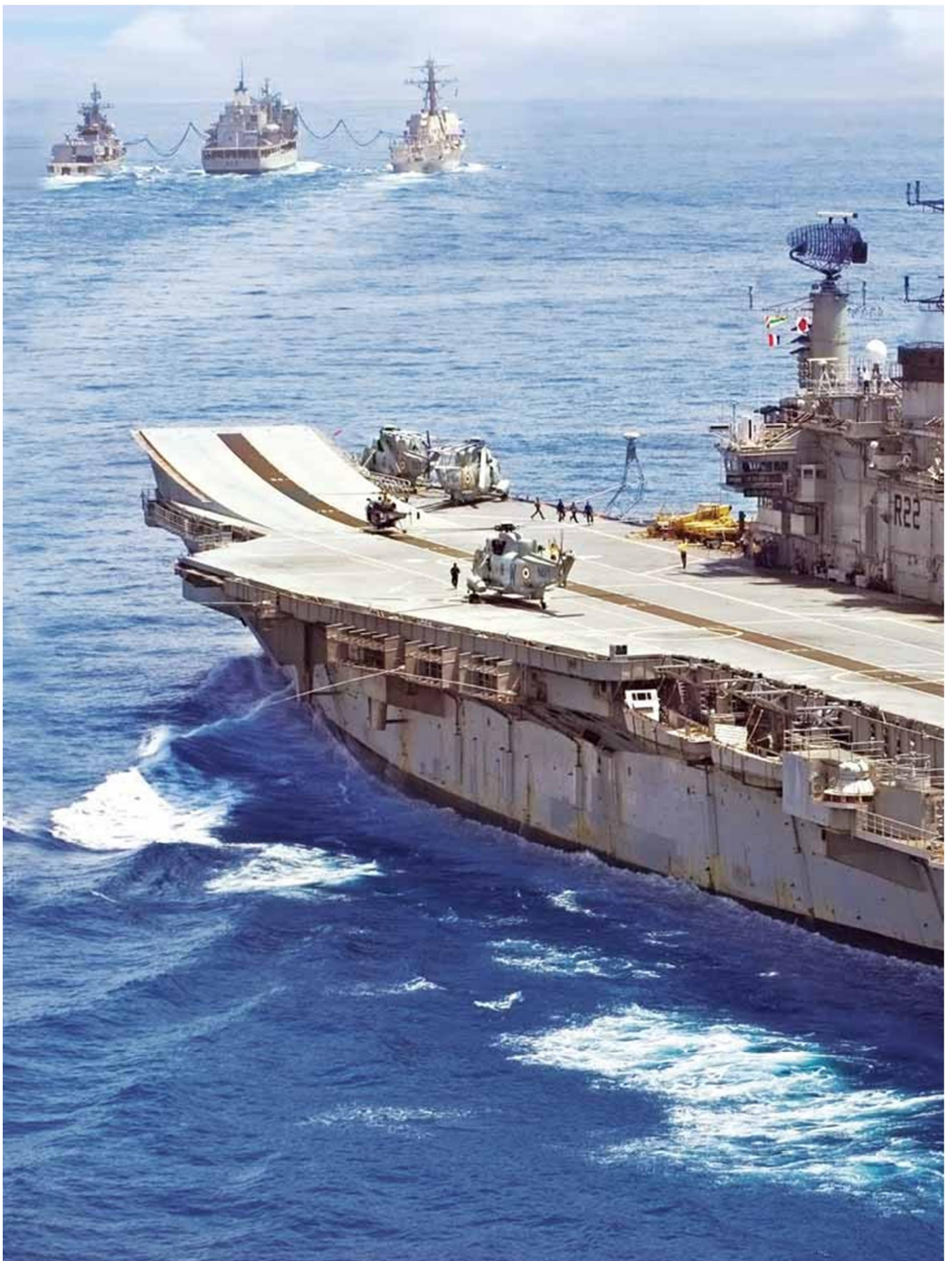
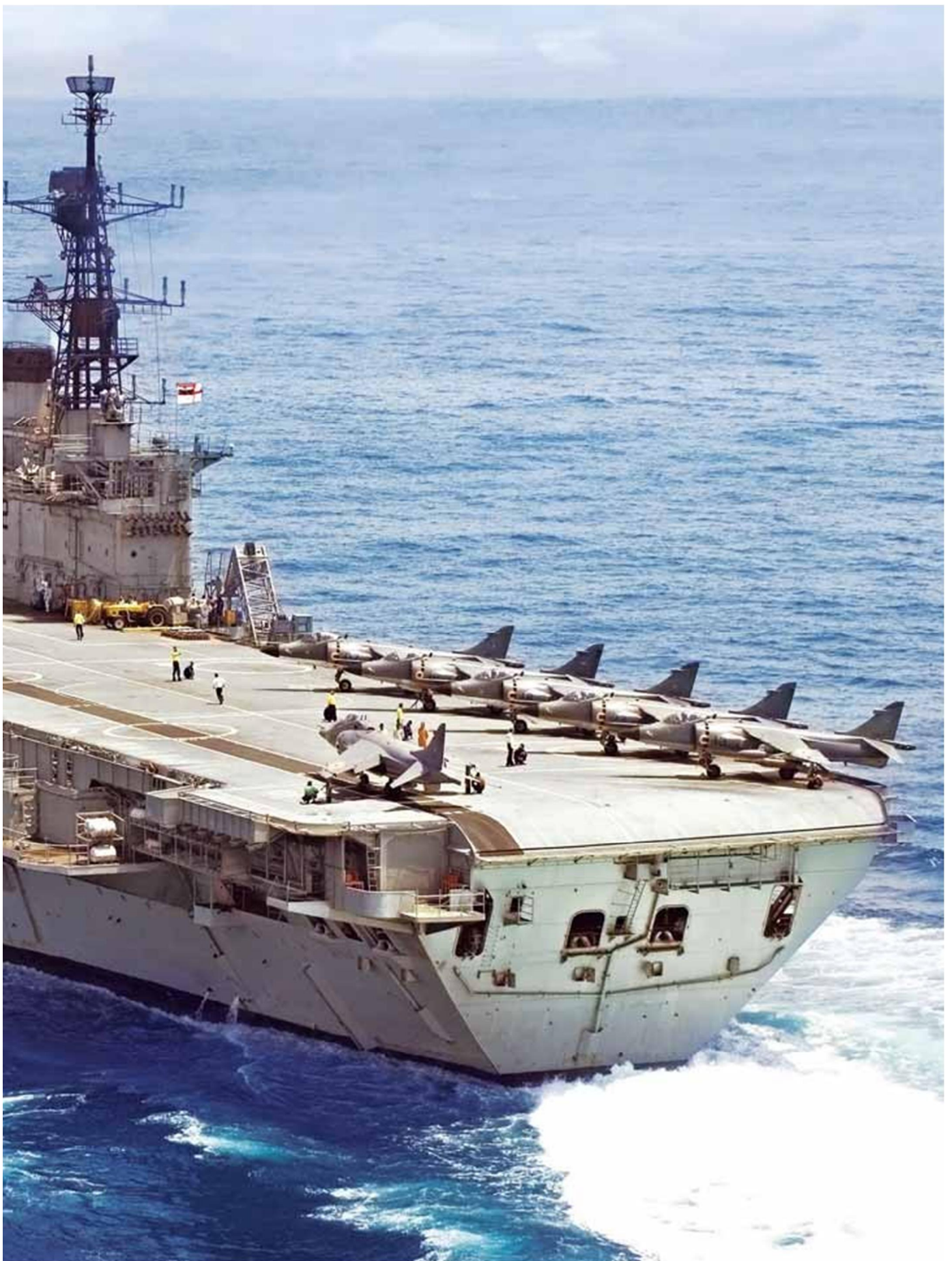


INDIAN MARITIME DOCTRINE
Indian Navy
Naval Strategic Publication 1.1







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Photo credits - Capt SK Sharma

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FOREWORD

The first decade of the 21st century has witnessed sweeping changes, and considerable turbulence, in the Indian Ocean Region (IOR) in areas of our national interest. India has made major strides in her developmental goals during this period. As the largest democracy and an emerging major economy, India's role as a responsible player on the global stage, towards promoting peace, stability and development, has been recognized in the international arena.

The coming decade is likely to be pivotal as the nation seeks to fulfill legitimate aspirations of our people and consolidate its pace of growth and development, in line with our cherished national values and interests. As the country advances on the path of socio-economic growth, India cannot afford to be complacent about the emerging security environment and related security challenges, particularly in the IOR and in our extended neighbourhood.

The Indian Navy has a key role to play in meeting the maritime components of these challenges, which have been increasing in both scale and scope in recent years. As a professional and committed force, the Indian Navy has been playing a pro-active role in our maritime domain. These include provision of rapid and large scale humanitarian aid to areas and countries affected by natural disasters, especially after the tsunami in the Bay of Bengal

and Andaman Sea littoral in 2005, provision of non-combatant evacuation of Indian citizens and other innocent civilians from Lebanon in 2006, the launch of the Indian Ocean Naval Symposium (IONS) initiative to address common concerns of IOR navies in 2008, steps to safeguard mercantile trade from pirate attacks in the western Indian Ocean since 2008, as also actions to enhance maritime and coastal security in coordination with other central and state security forces. The Indian Navy also supports good order and lawful activities at sea by regular patrolling in the areas of our interest.

In keeping with the recent and ongoing changes in the strategic, technical and human environment, the Indian Navy has taken steps towards outlining the underpinnings of the role, rationale and employment of India's maritime power. These include the first edition of the *Indian Maritime Doctrine* (2004) and *Freedom to Use the Seas: India's Maritime Military Strategy* (2007), which are intended to facilitate a larger understanding amongst the public, government services and other armed forces.

Over the past five years, the first edition of *Indian Maritime Doctrine* (2004) has served us well as the apex doctrine of maritime power and a comprehensive guide encapsulating its fundamental concepts and applications. In view of the ongoing transformation of both the nation and our navy, a review was overdue. We have used the benefit of hindsight and critique to update our maiden efforts of 2004.

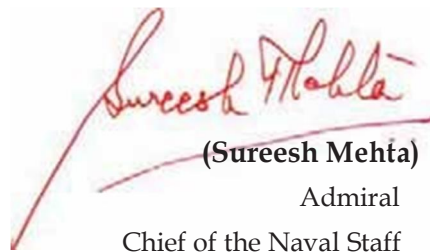
This new edition of the Maritime Doctrine covers the fundamental framework of the principles, practices and procedures that govern the development and employment of our maritime military power. It provides a common language and a uniform understanding of maritime concepts. It also provides the foundation for the Navy's operating, planning, organisational and training philosophies.

There has also been a conscious effort to move forward from the commonalities of maritime thought applicable to most seafaring nations to

address specific maritime concepts and developments applicable to India and the Indian Navy. The document has been enriched through valuable contributions made by Rear Admiral K Raja Menon (Retd). I would also like to acknowledge the invaluable contributions of many of our own officers and several other experts, who devoted much time and effort in this collective endeavour.

I am confident that this capstone document will provide a broad understanding of the precepts governing the growth and application of India's maritime power, amongst the public, the media, government agencies, other armed forces and the wider world.

New Delhi
18 August 2009



(Sureesh Mehta)
Admiral
Chief of the Naval Staff

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Chapter 1

MARITIME DOCTRINE IN PERSPECTIVE

“Shāno Varuna”

(Be auspicious unto us, O Varuna)

- Rig Veda

Historical Preview

India is a country with a rich maritime tradition spanning over 4,000 years. This maritime tradition is deeply imbued in the psyche of our coastal population and manifests itself in their customs and practices. In Indian mythology, the ocean is considered as the primordial source for creation of the universe. The Indian seaboard had always witnessed peaceful maritime activity, with trade as the prime driver. Indian folklore, ancient Indian texts and Buddhist Jatakas, all allude to the fact that the Indus Valley Civilization of Mohenjodaro, Lothal and Harappa thrived due to maritime activity between ancient India and the countries of Africa, Arabia, Mesopotamia and the Mediterranean.

Trade and navigation, both oceanic and riverine, grew significantly in 4th Century BC. The word ‘navigation’ originates from the Sanskrit word ‘Navagati’, meaning sea travel. Indian cultural and religious interplay were naturally intertwined with trade. The first migrations to South East Asia from India reportedly took place around 1st Century AD as is evident from the discovery of statue of Ganesha, a Hindu God dating to that era in Java, Indonesia.¹ Accompanying traders, Buddhist and Hindu philosophers travelled to South East Asia and the resultant cultural and religious efflorescence gave a distinct Indian flavour to the region. The ensuing period of

Indian history witnessed significant maritime activity in form of trade, naval expeditions and pilgrimage (Hajj), which is illustrative of sound navigational techniques.

The landing of Vasco da Gama at Calicut in 1498 was followed by the introduction of a new dimension of maritime power to India, viz. the military component. The Portuguese were followed in quick succession by the Dutch, the British and French, who rode into Indian waters on the back of 'blue water' naval capability. Between the 16th and 18th centuries, extra-regional naval forces were challenged by the 'brown water' coastal navies of Indian kingdoms. Between 1500 and 1509, the Zamorins of Calicut fought a series of sea battles against the Portuguese. They even joined forces with the Turkish and Egyptian navies in the Battle of Diu (1509) in a vain attempt to expel the Portuguese from Indian waters. In the early 18th century, the Marathas enjoyed many tactical successes against the western navies. Notable among these was the Maratha blockade of British-held Mumbai port that led to British East India Company ceding a ransom of 8,750 pounds. In 1721, the Maratha Navy even defeated a Portuguese-British combined assault on Alibagh. A British historian noted "Victorious alike over the English, Dutch and the Portuguese, the Maratha Admirals sailed the Arabian Sea in triumph."²

During the colonial period however, Indian kingdoms focused a greater part of their energies on land fighting, particularly cavalry. They would take an enemy seriously only when confronted with a large contingent of cavalry. Given no precedent of an aggression from seawards, they paid scant attention to the maritime realm as a source of threat. Besides, the monsoons would not permit a sea-borne invader to sustain his logistics. Such assessment was indeed valid. The European powers never resorted to a seaward invasion of Indian kingdoms; and rather, progressively, raised land contingents in India itself. But they did develop the capability to control the maritime periphery (sea), which provided them with an enormous potential for military intervention in India.³ India's preoccupation with a continental strategy also led to its failure to develop new shipbuilding and other nautical technologies for 'long-legged' ocean transit by naval ships and warfighting. Also, the study of astronomy, which was pioneered in India, did not evolve into maritime applications such as useable astronomical tables necessary for open ocean operations. Similarly, although local craftsmen had mastered the technology for bi-metallic barrels as early as the 16th century, the development of regulated calibre ordnance was neglected.



‘MARATHA GRABS AND GALLIVATS ATTACKING AN ENGLISH SHIP’

From the picture in possession of Major J.B. Paget

Leading from the above neglect of maritime-military power, Indian states could not take the battle against the European navies beyond littoral waters. While they successfully chased them away from the Indian coast time and again, the extra regional blue water navies remained free to operate in the waters of the northern Indian Ocean. With sea control of these waters firmly in European hands, the domination of these colonial powers over India’s maritime trade – and subsequently, even on its sovereignty – ensued in logical progression.

The lessons of ignoring the ability to control the seas around India are thus embedded in the colonisation of India and three centuries of European, mostly British, rule. Post independence, India has attempted to regain her maritime moorings. With its rapidly increasing dependence on the seas for her economic and social well-being, it is also laying adequate emphasis on developing commensurate maritime-military power. The process may well be regarded as ‘Work in Progress’.

What is Doctrine?

The word ‘doctrine’ has originated from the Latin word ‘*doctrina*’, which implies “a code of beliefs” or “a body of teachings”. It is also referred to as “a belief or a system of beliefs accepted as authoritative by a group or school”. It thus provides a framework of beliefs and teachings that guide a group in its actions.

Military organisations and the nature of military operations relate to group, rather than individual, activities.⁴ Their functioning is dependent upon a proper and common understanding of collective activities, and adherence to uniform procedures and practices. A doctrine must guide the military force in the way it organises, equips, trains, fights and sustains itself in pursuit of national objectives. Thus, it acts as a central nerve that links all facets of military power for both, development and employment. There will, necessarily, be multiple doctrines for a military force, each related to various facets and levels of application of military power. However, every doctrine must, in its respective sphere, be able to provide a common, authoritative approach to warfare and the employment of military power, and be in synergy with other related doctrines.

Doctrine flows from 'concepts'. A concept is an innovative, but tentative idea to solve a problem based upon inferences drawn from observed facts. Concepts when battle proven (or proven in exercises) would migrate to becoming doctrines. Military doctrines can thus be understood as sets of proven concepts and principles related to the use of military power. These provide a common reference point, language and purpose that guide military forces in their actions. This includes the proven concepts and principles for development and employment of military power. Maritime doctrines fulfill this function primarily in the maritime domain, *at* and *from* the sea.

While military doctrine provides a shared way of thinking about military issues, it does not direct how a problem is to be solved. Doctrine is not dogma, and remains flexible to changes in the operating environment due to interplay of new technologies and political direction. Deviations from the doctrine may be warranted in accordance with the prevailing situation, but should be based on proper appraisal, knowledge and experience.

National Security Concepts and Military Doctrine

National values evolve from a nation's culture and history. The **National Aim** is derived from the Constitution of India and amplified through political directions. The mix of national values and national aim gives shape to **National Interests** which, in turn, determine the **National Security Objectives**.

National Security Policy is formulated by viewing the national security objectives and the components of national power in the domestic and global environment, both prevailing and predicted. It provides the policy guideline for development of strategies in the exercise of national power.

National Strategy is the plan for employment of various tools of national power in accordance with the national security policy, to achieve the national security objectives in support of national interests. At times, a formal articulation of national strategy/policy, or even national security objectives and interests is not available in the public domain. This however does not necessarily imply that these do not exist or are not sufficiently understood. Indeed, such articulation by many nations is itself a relatively recent phenomenon. The national strategy provides the basis for further development of the **Military Strategy**, with its constituent Joint, Land, Maritime and Air Strategies.

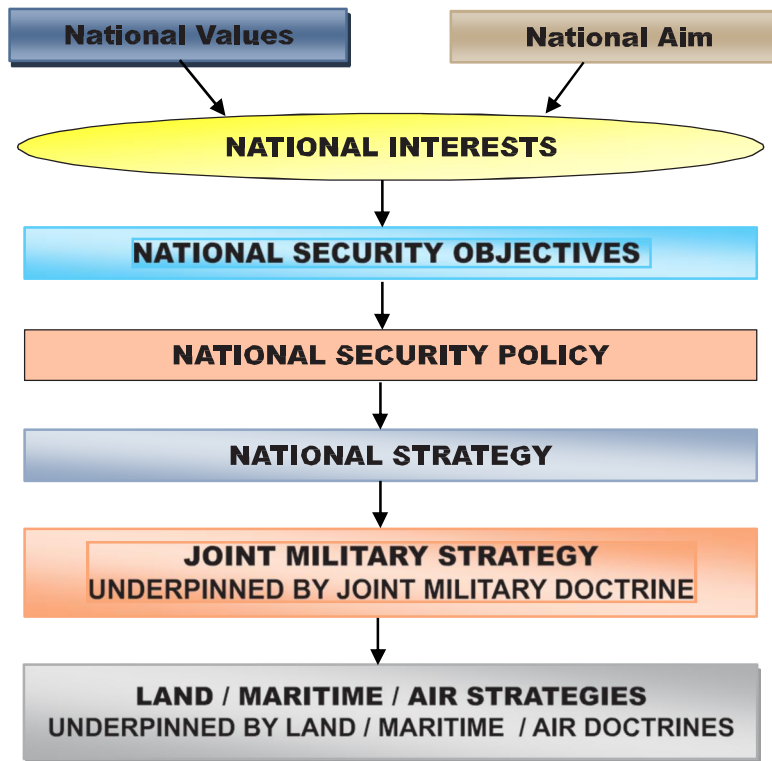


Diagram 1.1 - National Security Concepts and Doctrines

The conceptual framework for formulation of joint and single service military strategies is provided by the underlying joint and individual military doctrines. Military doctrine lays down the precepts for development and employment of military power. This guides military planners in devising their respective strategies in support of national interests and national security objectives, within the overarching national strategy.

The Joint Doctrine for the Indian Armed Forces was published by the Headquarters of the Integrated Defence Staff in 2006. It articulates our envisaged national interests, security objectives and policies. The Indian Maritime Doctrine (NSP 1.1) leans on and draws direction from the Joint Doctrine, even while it is focused on the unique nature of the maritime domain and facets of maritime power.

National Aim and Interests

National Aim

The national aim(s) provides the basis for defining national interests. India's national aim, as derived from the Constitution, is the unhindered economic progress and socio-political development of the nation and its citizens.

National Interests

India's national interests are expressed in the Preamble to the Constitution, and are centred on the preservation of the nation's core values from external aggression and internal subversion. These are summarised as follows: -

- Sovereignty, unity and territorial integrity of India.
- Democratic, secular and federal character of the Indian Republic.
- Secure and stable internal and external environment that is conducive to safety, security and development of the nation and its citizens.
- Socio-cultural and economic well being of the nation and its citizens.

National Security Objectives and Policy

National Security Objectives

These flow from the national interests, and may be summarised as follows: -

- Ensure security of national territory, territorial space, citizens, resources and maritime trade routes.

- Maintain a secure internal environment to guard against threats to national unity, core values and development.
- Strengthen cooperation and friendship with other countries to promote regional and global stability.
- Maintain a strong and credible defence posture, and capability to safeguard the national aim and interests.

National Security Policy

The National Security Policy is formulated by the Cabinet Committee on Security (CCS), with inputs from the National Security Council (NSC) and other agencies. It is framed in line with the national security objectives, the imperatives of prevailing and predicted domestic, regional and global security environment, various factors that impinge on the same, and the constituents of own national power. It provides the policy guidelines for framing strategies for supporting national interests and achieving national security objectives. The military component of the National Security Policy is issued by the Raksha Mantri (RM) to the Chiefs of Staff Committee (COSC), in an Op Directive.

