Forces in conflict:

- Prevention of the destruction of major coastal and offshore assets, and disruption of coastal mercantile traffic through exercise of coastal sea control, as the prime objectives.
- Distant sea control, in selected areas of the Indian Ocean, to protect economic interests and mercantile traffic.
- Distant, credible sea denial over larger areas in the Indian Ocean.
- The use of maritime power in support of land operations was seen as a subsidiary and not a primary role of the Indian Navy.
Emerging Threats and Conflict Spectrum

While we still talk of a three-dimensional Navy, operations at sea have actually become four-dimensional – air, surface, sub-surface, and electromagnetic/informational. Modern technologies enable better domain awareness, precision targeting, and more efficient conduct of maritime warfare. However, despite opportunities afforded by novel technology and platforms, the adversary may not be clearly identifiable due to lack of domain awareness. Time periods available for prosecuting a conflict also appear to have been compressed because of the inherent escalation in the level of conflict when navies become party to a war. This often leads the international community to exert pressure to limit both its area and duration of conflict due to the adverse impact on the flow of trade and the international economy.

The strategic environment has also thrown up a basket of new challenges as the identity of potential adversaries may not be easily discernable. It is for this reason our capabilities must address generically the emerging challenges to our interests without being country-specific. In other words, if the Navy has a capability to neutralise a missile or torpedo threat, it may not matter much which amongst our likely adversaries has fired it. The Indian Navy should be prepared to match existing and emergent capabilities in our areas of interest, whilst keeping a sharp eye on the intentions of the littoral states possessing them. The threats to our Naval Forces in the short and medium term would come from:

- Missile-armed conventional surface forces, underwater platforms and air-launched weapons.
- Unconventionally armed, IED-equipped craft of opportunity assigned for surveillance, intelligence missions and for offensive roles such as mining.
- Attempts to dominate the Electromagnetic (EM) spectrum in order to degrade our surveillance and communication functions followed by Information and cyber warfare to disrupt Command and Control functions.
- A direct nuclear attack on own Naval Forces is as yet a distant possibility. Transition and passage through nuclear fallout areas will, however, have to be undertaken.

The Spectrum of War

The threats outlined above may result in maritime scenarios such as:

- Maritime operations in less-than-war situations, which may include operations to provide assistance and support to friendly governments classified as ‘Out of Area Contingencies’ (OOAC).
- Operations in limited conflict.
- Operations in general conventional conflict below the nuclear threshold.
- Nuclear conflict.

Planning for Warfighting

The warfighting plans of the Indian Navy would include, but not be limited to, the following activities:

- Force protection in peace and the preparatory stage.
- Rapid transition from peace to war deployment, including a focused plan of manoeuvring forces into battle to effect surprise and dislocation.
- Information dominance of the entire battle space. This would imply transparency of the battle space and electronic spectrum awareness on our own side, with the concurrent destruction or degradation of the enemy’s surveillance and intelligence assets.
- Designing offensive operations that have a high probability of achieving a devastating effect in a short time. The Indian Navy would ensure that graduated response and controlled escalation mechanisms are built into our operations.
- Readiness for counterattacks by the adversary through defensive operations, particularly during periods of relative calm in the midst of hostilities.

The New Strategy

The passage of time has brought with it many changes; some foreseen, but others (mostly technological and geopolitical) which had...
The development of military technology has made nations believe that the nature of warfare has undergone a sea change and henceforth wars will be short. The Revolution in Military Affairs (RMA) is also now an accepted fact and will cause navies to fight differently from the way they did before. This section deals with the framework of the new strategy for the conduct of full spectrum conflict in any region. The major facets of this strategy are dealt with under the headings that follow.

Duration and Intensity of Conflict

One of the key issues in respect of war is the duration of conflict. The development of military technology has made nations believe that the nature of warfare has undergone a sea change and henceforth wars will be short. National strategies must, however, take into account the possibility of conflicts being long drawn out. When this happens, the extended time frame will also allow a commodity denial strategy to slowly, but surely, degrade the enemy war machine and demoralise his populace. A short-duration conflict, particularly in the littoral, will demand greater reliance upon land-attack capabilities by maritime forces.

However, land-attack missions are not the only ones that would engage maritime forces in a short-duration conflict. Sea control would almost inevitably be required as the enabler of land-attack capability, and scouting would precede all missions. As the duration of planned or actual hostilities is extended, the importance of maritime warfare, in comparison with land or air warfare, will increase significantly. Strategic and quasi-strategic issues will begin to edge out tactical and operational ones.

Tempo of Operations

While militaries may have undergone technological changes in an earlier era, the present day RMA is unique only in that it is driven by the ability of each adversary to overwhelm the other’s command decision-making loop by vastly increasing the tempo of battle. The rapidity comes from enhanced domain awareness made possible by technology, but naval planners must remember that enhanced situational awareness per se does not lead to an increased tempo of battle. A higher tempo in conflict can be achieved by a shift in our warfighting thought process and an altered staff structure. This could be achieved partly by greater real time information-sharing between Commands and Fleets; and partly by giving greater flexibility and freedom of action to Commanders through ‘open-ended’ operational orders, which give the Commander and lower formations a common understanding of the sequence of operations.