Levels of Doctrine

Apex doctrines related to national security and military power offer precepts for the development and employment of such power at the strategic, operational and tactical levels. Accordingly, doctrines have distinct levels, which broadly coincide with the levels of strategy and warfighting, viz. national strategic, military strategic, operational and tactical.

National Strategic Level

National strategy is determined by the Union Cabinet and draws upon the National Security Policy. It aims to synergise all components of national power, including political, diplomatic, economic, military, technological, informational, social and cultural, towards safeguarding national interests and achieving national security objectives. The national strategy entails the coordinated employment of all elements of national power. Doctrine at this level offers precepts for the development and employment of national power. India's Nuclear Doctrine is an example of a national strategic level doctrine that guides our nuclear strategy.





Military Strategic Level

Joint military strategy is a sub-set of the national strategy for exercise of national power. It governs the development and employment of military power, along with the respective land, maritime and air strategies. Military doctrine provides the conceptual framework for understanding the role, scope and application of military power, and underpins the formulation of military strategy. The military strategic level is the highest level of doctrinal writing in the armed forces of India. It codifies the concepts and principles that guide the application of military power in the pursuit of national interests, including for the planning and conduct of war. Sun Tzu's *Art of War*, Clausewitz's *On War* and Julian Corbett's *Some Principles of Maritime Strategy* may be considered as doctrines that are mostly at the military strategic level.

Operational Level

Military doctrine at the operational level guides the employment of military force in the preparation and execution of campaigns and major operations within defined geographical theatres. It describes the concept of operations and the use of Operational Art to attain operational objectives within the broader national and military strategic aims. The Joint Military Doctrine and Maritime Doctrine, however, bridge both the military-strategic and operational levels.

Tactical Level

The tactical level involves employment of military weapon systems and platforms in physical combat. Tactical doctrines comprise a framework of principles, practices and procedures for efficient exploitation of military hardware and optimum application of combat force. Tactical doctrines are issued as general fighting instructions for various tactical situations, for exploitation of specific naval combat systems and platforms, etc.

Maritime Power, Strategy and Doctrine

Maritime power is the ability of a nation to use the seas to safeguard and progress its national interests. As such, it is a pillar of national security policy and is a key enabler in the formulation and implementation of viable national and military strategies.

Maritime strategy is the plan by which the maritime power of a state is developed and used for attaining the national objectives, within the ambit of the national strategy.

Maritime doctrine provides the conceptual framework for devising such a plan or strategy, seeking to develop and employ maritime power in pursuit of national objectives and interests.

Navy and Maritime Doctrine

The navy is the prime instrument and manifestation of the maritime power of a nation-state. The *raison d'être* of a navy is to safeguard the nation's use of the seas for its legitimate sovereign purposes, whilst concurrently guarding against inimical use of the sea by others. Maritime doctrine, therefore, focuses on that dimension of maritime power, which enables use of the seas by all stake holders.

Indian Maritime Doctrine

'Maritime' is an all-encompassing word, including everything that is connected to the seas. The Indian Maritime Doctrine (NSP 1.1), however, deals specifically with the concepts and principles of employment of India's naval power.

The Indian Maritime Doctrine focuses on the application of naval power across the spectrum of conflict, including war, less than war situations and peace. It reflects on the concepts, characteristics and context for employment of combat power *at* and *from* the sea. It is aimed at evoking a common understanding amongst all stakeholders in the development and employment of India's maritime military power, so as to unite their actions in support of India's national interests and national security objectives.

The doctrine primarily addresses the military-strategic level, whilst it also covers the operational level. Tactical issues have been deliberately kept outside the purview of this doctrine, as several other naval publications comprehensively address these aspects. Hierarchically, NSP 1.1 is the capstone doctrinal publication for the Indian Navy (*IN*), which should serve as the 'guiding light' for the service in all its maritime endeavours.

Chapter 2

THE SPECTRUM OF CONFLICT

Preamble

The spectrum of conflict denotes the full range of situations in which military forces may be called upon to operate — ranging from stable peace to nuclear war. The position of a specific conflict in the spectrum depends on its ways, means and ends. The spectrum of conflict may be diagrammatically depicted as follows:-

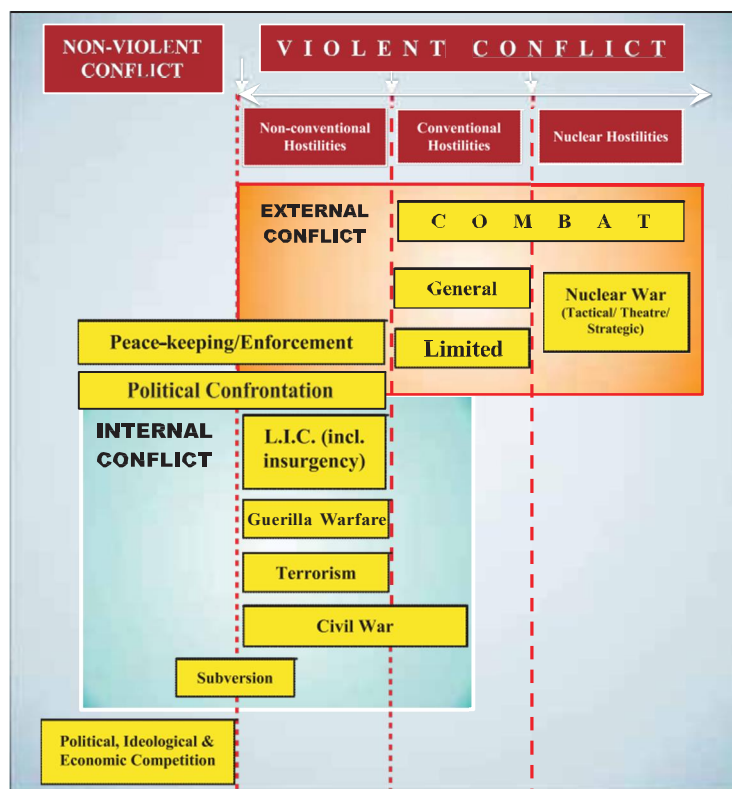


Diagram 2.1 – The Spectrum of Conflict⁵

In the history of nation-states, it is difficult to find any long periods of absolute peace. The best condition, therefore, depicted in the spectrum of conflict has been that of non-violent conflict. The non-violent character of such condition may be disrupted by various forms of hostilities. At the lower end of the spectrum lie the non-conventional hostilities. These include low-intensity conflicts (insurgencies/counter-insurgency operations, guerrilla warfare and terrorism) and civil war. At the higher level, lies the conventional inter-state armed conflict (combat), followed by a nuclear war at the highest end.

It is important to note that the dividing line between the above echelons of the conflict spectrum is not always distinct. For example, assistance to or abetment of internal non-state violence by a foreign state could lead to inter-state armed conflict below the threshold of overt declaration of (conventional) hostilities. The attendant difficulty in classifying the conflict is accompanied with major politico-strategic consequences, particularly in terms of deciding the nature of military response.

Peace, Security and Stability

Peace refers to a condition wherein there is absence of violence. The maintenance of peace within a state is an enabling condition for its growth and development. Maintenance of peace requires development of conducive internal conditions and external environment. While this is primarily done through social, economic and diplomatic strategies, military power also plays a supportive and deterrent role. Where peace is broken by the action of external actors, military power can be used to restore the peace on terms favourable to own national interests.

Security refers to a condition where a state and its citizens have freedom from threat of violence. The degree of security is proportional to the level of such freedom. The retention of state control over the instruments of violence, and development of state capability to prevent or counter the use or threat of use of violence from internal and external actors is necessary for higher security. Military power is a central factor in the attainment of desired level of security. Maritime security relates to the freedom from threat *at* or *from* the sea.

Stability refers to a condition where violence if experienced, is restrained at a sufficiently low level that does not obstruct the pursuit of development and progress by the state, and normal way of life of its citizens. The military power of a state provides it the ability to suppress the violence suffered by taking suitable counter-action against the perpetrator.

Peace, security and stability are vital national interests, as they are primary conditions governing a nation's survival and development. Military power plays a

central role in the national strategy developed towards attainment of this prime objective. Military power provides the instrument; military doctrine provides the conceptual framework for the development and employment of this instrument; and military strategy defines the manner and scope of application of the instrument.

Cooperation, Competition and Confrontation

Cooperation and competition may co-exist between nation states while they seek to further their respective national interests. This may be in the domain of politics, ideology, economy, etc. where there is a clash of interests.

As competition intensifies, it may shift to the level of confrontation, particularly where cooperative frameworks, dialogue and mutual trust are absent. Confrontation is manifested initially at the political or diplomatic level and may escalate to the use or threat of use of military force.

Conflict and Combat

A *conflict* is the contemplation or outbreak of organised violence for political reasons. If localised to areas within the borders of a nation-state and exceeding the controlling capacity of the nation's police and para-military organisations, a state of Internal Conflict may be said to prevail. If the conflict bears an inter-state character, it is termed as External Conflict. As a subset of conflict, armed conflict refers to a condition of heightened confrontation wherein a non-state group or state resorts to the use of violence to settle a dispute or advance its interests. Such conflict may take shape in overt and covert ways, and employ direct or proxy means. The ways and means of conflict govern its nature, which can be categorised in terms of intensity.

Low Intensity Conflict (LIC) refers to a conflict where either protagonist mounts violence at a lower scale and tempo. It is generally carried out by covertly organised forces operating in small groups, which mostly employ small arms and small quantities of explosives. LIC may be waged against symbols of state sovereignty or the common people. It includes insurgency, guerrilla warfare and terrorism. With the exception of a civil war, internal conflicts usually involve LIC. In the maritime context, such operations are known as Low Intensity Maritime Operations (LIMO).

Higher intensity of conflict entails mounting of violence at higher scale and tempo, which requires the overt employment of regular military forces. Conflict waged by a regular military force of a state is termed as *combat*. The purpose of combat is to help achieve political objectives of the state by the use of force.





Subversion

Subversion is an act calculated to undermine the loyalties of a person with a view to making him/her work against the interests of the organisation to which he/she belongs. More specifically, it is an act designed to corrupt the normal relationship between the state and its citizens, so that the latter are cajoled or coerced into co-operating with a dissident group and/or with a country whose interests are inimical. Subversion may or may not employ violence.

Subversion seeks to exploit fault lines that may exist within a diverse society, including multi-ethnic and multi-religious characteristics. This is especially so in the case of less developed economies, where the lack of education and economic challenges can provide tools to inimical agencies in developing their subversive strategies.

Terrorism and Insurgency

Terrorism is a deliberate and systematic unlawful act of violence committed against people or property, generally non-combatant. As the name implies, terrorist acts are meant to spread terror and fear among the populace so as to coerce or intimidate governments and societies, often to achieve political, religious or ideological objectives. Terrorism is generally carried out by non-state actors, often with sponsorship by inimical state agencies.



Insurgency is an armed political struggle by a group within a state or society, with or without an element of terrorism, aimed at overthrowing the constituted government. Counter Insurgency (CI) Operations encompass all measures instituted by the Government against insurgency, including combat operations by security forces, economic development, political and administrative steps and psychological operations. These are aimed at reducing insurgent capability for waging violence, while simultaneously shaping a conducive environment amongst the populace, to diminish support for the insurgency.

Guerrilla Warfare

Guerrilla warfare is another type of LIC that is usually carried out by armed groups against stronger forces, including by insurgents and Special Forces (SF). It entails small-scale harassing actions against enemy's vulnerable points, including

lines of supply/communication, command and control posts, segregated forces, *et al.* These are carried out with the aim of disrupting enemy cohesion and control, and degrading fighting potential, so as to raise the cost of planned or ongoing action to the opponent and thereby create favourable conditions for succeeding political and military operations. Guerrilla warfare may also be waged in conjunction with large scale military operations.

Civil War

The term *civil war* is used to describe a severe state of internal conflict, where large sections of the populace are engaged in a violent struggle against each other. It is possible for either or both sides to be recipients of aid/assistance from external sources, but the conflict is generally limited to the geographical boundaries of the afflicted state.

Intervention

Intervention is generally an Operation-Other-Than-War (OOTW) that involves entering the territorial space of another state for conflict prevention, peacemaking, peace enforcement, or peace building. An armed intervention is one that involves the use, possible use, or threat of use of any or all components of a nation's armed forces. Intervention may be carried out by a state independently or as part of a collective grouping, and may assume the proportions of a limited war. These could be either in keeping with or in contravention of international law and the UN Charter.

Limited and Total War

War may take the form of *general* or *total war* involving nearly all resources of a nation, with few, if any, restrictions on the use of force, short of nuclear strike/retaliation. In a 'total' war, the protagonists aim for annihilation or total subjugation of the opponent. The last 'total' war was the Second World War, which had unconditional surrender as the stated aim of the Allied Powers, and witnessed the use of atomic bombs against Japan and repeated 'strategic bombing' of civilian populace by most belligerents.

The distinction between limited and total war is in the ways, means and ends. Wars over the past 60 years have tended to be 'limited', wherein the armed conflict is limited significantly in terms of time, space, objectives and types of forces and methods used. All wars fought by India since her independence in 1947 have been limited wars.

The very nature of limited war has also seen a reluctance to term it as a 'war', for a variety of reasons ranging from legal provisions requiring formal declaration for the

conflict to be termed as war, to the possibility that such classification could itself lead to escalation above limited level. Hence, many limited wars have instead been termed as 'border clashes', 'armed interventions', 'peace-making operations', etc. All of these, however, fall under the generic classification of armed conflict.

Levels of War

There are four traditional levels of war addressed by national and military planners for determining the quantum and manner in which national power in general, and military power in particular, is to be applied. These are national strategic, military strategic, operational and tactical levels of war.

National Strategic Level

The national strategic level is, in essence, the political executive leadership of a nation. At this level, all resources of the nation (diplomatic, military, economic, information, technological, etc.) are directed towards attainment of national security objectives. Decisions at this level, on the planning and prosecution of war and the use of force, are taken by the CCS, with inputs from the NSC, Intelligence agencies, various government ministries (especially Defence, External Affairs, Home and Finance) and the armed forces.

Military Strategic Level

At the military strategic level, the national military leadership determines the manner of employment of military power in accordance with the national strategic decisions. This is done by the COSC, which determines the military-strategic objectives and military strategy required to achieve the political aims of the war. There is necessarily a close inter-relation and co-ordination between the national and military strategic levels of war. Political strategy should be in synergy with the military capability and situation. Similarly, military objectives and strategy should lead to attainment of the political objectives. In practice, political and military strategies may require mutual adjustments to keep them synergised.

Operational Level

The operational level is directed by the Commanders of armed forces, primarily the Commanders-in-Chief of geographic single and joint Commands. At the operational level, campaigns and major operations are planned, conducted and

sustained to accomplish military-strategic objectives within dimensions and areas of operation. The orchestration of military activities at this level is termed as Operational Art, which provides the link between the setting of military strategic objectives and the tactical employment of forces.

Tactical Level

The tactical level involves the direction of military resources to achieve specific operational objectives. The role of the tactical commander is to ensure the most effective use of units under his command and control towards accomplishment of operational missions and realisation of the higher commander's intent.

The boundaries between individual levels of war are not constant and often overlap. This is especially so in the maritime domain, where tactical actions may lead to a strategic effect. This is due to the inherent attributes of maritime forces, particularly Reach, Versatility and Presence, wherein the mere presence of a nation's maritime forces in an area is representative of national interest and political intent.

Purpose of War

The purpose of war and use of military force is always political, not military. The justification for war is enshrined in the national security policy, which directs "*when*" and "*why*" military force is to be used. The political objectives of the war are set in accordance with this policy, and govern determination of the national strategy for prosecution of the war, including "*where*" and "*how much*" military force is to be used. Military objectives are defined in support of the political objectives. The military strategy is shaped for attainment of these objectives, within the larger political objectives and in keeping with the national strategy, and determines "*what*" and "*how*" military force is to be used. It follows that there must always be synergy between the political and military objectives, and the national and military strategies.

The aim in any war is determined by a paramount political objective and the enabling military objectives. Victory in war is measured by attainment of the political aim of the war, not by the number or nature of military victories. It is entirely possible to lose the war despite attaining military objectives and winning military engagements, especially if there is divergence between the political and military objectives, or disparity between the national and military strategies. The use of military force, therefore, should flow from and be in accordance with the overarching national security policy and the political objectives.

Chapter 3

CONCEPTS OF WAR

Attributes of War

War and armed conflict are marked by certain well-recognised attributes, whose salient features are discussed below.

Friction

Friction is described as the resistance to motion when one surface slides over another. Clausewitz wrote “Everything is simple in war, but the simplest thing is difficult. These difficulties are a result of ‘friction’... Activity in war is movement in a resistant medium... Just as (to) a man (walking) in water”. In war, the execution of military activities usually experience difficulties that did not exist in planning. These are due to the environment of war, in which there is external resistance by the enemy and internal resistance from own weaknesses. This is termed as ‘friction in war’. Friction can be caused by enemy action, especially when it was not anticipated, and own inability to cope with the stress of war and changes in situation. Friction can be exacerbated by weakness in command, control and communications; inadequate co-ordination; low interoperability; mutual interference; inadequacies in preparation and training; overdependence, lack of redundancy, etc. Friction can be reduced by robust systems, training and procedures, but cannot be entirely done away with. It must be catered for both in the preparation and prosecution of plans to minimise its effect.

Fog of War

There is intrinsically an atmosphere of uncertainty and confusion generated in wartime due to incomplete, inaccurate or contradictory information and/or

knowledge of events. This realm of uncertainty is termed as '*fog of war*'. This is because war is an interactive process, where the protagonists affect each other by their actions, while they are also affected by the environment and friction in war. As a result, war is waged amidst many imponderables, especially incomplete, inaccurate and even contradictory information. Improvements in technology, especially ISTAR (Intelligence, Surveillance, Target Acquisition and Reconnaissance) have helped in reducing the fog of war to a considerable extent, due to improved ability for real time collection, collation and dissemination of information. However, the ability to filter and correctly interpret all information gathered with sufficient rapidity and accuracy, and then to put it to effective use remains a challenge, especially in the optimal time-frame. Uncertainty is also greatly enhanced by the enormous role that chance plays in war. In addition to technological solutions, fog of war can be reduced by constant preparations for contingencies and the ability of the leadership at all levels of war to manage change.

Fluidity

Each sequel and stage in a conflict is unique, requiring its own approach and action. At the same time, no stage can be viewed in isolation. Rather, each one merges with others that precede and follow it. This provides a continuous, fluctuating fabric of activity called '*fluidity of war*'. This fluidity offers both fleeting opportunities and unforeseen reversals, inherent in the factor of change and linked nature of events in war. Success depends in large part on the ability to adapt to a constantly changing situation, especially in creating and exploiting fleeting opportunities. This requires a high state of readiness and training for all possibilities, with an aggressive mindset that seeks to quickly recognise opportunities and rapidly seize and hold the initiative.

Disorder

In an environment of friction, fog and fluidity, war gravitates naturally towards disorder, which cannot be completely eliminated. In the heat of battle, plans will go awry, instructions and information will get garbled or unclear and may get misinterpreted, communications will fail, and mistakes and unforeseen events will be commonplace. It is precisely this natural disorder that creates conditions ripe for exploitation by a ready and opportunistic will. A better trained force with more battle conditioning is placed better to maintain its cohesion and focus, and is also less susceptible to disorder. On the other hand, it can use its own training and cohesion to build and maintain a high tempo of operations to create and exploit disorder in the opponent.

Violence and Danger

The means of war is force, applied in the form of organised violence. It is through the use of violence or the credible threat of violence that a nation compels its enemy to bend to its will. While its magnitude may vary, violence *per se* is an integral element of war. The determined use of violence and constant exposure to danger and suffering is the very essence of warfighting. Wars are finally won at the strategic level, but the victory is delivered by a series of tactical engagements that involve use of, and exposure to, high amounts of violence. This needs to be imbibed in the planning, preparation and prosecution of war at all levels.



Concepts Related to Use of Force

Destruction and Attrition

The use of military force to physically destroy an opponent's warfighting capability, including military equipment, troops, bases, command, control, communications and other enabling infrastructure, is termed as *destruction*. It is the natural effect of physical combat and is prevalent at all levels of war. Partial but progressive destruction of the opponent's military forces, thereby steadily reducing his war-waging ability, is termed as *attrition*. In the context of maritime warfare, naval forces are endowed with composite and multi-dimensional force packages (as mentioned in Chapter 6) for effecting destruction and attrition.

Compellance

The use of force to induce an opponent to change behaviour is termed as *compellance*. It entails infliction of escalatory punishment upon the opponent by effecting damage and destruction, with the threat of continued use of force till acquiescence to the demands made. Compellance may be carried out at the tactical level, e.g. to stop or divert a ship or aircraft; at the operational level, e.g. to effect surrender of the opposing force; and even at the strategic level, e.g. to make the other state alter its policy or action. Compellance requires superior force to be brought to bear on the opponent in escalatory steps, and clear demands communicated on what action is required of the opponent to stop the use of force. This entails a clear plan on the series of escalatory steps and stages for increasing pressure on the opponent.

Coercion

The threat of use of force against an opponent in order to bend his will in order to achieve acquiescence is termed as *coercion*. In this case, credible force is positioned and poised in a way that signals capability and intent of not permitting the opponent to continue on the course of action. The force is kept poised and ready while psychological pressure is built up on the opponent that force could be used. This aims to shake the opponent's confidence and will to resist. Coercive pressure may be calibrated, with the choice of altering behaviour offered to the opponent at all stages, and with the pressure eased or withdrawn upon acquiescence. However, the coercive force must be capable of rapid redeployment should the opponent revert to earlier, inimical, course of action. Traditionally, naval forces have been effectively used as tools of coercive diplomacy, as they signal political intent and military capability without being unduly offensive since they operate in international waters and can be rapidly deployed and withdrawn. Coercion is normally felt at the strategic level, even if it is applied at the operational or tactical levels.

Deterrence

Deterrence is preventing aggression by convincing a potential aggressor that the cost of coercion or conflict would be more than its likely gains. In other words, the aggressor must be convinced that the cost-benefit ratio of aggression is to his detriment. This can be done either by raising the costs or by denying the gains. The former is known as '*deterrence by punishment*', while the latter is termed as '*deterrence by denial*'. Deterrence by punishment requires a strong retaliatory capability and a politico-military posture that assures the potential aggressor of unacceptably high costs. Deterrence by denial entails the ability and intent to deny victory to the enemy, regardless of the cost. Deterrence can also be defined in terms of posture, viz. active or passive. Passive deterrence is implicit in the maintenance of

military capability and strategy, while active deterrence requires a more overt posture in terms of deployment and readiness. In all cases, deterrence needs to be credible, i.e. the potential aggressor should be convinced that the opponent's military capability and political will are adequately robust to hurt him badly or to thwart victory. In the nuclear era, the essence of deterrence remains the same. By virtue of its stealth and attendant survivability of second-strike capability, a nuclear submarine is particularly suited for nuclear deterrence.

Disruption

The inability of a protagonist to function cohesively in combat as a result of actions by the opponent is termed as *disruption*. It can be caused by destruction or attrition of the adversary's combat cohesion, by targeting the component elements, such as command and control, communications, logistics, surveillance, network centric operations, etc. Naval power is capable of not only disrupting the adversary's warfighting potential through economic warfare, but also severely dislocating its military-strategic infrastructure in the littoral areas through shore strike. Disruption can also be caused by manoeuvre warfare, leading to high tempo of operations to overload the opponent's ability to cope with the change and break the opponent's Information-Decision-Action (IDA) cycle.⁶

Escalation

Increase in the intensity of conflict during the course of an operation is termed as *escalation*. It can be evinced by change in the ways, means and ends of use of force, such as increase in the quantity and type of forces used and their targets. Horizontal escalation entails an increase in the geographical area of operations, while vertical escalation indicates a higher level of violence. There is inherent scope for escalation whenever force is used, as the equilibrium of force is not determined by one side alone. It is equally dependent on the response of the opponent (including lack thereof), such as to compellance, prompting either side to increase the level of force used to attain its objectives. During the 1999 Indo-Pak Kargil Conflict, India chose vertical escalation by introducing air power into the conflict. However, it retained control over horizontal escalation by limiting the use of force to Indian territory and on the Indian side of the LOC. During Operation *Parakram*, 2002, India signalled her intent to de-escalate by recalling its deployed warships to harbour, utilising the versatility of naval forces for control of escalation.

Embroidment

Embroidment is the condition wherein, upon taking recourse to the use of force to attain its political objectives, a protagonist finds itself in a situation entailing use of





force on a larger scale, of greater intensity, or longer duration than it had envisaged or was prepared for.

Persuasion and Dissuasion

Persuasion is convincing another state, by diplomatic means and without the threat or use of force, to carry out certain actions that are in its own interests, by emphasising the benefits of the action to that state. *Dissuasion* is convincing another state, by diplomatic means and without the threat or use of force, to desist from carrying out certain action that are inimical to our interests, by emphasising the disadvantages of the action to that state. Given its inherent attributes and roles (as mentioned in chapters 6 and 8), naval power is ideally suited for persuasion and dissuasion.

Laws of Armed Conflict

The conduct of war has been governed by laws from ancient times. In the time of the *Mahabharata* (3139 BC), warfare was restricted to between sunrise and sunset, to be fought between equals, on a designated battlefield, with attack prohibited against defenceless or wounded persons. Kautilya's *Arthashastra* (322-298 BC) conceptualised the justification for war and described in detail the various conditions and rationale for going to war. These two ancient Indian laws governed justification for war and conduct in war. In the West, similar views, which have been broadly accepted as modern laws of armed conflict, are codified under the Latin phrases *Jus ad Bellum* (Right to use of armed force) and *Jus in Bello* (Rules for conduct of armed conflict).

UN Charter on the Right to Use Force

The concept of *Jus ad Bellum* relates to the justification for resort to armed force. The principal justification is the right to individual or collective self defence, which is an inherent right laid down in the UN Charter (Article 51) and the Constitution of India. These legitimise the use of force to defend one's territory, forces and nationals in various conditions, such as response to an armed attack. According to the accepted norm, however, such response must be governed by three important principles, viz. necessity, proportionality, and distinction. The text of Article 51 may be interpreted to include anticipatory self-defence where an attack is deemed imminent. Anticipatory self-defence has a historical foundation that predates the UN Charter and stems from customary international law. It is also governed by the above principles of necessity, proportionality, and distinction. However, the imperative for an operational commander to correctly assess the 'immediacy of threat' usually poses a daunting challenge, particularly on occasions when the available intelligence inputs are not adequate. The Rules of Engagement (RoE) provide guidelines for use of force, which are covered in Chapter 6.

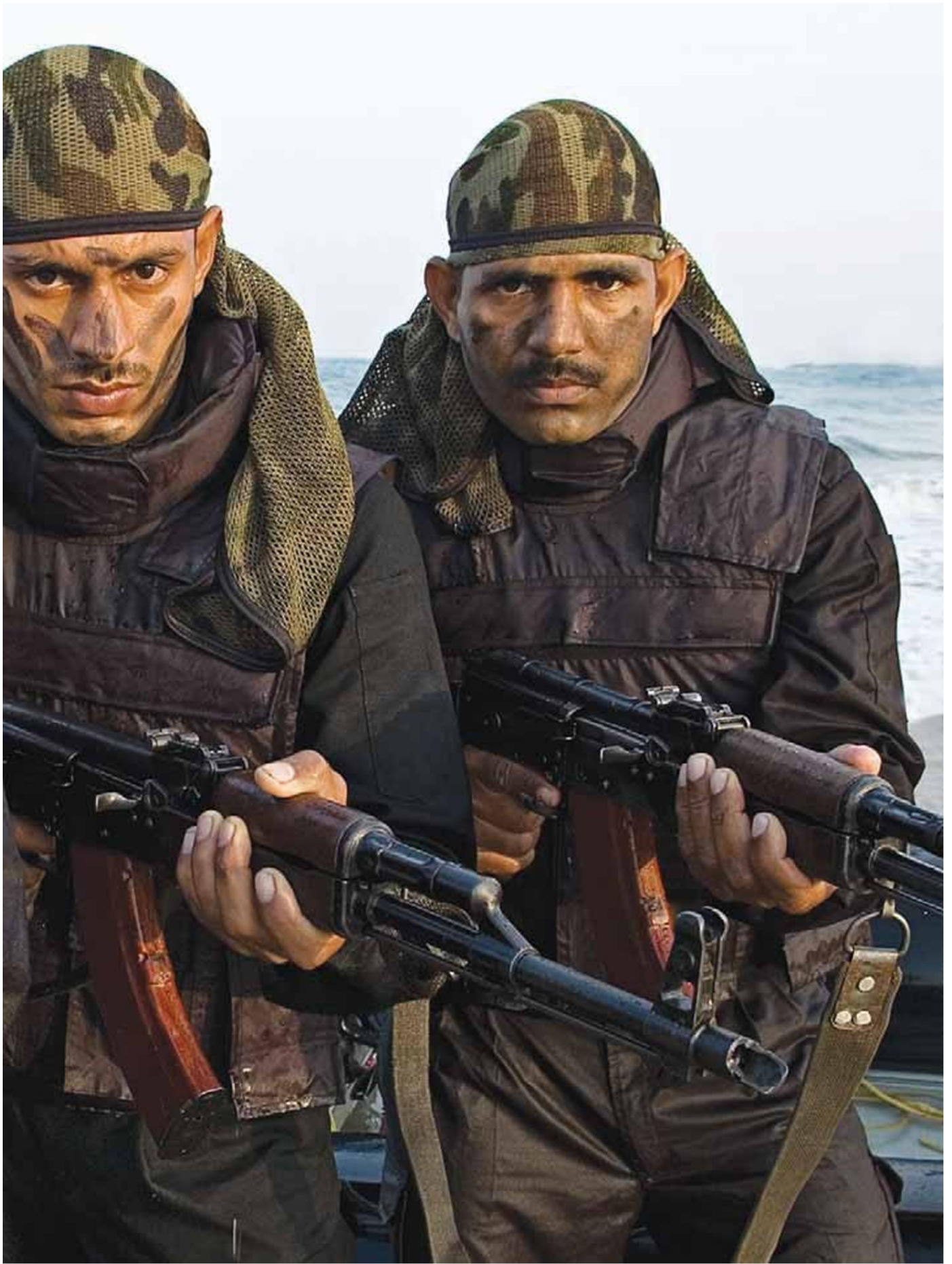
In addition to the provision of self-defence, the UN Charter (Article 42) also authorises the collective use of force to preserve international peace and security. Article 43 makes it obligatory for UN member states to make available to the Security Council *inter alia* their armed forces for the purpose.

Rules on Conduct of Armed Conflict

- **Geneva Conventions.** The concept of *Jus in Bello* relates to the conduct of forces in international armed conflict. It is governed by the four Geneva Conventions of 1949, Additional Protocols I and II of 1977 and Additional Protocol III of 2005. These are also called 'International Humanitarian Laws' and are aimed at protecting persons who do not or are no longer taking part in the conflict, such as the wounded, sick or shipwrecked at sea/field, prisoners of war, and civilians. These laws also place some restrictions on the ways and means of using force, which must be governed by the two cardinal principles of 'necessity' and 'proportionality'. In the ways of conflict, they require discrimination between military/combatant and civil/non-combatant targets, and also proportionality between degree of force used and the military aim, so as to limit 'collateral damage'. In the means of conflict employed, the laws prohibit use of weapons that cause superfluous or unnecessary harm to human beings and environment, and have specifically banned chemical and biological weapons, incendiary bombs, exploding bullets, blinding laser weapons, anti-personnel mines, etc. However, in recognition of *realpolitik*, there is no ban on use or threat of use of nuclear weapons. Also, the principle of military necessity is recognised, wherein reasonable force may be used for attaining military objectives and collateral damage sustained whilst striking a legitimate military target. In the case of non-international armed conflict, the same principles apply on treatment of non-combatants, as per Article 3 of these conventions and the additional protocol. The rules for use of force against insurgents and terrorists are governed by domestic laws and human rights laws.

- **San Remo Manual.** The latest codification of the laws of armed conflict at sea is contained in the *San Remo Manual* of 1994, published by the International Institute of Humanitarian Law. The manual is a contemporary restatement of the laws, and takes into its fold the technological developments in naval warfare, besides the proviso of the UN Charter and conventional state practices with regard to these issues. While most of it covers the currently applicable law, it also contains some aspects of legal evolution.⁷ The manual, prepared jointly by naval practitioners and legal experts, does not wield legal authority, but nonetheless serves as a useful operationally-relevant guide.





Chapter 4

PRINCIPLES OF WAR

“There exist a small number of fundamental principles of war, which may not be deviated from without danger, and the application of which, on the contrary, has been in all times crowned with glory”.

– Jomini, *Precis de l' Art de la Guerre*, 1838

Preamble

The art of military operations relies upon the *principles of war* as the basic tenets, which is distilled from past war experiences, and provide guiding precepts for military leadership at all levels of war. Since military operations and the nature of warfare have been evolving, as seen in changes to the ways, means and ends of conflict, it follows that the principles of war also need to be interpreted in the current perspective of modern conflict, which tends towards limited wars and low intensity conflicts under high technology conditions.

The principles of war have been accordingly reviewed to include warfare in the modern environment. There exist close links between the various principles of war, indicating that these need to be observed in totality and in holistic manner; not piecemeal or as a list, of which some parts can be ignored. The principles of war are as follows: -

- Selection and Maintenance of Aim.
- Offensive Action.
- Concentration of Force.
- Economy of Effort.
- Surprise and Asymmetry.
- Flexibility and Management of Change.
- Cooperation and Synergy.
- Logistics.
- Morale.
- Security.
- Intelligence.

Selection and Maintenance of Aim

Selection of the aim and its maintenance by synergising all efforts towards its attainment is the primary principle of war. This requires, firstly, clear definition of the desired 'End State', with careful assessment of the geo-strategic and military balance. Selection of the aim is thereupon done, based on the consideration of being both attainable and supportive of the desired end state, either directly as a result of the conflict or indirectly by creating the political or military conditions necessary for attaining the end state.

Once the aim has been selected, it should be maintained and all available resources should be directed in synergy, with each other and across all levels of war, towards its attainment. This requires constant focus on the goal, as diversion of attention and resources may prove to be the difference between success and failure. Hence, at the national strategic level, the various diplomatic, military, economic, social and informational efforts should be synergised for attaining the war aim. Similarly, the military strategy should flow from and be a sub-set of the national strategy and the political aim. Further, all joint and single service military efforts should also be in synergy and directed at achieving the military-strategic aim, towards attaining the political aim.



Offensive Action

The chief means of achieving victory in war is to maintain control over the war itself, in terms of timing, direction, intensity and tempo of operations. Such control will dictate the course of war to the opponent, and allow our forces to shape the war and set the agenda for victory. In order to gain control over the course of war, it is necessary to maintain the offensive at all times and degrade enemy freedom of action,

whilst simultaneously maintaining our freedom of action and safeguarding it from enemy efforts to degrade it.

Maintenance of the offensive implies that the initiative must be quickly seized and, thereafter, retained and exploited at all times, and in all dimensions, viz. land, air, maritime, information and time. This should be done so as to push the enemy into a defensive and reactive mode, limit his freedom of action, expose his vulnerabilities, and burden his IDA cycle. Consequently, it will permit our forces to set the agenda of operations, and provide opportunities to strike him at a time, place, with forces and in a manner of our choosing.

Maintenance of the offensive also requires preventing the enemy from dictating the terms of the conflict. This requires maintenance of our freedom of action, by taking measures that ensure our forces remain unburdened by enemy action and are relatively free to operate in the required theatre, dimension and time. It entails both offensive and defensive measures to safeguard vulnerabilities, develop domain awareness and information superiority, degrade enemy offensive capability and maintain high mobility. This will allow our forces to remain ahead of the enemy's IDA cycle, and apply combat power at the place and time of our choosing. Thus, maintenance of freedom of action is closely intertwined with offensive action, as one enables the other, across the physical and ethereal dimensions of war.

Concentration of Force

The concentration of force at the decisive point in time, space or the information environment maximises the impact of their killing power. It provides an effect greater than the sum of individual attacks. This is the basic principle on which the spear and lance were invented, to focus the impact of force at a single point. It is the principle that allowed Abhimanyu to penetrate the *Chakravyuh*, the circular war chariot formation in the *Mahabharata*. It is also the principle that gave the Roman Phalanx its distinct advantage in battle, and is the basis for the 3:1 ratio sought by land forces to commit to battle.

The principle is highly technology sensitive. During earlier times, it was seen primarily in terms of mass, the generation and concentration of which provided the

necessary force at the decisive point. Destructive power of military forces increased with higher explosive power per unit mass, improved accuracy and longer reach of weapons. Hence, the principle of concentration of force is observed by concentrating the destructive power, i.e. by concentrating the firepower from possibly widely dispersed and lesser numbers of forces, but which have greater reach, accuracy and per capita explosive power. Concentration of force accordingly evolved from amassing men (infantry); to men armed with multiple weapons (heavy infantry); and thereon to heavy, long reach weapons (artillery), armed men on mobile platforms (cavalry, mechanised infantry, ships), mobile weapon platforms (cannon, armour, ships, aircraft), high speed weapons and platforms (modern ships and aircraft with missiles), *et al.* The underlying principle has remained that of maximising the destructive effect, by concentrating the firepower at a selected point of impact so as to break through the enemy's defences and attain victory.

In modern warfare, concentration of force/firepower can be seen as a product of quantity, per capita explosive power, reach and accuracy. The firepower concentrated at the selected point can be enhanced by increasing these components. The forces themselves need not concentrate in spatial terms – however, the firepower delivered by them must be applied accurately at the same time and place to achieve the breakthrough. This is equally applicable against individual armour on a man, a networked missile defence system of a ship or fleet, or even a layer of multi-dimensional forces around the enemy's strategic Centre of Gravity (CoG).

Economy of Effort

Economy of effort is the principle of judicious employment of forces so as to maximise the effect of available resources. This principle may be seen as an adjunct to the principle of concentration of force/firepower, wherein the available resources are focused so as to provide decisive results. There are three elements to the principle of economy of effort.

The first element is the need for proper apportionment of resources, in relation to the missions allotted. Resources must be allocated as per the 'main effort' or primary goal, which is the Decisive Point (DP) or CoG of the battle or war. Minimum resources should be devoted to secondary, non-essential goals, as required to maintain those lines of operation, but without prejudice to the primary objective. This also requires constant focus on the primary goal, as enshrined in the cardinal principle of selection and maintenance of aim.

The second element is the need to ensure that the resources allotted must be appropriate to and adequate for the needs of the mission, since otherwise the effort is unlikely to deliver the desired result.

The third element is the proper, most effective use of the resources allotted, to both main and secondary tasks, so that the maximum value or result can be obtained from the resources used.

Flexibility and Management of Change

Flexibility is the capacity to cope with and adapt to changing situations, which can be caused by inherent fog and friction in war, enemy action or simple chance. It entails the ability to remain unburdened and unhindered by fluid, uncertain conditions and to seize fleeting opportunities to accomplish the objective. Flexibility is necessary in both mental and physical terms, as it allows one's forces to face unexpected developments and respond appropriately to changes imposed upon them. It must be imbibed in military leadership at all levels and incorporated into the planning and staff process to enable rapid responses to changing scenarios.



Flexibility per se covers the ability to respond and react to changes that occur or are imposed by uncontrollable factors. Another aspect that bears incorporation in the same, wider principle is the ability to impose and manage change so as to unsettle the opponent, whilst exploiting such change aggressively to attain our objectives. The change can be imposed through manoeuvre and mobility, introducing new technology and methods of its use, altering the tempo of operations, information operations, etc. so as to burden the enemy's IDA cycle and expose his vulnerabilities. Management of change also implies that the change so created has to be aggressively and rapidly exploited to keep the enemy at disadvantage, while using the operational space to advance towards our objectives.





Surprise and Asymmetry

The principle of surprise implies striking the opponent at a time, place or manner for which he is unprepared. This places the enemy at immediate disadvantage and imbalances his efforts, creating operational space and opportunities to achieve decisive results, which could be out of proportion to the effort expended. Surprise is not an end in itself, but only a means to an end. It has to be viewed as a force multiplier. However, surprise can be effective only if it impacts the enemy's decision making cycle and his ability to take appropriate counter-measures. Surprise is therefore a product of secrecy and speed. It also uses the principle of flexibility and management of change, wherein the factor of surprise challenges the enemy's ability to employ this principle even as it enables our forces to exploit the same. This is exemplified by Operation *Chromite*⁸, at Inchon, which attained complete operational surprise and reversed the prevailing operational situation. The strike on Karachi harbour by Indian Navy missile boats during the 1971 Indo-Pak War is another example of operational level surprise, which stifled Pakistan surface forces in harbour and precluded their ability to threaten our ports and shipping.

Surprise seeks to maximise the effect of one's strike by catching the opponent unprepared and off-guard. The element of surprise, however, is largely over once the first strike has been carried out. The opponent may well respond rapidly and mitigate the effect of surprise. Hence, while surprise can provide a strong initial advantage, it may not be enough to assure or ensure victory. The initial favourable imbalance created by surprise needs to be converted into a 'continuing advantage'.

The 'continuing advantage' is provided by asymmetry. Asymmetry relates to creation of a favourable imbalance against the opponent in the conduct of war and its maintenance thereupon, by the use of innovative ways, means, timing, etc., such that the opponent is unable to counter the same and regain rhythm in time to optimally apply his combat power. The generation and sustenance of asymmetry is the crux of warfighting, as it pushes the enemy off-balance and then keeps him imbalanced. This would give continued advantage to our forces whilst limiting the enemy in applying combat power in the manner for which he is prepared. The attainment of favourable asymmetry is a pre-requisite for military victory, and its denial to the enemy also enables avoidance of defeat. The concepts of mobility, manoeuvre, Revolution in Military Affairs (RMA), information and guerrilla warfare; the development of Network Centric Operations (NCO) and Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) technologies; and the principles of concentration of force, maintenance of offensive, freedom of action and surprise are all aimed at generating and sustaining asymmetry.

Cooperation and Synergy

Cooperation implies the efficient compounding of all the fighting elements of a force or power to attain an aim that they could not have achieved separately. In other words, it is the accretion of individual efforts into a joint one. Cooperation implies exchange of information and mutual support in the planning and conduct of operations. Cooperation as a principle must start with the mind – with an acceptance of the need to work together. Jointness is the natural manifestation of this principle, and evolves from a joint perspective, which must be developed and nurtured within and between the various components. It is based on mutual understanding, professional respect and shared goals. Jointness between the three armed forces has become the *mantra* for the future, so as to complement each other's combat capabilities and attain the objectives by means of their combined warfighting effort. It is also one of the principal means of reducing friction in war, and harmonises with the principle of economy of effort.

The principle of cooperation has been extended in modern warfare to include the attainment of synergy.⁹ It refers to the enhanced result that is obtained from the joint, cooperative work of two or more people, groups or organizations, such that the result is more than the sum of its individual components. Synergy relates to the effect, while cooperation is in the action. In an era of growing sub-conventional and limited conventional wars, where there are politico-military limitations on time, space, ways and means of conflict, it is necessary to maximise the effect of own efforts. Synergy acts as a force multiplier and can provide decisive results. It is developed through enhanced levels of cooperation and jointness, between and across components of military and national power.

The principle of cooperation is also relevant in terms of coordination between various agencies of a Government dealing with national security and the conduct of war.

Logistics

The principle of logistics in war entails provision of supplies and services of all kinds to one's forces in theatre, so as to sustain their warfighting capacity and maintain their freedom of action. This requires logistic support/supplies across a

wide spectrum; to be procured, stocked, positioned and replaced in or adjacent to the area of operations, as per their rate of consumption and tempo of operations. This includes various categories of fuels, oil and lubricants (FOL) for land, sea and airborne vessels, arms and ammunition, machinery and electronic spares, food, water, medical facilities and supplies, maintenance facilities and workshops, transportation of men and material, etc. Logistics is of particular importance for naval operations. Such operations, centred on mobility and reach, cannot be developed without adequate and readily available logistics.