Threat Analysis

The new strategy, involving a much speeded-up tempo of operations, can theoretically be interfered with by newer weapons, which are often acquired by navies with limited sea denial aims. It is, therefore, necessary that a strategic-level threat and scenario analysis is made as the basis for formulating strategic courses of action. Consequently, realistic threat analysis for maritime warfare must be carried out to produce a range of scenarios that are likely to occur. Issues of survivability and probability of losses must then be decided on the basis of scenario analyses. Such analyses will also bring out the value of support operations in progressing the campaign. There is also a need to work out ‘threat chains’ with regard to each threat with the aim of finding and attacking the weakest link. To achieve all this, suitable investments in scenario writing are to be made and imaginative thinking allowed free rein.
Phased Operations

The process of phasing of operations is normal in land warfare but its application in the maritime domain is not commonly understood. For instance, at the strategic level, phasing of seaborne operations could apply to the imperative to obtain sea control prior to amphibious operations, or to obtain air superiority before a Joint Services sea transit. In the maritime warfare the attempt to gain information dominance would normally be of a high priority. Phased operation in the littoral would be more complex, as there could be gaps in gaining information ascendancy due to unavoidable and inconclusive littoral melees. Purists might argue that a first phase to gain information dominance may in practice not be much different from a first phase to gain sea control. But there are major differences – in the new strategy it is assumed that sea control is either a by-product of information dominance, or an end that cannot be gained without it.

All-Arms Battle

The current application of an all-arms strategy of bringing to bear platforms of all three mediums in support of each other by concentrating firepower or effects in time and/or space, often in a controlled escalation. The all-arms concept is naturally applicable to preplanned operations in geographically definable littoral areas. In this context, the employment of IAF assets in support of maritime operations forms an integral part of our planning process.

Support Operations

There could be an occasion when the perceived vulnerability of some key platforms may preclude their use in certain types of operations. In such a case, support operations will need to be planned as a prelude to the main operation to reduce that vulnerability. To achieve this, there may also be need for phasing of operations and for sequencing them to enable the use of some of the key platforms in an effective and resolute manner.

The New Operational Order

Orders issued for operations previously have shown that their situational relevance tended to expire rapidly owing to the changing dynamics of naval war and the severely limited intelligence available.
While war at sea will continue to remain fluid and dynamic, the information scarcity will be progressively addressed. There is a distinct need to change over to a format which outlines the flow of events visualised to occur in a particular theatre, that is, sequences them without specifically scheduling them.

**Joint Phase of Operations**

It is envisaged that in the final phase of Full Spectrum war, the Navy would link up with the other Services in joint operations, no matter how short (or long) that phase may be. The Navy would, therefore, become involved in what was earlier described as the 'land phase' of the operation. Quite clearly this will involve operating in the enemy littoral which would earlier have been considered perhaps too hazardous.

The sequencing and phasing of operation as envisaged in the new strategy are outlined in Diagram 7.2. Essentially, it would encompass phases comprising: Information Dominance, Sea Control and/or Sea Denial operations; Support Operations and All-Arms Battles; with the battle space being cleared for the final Joint Operations phase. This is a major shift from the earlier strategy which believed that victory in the war at sea would produce its own beneficial effects on the land battle, albeit in a delayed and roundabout way.
Planning Issues

Acquisition of hardware will not necessarily change the way navies fight. Hardware only changes how navies deliver ordnance. To achieve the changes described here, the planning structures and processes will have to include:

- The writing of scenarios;
- Follow-on threat analyses;
- Extraction of targets and creation of targeting data; and
- Dividing responsibilities for the C4ISR battle.

It is emphasised that the land war and littoral phases do not in any way reduce the importance of the purely maritime war. The sea war is a phase that now has to be gone through in a shorter time frame, so that the Navy participates in the final phase aimed at the enemy’s Centre of Gravity, which invariably will be on land. The compressed time frame is thought to be made possible by the increased tempo of battle and by information dominance. Such dominance will be achieved progressively by the new investments in creating omniscience and broadband connectivity.

Force Structure Indices

Navies invariably inherit a force structure. The ideal process would be to derive a force structure from a maritime strategy, but this rarely happens in practice. However, it would be strategically unsound to make maritime strategy perpetually subservient to force structure. Eventually maritime strategy must gain ascendancy.

However, as has been described earlier in this chapter, the strength of a Navy may lie not so much in its ordnance delivery capability as in its ability to direct its platforms to react rapidly through situational awareness. So while the platforms acquired may appear satisfactory against their rising costs, there will have to be an index of Investment on Situational Awareness to Investment on Ordnance Delivery. This ratio will give an indication of how well-structured a Navy is to take advantage of the RMA. Yet another index could be the ratio of Major War Vessels to Long Range Maritime Patrol Aircraft. This ratio is near 1:1 for well-structured blue water navies, while it needs not be so for a geographically constrained Navy. A third index is a very basic one – that of Major to Minor War Vessels. A more refined version of the same would be the ratio of SSMs in major war vessels to those in minor war vessels. These figures indicate unmistakably how and where navies intend to fight. The fourth index, a Navy's Tanker to Major War Vessels ratio, clearly indicates its intent for blue water operations. Lastly, the commitment of the Navy to joint operations, and to participate ‘at the finish’ can be obtained from the ratio of Land Attack Missiles to SSMs carried by the entire fleet.