Security

The principle of security entails measures to protect our vulnerabilities from action by the enemy. This includes physical security of our forces, bases, lines of communication, command and control centres, etc.; information security of our war plans by physical, cyber and electronic security measures; and operational security of our vulnerabilities against enemy action at various stages.

Security is an enabler for attaining and maintaining favourable asymmetry over the enemy, as well as for maintaining the offensive and exploiting freedom of action. In the absence of effective measures for maintaining security, there is risk of our vulnerabilities being exposed and targeted, thereby losing the advantage and freedom of action. Hence, it is essential that our security and defences should be strong. There is no contradiction between maintaining high security and offensive action. In fact, the former is a pre-requisite for the latter, akin to 'shield and sword' operations, wherein security provides the necessary shield for use of the sword.

Morale

The principle of morale underpins the fighting capability of a force. It relates to the general fighting spirit and state of mind of the personnel comprising a military

force, and governs their ability to fight under all conditions. High morale gives rise to courage, energy, skill and the urge for offensive action. This, in turn, gives a fighting unit the determination to accomplish the aim against heavy odds. A battle is ultimately decided by the quality of fighting, which is decided by morale. In history, there are innumerable instances where all advantages, odds and principles of war failed to overcome a vast differential in morale. In other words, it is morale that makes a military force into a fighting force, and only a fighting force can win a war.



There are many factors that determine the morale of a force, including the standard of leadership, training, discipline, vertical and horizontal cohesion, camaraderie and communication, management of conditions, administration, societal support, etc. It bears note that each of these factors contributes to morale, and not the other way around, i.e. high standards of discipline and training lead to higher morale, as does good leadership and cohesion.

Intelligence

Intelligence is obtaining actionable and in-depth information of the battle space, and the strengths and vulnerabilities of the adversary. Intelligence is critical to effective planning and execution of combat operations. Commanders at various levels must have access to reliable, timely and actionable intelligence, for them to be able to develop effective strategy. It is not sufficient to have information only about the battlefield. Decision makers need strategic intelligence related to a country, its intentions and its capabilities. This may relate not only to military power, but also to economic power and other resources that sustain war efforts.

Chapter 5

INDIA'S MARITIME ENVIRONMENT AND INTERESTS

"The vital feature which differentiates the Indian Ocean from the Atlantic or the Pacific is the subcontinent of India, which juts out far into the sea for a thousand miles. It is the geographical position of India that changes the character of the Indian Ocean."

- KM Pannikar

Preamble

Our maritime environment and interests underpin the development of our maritime doctrine. The maritime doctrine, along with the maritime environment and interests, geo-strategic imperatives, and national security strategy, provides the basis on which the maritime strategy is formulated. Hence, it is important to appreciate the distinct characteristics and varied nuances of our maritime environment, as also the broad, permanent tenets of our maritime interests. This understanding is important because the maritime environment and interests govern the development of a nation's maritime power, and consequently its employment in peace and war.

*Relevant Facts of the Maritime Environment*¹⁰

- The earth is fundamentally a water planet and the oceans, seas, and other water bodies cover 71% of its surface. Almost 3,50,000 million square kilometres of the earth's surface is covered by the oceans.
- The seas are the single biggest environment that regulates the planet's climatic conditions.

INDIAN MARITIME DOCTRINE

- Oceans provide access to all parts of the globe. Eighty five percent of nation states have a coast line.
- Seventy five percent of the world's population lives in the littoral, i.e. less than 200 nautical miles (nm) from the sea.
- Eighty percent of capital cities of the world and nearly all major centres of international trade and economic power are located on the coast.
- Thirty six percent of the world's oceans are encompassed within UNCLOS definitions of Exclusive Economic Zone (EEZ).
- Ninety seven percent of the world's trade (by volume) is transported by sea.

Importance of the Seas

The aforesaid facts and figures emphasise the close links between human development and the seas. Historically, man has depended on the seas for his economic and social well-being.

Food

Since earliest recorded history, man has gone to the sea for fishing. The oceans were seen as an unlimited repository of food. The very survival of mankind has been closely associated with the ability of the seas to provide sustenance. Even today, fish constitutes the staple food of millions around the world.

Livelihood

The abundance and variety of resources, with burgeoning demand and advances in technology, has led to fishing progressing into an expanding, sophisticated industry. The number and size of fishing vessels have steadily increased. It is normal to find these vessels operating in international waters far from their base for weeks and months. The fishermen are often equipped with technology to preserve freshness of catch, and for fish processing, canning, fish oil extraction, etc. on their return to harbour.

Natural Resources

The seas are a treasure trove of natural resources. The seabed is known to contain rich deposits of metals and minerals, including manganese, zinc, copper, silica, lead, nickel, cobalt and phosphates. Common salt, magnesium, and bromine have long been extracted from sea water; while sand and gravel, tin-bearing sands, magnetite sands and calcium carbonate are already being mined. The finite nature of land resources compels mankind to look to the seas for natural resources. Potentially valuable polymetallic nodule deposits are known to lie, in abundance, at depths of 4,000 – 5,000 metres. While methods are available for mining marine minerals from shallow areas, deep water mining is presently constrained by lack of technology. It is only a matter of time before this technology is developed.

Energy Resources

The sea bed is abundant in oil and natural gas deposits. As with other natural resources, nation states are increasingly turning to the seas to meet their ever increasing demands of oil and natural gas. Potentially important oil deposits, methane hydrates containing frozen natural gas, and petroleum are being discovered every year in offshore areas. Efforts are also being made to locate oil and natural gas from the deep seabed, presently again limited due to lack of technology.

Trade and Transportation

The seas afford the fastest, cheapest and safest means to transport bulk goods. In an increasingly globalised world, with increased international trade and mutual dependencies, the role of shipping has increased manifold. International shipping has become a complex web of inter-regional, regional and sub-regional maritime linkages, with ships owned by one state, registered in another, carrying cargo belonging to a third country, but transporting it from a fourth country towards a destination in a fifth country that may only get defined or altered during the ships' transit.

Characteristics of Maritime Environment

Medium for Power Projection

The maritime realm is the legally used medium for power projection. The ability of a nation state to ensure free and full use of the seas, for trade, transportation and to meet resource needs, is critical to her robust economic growth. The maritime environment, accordingly, offers power and dominance to those who are strong at sea. It is not surprising, therefore, that the seas have remained a medium of intense competition between nation-states. This jostling ranges from wielding political influence, fishing and mineral mining rights, offshore economic activities like prospecting for oil and gas, etc., to denying potential adversaries use of the seas by various 'hard' and 'soft' measures. A nation needs to develop adequate maritime power to effectively safeguard and progress its national interests.

Anarchic Nature

The natural tendency of nation-states is to establish control, be it political, physical or economic, over their environment and inhabitants. Nearly all the land masses of the world today are politically organised as sovereign states, with the exception of Antarctica. However, as much as the land lends itself to control, the natural condition of the sea leans towards lack of political control. While maritime nations may seek to establish their influence or dominance over the seas as per their interests, such control is not permanent. It is, mostly, transient and enabled for a specific purpose, for a finite period of time, and over a selected geographical area. Since the seas cannot be politically organised or controlled, to any significant distance from shore, the high seas are not 'owned' by any one state and afford free movement to all. Hence, they are justly described as the 'great common'.



Legal Dimension

The growing importance of the maritime realm is reflected in inter-state friction over its use. The United Nations Convention on the Law of the Sea (UNCLOS), 1982 sought to reduce tensions by conceding expanded jurisdiction to states over their adjoining maritime zones like territorial waters, contiguous zone, EEZ and Legal Continental Shelf (LCS), including for exploitation of living and non-living natural resources. Notwithstanding the attendant restrictions, UNCLOS continues to uphold the traditional principle of *Mare Liberum* (freedom of the sea). International law provides vessels of all nationalities (including warships) free access to the entire ocean realm comprising International Waters, which includes the Contiguous Zone, EEZ and LCS of all coastal states. This implies that a naval task force can legally approach a foreign country up to 12 nm from its coast, presenting itself as a neighbour and influencing the strategic frontiers of both nations. Furthermore, the Law provides the right of 'innocent passage' through foreign territorial waters and archipelagic waters, the right of 'transit passage' through international straits and archipelagic sea lanes, even if these waters constitute the territorial seas of the adjoining state(s). While some restrictions are posed on the ship undertaking 'innocent passage', its rights of unimpeded 'transit passage' remain unfettered. For example, whereas a submarine must surface for an 'innocent passage', it may undertake the transit passage in dived mode. A thorough understanding of the Laws of the Sea and the legalities imposed by them on the maritime environment is vital for all mariners and naval officers in particular, as they have to both follow and uphold them. These have been comprehensively described in Indian Naval Book of Reference (INBR) 1650, '*A Seaman's Guide to International Law*'.

Hydrography and Climatology

The sea is known to have a direct influence on climatic conditions, global warming, etc. Man has sought to unveil the secrets of this medium through oceanographic, meteorological and hydrographic studies. This expertise is essential for exploiting the maritime environment fully and properly, whilst learning to minimise its adverse effects especially regarding safety of life at sea. The devastating and debilitating effects of the Asian Tsunami in December 2004 could have been considerably reduced if prior knowledge of its likelihood or occurrence had been available.

Characteristics of Military Maritime Environment

Multi-Dimensional

The oceans are essentially a three-dimensional battle-space in which naval forces must operate, viz. on, below and above the sea surface. They must also be able to use outer space and the electronic medium. Naval power thus finds its expression through surface ships, submarines and aircraft, and is highly technology intensive. Indeed, weapons can be delivered from maritime platforms, against other maritime platforms or targets ashore, through any of the three primary mediums, with considerable use of space assets and the electronic spectrum. These weapons may even have to travel through the interface of two mediums, as in the case of submarine-launched missiles and air launched torpedoes and depth charges. In naval combat, the hunter and the hunted may operate in totally different mediums. This multi-dimensional nature affects every facet of maritime warfare - surveillance, classification, localisation, targeting and weapon delivery, wherein the threat can come from any direction and dimension.

Challenge of Surveillance

Unlike on land, at sea there are no defined battle lines. A threat can emerge from any direction or dimension. The biggest challenge, therefore, is in detecting and identifying potential threats. Often, large areas need to be kept under surveillance. The challenges to effective surveillance are as follows: -

- **Surface and Air Surveillance.** There is increasing traffic on and over the seas, with some 120,000 ships traversing the Indian Ocean every year. The air space is also very busy. The vast spaces and volumes of traffic challenge the ability to monitor the seas and air spaces, and maintain a recognisable maritime and air picture over the oceans. This is compounded by the legal status of the oceans, which allows access to most water-parts and permits free movement across the vast 'great common'. Accordingly, there is less clarity on the identity of the vessels operating in these mediums, compounding problems of use of force even in self defence.

- **Underwater Surveillance.** The sea is very nearly opaque to a majority of sensors. In addition, the temperature and pressure profile and salinity conditions of the sea seriously impinge on the performance of underwater surveillance equipment. Submarines, for example, routinely use these conditions to their advantage, which are more pronounced in warm, saline waters.

Geographic Influence

The geographic conformation (including its sub-surface component) plays a significant part in shaping the maritime environment. The confluence of International Shipping Lanes (ISL) close to a country's shores, especially through important straits, gulfs, bays and other choke points, bestows on it a unique strategic leverage, which has to be taken account of by its potential adversaries. Similarly, the seas may provide access to vital or vulnerable areas of the adversary, which are otherwise not accessible by land. Accordingly, these areas would form part of the area of operations for naval forces from both sides, seeking 'use' for itself and 'denial of use' to the adversary. Unlike the threat on land or in the airspace over it, the threat at sea is not confined to international boundaries. It is important to remember that where naval warfare is concerned, the enemy at sea need not be a neighbouring country, because indeed every country with a sea coast is potentially a maritime neighbour. Navies are meant to fight wherever the nation's interests are threatened. This may well be in a sea area adjacent to or even belonging to a third country. Local geographic conditions also influence the nature and conduct of maritime operations, enabling one type and hindering another, such as submarine and anti-submarine operations in littoral areas and in varying hydrological conditions, carrier operations in restricted surface and air space or dense traffic areas, etc.

Presence of Neutrals

Another characteristic of the military maritime environment in war is the presence of neutrals at sea. In a land battle there are generally no neutrals crowding the battle space, other than in urban areas. Even here, the civilian or non-combatant populace is mostly from the belligerent nation. However, this is not the case at sea, wherein the 'great common' is regularly used by all nations. The presence of neutrals in the battle space at sea is likely, which may tend to confuse the maritime picture and

cause misidentification. This can lead to severe consequences in both cases, viz. of not engaging a belligerent due to hesitation that it may be neutral and suffering loss to our forces, as also of attacking a deemed hostile who may later turn out to be neutral. The advances in technology and initiatives such as Automatic Identification System (AIS) and Long Range Identification and Tracking (LRIT) can ease the identification of neutrals to some extent. However, possibility of AIS/LRIT spoofing by hostile forces and non-fitment/functioning on a neutral would bear continued consideration.

Mobility and Fluidity at Sea

Another characteristic of the military maritime environment is the intrinsic mobility of naval operations in a fluid medium. In contrast to the land, the sea is a medium for movement. It cannot be occupied and fortified. Navies cannot dig in at sea, or seize and hold ocean areas that have great intrinsic value. Indeed, although the objectives of naval operations involve control or influence over sea areas to varying degrees, they do not involve occupation of sea areas on a permanent basis. Hence, there are no positional defences at sea, nor are there battle lines to indicate the progress of an operation. The only measure of combat effectiveness at sea is the successful use of ocean areas or the denial of the same to an adversary, all aimed at furthering national interests, in war and peace. In other words, the capability of a navy to effect sea control or sea denial in the ocean areas of its interest would be a major determinant in the outcome of war.



ISL Versus SLOC

Sea trade is carried by merchant ships along the most suitable sea routes, which are usually the shortest navigable routes that provide the best environmental conditions and proximity to staging ports enroute. These internationally used sea trade routes are called International Shipping Lanes. However, in times of tension and conflict, a nation may prefer other sea routes for its merchant traffic or to sustain a maritime/expeditionary operation, which it can protect from interdiction by the adversary. Such routes, which may coincide in part, full or not at all with ISLs, are termed as the Sea Lines of Communication (SLOC) of that nation.

Medium for Influencing Battle Ashore

The maritime environment offers a medium to military forces to influence land battles. This may be achieved *directly* by projecting military power ashore *from* the sea, or *indirectly* by projecting such power *at* sea. The former method is by delivery of ordnance or troops ashore, which includes land attack by sea-based guns, missiles and aircraft, and also by transporting land forces across the seas onto the land, ie. by amphibious operations. The latter method is by interdicting the adversary's shipping, to deny him the essential commodities required for waging the war.

India's Maritime Environment

Indian Ocean

The Indian Ocean, with an area of 68.56 million sq km, is the third largest body of water in the world and covers about 20% of the earth's surface. The Indian Ocean is separated from the Atlantic Ocean by the meridian of 20° East and from the Pacific by the meridian of 147° East.¹¹ The northern limit of the Indian Ocean is the Persian Gulf, at the approximate latitude of 30° North. Extending southwards down to the parallel of latitude 60° South, it may be seen as a walled ocean bounded on three sides by land. Africa forms the western wall, while Malaysia, Myanmar, and the insular

continuations of Indonesia, Papua New Guinea and Australia form the eastern wall. The Asian continent forms a roof over the Indian Ocean northern extent, and distinguishes it from the Pacific and Atlantic, which lie from north to south like great highways without any roof. The Indian Ocean is nearly 10,000 km wide at the southern tips of Africa and Australia, and extends nearly 13,500 km from the Persian Gulf to Antarctica. The great Indian peninsular landmass, jutting out for a thousand miles, characterises the Indian Ocean and lends it its name.

There are several important straits, gulfs, bays and seas within the Indian Ocean Region (IOR), most of them being in the northern part. Major shipping lanes criss-cross its vast expanse, with strategic waterways and choke points linking the Indian Ocean to other important water bodies on the globe. A striking feature, one that is of great geo-strategic importance to the furtherance of maritime power, is the distribution of islands and archipelagos in the IOR.

Choke Points in the IOR

The Indian Ocean is distinguished by a land rim on three sides, with maritime access to the region only possible through a few narrow gateways or choke points. The choking of any one of these could cause disruption of seaborne trade, and volatility in oil and commodity prices, leading to upheavals in the global economy. To the East, the Straits of Malacca, Sunda and Lombok connect the South China Sea to the Indian Ocean. The Malacca Strait is the primary route, through which more than 70,000 vessels transit annually. To the west, the busiest shipping lane passes through the Strait of Hormuz, which connects the Persian Gulf to the Indian Ocean. These narrow straits/waterways constituting entry/exit choke points of IOR are critical for international trade and commerce. These primary choke points are: -

- The Suez Canal.
- The Strait of Hormuz.
- Bab-el-Mandeb.
- Mozambique Channel.

- The Cape of Good Hope.
- The Straits of Malacca and Singapore.
- The Sunda Strait.
- The Lombok Strait.
- Ombai and Wetar Straits.

ISLs in the IOR

The Indian Ocean accounts for the transportation of the highest tonnage of goods in the world, with almost 120,000 ships transiting its expanse annually. On its waters are carried two-thirds of the world's oil shipments, one-third of bulk cargo traffic and half the world's container shipments. Figure 5.1 below depicts the main entry/exit choke points and ISLs of the IOR.

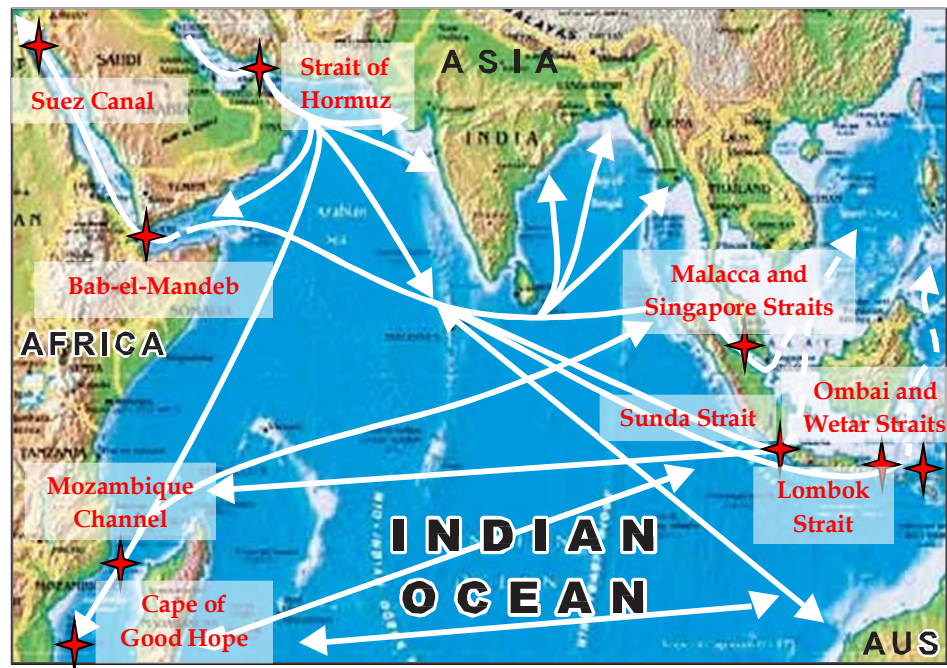


Diagram 5.1 – Entry/Exit Choke Points and ISLs of the IOR

INDIAN MARITIME DOCTRINE

Maritime Zones of India

The Maritime Zones of India (MZI) were established by the 'Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act' passed by the Parliament in 1976. This lays down the limits of India's maritime zones in consonance with UNCLOS. The maritime zones of India include the territorial waters, contiguous zone and the Exclusive Economic Zone (EEZ). The country's EEZ is about two million sq km in area (equal to about 66% of the land mass). This is likely to be extended to the limit of the continental shelf, which has been assessed as an additional 1.2 million sq km. The MZI are repository of substantial wealth in terms of oil, gas, minerals as well as other living and non-living resources. Some of these are being extracted, while greater benefits await further advances in technology.

Trade Pattern in the IOR

Another factor that distinguishes the Indian Ocean from the Atlantic and Pacific oceans is the pattern of trade. Of the total trade conducted over the Indian Ocean, only 20 percent is conducted between the littoral countries of the region, whilst 80 per cent is extra-regional. In the Atlantic and Pacific oceans, this pattern is just the reverse. This exemplifies the importance of the Indian Ocean to extra regional powers and explains their presence in the area.

Natural Resources

A unique feature of the IOR is the abundance of its natural wealth. There are large deposits of oil, uranium, tin, gold, and diamonds. The countries of the region are the largest producers of rubber, tea, spices, and jute. Other important minerals include manganese, cobalt, tungsten, coal, iron ore, etc. The seabed of the Indian Ocean also has an abundance of minerals at varying depths. While manganese, nickel, cobalt and phosphorites lie at depths ranging from 500 to 6000 meters, a number of minerals like phillipnite and palagnite are also available in the deep sea bed. With mounting pressure on land based resources, exploitation of the seabed resources including deep sea mining is expected to be a major thrust area.

Oil and Natural Gas

The IOR first came into the global strategic calculus at the turn of the last century with the discovery of oil in the Persian Gulf. The region became strategically vital in the mid-seventies with the first oil shock. The Persian Gulf, with around 60% of world's oil resources, is the major oil producing area in the world. The Persian Gulf also accounts for 26% of the world's global natural gas reserves. The Strait of Hormuz is by far the world's most important oil choke point, with around 17 billion barrels transiting through this strait every day.¹²

Natural Disasters

The IOR is the locus of 70% of the world's natural disasters. In the 21st Century, the IOR has already witnessed natural disasters of immense magnitude, like the Asian Tsunami in 2004, Pakistan earthquake in 2005, Indonesia (Yogyakarta) earthquake in 2006, and the periodic droughts in Africa since the 1970s.

Transnational Terrorism

The IOR has witnessed a steep increase in global terrorism, with many regional organisations covertly or even inadvertently aiding and abetting subversive elements. Originating from within the IOR, various organisations have spread their tentacles of terror across the globe, and directly impact India's security and national interests.