Exclusion Zones and Rules of Engagement

Extended weapon ranges are neutralised if the identification problem is not resolved. Rigorous identification procedures require adequate technical infrastructure and time. The time lost in procedures cripples range advantages. Hence, exclusion zones are helpful, particularly close to littorals, target ports, and choke points. Statistics of maritime conflict indicate that commercial traffic would rather abide by the promulgated exclusion zones, provided trade is not crippled and diversionary routes exist. International opposition can be expected and should be factored.

Pre-emption and the Window of Opportunity

Maritime forces will invariably be deployed before the outbreak of hostilities. Establishing information dominance requires aggressive searches and reconnaissance. ‘Marking and Counter Marking’ is a distinct possibility during this phase and Rules of Engagement must be specific on this issue. Hence, in the new strategy, it would be a prime maritime requirement to ‘clear the cobwebs’ at the start of hostilities. To achieve this, the promulgation of Exclusion Zones and appropriate Rules of Engagement go hand in hand.
Indian Navy's 'Plan Papers' have traditionally provided the overarching direction for our force build-up. These plans have been regularly aligned to meet the emerging challenges posed by geopolitics, new technology and concepts of force employment. The Indian Navy has also recognised that building the future Indian Navy, optimally equipped to perform the full spectrum of missions at sea, will require an integrated approach which synergises the induction of platforms, modern weapons and sensors, with the creation of infrastructure, basing facilities, maintenance, material and logistic support, and finally, with the provision of human resources.

The primary aim of this Strategy of Force Build-up is, therefore, to provide overarching direction, identify critical capabilities, aid the planners to review the inter se priority and make decisions to allocate appropriate resources between competing capability and budgetary demands. The strategy for force build-up will not provide the numbers of each and every type of asset (as it is not meant to do so), but will identify the thrust areas. The major tenets of force build-up strategy include:

- The Indian Navy will remain committed to the concept of self-reliance and indigenisation. Building capabilities for the future Indian Navy will, therefore, require a multi-pronged plan, with the aim to harness national technological strengths in ship construction, engineering, electronics, space, and Information Technology (IT).
Thrust Areas for Force Build-up

Maritime Domain Awareness

Increasing Maritime Domain Awareness (MDA) is to be encouraged as it is a precursor to the conduct of operations in both peace and conflict. It comprises the ability to detect, locate, track and identify the presence of likely targets in an uncertain and unpredictable maritime arena wherein neutrals and merchant ships are present. Building domain awareness involves national technical means for surveillance, scouting operations, means for identification and networking of units for the exchange of data. This singular factor – MDA – has the potential and capability to widen the gap between the capabilities of the Indian Navy and other regional maritime forces in the IOR. Therefore, all elements that contribute to MDA merit attention. Subsets include:

• Investments in satellite-based surveillance technologies. Such space-based assets would be supported by investments in long range UAVs (both ship-borne and shore-based), maritime reconnaissance and Airborne Early Warning (AEW) aircraft and helicopters. The recent advances in optronic technologies would also be harnessed for improving situational awareness and resolving the identification dilemma at sea.

• Joint and single service identification systems with an ability to discern between friend and foe to supplement the surveillance effort.

• Adapt Commercial Off the Shelf (COTS) based technologies to leverage the advantages in data communications, and induct systems with open architecture to enable continuous improvement, capability upgradation, and sharing of data.

• Investments in networking technologies to provide high speed large bandwidth connectivity for sharing multimedia data with requisite security overlays. This would enable forces to further shorten the ‘sensor to shooter’ loop, synergise the strengths of our assets and, thereby, multiply our combat capability. Interoperability of our networks with those of the Army, IAF, Indian Coast Guard and relevant government agencies dealing with the maritime domain are being ensured.

• While indigenisation is a major goal of the Indian Navy, it must occasionally yield to the imperatives of combat readiness. Hence, specific operational requirements may require us to exercise the import option in a limited manner. This would also apply to the import of warships, if indigenous yards lack capacity. Every effort will be made to encourage indigenous Research and Development (R&D).

• The Indian Navy will opt for leapfrogging technologies to bridge the gap with developed nations and avoid a perpetual tail chase. This will require focused investments in science and technology, trials/testing infrastructure and the building of partnerships with institutes of higher learning such as the Indian Institute of Technology (IIT). It will also require making opportune partnerships with global defence industry.

• Maintenance practices and manpower philosophies would need to be reviewed and realigned with global norms.

Building domain awareness involves national technical means for surveillance, scouting operations, means for identification and networking of units for the exchange of data.
In order to ensure sustained presence the Indian Navy would comprehensively address the twin issues of ‘reach and sustainability’ of assets. Investments in manpower and networked technical means for Human Intelligence (HUMINT), Signal Intelligence (SIGINT), Electronic Intelligence (ELINT) and Communication Intelligence (COMINT) would attract investments by the Indian Navy.

Enhanced Reach and Sustainability

In order to ensure sustained presence the Indian Navy would comprehensively address the twin issues of ‘reach and sustainability’ of assets. Some issues may require to be addressed at the Naval Staff Qualitative Requirement (NSQR) stage itself, while others may translate into acquisition of equipment that supports long intervals between maintenance cycles. A focused approach will require:

- Preponderance of ships with 'long legs', which translates into an improved ratio between big ships and small ships.
- Induction of tankers and afloat support ships with enhanced capability to replenish fuel, ammunition and victuals, and provide on site maintenance support in distant areas for ships and submarines.
- Operational Turn Round (OTR) facilities in the farthest littoral reaches of the IOR and fuelling partnerships with the regional and extra-regional navies operating in the areas of interest.
- Increased intervals between maintenance and docking cycles, to enable longer deployment patterns for ships, aircraft, and submarines.

Anti-Submarine Warfare (ASW) Operations

With the proliferation of potent undersea forces in our area of operations, ASW is of primary importance at the strategic, operational, and tactical levels. The induction of modern submarines by potential adversaries and their dependence on a strategy of sea denial (using submarines) make ASW a priority area for capability enhancement in the coming decade. The long-term vision and plan for enhancing our ASW capabilities for conduct of deep ocean as well as shallow water ASW operations, would make it an area of core strength. In the environs of the IOR, ASW operations would involve a networked force using a preponderance of airborne ASW platforms – due to their relative invulnerability from submarines – in sync with Low Frequency Acoustics and Ranging (LOFAR) technologies and unmanned platforms. Other critical capabilities include Seabed and Platform-based detection and monitoring systems, future underwater sensors, weapons, and decoys.

Anti-air Operations

The Indian Navy has made definite progress in the conduct of anti-air operations by inducting shipborne/airborne hardware and matching surveillance systems. This will be further enhanced with the induction of modern carrier-based aircraft and airborne surveillance systems. We would consolidate investments in force multipliers to maintain the distinctive advantage in air defence and anti-air operations.

Expeditionary Operations

The new strategy recognises that influencing events on land is one of the primary roles of the Indian Navy. This in itself translates into the ability to conduct operations in the littoral, albeit in a phased manner. Important contributions made by enhanced MDA, manoeuvre from the sea, sea control, sea denial, littoral warfare, and amphibious operations in conduct of expeditionary operations have been recognised. Direct delivery of ordnance from stand-off ranges, both through land attack missiles and by carrier-based aircraft would be accorded priority. Critical capabilities in strategic sealift, heavy-lift helicopters and air cushion vehicles are being augmented. In addition, a fully trained land-fighting force would require close integration of Amphibious, Marine, and Special Forces of the three services.

Creation of a Joint Rapid Deployment Force (RDF) along with a Joint HQ would considerably enhance our capability to conduct expeditionary operations.

Joint Operations

Future wars, especially expeditionary operations (which includes amphibious and distant operations), will invariably be undertaken by joint forces. Coordination and cooperation amongst the Armed Forces, including
promulgation of common doctrines, coordination of strategies, and commonality in equipment and standard operating procedures, are essential to the success of joint missions. Synergy will, therefore, be achieved in the induction of matching capabilities, through joint planning, and this is being accorded priority by the Indian Navy.

**Special Operations**

The Navy recognises that developing the capabilities of our Special Forces as potent force multipliers will be a priority area in the coming decade. The Indian Navy will invest in capabilities for improved warfighting of Special Forces. Our ability to deploy Special Forces through multi-dimensional platforms will also be augmented so as to ensure their effectiveness against state/non-state threats.

**MCM Warfare**

Mining is recognised as one of the most economical ways of disrupting shipping traffic in choke points, harbours or bottling up powerful fleets. Our ability to keep designated harbours open during a conflict would have a direct bearing on the conduct of maritime trade and operations. This would be dependent upon the sophistication of our MCM hardware as well as the proficiency of our personnel in this warfare speciality. Augmenting our mine-sweeping and mine-hunting capabilities is an ongoing priority area.

**Guiding Factors for Capability Creation**

**Long Term Plans and Budgetary Allocations**

The analysis of the strategic environment and missions, as well as the national economic growth on which budgetary bids have been made, cannot be expected to remain unaltered. Since navies are built over several decades, the leadership is committed to regularly evaluate the force structure plans and ensure long-term financial commitment from the government.

**Building Core Competencies**

The areas that require attention are:

- **Shipbuilding.** The ability to design and build warships is a strategic core capability of any nation. The Indian Navy would ensure that modern processes are adopted to reduce design and construction periods, improve cost competitiveness, adopt modern work procedures, modular construction techniques, and induct modern equipment to enable indigenous building of the future Indian Navy. Enhanced efficiency will be encouraged in defence and private shipyards by adoption of successful international practices. The Indian Navy will further enhance the productivity by options of series construction, timely freezing of designs and increase batch sizes for commonality in design and equipment. The area of weapons, sensor and platform integration, procedures for acceptance of ships, and lifetime support by the vendors or yards would require renewed focus. Development and continuous evolution of standards and specifications for shipbuilding, weapon engineering, system engineering and documentation would also be addressed.
While the Indian Navy will demand quality products from the R&D, we also extend financial and manpower support for vital projects.