Maritime Terrorism

The phenomenon of globalisation and interdependence of trade has made the world an interconnected market place. Whilst this has greatly benefited national economies, there is evidence of various terrorist groups also having adopted the globalisation phenomenon to export their ideology and expertise. The seaborne ingress of terrorists from Pakistan into Mumbai for perpetrating the '26/11' strikes in 2008, indicates their growing maritime expertise and focused training being provided from sponsors of international terrorism. Coastal gun-running is another manifestation of maritime terrorism and has seen a marked increase in the IOR. It is also to be noted that seven tons of RDX and small arms landed on the West coast of India in 1993 and used in the Mumbai serial blasts were inducted by sea.

The recent history of maritime terrorist attacks is ample testimony to the heightened threat in the IOR. Some of the better documented attacks are the suicide attack by a small boat masquerading as a harbour craft on the USS *Cole* in October 2000, the plot to attack visiting US naval warships in Singapore in 2001, the attack on the French supertanker MV *Limburg* in 2002, the February 2004 bomb attack on the MV *Superferry-14* in Manila, the November 2005 attack on the cruise liner MV *Seabourn Spirit* off the Somali coast, and the perfidious and brazen 26/11 terrorist strikes on Mumbai.

Piracy

The IOR is a hotbed of international crime, with the most number of incidents of piracy, gun-running, and human and drug trafficking taking place in its waters. Piracy is the biggest scourge of modern day shipping, which exploits the convergence of merchant traffic at choke points. It is particularly prevalent in South-East Asia and around the Horn of Africa/Gulf of Aden. In 2008, particularly, the acts of piracy on mercantile shipping in the Gulf of Aden witnessed a steep rise, attracting anti-piracy patrols by several navies in the region.

Narco Terrorism

Most of the poppy cultivation in the region takes place in the areas that encircle the Indian Ocean. Terrorist groups operate with transnational criminal organisations, drug cartels and war lords. Drug money is used to procure weapons, arms and ammunition and to support terrorist activities and insurgencies. The transshipment of these tools of terror, which are used to support terrorist activities and insurgencies, often takes place in the waters of the Indian Ocean. In short, the IOR is the hotbed of narco terrorism, smuggling, gunrunning and associated crimes.

Territorial and Maritime Disputes

Most countries of the IOR have a colonial past. The colonial powers fought each other for territory and divided the spoils of victory by drawing cartographic lines across the map, with scant regard to the ethnicity or cultural hues of the people. On gaining independence, national boundaries of these countries were largely

determined by past agreements between the colonial powers. The seeds of ethnic strife and tensions were thus sown in the region at the time of independence itself. These disputes are a source of constant friction between nation states. The region is also marked by extreme economic diversities, where some of the fastest-growing economies co-exist with some of the poorest countries of the world. In socio-political terms too, a number of countries of the IOR are still struggling to stabilise their socio-political systems.

Population Growth

The IOR houses one-third of the world's population on only 25 per cent of the world's land mass. Most of the countries in the IOR littoral and hinterland are under-developed or developing states. Poverty is a common scourge in most of these countries, with an exploding population further compounding their travails. The runaway population has created huge, unmanageable demographic problems that strain every aspect of governance. In some cases, the inability of the governments to absorb the impact of the population explosion has led to anarchy and civil war. Larger populations have also led to the rapid growth of urban centres, which has resulted in mass migration to these areas with its associated problems like demographic imbalances.

Extra-Regional Presence

Developed and developing nations both depend heavily on an uninterrupted supply of oil from the Persian Gulf to sustain their economies, with the oil-flow through the Strait of Hormuz itself being more than 40% of the global oil trade.¹³ The maritime arc from the Gulf through the Strait of Malacca to the Sea of Japan has been termed as the new 'Silk Route'.¹⁴ At the same time, there is high instability in the region, with increased incidence of crime, maritime terrorism, proliferation of missiles and WMDs, spread of religious fundamentalism, etc. The region has, consequently, seen high presence of extra-regional forces to safeguard their strategic interests.

Since the 1970s, the US had maintained the region to be of strategic importance to its vital interests. The USA has been the most visible and potent extra-regional power in the IOR, with base support provided from Diego Garcia and through bilateral

arrangements in the Gulf and the ASEAN, through Asia-Pacific to Japan. France has several island territories in the IOR, whereupon France is considered as an Indian Ocean power with a significant naval presence in the IOR. Japan, the EU, China and Russia have all shown increased presence in these waters, in recent years, either independently or through politico-security arrangements.

India's Maritime Interests

Stability, Security and Safety at Sea

The importance of the seas and dynamics of the IOR maritime environment point to the need for maintaining stability, security and safety at sea, particularly in the IOR. This would enable use of the seas to progress economic development, and provide the appropriate maritime environment for unfettered pursuit of national interests. The absence of requisite level of safety and security adversely affects the maritime environment and all activities therein, including maritime trade, shipping, fishing, natural and energy resource extraction, security of our seaborne, off-shore and coastal assets, etc.

<u>Total Length of Coastline</u>	7,516.6 km
Mainland	5,422.6 km
Lakshadweep Islands	132 km
A & N Islands	1,962 km
<u>Island Territories</u>	1,197
A & N Islands	572
Lakshadweep Islands	27
Off India's West Coast	447
Off India's East Coast	151
<u>Maritime Jurisdiction</u>	UNCLOS Ratification 29 Jun 95
Territorial Waters	45,450 sq nm/ 155,889 sq km
EEZ	587,600 sq nm/ 2,013,410 sq km
Continental Shelf	Approx. 1,200,000 sq km (being demarcated)
Deep Sea Mining Area	75,000 sq km, Pioneer Investor August 1987. Position – 180 Cape Comorin 1,080 nm
Stations At Antarctica	<i>Dakshin Gangotri</i> (70° 05'S 12° 00' E) – set up in 1984, dismantled in 1990 <i>Maitri</i> (70° 46'S 11° 50' E) – set up in 1989 <i>Bharati</i> (Larsmann Hill) –set up in 2012
Station in Arctic	<i>Himadri</i> (1200 km from North Pole) – set up in 2008

Table 5.2 – Maritime Statistics of India

Coastal and Offshore Security

A substantial amount of India's industrial and economic activity is located within 200 km of its 7,516 km long coastline, including nuclear power stations. The country's 1,197 islands also have substantial economic potential. India has 12 major and 200 non-major ports, with a large number under development.¹⁵ The present overall port handling capacity of the major ports of more than 500 MMT¹⁶ is growing rapidly. The '26/11' seaborne terrorist strikes at Mumbai re-emphasised the vulnerability of our coastal assets and need to upgrade coastal and maritime security.

Seaborne Trade

As in the past, India remains a predominantly maritime trading nation even today. India's economy is critically dependent on the seas for conduct of trade. More than 90% of our trade by volume and 70% by value is transported over the seas. For a growing economy seeking new markets worldwide, these trade figures will only spiral upwards in the years to come.

Indian Shipping

Indian merchant ships are valuable maritime assets for transporting trade, especially in times of armed conflicts where they would be essential for transportation of strategic commodities under Naval Cooperation and Guidance to Shipping (NCAGS). In 1998, India's merchant fleet comprised 480 ships, with 6.98 million tons GRT. By 2008, this had increased to 839 ships with 9.07 million GRT. However, due to relatively much higher growth of India's seaborne trade vis-à-vis the growth of our shipping industry, the share of the same carried by Indian merchant ships reduced from 34% in 1998 to approximately 8.5% by 2014.

Sea Resources

The fisheries sector occupies an important place in the nation's socio economic development. About 10-15% of the population of India living in coastal areas are engaged in fishing as the sole means of livelihood.¹⁷ The sector has also been one of the major contributors of foreign exchange earnings through export. The security aspect of fishing entails safeguarding our EEZ against poaching, SAR cover and

INDIAN MARITIME DOCTRINE

protection against use of fishing as a cover for inimical activities against the nation, as seen in the '26/11' terrorist strikes in Mumbai in 2008.

Seabed Resources

At present, India depends on imports for most of its requirements of nickel, cobalt and copper. The International Seabed Authority (ISA) has accorded pioneer investor status to India of 75,000 sq km of the seabed in the southern Indian Ocean. Advances in technology are expected to enable deep sea mining, whereupon India may be able to harness its own seabed resources, including minerals and hydrocarbons.

Energy Security

India is the sixth highest energy consumer in the world, and needs assured supply of adequate energy to sustain its growth. Energy security is ensuring the required energy supply over the long term and at affordable cost. This covers the various types of energy, including oil, gas, coal, hydel, nuclear, etc., with long term arrangements for their assured supply, including procurement, production, and stocking. Purchase of overseas hydrocarbon fields is part of energy security, and aims to insure energy supply against rising prices or dwindling affordable supply. Whilst the country has sought to diversify its sources of energy to include nuclear, hydroelectric, shale oil, biogas, solar and wind energy, the dependence on hydrocarbon based sources of energy is unlikely to reduce in the foreseeable future. Oil and natural gas will therefore remain critical to our energy security for several decades to come.



Security of Energy

Security of energy implies safety of the various energy assets, including supply sources, production infrastructure and means of transportation that belong to the country. This encompasses the military and quasi-military ways adopted to address the safety of these energy assets. The Persian Gulf and Africa are the major sources of India's oil and gas imports, which are carried by sea. Our off-shore oil and gas fields on both coasts contribute to a majority of our domestic production. These traditional sources are unlikely to change in the near to medium term. India is also investing in hydrocarbon assets worldwide, which would have to be maintained by sea and use the sea lanes for repatriation to India. Security of energy, thus, has a strong maritime component, which will remain of prime national concern.

Antarctica

Antarctica is of maritime interest to India primarily because it enables monitoring of meteorological data towards prediction of the Indian monsoon, upon which our agriculture and hence our economy largely depend. India has set-up three stations in the frozen continent so far, namely - *Dakshin Gangotri*, *Maitri* and *Bharati*. The first was dismantled in 1990.

Areas of Maritime Interest

There are two broad areas of maritime interest for India. Based on their relative degree of importance, these have been categorised as primary and secondary areas of interest.

Primary Areas

India's primary areas of maritime interest include the following: -

- India's coastal areas and maritime zones, including coastline, islands, internal sea waters, territorial waters, contiguous zone, EEZ, and continental shelf.
- The Arabian Sea, Bay of Bengal, Andaman Sea, and their littoral regions.





INDIAN MARITIME DOCTRINE

- The Persian Gulf and its littoral, which is the source of majority of our oil supplies and gas imports, and is home to an estimated seven million expatriate Indians.
- The choke points leading to, from and across the Indian Ocean, including the Six-degree Channel, Eight/ Nine-degree Channels, Straits of Hormuz, Bab-el-Mandeb, Malacca, Singapore, Sunda and Lombok, the Mozambique Channel, and Cape of Good Hope and their littoral regions.
- The Gulf of Oman, Gulf of Aden, Red Sea, and their littoral regions.
- South-West Indian Ocean, including IOR island nations therein and East Coast of Africa littoral regions.
- Other areas encompassing our SLOCs, and vital energy and resource interests.

Secondary Areas

India's secondary areas of maritime interest include the following: -

- South-East Indian Ocean, including sea routes to the Pacific Ocean and littoral regions in vicinity.
- South and East China Seas, Western Pacific Ocean, and their littoral regions.
- Southern Indian Ocean Region, including Antarctica.
- Mediterranean Sea, West Coast of Africa, and their littoral regions.
- Other areas of national interest based on considerations of Indian diaspora, overseas investments and political relations.

Chapter 6

CONCEPTS OF MARITIME POWER

Preamble

The seas are the common heritage of mankind, which offer every nation legal access to the entire globe. A maritime nation must have freedom of action to use the seas in order to further its national interests. Concepts and techniques that protect this freedom and enable use of the seas are applicable across the entire spectrum of maritime activities during peace as well as war. Furthermore, it is important to emphasize that since humans and societies flourish on *terra firma*, the nation's political objectives – and thus its military objectives – are inextricably linked to events on land. In the broader sense, therefore, whatever concepts that maritime forces adopt must eventually (directly or indirectly) impact affairs on land. This chapter sets forth the concepts of maritime power and their interplay in the conduct of maritime operations.

Enablers of Maritime Power

Some of the main enablers that determine the maritime power of a nation are: -

- The geography of a nation and its adjacent seas, including its access to the seas, proximity to ISLs and the share of these ISLs in transportation of global trade.
- The maritime bent of mind of the Government, the people and other organs of the state.
- The size of seafaring population and its enterprise, including merchant marine, fishing, off-shore commercial activities, naval forces, etc.

- The shipbuilding capability, technological ability and industrial support infrastructure.
- The number, type and functional efficiency of major and minor ports. This includes cargo handling capacity and infrastructure for multi-modal transport of seaborne goods.
- The size, age and condition of the merchant fleet – both coastal and ocean-going.
- The percentage of imports and exports being carried in national flagged vessels.
- The state, size and technological advancement of the coastal and deep-sea fishing fleets, their geographic spread and fish catch.
- The size, state, characteristics and combat preparedness of the naval forces.

Attributes of Maritime Forces

The attributes of maritime forces are derived from the characteristics of the maritime environment. Naval forces are capable of carrying out multifarious tasks due to their inherent and unique attributes. These enable the deployment of maritime forces in areas of interest, without any constraints. A sound and thorough understanding of these attributes is essential for all military planners, as these govern the application of maritime force. There is a close relation between these attributes, some of which are developed from other primary attributes.

- **Access.** Over two-thirds of the world's mass is water, with the major part navigable by ships. An estimated 75% of humanity lives in the littoral areas, near the coast. This accords a high degree of access to naval forces to areas of interest across the globe.
- **Mobility.** Naval forces can move hundreds of miles every day over more than two thirds of the world's surface. A naval task force is capable of moving 300-600 nm per day. In our context, a task force operating off the Eight-degree Channel could be off the Gulf of Aden within the next 36 hours, and could arrive at the entrance to the Persian Gulf the following day. This mobility enables maritime

forces to move quickly across large distances and use the access potential of the seas to deploy to the particular area of interest.

- **Sustenance.** Maritime forces have integral logistic support, including FOL, provisions, water, machinery and electronic stores, ammunition and armament, and repair and medical facilities. These can be augmented through composite task forces with specialist logistic ships, which permit replenishment at sea. The time taken for ships to be replenished in own or friendly ports overseas is also minimal, usually 1-2 days for a full Operational Turn Round (OTR). This permits naval forces to sail at short notice, deploy to the area of interest using access and mobility, and remain there for extended periods.
- **Reach.** The attributes of access, mobility and sustenance together accord naval forces the ability to apply national maritime power at long distances from home base, and for extended periods. This reach of naval forces enables a wide spectrum usage of maritime power in areas of national interest overseas, which would otherwise be beyond the sphere of the nation's influence using other components of national and military power.
- **Flexibility.** The above attributes of reach, access, mobility and sustenance enable a high degree of flexibility in the application of maritime power by naval forces. Warships can calibrate their response in terms of visibility, intensity and longevity as required. They can be rapidly positioned in an area of interest, remaining over the horizon or be clearly visible, to signal latent or direct national interest, as required. They can employ a variety of means at their disposal at different levels of intensity. Ranging from friendly port visits, combined exercises, and maritime assistance and support to coercive power and direct application of combat power, these signal national intent in a given scenario. With graduated application of maritime power, they can remain deployed on station in the area of interest for long periods to signal national commitment, and can be quickly and unobtrusively withdrawn, with little ado or notice. Naval forces are thus flexible instruments of sovereign power, which can be employed in a variety of ways.
- **Versatility.** The various attributes also enable naval forces to be highly versatile and adapt to a wide range of roles that may be required of them in their capacity as sovereign instruments. These include benign, diplomatic, constabulary and military roles. Further, warships can easily change their military posture, undertake several tasks and roles concurrently and be rapidly redeployed for others.

- **Ability to Influence Events Ashore.** Naval forces can influence events on land both directly and indirectly. Although it flows from 'versatility' of naval forces, this important attribute merits treatment in greater detail. Mostly, naval forces influence events ashore indirectly by shaping the maritime environment, which affects the well-being and growth of the state and its population. On occasions, however, naval forces can also apply maritime power directly on land, either by means of transporting land forces to the land area of interest, or by delivering ship borne ordnance onto land using integral weapons systems and ship-borne aerial platforms. This attribute is based on the earlier attribute of reach, and has two components of Sea Lift and Shore Strike.
- **Composite Force Package.** Naval task forces constitute a composite force package bearing platforms, weapons and sensors (besides other components) that find applicability across all dimensions of military operations – sea, underwater, air, land, space and the electromagnetic spectrum. Furthermore, these components are integrated through command and control systems, which also span all dimensions. Their ability includes various elements of combat power and support that may be required for undertaking a range of roles, which may change or be added even during the period of their deployment at sea. This contributes to naval forces' attribute of versatility, as mentioned above.
- **Resilience.** Warships have high resilience. They are designed to absorb substantial damage and still be able to carry out their role. While a loss of fighting capability by damage can degrade operational performance, ships are designed and her crews trained to restore fighting efficiency as quickly as possible.
- **Maintenance, Refit and Life Cycles.** Naval ships and submarines are fitted with technologically advanced weapons and sensors, and sophisticated engineering and electrical equipment, which require regular maintenance. Ships and submarines are periodically dry-docked for underwater cleaning of hull, painting and repairs. Refits and maintenance require that a significant portion of naval forces, which could vary from a quarter to one-third, are laid up at any time and are not available for operations. Ships have long life cycles ranging from 20-50 years, depending on their size and class. Hence, there is need for modernisation and upgrades, which also take time and financial commitment. The periods of non-availability for maintenance, refits and upgrades have to be catered for when planning force levels to cater for future contingencies.



Maritime Command & Control

The Concept

Command is the exercise of authority and direction over forces assigned, by an individual so designated, for the accomplishment of a mission or task. Control is the process through which Command is exercised, by the Commander organising, directing and coordinating the activities of the forces. Effective communications (including through space-based systems) and computerisation are critical enablers of Maritime Command and Control (C²), particularly for the conduct of maritime operations at extended geographical ranges and longer durations. The addition of these two integral facets has led to the acronym of C⁴ (Command, Control, Communications and Computers). The levels of maritime C² correspond to the levels of maritime operations; it could be overall C², operational C² or tactical C². The Commanders at the higher echelons of the C² chain must guard against 'micro-management' so as not to take away the initiative from the subordinate Commanders.

Rules of Engagement

The Rules of Engagement (RoE) lie at the apex of maritime C² functions. RoE

may be defined as a set of rules factoring provisions of international law and political directives meant to authorize and guide operational Commanders with regard to the freedom to initiate or continue combat, and extent of use of military force in a specified scenario. While standing RoE cover various types of contingencies/scenarios in the entire spectrum of conflict, temporary RoE are derived from these for specific operations as required. The former are required to be reviewed periodically in tandem with changes in the underlying factors, particularly in terms of international law, foreign policy imperatives and the political outlook.

Maritime Domain Awareness

The Concept

Maritime Domain Awareness (MDA) is an all-encompassing term that involves being cognisant of the position and intentions of all actors, whether own, hostile or neutral, in the constantly evolving maritime environment in the areas of interest. The gaps in the knowledge available at various levels is sought to be filled by surveillance, intelligence and sharing of information. MDA is a vital ingredient to a nation's maritime security and economic well-being. The intelligence on presence of foreign naval units including warships, submarines and aircraft, enable monitoring of their activities for discerning their deployment trends and intentions. Information on merchant ship movements provides knowledge of the amount, direction and periods of traffic, which is vital for protection of own trade and early detection and discernment of untoward events. Information on fishing fleets and craft engaged in usual activities, and their known presence, helps in detecting the unwarranted presence of others and provides an early warning of threats to maritime safety and security. On a constant basis, MDA also enables more efficient coordination of Search and Rescue (SAR) at sea.

Purpose of MDA

MDA takes into its ambit, activity in all three dimensions - surface, underwater and airspace. An effective organisation for MDA encompasses the ability to keep oceanic areas under sustained surveillance, and serves a number of distinct purposes. In peacetime, continuous surveillance of shipping, fishing and other traffic, as well as the deployment and operations of maritime forces helps to establish traffic patterns prevailing at choke points, in coastal waters, and at focal areas leading to major ports. Any deviation from the normal state provides early warning of an impending crisis.

The routine and regular visibility of own units in specific areas of interest also conveys a message of reassurance to our friends, and a subtle warning to potential adversaries. Similarly, at the commencement of hostilities, a coherent picture of the maritime traffic helps cut down initial confusion and facilitates discrimination between merchantmen, friend, foe and neutral. This, in turn, enables the planning of responses and supports decision-making and prioritised resource allocation.



Levels of MDA

MDA is critical for effective decision-making at all levels of operations (strategic, operational and tactical); though at each level, the nature, application and modes of collation differ. At the strategic level, MDA demands awareness of strategically significant information. Domain awareness at the operational level encompasses all activities related to the generation and synthesis of an integrated picture of the maritime battle-space; be it air, surface or underwater. At the tactical level, MDA seeks to develop a comprehensive picture around individual ships or formations. Maritime forces at sea are most involved with the operational and tactical levels of maritime domain awareness, which is best achieved by harnessing surveillance and intelligence efforts for maritime picture building.

Means of Achieving MDA

The key ingredients of MDA are Intelligence, Surveillance and Reconnaissance (ISR). NCO is another critical enabler of MDA, examined in the following section. As a doctrinal necessity, it is evident that the normal state of the oceanic areas of interest must first be determined before any abnormality can be discerned and determined. This necessitates the maintenance of constant watch through ISR. Surveillance entails integration of inputs from a range of systems, including satellites, naval aircraft, warships, DF chains, merchant ship tracking and reporting systems, human intelligence, etc. Surveillance by warships and naval aircraft can be done whilst carrying out other routine peace time tasks of showing presence, patrols and exercises at sea. Synthetic Aperture Radar (SAR), Identification Friend or Foe (IFF), AIS and LRIT are some of the technologies used for identification at sea. Surveillance at the operational and tactical levels is often achieved through scouting operations, including Search, Patrol, Tracking and Reconnaissance, the mechanics of which are contained in tactical publications. The product of surveillance is information, which when collated, sifted and analysed yields actionable intelligence.