- **Aircraft Building.** The ongoing indigenous aerospace projects are bold and pioneering ventures into many esoteric fields like airframe and engine design, weapon system integration, flight control development and evolution of new materials. It is inevitable that these projects will face many hurdles, impediments and, very likely, delays, but the Indian Navy will give them full support and backing. While the Indian Navy will demand quality products from the R&D, we will also extend financial and manpower support for vital projects.

- **Defence Industry.** We must sustain our futuristic initiatives and harness the available capability, infrastructure and resources, including intellectual capital, to the fullest extent to develop a vibrant and proactive Defence Industry. A strong and healthy partnership between the public and private sectors alone will enable India to sustain a powerful defence industrial base for the future, setting us firmly on the path of self-reliance. Efforts to create synergy between private and public-owned industry, would be based upon the exploitation of 'core competence' of each sector. Advantages afforded by joint development programs for weapons, sensors for ships, submarines and aircraft would be exploited.

**Investments in Future Technology**

It is assessed that the Strategic Trends of certain technologies will have a revolutionary impact on the world, over the next 15 years. Such advances will not only enhance naval capabilities, but also lead to new vulnerabilities. Thus, there is a need to study the trends of technology advancements closely. It is also recognised that the Indian Navy may never be able to provide economies-of-scale to a developer or manufacturer for investing in future technology. As a result, a strategy of identifying areas for inter-Services pooling or export markets for indigenous products would be adopted where possible.

**Information and Communications Technology**

Information and Communications Technology (ICT) is defined as the entire infrastructure, organisation, personnel and components that collect, process, store, transmit, display, disseminate, and act on information. Some potentially revolutionary aspects of ICT, which would have tremendous implications on Indian Navy, are enumerated:

- **Power Sources.** Although fuel cells could provide a realistic alternative to combustion engines, through electric drives, it may not be a revolutionary

**Nano-technology**

Nano-technology will have significant implications for military technologies, particularly in the fields of faster information systems, sensors and smaller mechanical systems. This technology will have the potential to deliver new materials of low weight, high strength, and low signature. While we recognise that the revolutionary potential of this technology is not likely to be available for a decade or so, the Indian Navy will aid research and development by our academic and scientific community & institutions.

**Evolutionary Technologies**

Alongside the potentially revolutionary fields of ICT and nano-technology, there are some other technologies that are likely to see tremendous evolution thereby having implications on the maritime aspects of their application. These technologies would include:

- The increase in speed, connectivity and pervasiveness of information and communications technology will continue unabated, requiring continual adaptation for defence systems.
- C4ISR systems will remain a key force multiplier; however, our opponents would seek to contest this advantage through electronic warfare, cyber attacks and asymmetric techniques.
- Revolution in encryption techniques would enable availability of near-unbreakable encryption suites to manage the security of the future e-environment, especially with the proliferation of operational, surveillance and administrative networks.
- Knowledge management tools, self-monitoring and repairs, and more intuitive human-machine interfaces are likely to ease the demand for vertically specialised technical personnel.
- Development of remotely controlled weapon systems, along with developments in artificial intelligence, may aid tactical decision-making. These developments could fundamentally change the nature of combat.
advancement onboard surface platforms till 2015. Exploitation of modern power sources, however, has the potential to substantially alter the performance of underwater platforms and weapons.

- **Propulsion Technology.** Advancements in propulsion technology are more likely to be evolutionary in nature in the next decade. Improved propulsion techniques could result in enhanced performance in absolute speed, increased time on task and reduced maintenance period.

- **Space Technology.** The space environment will be widely used militarily and commercially. It would result in evolutionary advances in the fields of communications, surveillance, positioning, and imaging. However, similar commercially available facilities would force the military to be more innovative in protecting its own privacy and surveillance capabilities.

- **Weapons Technology.** Evolutionary advances in the fields of electromagnetic pulse generation techniques and microwave technology will make weapons technically feasible. Directed Energy weapons are already emerging and advances in their technology and application would change their exploitation in the battlefield. Concurrently, advances in acoustic, optronic, laser and signal processing technologies would result in development of modern sensors and precision weapons that could be used without the risk of collateral damage.

- **Precision Navigation/Targeting Technologies.** Advances in position fixing technology will provide flexibility and precision in the conduct of operations. We need to build partnerships to develop inertial navigation systems, fibre-optic gyros, micro-miniature electronic modules, digital cartography and homing technologies for precision targeting.

- **Modern Materials and Stealth Technologies.** Advances in material technology for warship and aircraft designs that enable longer deployment patterns and reduce maintenance requirements need to be leveraged. Modern stealth features, both for ships and aircraft, will further enhance our operational capability.

- **Unmanned Vehicles.** Unmanned vehicles undertake several tasks at a fraction of the cost, and with greater efficiency, than manned equivalents. The use of Unmanned Aerial Vehicles, Unmanned Underwater Vehicles and Unmanned Surface Vehicles is set to grow exponentially in the coming decade. These unmanned vehicles would be capable of weapon launch in due course and thereby become formidable platforms.

- **Simulators.** Advances in computing technology means that simulators would become almost as capable as actual platforms and can provide real-time training through data links. The extremely high costs of weapon platforms and their operating costs have forced modern navies to rely increasingly on simulators for training. The Indian Navy would take advantage of such cost effective technologies.

- **Computing Technology.** Whether it is calculating a fire control solution, running a gas turbine, or coordinating the functions of a combat information system, computing power holds the key to almost everything we do. The Indian Navy would take advantage of our outstanding national capability in the field of software development, and develop partnerships to indigenise this vital element in most areas of modern warfare.
A majority of navies have historically and by tradition, been wary of dogma, and remained reluctant to commit themselves on paper, as far as the Principles that must govern their actions are concerned. A sound reason lay behind this. Operations in far flung ocean areas led to the naval custom that officers in tactical command – from Captains of private ships to Admirals commanding fleets – were always given the greatest latitude of thought and action; merely being told what effect they were to achieve and the reason why it needed to be achieved. Commanders at sea, operating at great distances from home waters, often with slow and tenuous communications, but confident of the trust of their superiors, have benefited from the navy's tradition of decentralised command. It is a tradition which has always engendered freedom and speed of action and bred ingenuity and initiative.

The Indian Navy too, has retained a similar outlook for many years. A beginning was, however made in 1988 by the publication of a document entitled: A Maritime Strategy for India. Regrettably this was followed by a long silence on this front for the next 16 years, till the appearance of the “Indian Maritime Doctrine” in 2004. The publication of “Freedom to Use the Seas: India’s Maritime Military Strategy” should provide an insight and the rationale for the resurgence of India’s maritime military power.

A democratic economic power-house, with a modern, secular outlook and a dynamic population profile, India possesses all the attributes of a potential major power. India’s emergence as an economic power of global significance, and our reliance on the sea for energy and trade is
such as the geo-strategic environment; the threat perception; availability of own forces and resources; the intensity and duration of conflict; and the end state desired to name a few. In the last ten years, there has been a dynamic change in all these factors. Concurrently, the last decade has also seen the transformation of the Indian Navy into a more 'versatile and capable' force. The new strategy has been outlined taking all these factors into account. It also needs to be clearly borne in mind that the successful implementation of this strategy requires adoption of training, staff procedures, and future acquisitions to meet modern maritime challenges.

The professed strategy clearly is premised on deterrence with offensive undertones. It is expected that as a matter of prudence, potential adversaries would desist from entering into any conflict with the Indian Navy and be deterred by the frequent peacetime demonstration of skill, capabilities, and, above all, resolve, demonstrated through various means including bilateral exercises, maritime diplomacy and HADR.

The writing of the strategy has been widely deliberated within the Navy. It has benefited from the generous guidance and has exploited the intellectual resources of many organisations and individuals from all echelons of the service. While this strategy would further national political aims and military objectives, it would be sensitive to changing circumstances, environment and threats. It is for these reasons, that it would be valid only for a finite time-frame and will be re-visited and revised to keep it contemporary and relevant.

The primary motive for commissioning this document has been to provide a fresh strand of philosophy to mull over, and if possible to provoke doctrinal discussion and debate. It will also, provide the rationale for the Navy to plan the acquisition and deployment of naval assets in the maritime environment that we expect to face. The strategy, therefore straddles across the entire spectrum of operations envisaged during peace and conflict. The elements of this strategy are also constantly evolving and would be affected by a large number of factors

Fortunately bringing home a maritime consciousness to the intelligentsia as well as to the people at large. Coupled with the effects of globalisation, modern technology, instant communications and the promise of close networking with the maritime partners, the Indian Navy needs to be viewed in the correct perspective. She can no longer afford to be diffident about either her status or her wider responsibilities. In that sense, "India's Maritime Military Strategy" is a document whose time had finally come. This document bears the title: "Freedom to Use the Seas", because the freedom to use the seas will become crucial if India is to attain her 'manifest destiny'; and this phrase is used in the most innocuous sense.

The primary motive for commissioning this document has been to provide a fresh strand of philosophy to mull over, and if possible to provoke doctrinal discussion and debate. It will also, provide the rationale for the Navy to plan the acquisition and deployment of naval assets in the maritime environment that we expect to face. The strategy, therefore straddles across the entire spectrum of operations envisaged during peace and conflict. The elements of this strategy are also constantly evolving and would be affected by a large number of factors
Chapter 1

1 Doctrine can be described as a collection of fundamental principles by which military forces guide their actions in support of objectives. It is authoritative, but requires judgment in application. It is also defined as a framework of principles, practices and procedures relating to deployment of forces, the understanding of which provides a basis for action. Doctrine, through training, ensures a better understanding (or even anticipation) of the Commander's intent, consistent behaviour, mutual confidence and properly orchestrated collective action.

2 Strategy can best be described as a plan of action, which is evolved in support of policies, interests and objectives, and contributes towards attainment of specified objectives. For a strategy, the start point is invariably a threat, whether real or perceived. This includes threats to our national interests, or subordinate threats to our maritime interests.

3 The littoral - that swath of land and sea of an approximate width of 300 nautical miles (200 nautical miles of EEZ and 100 miles inshore) where the large proportion of human, economic, political and industrial activity is carried out - is also the area where the operational domains of sea, land and air merge.