Network Centric Operations

As a result of the transformation in warfare brought about by advances in information collation and dissemination technologies, widely dispersed forces can be networked, with information gathered and exchanged in real time between them. This can facilitate compression of time and enable a short, often real time sensor-to-shooter cycle.

NCO hinges on the combined action of a force, rather than its constituent platforms. NCO forms the backbone of the MDA concept, whereby integrated battle-space awareness is developed to a high level by data-linking of widely dispersed sensors available with the force. This information is collated, sifted and analysed across the force in real time, which can help reduce the 'fog of war' to considerable degree in the maritime domain. Increased battle-space transparency enables the Commander to maximise the effect of his forces against the opponent. The key enablers for successful NCO are superior technology, suitable interface, evolution

of corresponding doctrines and procedures, and training to develop requisite expertise across the networked force.

Sea Control

As one of the most important concepts of maritime power, *sea control* denotes a condition where one is able to use a defined sea area, for a defined period of time, for one's own purposes, and at the same time deny its use to the adversary. It is derived from the erstwhile concept of 'command of the sea', which, as the phrase indicates, was unqualified by time and space. However, maritime strategists are in general agreement that total 'command of the sea' is rarely, if ever, achievable. Hence, any control would per force be limited in time and space, and for a given operation.

Besides the level of dominance, the key difference between the two concepts is the degree of risk involved. Unlike 'command of the sea', sea control provides no guarantee of protection from enemy attack. Nonetheless, such 'control' would need to provide adequate freedom of action by reducing the degree of risk to acceptable levels, depending upon the given operational parameters.

Sea control is the central concept around which the Indian Navy is structured. It comprises necessary control of the surface and underwater environments, the airspace above the area of control, as also the electromagnetic environment that may affect one's use of the seas for the requisite duration within the area of interest. The sea area for wielding sea control may be limited to a defined area around a single unit or group of units, or it may encompass a larger geographical expanse, for specified time periods that may be continuous or in phases, as necessary. Sea control is not an end in itself. It is a means to a higher end and very often a pre-requisite for other maritime operations and objectives, including power projection, SLOC protection, SLOC interdiction and amphibious operations.

Sea control is an enabler that affords freedom of action to those who possess it, but denies it to those who do not. It is, however, important to note that in the presence of a large number of neutrals, exercising effective sea control while adhering to the constraints of international law would remain a major challenge for the operational commander.

Battle-space Dominance

Battle-space dominance is the decisive control exerted by our own forces in that space. It includes information superiority, accompanied by degradation of the enemy's information resources, leading to constant victorious military outcome even as the situation keeps changing. Achievement of battle-space dominance in a maritime area will necessarily entail sea control of specific area(s). Essential to establishing battle-space dominance is the ability to synergise all elements of combat power, to relentlessly target and degrade or destroy the enemy, to achieve the desired degree of dominance.

Sea Denial

Sea denial is a concept of denying the adversary use of a sea area for a certain period of time, when it is not required for our use. Submarines are considered platforms-of-choice for the exercise of sea denial in choke points, particularly closer to enemy bases, since they are relatively less liable to detection and can be unobtrusively positioned and maintained, lowering enemy counter-measure efficacy. Another option that could be resorted to is mining, particularly in relatively shallower waters. Exercise of sea denial is predicated on not requiring that sea area for our use. Shore-based aviation and AShM batteries along the coast can also afford effective sea denial, especially in the littoral or choke points, and require effective surveillance and MDA.

Sea denial can also be used in an offensive manner to degrade the enemy's war waging capability, by curtailing his freedom of action and interdicting his SLOCs. It can also be used in defensive manner, by preventing the enemy from using sea areas that are not required for our use but from where our forces, capabilities or war effort could be targeted. Sea denial and sea control are not necessarily mutually exclusive. In order to achieve sea control in a particular area, it may be necessary to exercise sea denial in another, and *vice versa*.

At the operational and tactical levels, sea denial may be used for 'military containment', viz. to pose a geographical restriction on the freedom of action of enemy forces. The positioning of sea denial forces outside a zone may be envisaged to 'contain' enemy forces within the zone. SLOC interdiction to weaken the enemy's war-waging ability is an example of sea denial at the strategic level.

As in the case of sea-control, it would be necessary for the operational commander conducting sea denial operations to account for the presence of neutral shipping in the area and the related provisions of international law.

Fleet-in-Being

A “*Fleet-in-Being*” is one that physically exists but is not deployed into the battle space, leaving the adversary in uncertainty and forcing him to consider effect of its potential deployment at any stage. This is applicable even if there is reasonable knowledge of sub-optimal capability resident in such a fleet. For instance, as long as a combatant remains in commission and is not denuded of its visible armament, the adversary must take its presence and designed capabilities into account, thereby complicating his choice of options. Fleet-in-Being would necessitate deployment of a suitable force to counter the potential threat, thereby precluding availability of that force for other actions. Hence, the latent threat from a Fleet-in-Being can curtail the degree of freedom of a superior adversary, and prevent him from establishing the desired level of sea control. It may thus be used as a means of sea denial. Normally, Fleet-in-Being is the strategy of a weaker maritime power, though the concept can be used by either side.

Littoral Warfare

The littoral refers to the area near the coast, both landward and seaward, within which shore-based and seaborne forces can apply military power upon each other. It covers both land and sea areas, and its extent depends on the reach of land and sea-based forces. The reach and accuracy of modern weapon platforms and systems have enlarged the littoral space. *Littoral warfare* refers to military operations conducted in the littoral region, normally from the sea against land-based forces.

Maritime Manoeuvre

Maritime manoeuvre is the ability of naval forces to employ movement to incapacitate the enemy’s resistance and decision-making cycle through shock and disruption. The term is particularly relevant at the strategic and operational levels. It aims at appropriate geographical positioning of adequate force levels vis-à-vis the enemy to achieve a position of advantage, including in terms of being able to apply maritime force at an opportune time and at his known vulnerable point. Bearing the elements of both space and time, therefore, maritime manoeuvre seeks to generate a faster tempo of naval operations than the adversary. The concept of maritime manoeuvre has immense applicability for sea control and amphibious operations.





Manoeuvre versus Attrition

Maritime manoeuvre is derived from the warfighting concept of manoeuvre warfare, which seeks to achieve military victory by shattering the enemy's physical cohesion and war plans rather than causing the destruction of his forces through attrition. Notwithstanding such genesis and the clear applicability of manoeuvre, the concept of attrition continues to be relevant in naval operations, particularly at the tactical level. Sea control, the essential pre-requisite for many other naval operations, is not akin to seizing and holding territory. In order to reduce the adversary's capability to dispute the use of the sea, reducing his combat power through attrition may become essential. Attrition in terms of destruction of the adversary's assets in large numbers, or that of a single asset of high symbolic value, could also contribute to breaking his will to fight.

Amphibious Operations

As a form of maritime power projection, *amphibious operations* are joint military operations wherein land power is projected ashore from the sea. In a typical amphibious operation (amphibious assault), naval units embark land forces at ports, transport them by sea to the designated area of operations, launch them against a hostile or potentially hostile shore, and sustain them ashore for the duration of the operation. It may be conducted in order to prosecute further combat operations ashore, capture or recapture territories, obtain a site for an advance naval or air base, deny the use of an area or facilities like a port to the enemy, or to show presence. Such an operation aims to target the enemy's Centre of Gravity (CoG) or critical vulnerabilities. Such operations employ a range of military assets and resources integrating virtually all types of ships, aircraft, weapons, special operations forces and landing forces, in concerted joint military effort, making it the most complex of all joint operations.

The concept of amphibious operations has vastly evolved since the historic amphibious assaults at Normandy (1942) and Inchon (1950). The offense-defence balance in such an operation has shifted considerably in favour of the defender. Also, given the transparency of the contemporary battle-space, it is becoming increasingly difficult for an amphibious force to achieve surprise and deception against the adversary. It is, therefore, usually imperative to apply the concept of maritime manoeuvre to an amphibious assault, by using the sea as a medium of manoeuvre to access the littoral of the adversary. Furthermore, maritime manoeuvre would need to

be adopted in concert with the concept of 'Over the Horizon' (OTH) assault, wherein the major naval sealift platforms do not approach the hostile coast to less than a pre-determined 'stand-off' distance (usually greater than the visual range), and achieve the ship-to-shore transfer of the landing force using integral landing craft and airlift assets.



Besides amphibious assault, the three other types of amphibious operations, are as follows: -

- **Amphibious Raid.** Amphibious raid involves swift incursion into or a temporary occupation of an objective, followed by a planned withdrawal. Raids may be conducted to inflict damage on selected targets, secure information, create a diversion, and capture/evacuate individuals or material.
- **Amphibious Demonstration.** This is conducted for the purpose of deceiving an enemy by a show of force, at a time and place that would delude him into a wrong appreciation of our intentions.
- **Amphibious Withdrawal.** This involves the withdrawal of forces from a hostile shore by sea in naval ships or craft. It includes non-combatant evacuation operations to evacuate our citizens from threatened territories or zones by sea.

Notwithstanding the substantial effort involved in planning and executing an amphibious operation, its success will always be measured by its impact on shore. Specialised knowledge of local conditions and a high degree of coordination, training, and execution are essential for success of amphibious operations. Amphibious capability also presents a credible threat-in-being, which can act as a powerful deterrent and can be exploited as an instrument of strategic/operational leverage.

Expeditionary Operations

Expeditionary operations are another form of maritime power projection. It entails deployment of military forces overseas, and their sustenance thereupon by means of own airlift and/or sealift assets, for accomplishment of national objectives.

A maritime/seaborne expeditionary operation may also encompass amphibious operation(s), wherein land forces are inserted, supported and sustained by sea. Among the essential pre-requisites for expeditionary capability are 'long-legged' and stable sealift ships, equipped with integral vectors (landing craft and airlift assets) and C⁴ facilities, besides logistic-lift platforms for sustaining the operation for prolonged periods.

Distant Operations

Distant operations are conducted at or from the sea, up to considerable distance from national shore bases. These include expeditionary operations, but are not limited to it. Distant operations rely upon the attributes of access, mobility, sustenance and reach in order to show presence, project power and/or accomplish other national objectives in the area of interest. The ability to undertake distant operations distinguishes a blue-water navy from a brown-water force. It requires strong integral capacity, including logistics, surveillance, networked operations, etc., and enabling capability, including equipment design, training, doctrine and organisation.

Trade Warfare

Trade warfare is a strategy of interdicting the enemy's SLOCs and targeting his merchant marine. In earlier days, it was known as *Guerre de Course*,¹⁸ which was the option of a weaker naval force in conducting a campaign against the enemy's merchant shipping, in preference to the decisive 'big battle' or struggle for sea control. Hence, it mostly relied on submarines and surface raiders, and was used in conjunction with a policy of Fleet-in-Being. Technically, it could include air attacks as well, as seen in the Iran-Iraq 'Tanker War' phase from 1984-87. However, trade warfare can also be used by a superior naval force, to impose commodity denial on the adversary. This can be done by sea control or sea denial measures, and requires a higher level of MDA on the identity and movement of enemy shipping.

Convoy

A *convoy* refers to a number of merchant ships or naval auxiliaries, or both, usually escorted by warships and /or aircraft, and assembled and organised for the purpose of transit together. The system is used for safeguarding vital merchandise trade from enemy's *Guerre de Course*. Convoys seek to reduce the risk to mercantile shipping during times of armed conflict, whilst enhancing our ability to protect

them. This is predicated on the basis that grouping ships together reduces the area and time over which sea control must be exercised and escorts provided, which results in economy of effort. This is based on the historical fact that ships cruising independently are at greater risk than those in a convoy. There are counter arguments that the high speeds of modern merchant ships are effective submarine-avoidance techniques, making escorts unnecessary, and that convoying eases the enemy's problem of identification by presenting marked targets. However, higher speeds do not constrain enemy air or surface forces from attacking merchantmen. Further, modern conventional submarines are capable of higher speeds than hitherto and can still



target lone merchant ships, especially in choke points. In practical terms, it may not always be feasible to eliminate casualties altogether even when ships are grouped under an escort force. However, convoying increases the probability of the ships reaching their destination safely in numbers that makes the effort worthwhile. The decision to convoy would depend on various factors, such as criticality of cargo, enemy opposition, available sea room, vulnerability to interdiction and alternative routes.

Blockade

Blockade is a belligerent operation to prevent vessels of all nations from entering or exiting specified ports or coastal areas, belonging to, or under the control of an enemy nation. The primary purpose of a blockade is to deny the enemy reinforcements, re-supply and maritime trade, thus degrading his war-waging capability. Blockade can also be used to enforce sanctions. A blockading force has the right to seize as prize any merchant ship – be it enemy or neutral – that attempts to run the blockade either inwards or outwards. As an additional benefit, blockade may be used for military containment by coercing enemy forces to remain behind the blockading line, thus ceding sea control and use of the sea to the blockading navy.

To be recognised under international law, blockade must have been declared and notified to all concerned. It should also be effective and applied impartially to ships of all nations. Blockade must not bar access to or departure from neutral ports. Although neutral warships do not enjoy any right of access to blockaded areas, the belligerent imposing blockade may authorise their entry and exit. Such special authorisation may be made subject to conditions deemed necessary and expedient by the blockading force.

VBSS Operations

A belligerent nation is one that is engaged in an international armed conflict, whether or not a formal declaration of war has been made. Every belligerent warship possesses the right of visit and search, whereupon maritime interdiction incorporates Visit, Board, Search and Seizure (VBSS) Operations. In conformity with global practice, the IN exercises the right of 'visit and search' of merchant ships, whilst not encroaching into the waters of a neutral country, to determine their true character (enemy or neutral), nature of the cargo (contraband or not), manner of employment (innocent or hostile), and other features relevant to the ongoing conflict.

Visit and search by an aircraft is accomplished by directing and escorting the vessel to the vicinity of a belligerent warship or to a belligerent port. Visit and search of an aircraft by another aircraft may be accomplished by directing the former to proceed under escort to the nearest convenient airfield. Details of VBSS operations during wartime are contained in *A Seaman's Guide to International Law* (INBR 1650). However, it bears emphasis that there is no right of visit and search in the waters of a neutral country, and warships and neutral vessels engaged in government service are not subject to visit and search. Also, neutral merchant vessels escorted by neutral warships of the same nationality are exempted from visit and search.



Peacetime VBSS by maritime forces against low-intensity seaborne threats are gaining ascendancy. VBSS could be undertaken at the lower end of the low-intensity

conflict spectrum to ensure the state's customs regulations, and while policing to maintain 'good order' in our maritime zones. At the higher end, it could be part of an anti-piracy operation on the high seas, or even a multi-national/UN-mandated anti-terrorist campaign in territorial waters of a foreign state.

VBSS is, however, subject to guidelines of international law. Article 110 of UNCLOS states that: -

"Except where acts of interference derive from powers conferred by treaty, a warship which encounters on the high seas a foreign ship, other than a ship entitled to complete immunity...is not justified in boarding it unless there is reasonable ground for suspecting that : -

- The ship is engaged in piracy.
- The ship is engaged in the slave trade.
- The ship is engaged in unauthorized broadcasting.
- The ship is without nationality.
- Though flying a foreign flag or refusing to show its flag, the ship is, in reality, of the same nationality as the warship."

The key legal tenet therefore is that except under these provisions, interdiction of a vessel flying a foreign flag is not permitted on the high seas, without the permission of the flag state. The operational commander at sea must clearly understand the legal mandate for VBSS in various scenarios.

Exclusion Zones

Exclusion Zones, such as the Maritime Exclusion Zone (MEZ), Total Exclusion Zone (TEZ) and Mobile Maritime Exclusion Zone (MMEZ) offer a means of simplifying the identification problem. Their promulgation signals intention to apply combat power in the defined zone, wherein unidentified units may be assumed hostile and prosecuted. Their enforcement requires ROE that would allow discretionary use of combat power. In a less-than-war situation, they also provide a way of enhancing coercive pressure by signalling intent and readiness to use combat power, as necessary. In enforcement of exclusion zones, the rights and security of third parties or non-belligerents need to be safeguarded. This is facilitated where third parties opt to coordinate their movements through the exclusion zone with the enforcer.

An option that has been frequently used by some countries as an alternative to Exclusion Zones, is the promulgation of suitable NAVAREA warnings. NAVAREA warnings provide alternative, legal means of issuing an advisory notification to mariners and aircraft operating in the demarcated area. NAVAREA warnings can be promulgated prior to outbreak of hostilities. They serve the purpose of issuing a warning to the world at large of a nation's right to self protection and the operations that may be necessitated. Without being overtly offensive, such warnings caution about impending dangers to shipping, which may dissuade merchant ships from entering the area. The use of NAVAREA warnings usually results in third parties opting to keep clear of the area, thereby meeting the purpose of its promulgation. NAVAREA messages may also be used as a prelude to promulgation of an Exclusion Zone, thereby combining the advantages of the two options.

The efficacy of a NAVAREA or Exclusion Zone also depends on the value of the area to third parties. If the promulgated zone does not cover primary ISLs of use to third parties, it will have a higher chance of adherence. Adherence can be improved by adjusting the zone either in space or time, to match essential operational needs.

Maritime Logistics

The key attributes of mobility and sustained reach of maritime forces are premised on logistics. Notwithstanding that a naval task force is inherently self-contained, maritime logistics often becomes critically important, particularly in case of a prolonged operation, an operation of amphibious nature, or where a quick response is imperative. The needs of naval logistics are the same as for any military force, viz. FOL, distilled/potable water, ammunition and armament stores, rations, machinery and electronic spare-parts, and services support like maintenance and repairs, casualty evacuation and medical facilities. However, what is different is the nature of logistics in the maritime environment. For land and air forces, the logistic bases are usually established prior to commencement of operations, and have well defined supply chains and land/air connectivity. More often, the logistics operations are also conducted over own/known territory. These attributes are rarely available to naval forces. With no fixed bases at sea, the naval forces must carry integral logistics onboard (or within the fleet) while constantly moving in the maritime medium. While replenishment at shore locations overseas is an option, the length of time required for the OTR may be prohibitive for accomplishment of the operational objective. Hence, the challenge of maritime logistics lies in planning for the necessary logistics assets/capacities, the ability to accurately forecast the needs and position/transfer necessary supplies/services as required.

Chapter 7

APPLICATION OF MARITIME POWER

Preamble

The navy is a versatile and potent instrument of national power, which can shape the maritime environment and safeguard national interests. In the application of maritime power, navies perform several roles, each with a distinct set of objectives, missions and tasks. Navies traditionally operate in international waters well beyond the territorial limits of a nation, mostly at considerable distances from home shores. Accordingly, the *IN's* military capability and force levels need to be built around a 'balanced fleet' with adequate reach and combat power, so as to meet the needs of its various roles, objectives, missions and tasks. The *IN* is complemented in its various roles by the Indian Coast Guard (ICG), which works in close coordination to achieve national maritime security objectives. In war and less than war situations, when so directed by the Union Government, ICG units function under operational control of the *IN*.

Roles, Objectives, Missions and Tasks in Perspective

The roles, objectives, missions and tasks of a navy encompass its core activities and describe what the navy does in times of peace and war. They define the scope of employment of the navy and application of maritime power by a state. Hence, they determine the way in which the navy would need to be organised, equipped, trained and developed, as well as the means needed in terms of force levels, structures, ROE, and joint support from other military forces and government agencies.

INDIAN MARITIME DOCTRINE

In context of military operations, the relation between role, objective, mission and task can be seen in their definitions: -

- **Role** is the actions and activities assigned to and required of a military force. It defines the broad and enduring purpose that the force is to be used for.
- **Objective** is a clearly defined, decisive and attainable goal towards which every military operation is directed.
- **Mission** is a clear and concise statement of the task of the command, together with the purpose, that indicates the action to be taken towards the attainment of the objective(s).
- **Task** is a specific piece of work that is to be done as a duty. It defines the precise activity and its sphere towards accomplishment of the mission.

In the application of maritime power, the **Roles** of a navy are the broad and enduring purposes that govern the establishment and *raison d'être* of that navy. In the performance of these roles, various **Objectives** would need to be attained, which focus the efforts and determine the fulfilment of that role. In order to attain the objectives, naval forces are deployed on specific **Missions** that have to be accomplished in order to attain the objective. In accomplishing these missions, naval forces have to perform a variety of operational and tactical level **Tasks**, which span the entire spectrum of maritime operations. In other words, the primary function of the navy is to perform its assigned roles through the accomplishment of various objectives. These objectives are achieved through the deployment of naval forces on specific missions, which in turn require the execution of several diverse Tasks.



Roles of the Indian Navy

The full range of operations in which a nation's naval forces may be involved is vast, ranging from high intensity warfighting at one end to humanitarian assistance and disaster relief operations at the other end. This broad continuum of operations can be broken down into distinct roles, each demanding a specific approach to the conduct of operations. Accordingly, the four main roles envisaged for the *IN* are as follows: -

- Military.
- Diplomatic.
- Constabulary.
- Benign.

THE MILITARY ROLE

The essence of all navies is their military character. In fact, the *raison d'être* of navies is to ensure that no hostile maritime power degrades their national security and interests. The navy's military role is characterised by the threat or use of force at and from the sea. This includes application of maritime power in both, offensive operations against enemy forces, territory and trade, and defensive operations to protect our own forces, territory and trade. The military role is performed through the accomplishment of specific military objectives, missions and tasks.