Chapter 3

4 Extract of MEA Annual Report 2005-06

5 India's has made significant progress in developing partnerships with the major powers of the world. India has entered into strategic partnerships with the United States, Russia, Japan and the European Union and is pursuing strategic cooperation with China, thus enlarging India's policy choices and developmental options. Through the IBSA forum, India has ensured engagement with other emerging economies, Brazil and South Africa.


Chapter 4


8 Ministry of Shipping Annual Report, 2004-05

9 Confederation of Indian Industry, India Maritime Summit, 2006

10 The term International Sea Lanes (ISL) implies those shipping routes that are normally traversed by merchant shipping, whilst transiting from one point to another due to a variety of reasons, including navigational ease and safety, shorter distance, fiscal imperatives, etc. Sea Lanes of Communication (SLOC), on the other hand, are the shipping routes adopted only for reasons of an operational nature. In times of peace, these two routes generally coincide. However, in times of conflict or hostilities, the operational requirements may ensure that SLOCs of a nation may or may not coincide with the ISLs.

Chapter 6

19 Indian Maritime Doctrine, 2004

20 Deterrence can be defined as prevention by fear of consequences, and is, therefore, a state of mind brought about by the existence of a credible threat of unacceptable retaliation. Deterrence can be Strategic or Conventional.

21 Strategic deterrence is a condition in which the adversary is presented with sufficient disincentives to commit acts of aggression or coercion that could threaten our vital interests.

22 When a SSBN puts to sea, it takes the nuclear missiles that it carries out of own territory and off the targeting list of a possible adversary. If the same number of missiles were land-based, it would have to be assumed, that a certain number of missiles could be destroyed by a first-strike and additional missiles would, therefore, have to be catered for to make up for the possible loss. Hence, deterrence can be achieved with a lesser number of missiles at sea than if they were land-based. Also improvements in missile accuracy have no effect against a SSBN as there is no aim point provided. Yet the same improvement in accuracy can be utilised by the SLBM against a shore target.

23 Cold War experience has shown that reduction in the first-strike and increase in the second-strike component considerably stabilises and strengthens deterrence. The rationale is based upon the assured survivability of a SSBN in a first-strike, which makes the command system confident that retribution can be made unhurriedly after careful evaluation.


25 The credibility of conventional deterrence is based on four inter-related aspects:

11 1 barrel = 0.137 tonnes or 1 tonne = 7.33 barrels

12 Several such disruptions have taken place in the IOR in the recent past. These include: the mining of the Red Sea in 1984 and the Persian Gulf during the Iran-Iraq War in 1987; the Tanker War from 1984-1987; and closure of the Sunda and Lombok straits. These disruptions resulted in raising crude oil prices and enhancing insurance and freight charges, thereby having an adverse impact on the global economy.
domain awareness; reach and presence; Capabilities and combat efficiency. In simple
terms, these include the ability to monitor the area of interest, to carry out and
sustain operations in the area of interest; the ability to apply a graduated force and,
finally the recognised capacity to inflict damage on an opponent. The idea that must
be continuously reinforced in the adversary’s mind, both before and during all phases
of a conflict, is that it cannot affect the security of India.

Maritime Diplomacy covers all those issues which further national aims and
objectives and is, therefore, one of the Indian Navy’s major peacetime tasks.

The 'benign' role is so named because violence has no part in its execution, nor is
the potential to apply force a prerequisite for undertaking any operation.

Strategic Communications can be defined as the transmission of integrated and
coordinated themes, messages and actions that advance national interest and policies
through synchronised efforts of all involved agencies. In simple words it means
communication that is planned: This concept has come to the fore because military
operations across the spectrum of conflict involve diverse issues and options which
need the involvement and inputs of the other two Services besides a range of
government departments.

Chapter 8

For a detailed commentary see UK MOD Strategic Trends

Abbreviations

AEW  Airborne Early Warning
AIS  Automatic Identification System
ASEAN  Association of South-East Asian Nations
ASM  Air to Surface Missile
ASW  Anti Submarine Warfare
AWACS  Airborne Warning and Control Systems
BIMSTEC  Bay of Bengal Initiative for Multi-Sectoral
          Technical and Economic Cooperation
C4ISR  Command, Control, Communications, Computer,
       Intelligence, Surveillance and Reconnaissance
COMINT  Communication Intelligence
COTS  Commercial Off The Shelf
CSI  Container Security Initiative
EEZ  Economic Exploitation Zone
ELINT  Electronic Intelligence
EU  European Union
GDP  Gross Domestic Product
GRT  Gross Register Tonnage
HADR  Humanitarian Assistance and Disaster Relief
HUMINT  Human Intelligence
IAF  Indian Air Force
ICT  Information and Communications Technology
IED  Indigenous Explosive Device
IMO  International Maritime Organisation
IIG  Indian Insurgent Groups
IIT  Indian Institute of Technology
IOR  Indian Ocean Region
ISPS  International Ship and Port Facility Security
IT  Information Technology
ISL  International Shipping Lanes
JI  Jemmah Islamiah
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
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<tbody>
<tr>
<td>JIC</td>
<td>Joint Intelligence Committee</td>
</tr>
<tr>
<td>JMSDF</td>
<td>Japanese Maritime Self Defence Forces</td>
</tr>
<tr>
<td>JV</td>
<td>Joint Venture</td>
</tr>
<tr>
<td>KGOE</td>
<td>Kilograms of Oil Equivalent</td>
</tr>
<tr>
<td>LIMO</td>
<td>Low Intensity Maritime Operations</td>
</tr>
<tr>
<td>LOFAR</td>
<td>Low Frequency Acoustics and Ranging</td>
</tr>
<tr>
<td>LRIT</td>
<td>Long Range Identification and Tracking</td>
</tr>
<tr>
<td>LTTE</td>
<td>Liberation Tigers of Tamil Eelam</td>
</tr>
<tr>
<td>MDA</td>
<td>Maritime Domain Awareness</td>
</tr>
<tr>
<td>MEEA</td>
<td>Ministry of External Affairs</td>
</tr>
<tr>
<td>MMT</td>
<td>Million Metric Tonnes</td>
</tr>
<tr>
<td>MoD</td>
<td>Ministry of Defence</td>
</tr>
<tr>
<td>MoPNG</td>
<td>Ministry of Petroleum and Natural Gas</td>
</tr>
<tr>
<td>MOC</td>
<td>Maritime Operations Centre</td>
</tr>
<tr>
<td>MPA</td>
<td>Maritime Patrol Aircraft</td>
</tr>
<tr>
<td>MR</td>
<td>Maritime Reconnaissance</td>
</tr>
<tr>
<td>MTOE</td>
<td>Million Tonnes of Oil Equivalent</td>
</tr>
<tr>
<td>MZI</td>
<td>Maritime Zones of India</td>
</tr>
<tr>
<td>NATO</td>
<td>North Atlantic Treaty Organisation</td>
</tr>
<tr>
<td>NFU</td>
<td>No First Use</td>
</tr>
<tr>
<td>NHQ</td>
<td>Naval Headquarters</td>
</tr>
<tr>
<td>NM</td>
<td>Nautical Miles</td>
</tr>
<tr>
<td>NSQR</td>
<td>Naval Staff Qualitative Requirement</td>
</tr>
<tr>
<td>ODA</td>
<td>Offshore Development Area</td>
</tr>
<tr>
<td>OEF</td>
<td>Operation Enduring Freedom</td>
</tr>
<tr>
<td>OIF</td>
<td>Operation Iraqi Freedom</td>
</tr>
<tr>
<td>ONGC</td>
<td>Oil and Natural Gas Commission</td>
</tr>
<tr>
<td>OOAC</td>
<td>Out of Area Contingencies</td>
</tr>
<tr>
<td>OTR</td>
<td>Operational Turn Round</td>
</tr>
<tr>
<td>OVL</td>
<td>ONGC Videsh Limited</td>
</tr>
<tr>
<td>PI</td>
<td>Participating Interests</td>
</tr>
<tr>
<td>PIO</td>
<td>Persons of Indian Origin</td>
</tr>
<tr>
<td>PSI</td>
<td>Proliferation Security Initiative</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
</tr>
<tr>
<td>RDF</td>
<td>Rapid Deployment Force</td>
</tr>
<tr>
<td>RMA</td>
<td>Revolution in Military Affairs</td>
</tr>
<tr>
<td>ROE</td>
<td>Rules of Engagement</td>
</tr>
<tr>
<td>SAARC</td>
<td>South Asian Association for Regional Cooperation</td>
</tr>
<tr>
<td>SAM</td>
<td>Surface to Air Missile</td>
</tr>
<tr>
<td>SAR</td>
<td>Search and Rescue</td>
</tr>
<tr>
<td>SIGINT</td>
<td>Signal Intelligence</td>
</tr>
<tr>
<td>SLBM</td>
<td>Submarine Launched Ballistic Missile</td>
</tr>
<tr>
<td>SLOC</td>
<td>Sea Lines of Communication</td>
</tr>
<tr>
<td>SOP</td>
<td>Standard Operating Procedure</td>
</tr>
<tr>
<td>SRMR</td>
<td>Short Range Maritime Reconnaissance</td>
</tr>
<tr>
<td>SSM</td>
<td>Surface to Surface Missile</td>
</tr>
<tr>
<td>TECHINT</td>
<td>Technical Intelligence</td>
</tr>
<tr>
<td>TF</td>
<td>Task Force</td>
</tr>
<tr>
<td>UAV</td>
<td>Unmanned Aerial Vehicle</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>US</td>
<td>United States</td>
</tr>
<tr>
<td>VHF</td>
<td>Very High Frequency</td>
</tr>
<tr>
<td>WMD</td>
<td>Weapons of Mass Destruction</td>
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Acknowledgements

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Assistant Chief of Personnel (Human Resource Development)
Assistant Chief of Naval Staff (Foreign Cooperation & Intelligence)
Assistant Chief of Naval Staff (Information Warfare & Operations)
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Assistant Chief of Naval Staff (Special Submarine Project)
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Bibliography

This book has been formulated with the unique circumstances of India and its maritime security firmly in perspective at all times. Nevertheless, it has been informed by and owes much to many other works on maritime and military issues and doctrine, both from India and overseas. The salient books, documents and articles that have added value to this document are listed below.

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