INDIAN MARITIME DOCTRINE

Objectives	Missions	Tasks
• Deterrence Against Conflict and Coercion	√ Nuclear Second-Strike	# Surveillance
• Decisive Military Victory in Case of War	√ MDA	# Patrol
• Defence of India's Territorial Integrity, Citizens and Off-shore Assets from Seaborne Threats	√ Sea Control	# Maritime Strike
	√ Sea Denial	# Anti-Submarine Ops
	√ Blockade	# Anti-Surface Ops
• Influence Affairs on Land	√ Power Projection	# Anti-Air Ops
	√ Force Protection	# Amphibious Ops
• Safeguard India's Mercantile Marine and Maritime Trade	√ Expeditionary Ops	# Information Ops
	√ Compellance	# Information Exchange
• Safeguard India's National Interests and Maritime Security	√ Destruction	# Electronic Warfare
	√ SLOC Interdiction	# Protection of Offshore Assets
	√ SLOC Protection	# NCAGS and NCS Ops
	√ Special Force Ops	# Mine Warfare
	√ Seaward Defence	# VBSS
	√ Coastal and Offshore Defence	# Harbour Defence

Table 7.1: Military Objectives, Missions and Tasks

Indian Navy's Military Objectives

The various military objectives are in consonance with the military role of the *IN* for achieving the national security objectives, which have been described in Chapter 1. The attainment of military objectives entails application of military power. This includes the use of force, as also threat or credible possibility of such use. Such application is not limited to times of war or hostilities alone, and covers peace, confrontation and less than war situations.

Deterrence against Conflict and Coercion

The primary military objective for the *IN* is to deter any military adventurism against the country, including intervention in India's affairs and subversive strategies against our national interests. Deterrence has been described in Chapter 3. The ways and means of deterrence by the *IN* would include developing a sea-based nuclear

second-strike capability, in keeping with the Indian Nuclear Doctrine that lays down a 'No First Use' (NFU) policy.¹⁹ It also entails conventional deterrence by both denial and punishment, by maintaining a robust military capability and posture to convince potential aggressors of high costs and limited gains from any aggression or intervention against India's national interests.

Decisive Military Victory in War

In times of war, the primary objective of the *IN* is to attain a decisive military victory against the opposing navy and armed forces, by undertaking proactive, coordinated and joint combat operations. The sea battle would focus naval combat power on the enemy's CoG, in consonance with the joint military strategy and the political objectives. This may involve the entire range of military operations at and from the sea.



Defence against Seaborne Threats

India has a long coastline, numerous island territories, vast MZI, substantial energy infrastructure and other vital assets in the littoral areas; besides a large vibrant population, significant portions of which also live in the littoral. Since there are no physical barriers at sea, these areas and assets are inherently vulnerable to seaborne threats, and enhancing their defence is a prime objective of the *IN* in the military role. The defence against such threats would primarily encompass the following:-

- Safety from stand-off attack by missile ordnance.
- Safety of coast against ingress of Special Forces.
- Safety of high-value assets, including strategic assets.

INDIAN MARITIME DOCTRINE

Influence Affairs on Land

As noted in Chapter 6, since humans live on land, any activity at sea must have a bearing on the affairs on land. This extends to *IN*'s military role as well, wherein a key objective of the use of naval power is to influence affairs on land in a manner that would preserve, protect and promote India's national interests. This includes times of peace, confrontation and war. Such employment of the *IN* would be done jointly with other elements of national and military power, so as to attain a synergistic effect in enhancing national security. There are two primary ways in which this can be done. First, to use the seas to control the flow of commodities extracted from or carried by sea to the land area, which is dependent upon them for its war effort and well being. Second, to use the seas to deliver force or firepower onto the land.



Safeguard Mercantile Marine/ Trade

India's reliance on maritime trade for economic growth necessitates the protection of merchant marine and seaborne trade. In times of war, this reliance increases due to the close and direct linkage between SLOC security and sustenance of war efforts. Protection of merchant shipping and maritime trade is, thus, an important military objective of the *IN* in both peace and war.

Safeguard National Interests and Maritime Security

As a potent, versatile and flexible instrument of sovereign power, the Navy can be employed in a variety of situations and in calibrated ways to safeguard national interests and maritime security. Application of naval power would remain an option in various circumstances in maritime areas of national interest, singly as well as jointly with other armed forces of the country. Hence, safeguarding our national interests and maritime security forms a significant objective in the *IN's* military role.

Missions in the Military Role

In pursuance of military objectives, naval forces are deployed on related missions. These missions are not an end in themselves but contribute towards attainment of the objectives. Also, each objective may require a combination of missions to be accomplished. The specific military missions of the *IN* are, tabulated in Table 7.1, and elucidated below.

Nuclear Second-Strike

India is a nuclear weapon state with an avowed NFU policy on nuclear weapons, backed up by the policy of assured, punitive nuclear retaliation if attacked by nuclear, biological or chemical weapons.²⁰ In support of *India's Nuclear Doctrine*, Indian nuclear second-strike capability needs to be credible and survivable. This includes a sea-based capability, with a robust command and control structure, along with requisite political and military safeguards.

SLOC Interdiction

The interdiction of enemy SLOCs is carried out in consonance with sea control or sea denial. Submarines with their ability to operate with stealth and relative invisibility close to an enemy coast are particularly well suited for these missions. These are also quite effective at choke points, convergence of SLOCs and at harbour mouths, particularly if the enemy's capability for ASW is limited in the area. Surface and air elements can also be used effectively for SLOC interdiction in a variety of situations and areas.

INDIAN MARITIME DOCTRINE

SLOC Protection

In view of the nation's heavy dependence on the seas for trade, protection of own SLOCs is an important operational mission of the *IN*. This can be done by deploying a balanced fleet, use of convoys, NCAGS routes, and by gaining broader sea control in the main areas of SLOC vulnerability.

Special Forces Operations

Special Forces are elite units designed to progress operations in remote areas that are hostile, defended, culturally sensitive and beyond the reach of naval forces, both in time and space. Special Operations entail use of SF to target military-strategic or vital operational assets of the enemy, towards attaining the military objectives. SF operations can be a separate mission and can also comprise a set of tasks in support of a range of other missions. Marine Commandoes (MARCOs) of the *IN* can undertake SF operations, as part of various missions. Special Forces may also conduct clandestine raids as part of specific missions. They may also be tasked for combating terrorism in a maritime environment including rescue of hostages.



Seaward, Coastal and Offshore Defence

The seaward, coastal and offshore defence of India is a prime mission of the *IN*, and requires deployment of naval forces to prevent and counter seaborne attack by hostile forces. This would include offensive deployment to target the adversary to preclude his ability to launch maritime strikes, as well as defensive layered and localised deployment to prevent forces from closing our VAs/VPs to strike ranges.

Other missions of the *IN*, outlined in preceding chapters, are as follows: -

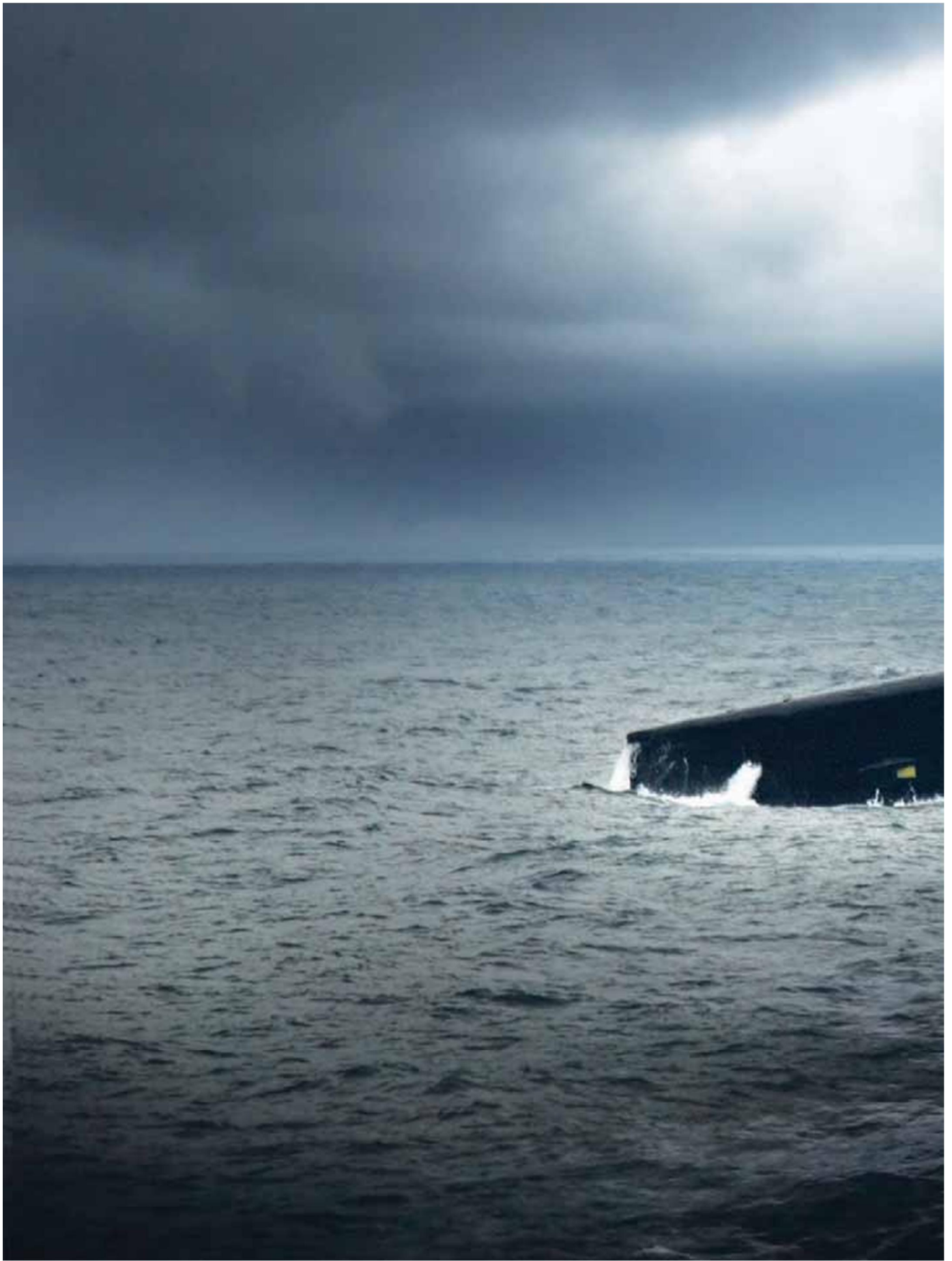
- Maritime Domain Awareness.
- Sea Control.
- Sea Denial.
- Blockade.
- Power Projection (including force projection).
- Force Protection.
- Compellance.
- Destruction and Attrition.

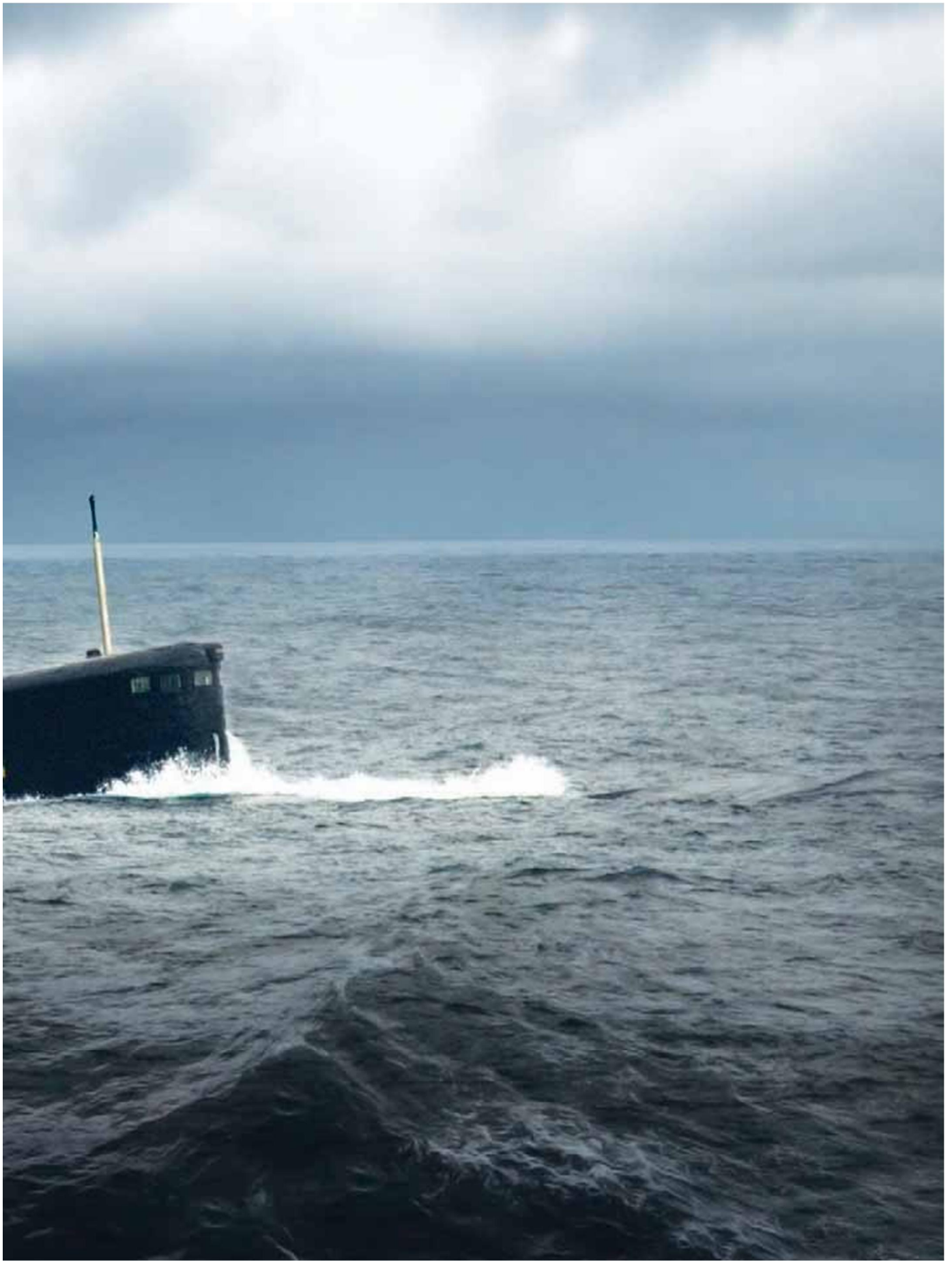
Military Tasks

In accomplishing various military missions, a range of military tasks need to be undertaken. Many of these tasks may be common to concurrent missions, while other missions may require dedicated tasks and resources. The broad military tasks that could be required of the *IN* are tabulated in Table 7.1, and elucidated below.

Surveillance

Surveillance is necessary for development of MDA, as required for various missions. Surveillance by warships, submarines and maritime reconnaissance/patrol aircraft is primarily undertaken through their integral sensors like radars (including early warning radars) and Electronic Support Measures (ESM). These are supplemented by other means like space-based systems and Unmanned Aerial Vehicles (UAV).





INDIAN MARITIME DOCTRINE

Maritime Strike

The task of maritime strike is an important facet of naval combat, and means of employing force towards attainment of higher missions and objectives. The strikes can be carried out at sea and from the sea, against seaborne and shore targets.

Anti-Submarine Warfare

Anti-Submarine Warfare (ASW) protection of a force or ASW sanitisation of an area of interest is a central task for the establishment of sea control and to counter sea denial by the adversary. The stealth features, weapons and sensors of the submarine make it a potent threat. Search and Attack Units (SAU) and Air Search and Attack Units (ASAU) are tactical groupings of ships and aircraft respectively, specially designated to search and destroy enemy submarines. Submarines themselves may also be deployed on ASW tasks.

Anti-Surface Warfare

Action against enemy surface forces may seek to achieve either sea control or sea denial. Intelligence is an invaluable input and a precursor to search and identification by shore-based aircraft, ship-borne helicopters, or shipboard sensors. Once an enemy force is detected and identified, ordnance can be launched on it based on targeting data from own sensors or those from a consort, using Over The Horizon Targeting (OTHT). Submarines can choose between Anti-Ship Missiles (AShM) and Torpedoes. Maritime Patrol Aircraft, ASV helicopters, Carrier-borne strike aircraft and IAF shore-based maritime strike aircraft all have AShM capability, in addition to our Fleet forces and Surface Action Groups (SAG).

Anti-Air Warfare

Anti-Air Warfare (AAW) operations are aimed against enemy aircraft and airborne weapons, launched by air and surface platforms. AAW operations comprise Air Defence (AD) and Anti-Missile Defence (AMD) measures. The concept of layered defence includes using radar and electronic surveillance, carrier or shore-based interceptor aircraft, various ship-borne Long Range (LR) and Medium Range (MR) Surface-to-Air Missile (SAM) systems, short-range Point Defence Missile Systems (PDMS), terminal stage Close-in Weapon Systems (CIWS) and Guns, and Electronic Counter Measures (ECM) such as jammers and chaff. These multiple layers are necessary to gain early warning, counter enemy targeting effort, destroy attacking aircraft and weapon platforms prior to weapon release, and finally to destroy or decoy the missiles before these can reach our units.



Information Warfare

Information Warfare (IW) is defined as actions aimed at achieving information superiority by denying, exploiting, corrupting, or destroying the enemy's information and information networks, while protecting one's information and information networks against enemy attack. IW integrates the use of Operational Security (OPSEC), Psychological Operations (PSYOPS),

Electronic Warfare (EW), deception, and physical destruction to deny information to an adversary's command and control facilities, and also to protect one's command and control facilities against similar actions by the enemy.

Media

Suitable integration of media with regard to naval/military operations forms an important component of Information Warfare. During an operation, media influences public opinion at home, in the adversary country and in the international community. It thereby impacts significantly on the course of the operation in many ways. A supportive public opinion at home reflected in the media is particularly critical for morale of the forces. Good media reportage also seeks to disseminate factual information to counter deception and PSYOPS of the adversary. Lately, the advances in communications technology have further enhanced the role of media in armed conflict. Images of the conflict are now available in homes through mass-communication networks, some of these virtually in real-time. While the operational commander would need to provide a clear, confident and credible message to the media – and even the broad contours of operational objectives – the imperatives of security would need to be balanced with the benefits of factual reporting.

Electronic Warfare

Electronic Warfare (EW) is the military action to exploit the electromagnetic spectrum, so as to ensure effective use by one's own forces, gain information on the enemy, and prevent or degrade hostile use of the spectrum. EW comprises Electronic Support Measures (ESM), Electronic Counter Measures (ECM), Electronic Counter Counter Measures (ECCM), and Electronic Intelligence (ELINT), which has further components of Communication Intelligence (COMINT) and Signal Intelligence (SIGINT).

Protection of Offshore Assets

Protection of our offshore assets from seaborne attack is a mission of the IN, which would require deployment of naval ships and attaining local sea control. The air defence of the off-shore assets is the responsibility of the Indian Air Force (IAF). However, naval ships deployed for protection would assist in the same, especially for providing radar cover and fighter direction.



Naval Cooperation and Guidance to Shipping

As an adjunct to SLOC protection, the Naval Cooperation and Guidance to Shipping Organisation (NCAGS) advises the Indian Shipping companies on the choice of safe routes across the seas and or entry/exit from harbours, in times of hostilities. This also requires monitoring and regulation of all merchant ships in our waters and ports, and routeing and control of all Indian merchant ships in our areas of maritime interest.

Mine Warfare

Mines are a cost-effective means of exercising sea denial by restricting movement of enemy shipping and naval forces, and thereby dislocating war efforts. Mines may be employed in defensive role off own harbours, or in offensive role in areas of likely enemy operation. Besides mine laying, mine warfare also includes mine clearance. In order to overcome the challenge of mines, it is essential to develop credible Mine Counter Measures (MCM) capability and integrate them into naval operations. This has been encapsulated in the *IN* Doctrine on Mine Counter Measures. MCM operations include a synergistic use of intelligence, strategic mapping, surveillance at the operational and tactical level, reconnaissance, self-protection of non-MCM forces, and dedicated MCM forces. Mine clearance by dedicated MCM vessels would need to be carried out before the outbreak of hostilities and during war to ensure unrestricted movement of shipping. Mines laid would also need to be cleared on completion of hostilities.

Harbour Defence

Harbour defence is an important task for ensuring security of one's base and assets against enemy subversive and clandestine attacks.

Other Tasks

In addition, *IN*'s military tasks include the following (examined in Chapter 6): -

- VBSS Operations.
- Amphibious Operations.

THE DIPLOMATIC ROLE

Naval diplomacy entails the use of naval forces in support of foreign policy objectives to build 'bridges of friendship' and strengthen international cooperation on the one hand, and to signal capability and intent to deter potential adversaries on the other. The larger purpose of the navy's diplomatic role is to favourably shape the maritime environment in the furtherance of national interests, in consonance with the foreign policy and national security



objectives. Navies inherently lean towards performing a diplomatic role on account of two main characteristics. The first is their status as comprehensive instruments of a country's sovereign power, whereupon their very presence in or off a certain area signals the nation's political intent and commitment to pursue national interests in that region. Hence, their presence or absence can be calibrated to send a political message to potential friends and foes alike.

The second characteristic facilitating the navy's diplomatic role lies in the attributes of maritime forces, including access, mobility, sustenance, reach, flexibility and versatility. These combine to offer a variety of tools for furthering national interests and pursuing foreign policy goals. Naval forces can be readily deployed; they can perform multiple roles and tasks that can be calibrated in visibility and intensity as per the requirements; and they can just as easily and rapidly be withdrawn, to send a counter-signal.

Objectives in the Diplomatic Role

Strengthen Political Relations and Goodwill

The navy can be used as an important means of strengthening political relations and goodwill amongst nations. It has been said that a man-of-war is amongst the best ambassadors of a country. An invitation for a warship to visit another country is an act of friendship and respect, because a warship is a sovereign instrument of the state. Its movements and posture portray the nation's interests, intent and technological capability. Its crew is also a microcosm of the nation's population and mirrors their common culture, values and characteristics. Hence, when ships of the *IN* visit other nations' ports, they project the nation and its people to the host military, government and civilian personnel. The visit also affords additional opportunities for interactions at several levels, providing a platform for exchange of views and perspectives, and to develop upon existing relations. Hosting another nation's warships at our ports allows similar interactions and political signals of goodwill to be sent.

Strengthen Defence Relations with Friendly States

Diplomacy entails the strengthening of political relations between states and people, in which defence plays an important role. Defence diplomacy and defence cooperation are based on the fact that maintenance of security and defence is a vital national interest for every nation-state. Hence, improvement of defence relations contributes substantially to the overall political relations between states. In this, the navy can play a central role and develop to advantage its



inherent attributes of flexibility and versatility. Naval cooperation is inherently multi-layered, multi-directional and non-threatening, allowing engagement of several nations simultaneously without raising undue concerns. It also allows the level of

engagement to be calibrated as required, and developed in a smooth, progressive manner. It is especially important for countries that are not land neighbours, but still remain maritime neighbours, due to the 'great common' linking nations together.

Portray Credible Defence Posture and Capability

The success of strategic deterrence and projection of a strong national image, both, require a robust, credible defence posture and capability. Much of this is attained by peace time diplomacy, in the image portrayed by the armed forces to domestic and international audiences. This is a key objective in the navy's diplomatic role, and is pursued through the manner and area of operations employed by the navy in peace time, through its interactions with international navies.

Strengthen Maritime Security in IOR

Maritime security entails freedom from threats at or from the sea, which actively supports our national interests. The navy contributes to strengthening of maritime security in the IOR in its diplomatic role, by projecting its capability, posture and national intent. The navy can rapidly move up the escalatory ladder on the threat or use of force, and its presence and posture sends a signal to potential sources of instability and insecurity. It can thereby deter various actors from undertaking actions that would jeopardise our maritime security. This is supported by the process of building defence relations with maritime neighbours who share our desire for maritime security in the IOR, and projection of a credible defence capability.

Promote Regional and Global Security

India has been an ardent supporter of efforts towards promoting regional and global stability, including by deputing its armed forces for UN Peace Support Operations (PSO). This remains an important objective for the IN in its diplomatic role.

INDIAN MARITIME DOCTRINE

Objectives	Missions	Tasks
<ul style="list-style-type: none"> • Strengthen Political Relations and Goodwill • Strengthen Defence Relations with Friendly States • Portray Credible Defence Posture and Capability • Influence Affairs on Land • Strengthen Maritime Security in IOR • Promote Regional and Global Stability 	<ul style="list-style-type: none"> ✓ Constructive Maritime Engagement ✓ Maritime Assistance and Support ✓ Presence ✓ Peace Support Ops 	<ul style="list-style-type: none"> # Overseas Deployment # Flag Showing/ Port Visits # Hosting Foreign Warship Visits # Technical and Logistics Support # Foreign Training # Coordinated Patrols # Bilateral/ Multilateral Exercises # Non-combatant Evacuation Ops (NEO) # Peace Enforcement, Peace Making, Peace Keeping, and Peace Building # Activities Under the IONS Programme

Table 7.2 - Objectives, Missions and Tasks in Diplomatic Role

Missions in the Diplomatic Role

Constructive Maritime Engagement

The Indian Navy engages other navies from friendly and potentially friendly states in constructive manner, to “build bridges of friendship” across the seas. This is done by reciprocal visits, combined exercises, training programmes, and various other interactions and technical programmes, so as to foster mutual understanding, professional interface and interoperability. It also projects our defence capability, diplomatic posture and desire for friendship. Constructive engagement with regional and extra-regional navies provides operational and doctrinal benefits. It facilitates sharing of transformational experiences, examination of ‘best-practices’, generation of interoperability, and enhancement of MDA through information-sharing mechanisms. The *IN* accordingly has regular interactions, exercises and training with a vast range of navies, large and small, technologically advanced or moving in that direction, from the IOR and across the world. In February 2008, the *IN* initiated

the Indian Ocean Naval Symposium (IONS) to provide a platform and programmes for bringing together navies of the IOR, to build friendship, cooperation and mutual understanding.



Maritime Assistance and Support

Missions in the diplomatic role also entail provision of maritime assistance and support to friendly states. This may be in the form of evacuation operations, delivering of material aid, maritime patrols for augmenting stability and security, maritime intervention operations, etc. During Operation *Sukoon* in July 2006, the *IN* carried out evacuation operations not only for Indians but also many nationals of Sri Lanka, Nepal, Lebanon and Greece, from war-ravaged Lebanon.²¹ In December 2004, the *IN* provided humanitarian relief and aid to Sri Lanka, Maldives and Indonesia, even as it provided the same to our own people, all struck by the Asian Tsunami. Other examples of assistance provided by *IN* include the escort mission undertaken for US high-value ships transiting the Malacca Strait in 2002²² and seaward security provided to the African Union Summit in Maputo, Mozambique the following year.²³ A prime example of India's commitment to supporting its neighbours was Operation *Cactus* in 1988, wherein Indian air, naval and army forces acted swiftly and jointly to counter the attempted coup by a group of mercenaries against the democratically elected Government of Maldives.





Presence

Presence is a central mission in all naval roles. In the diplomatic role, it is aimed at conveying the interest and political will to enhance maritime security in the IOR, highlighting military resolve through display of credible defence posture and capability, and enabling *IN*'s response to regional crisis. It entails ships and aircraft of the *IN* proceeding to areas of maritime interest, showing their presence to all actors and stakeholders in the region, whilst keeping the area, movements and events therein under surveillance, towards discerning events that could impinge on maritime security.

Peace Support Operations

India's contribution to regional and global security under UN auspices is underlined by the fact that India is one of the original 50 founder members of the UN and has participated in 43 of the 63 UN peace keeping operations to date, contributing more than 90,000 personnel, of whom about 125 laid down their lives in the line of duty.²⁴ Indian contribution has been led by the Indian Army, with support from the IAF and also from the *IN*, as seen in Operation *Restore Hope*, in Somalia in 1993-94. Peace Support Operations (PSO) comprise the following types of operations: -

- **Peace Enforcement Operations.** These are coercive in nature, and normally undertaken under Chapter VII (threat to international peace and security) of the UN Charter, when the consent of any of the major parties to the conflict is uncertain. India's participation in UN operations in Somalia in 1993-94 (UNOSOM II) is an example of peace enforcement operations.
- **Peace Keeping Operations.** These are operations undertaken under with the consent of all the major parties in a conflict under Chapter VI of the UN Charter, to monitor and facilitate the implementation of peace agreement. Not all peace keeping forces, however, are controlled by the UN. The Indian Peace Keeping Force (IPKF) in Sri Lanka from 1987-90 was deployed as per an agreement between the two states.
- **Peace Making Operations.** Peace making covers the activities conducted after commencement of a conflict, to secure a ceasefire or prompt a rapid peaceful settlement. Military support may be required to add weight to the diplomatic process.

- **Peace Building Operations.** Peace building covers actions that support political, economic, social and military measures and structures, aimed to strengthen and solidify political settlements in order to address the causes of conflict.

Tasks in the Diplomatic Role

Overseas Deployment

Overseas deployment refers to a task wherein *IN* forces are deployed far from our shores, to areas of operational or political interest. They operate in these areas independently or in conjunction with friendly navies, so as to gather operational and environmental knowledge, build defence and political relations, develop interoperability, project our reach and capability; and portray national interest, intent and industry. To further its mission of presence, the *IN* undertakes regular overseas deployments across the areas of maritime interest.

Showing the Flag

The *IN* undertakes a variety of tasks in its diplomatic role, which are summarised in Table 7.2. The most well known amongst these is ‘Showing the Flag’ in foreign ports. This helps to foster good relations, besides demonstrating India’s interests and involvement in the region, and showcasing India’s industrial might, shipbuilding capability and reach. The warship, with a relatively young crew, hailing from all parts of India, symbolises a mini-India and succinctly epitomises all that modern India stands for – a vibrant, multi-ethnic, multi-religious, secular democracy, firmly on the track to economic and technological development.

Hosting Foreign Naval Ship Visits

Inviting foreign navies to Indian ports is a corollary to flag showing by own ships and leaves an indelible imprint on the visiting units, of both our economic growth and military prowess. A prime example of this was the International Fleet Review 2001 hosted by the *IN*, in which ships and delegates from 30 friendly foreign countries participated.

Technical Military Support

Technical, logistics and military support constitute diplomatic initiatives to build capacity and enhance military capability of friendly maritime states. Such support would enable them to better manage their own security related problems, which in turn enhances the overall security and stability in the region. Some of these initiatives include transfer of warships and aircraft to friendly countries, refit



support, supply of military hardware and spares, maritime surveillance support, naval training, etc. Provision of professional training also facilitates a shared way of thinking and helps to build interoperability by engendering common procedures and tactics.

Bilateral and Multilateral Exercises

In keeping with the vision of building bridges of friendship and enhancing interoperability, ships of the *IN* regularly exercise with ships of friendly navies. The scope and content of these exercises is continually increasing to keep up with the demands of maritime security. With the passage of time, some of these exercises have graduated to multilateral levels. In addition, *IN* ships visiting foreign countries during overseas deployments carry out Passage Exercises (PASSEX) with naval ships of the host countries.

Out of Area Contingency Operations

Indian armed forces may be called upon to provide assistance and support to friendly governments. These form a part of the maritime assistance and support provided to friendly countries as per their request. The support to Maldives in Operation *Cactus* 1988 is an example of Out of Area Contingency (OOAC) Operations.

Non-combatant Evacuation Operations

There are increasing numbers of Indian citizens who work and reside in various parts of the world. They are important contributors to the progress of their countries of residence as well as to India. In view of insecurity and instability in some parts of the world, Indian citizens there may require to be evacuated under arrangements and control of the Government of India, which could be done by civil or military means, by land, air or sea. The *IN* may be tasked with undertaking such Non-combatant Evacuation Operations (NEO) as part of its diplomatic role. NEO of 2,280 Indian citizens and personnel from friendly countries was undertaken by the *IN* during Operation *Sukoon* in July 2006 from war-ravaged Lebanon.

CONSTABULARY ROLE

The increasing incidence of maritime crime has brought into sharp focus the constabulary role that navies have to perform. The significance of this role may be gauged from the fact that for a third of the world's navies, this is a major facet of their functions. In the constabulary role, forces are employed to enforce law of the land or to implement a regime established by an international mandate. Force is only employed for self-defence or as a last resort in execution of this role. The protection and promotion of India's maritime security is one of the prime responsibilities of the *IN*. This includes a constabulary element, especially where it relates to threats that involve use of force at sea. The range of tasks that the *IN* has to undertake in the constabulary role ranges from LIMO to maintaining good order at sea. This further includes aspects of coastal and offshore security, as part of India's overall maritime security.

Constabulary tasks at sea are neither the primary nor the sole mandate of the *IN*. With the establishment of the ICG in February 1977, law enforcement aspects of the constabulary role within the Maritime Zones of India (MZI) have been transferred to the ICG.²⁵ Security in major harbours and ports are the purview of the port authorities, aided by customs and immigration agencies. Constabulary tasks beyond the MZI are vested with the Indian Navy. Efficient and effective maritime constabulary requires proper and seamless coordination between the various maritime law enforcement and regulatory agencies.

After the terrorist attacks on Mumbai on 26 November 2008, the responsibility for overall maritime security has been mandated to the *IN*, in close coordination with the ICG, State Marine Police and other Central/State government and port authorities. Table 7.3 below indicates the Objectives, Missions and Tasks in the constabulary role.

Objectives	Missions	Tasks
<ul style="list-style-type: none"> • Coastal and Offshore Security • Security of EEZ • Good Order at Sea 	<ul style="list-style-type: none"> ✓ Counter Terrorism ✓ Counter Threats from Non-State Actors 	<ul style="list-style-type: none"> # Counter Infiltration # Patrol # Anti-Piracy # Anti-Poaching # Anti-Trafficking

Table 7.3: Objectives, Missions and Tasks in Constabulary Role

Objectives in the Constabulary Role

Coastal and Offshore Security

The vulnerability to infiltration of terrorists by the sea route has been harshly emphasised. The scourge of terrorism has expanded, wherein international maritime shipping and fishing are vulnerable to use by terrorist organisations to operate and sustain themselves. Drug cartels, trans-national crime syndicates, and terrorist organisations have been known to hijack ships and use them for supporting their activities. This could conceivably expand to use of such vessels to carry material for mounting terrorist attacks on port cities and infrastructure, offshore oil installations, and other



VAs and VPs. Many initiatives have been instituted to counter this threat. Domain awareness has also been enhanced by initiatives like the AIS and LRIT. The *IN* is committed to protecting India's sovereign interests and security from all forms of maritime terrorism, be it on the high seas or up to the coastline, in synergy with the various law enforcement agencies afloat and ashore.

Security of EEZ

The protection of economic resources of our EEZ from poaching and unauthorised exploitation is primarily the mandate of the ICG. The defence of our offshore installations from seaborne attack is undertaken by the *IN* in conjunction with the ICG, while the air defence of the same is undertaken by the IAF.

Good Order at Sea

Maintaining good order at sea is a necessary component of ensuring peace, stability and economic development on land. Good order at sea is presently threatened by increasing incidents of crime.

Missions in the Constabulary Role

Counter Terrorism

The challenge of maritime terrorism and its various manifestations has been growing, as described earlier. India's maritime forces are deployed on specific counter terrorism missions, both independently and as cooperative endeavours with friendly foreign naval and coast guard forces.

Countering Threats from Non-State Actors

The primary mission in the constabulary role is that of countering threats from non-state actors. Within this mission, maritime forces are tasked for anti-poaching, anti-piracy, and drug interdiction operations. This would also involve apprehension of illegal immigrants, terrorists and their cargo. While this mission is predominantly an ICG function, the *IN* would augment the efforts as required.

Tasks in the Constabulary Role

Counter Infiltration Operations

The long, porous coastline of India has been used by smugglers and terrorists to land material and personnel inimical to national security. The RDX explosive material used in terrorist blasts in Mumbai in March 1993 was landed on our coasts by sea. Again, the sea route was used to infiltrate terrorists into Mumbai for the '26/11' terrorist attacks. Counter infiltration operations at sea include patrolling and checking vessels for identity and cargo. This is done jointly by the *IN* and ICG.

Anti-Piracy Operations

Modern day piracy threatens the security of some of the most important ISLs. It impinges on the free and orderly passage of maritime commerce that underpins the current economic order, raises insurance rates, increases local tensions, and puts lives at risk. The Indian subcontinent straddles the major trade routes of the world and lies close to the major piracy hot spots of the world. The *IN* has been involved in several anti-piracy operations. The most notable was in the Gulf of Aden in end-2008, wherein India took the lead to combat the spiralling piracy and consequent threat to security of seaborne trade, Indian merchant ships and citizens. In 1999, *MV Alondra Rainbow*, a Japanese merchantman seized by pirates, was captured in a joint *IN*-ICG operation off the West coast of India. Concerted and cooperative efforts are required to counter the scourge of piracy and render the maritime trade routes safe. India has accordingly signed various MoU for cooperation with littorals of the IOR. India has also ratified the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against ships in Asia (ReCAAP) in June 2006.²⁶

Anti-Poaching Operations

Anti-poaching operations entail prevention of unauthorised exploitation of our economic resources within the MZI. This is primarily an ICG function, wherein the *IN* is committed to assisting it in the supervision of national fishing grounds and protecting them against foreign intruders.

Anti-Trafficking Operations

Drug trade, transnational terrorism and gun running work hand in hand, with much of the finances to terrorist organisations being funded through illicit drug money. Many of the drug deals and transshipment take place in the waters of the IOR. The *IN* may be tasked for such operations, along with the ICG, other navies and law enforcement agencies to combat the drug trade. The issue of illegal immigration is also increasingly relevant, especially in the littorals of the IOR, where human beings are smuggled across the seas, often in dangerous and unhygienic conditions. Illegal immigration and its more virulent form of human trafficking have serious implications to good order not only at sea but also on land. The *IN* may be additionally tasked to contain the rampant spread of illegal immigration and human trafficking.

BENIGN ROLE

The 'benign' role is so named because violence has no part to play in its execution, nor is the potential to apply force a necessary prerequisite for undertaking these operations. Examples of benign tasks include humanitarian aid, disaster relief, SAR, ordnance disposal, diving assistance, salvage operations, hydrographic surveys, etc.

Maritime forces, because of their quick mobilisation, are especially useful in the early stages of a crisis for providing relief material, first aid and succour in coastal areas. Much of the capacity to perform these functions is derived from the mobility, reach and endurance inherent in naval task forces, coupled with their sealift capability. For example, in the immediate aftermath of a natural disaster, one of the biggest challenges is the disbursement of food, water and relief material. It is under such conditions that military mobility, coupled with reliable communications are most effective in ensuring distribution to even the most remote afflicted areas. While specialised civilian agencies may take over at a later stage, maritime forces can provide the first helping hand and may be deployed to complement their efforts. The ICG is the designated national agency for Maritime SAR (M-SAR). Naval units may also be called upon to undertake SAR operations, as required.

Objectives	Missions	Tasks
<ul style="list-style-type: none"> • Promote Civil Safety and Security • Project National soft Power 	<ul style="list-style-type: none"> √ HADR √ Aid to Civil Authorities √ Hydrography √ SAR 	<ul style="list-style-type: none"> # Provision of Relief Material and Supplies Infiltration # Medical Assistance # Diving Assistance # Hydrographic Assistance, etc

Table 7.4: Objectives, Missions and Tasks in Benign Role

Objectives in the Benign Role

Support Civil Safety and Security

People living along India's long coastline and on its numerous island territories, as also our large seafaring community, including both fishing and shipping, frequently face challenges to their safety and security due to environmental changes and natural disasters. The maritime forces undertake a variety of benign operations across the maritime domain, so as to provide support to civil safety and security.

Project National Soft Power

In India's maritime neighbourhood, there are similar challenges to civil safety and security. India has often provided support to regional states facing civil environmental challenges. The *IN* has been the preferred instrument of the state for delivering relief material and services via sea to help India's maritime neighbours in their hour of need. This has also helped project national soft power, towards improving relations and the regional maritime environment.

Missions in the Benign Role

Humanitarian Assistance and Disaster Relief

Humanitarian Assistance and Disaster Relief (HADR) is most required in the

immediate aftermath of natural disasters and devastation. The essence of disaster management is to improve preparedness so as to provide the right item at the right place and at the right time. INBR 1920(A) on Disaster Management lays down procedures in handling various types of disasters. With its reach and sealift capability, the *IN* is adequately poised to render timely assistance. This was amply demonstrated in the aftermath of the

Asian Tsunami of December 2004, when 27 *IN* ships were sailed within the first 12 hours for disaster relief. This was built up to a force of 36 ships, large numbers of aircraft and about 5,000 naval personnel, over the next few days, who were deployed for HADR not only on India's East coast and island



territories, but also to Sri Lanka, Maldives and Indonesia. Humanitarian assistance has been rendered by the *IN* on many other occasions. The more recent ones include medical augmentation of US Navy Hospital Ship *Mercy* during her humanitarian mission to East Asia, and medical-engineering support to the USS *Peleliu* 'Pacific Partnership' mission in 2007.

Aid to Civil Authorities

In addition to HADR assistance during floods, cyclones and other adversities, naval forces provide many other diverse forms of assistance to civil authorities whenever called upon to do so. These include maintenance of law and order, manning of essential services, diving assistance, etc.

Hydrography

The Chief Hydrographer to the Government of India is the NAVAREA VIII Coordinator and provides hydrographic services including NAVAREA warnings. This is an important peacetime naval mission, for which naval resources are constantly deployed. Naval survey ships also provide assistance to friendly foreign countries in preparing nautical charts.

Search and Rescue

All vessels on the high seas are required under international law to assist in M-SAR. The three Maritime Rescue Coordination Centres (MRCC) located at Mumbai, Chennai and Port Blair operate under the ICG, which is the National Maritime Search and Rescue Coordinating Authority for SAR operations in the Indian Search and Rescue Region (ISRR). The *IN* works in close coordination with the ICG and augments efforts as required. In addition, naval assets can also be utilised for SAR tasks in the hinterland, especially water bodies.

Benign Tasks

Missions like hydrography and SAR mentioned above are also the tasks of the *IN*. Other tasks are comprised within the larger mission ambit of HADR/aid to civil authorities. Given the inherently versatile attribute of naval power, the *IN* could provide various forms of assistance to local and foreign governments during natural or man-made crisis situations. These include the following: -

- Administration
- Logistics
- Medical Relief
- Sea Transportation
- Distribution and Management of Relief Material
- Diving Assistance
- Hydrographic Assistance

Chapter 8

NAVAL COMBAT POWER

Preamble

Naval forces are quintessentially military in their character. It is this military character that enables them to perform myriad roles spanning the entire spectrum of conflict. For this, it is essential that the *IN* maintains the desired level of 'combat power' and state of readiness at all times. Combat power is a measure of a navy's ability to perform the roles for which it was constituted. It is a synergistic blend of both tangible and intangible factors. If ships, aircraft and submarines are the hardware by which a navy performs its roles, the personnel behind the machines provide the energy that drives this hardware, while sound doctrines, operating philosophies and practices provide the structure that develops this potential. Combat power can thus be considered as an amalgam of three interrelated components, namely – physical, conceptual and human.²⁷



Diagram 8.1: Components of Combat Power

Conceptual Component

The conceptual component provides the intellectual underpinnings for the employment of a nation's maritime assets. Doctrines and concepts form the bedrock for deployment of forces and constitute the heart of the conceptual component.

Doctrine is the foundation upon which navies operate in times of peace and war. It articulates the operational philosophies and common perspective governing employment of naval forces at all levels. Doctrine underpins the development of viable strategies against prevailing and perceived threats. It provides force coherence through uniformity of thought and standard operating procedures.

Concepts relate to ideas on development and employment of maritime power. They provide the basis for building firm principles and procedures, after due vetting, testing and distilling has been carried out. Hence, concepts provide the foundation for development of doctrines. At the same time, the development of concepts is also influenced by the existing doctrines, which provide a reference for concept development. Doctrine and concepts, are thus, intertwined and drive each other. The concept development process reaches maturity when a concept has been validated and accepted by warfighting units for incorporation into doctrine.

Continual evolution of doctrine and concepts is not only desirable but also becomes essential in this era of strategic and operational fluidity and uncertainty. It deserves the utmost attention and intellectual effort, if combat power is to retain its cutting edge. 'Out of the box' concepts and ideas bring an element of uniqueness into operations and must be encouraged during the doctrine development process, for the innovative application of combat power.

Physical Component

The physical component is the most visible element of combat power; viz, ships, submarines, aircraft and other specialised equipment. They form the hardware that ultimately delivers combat power and through its physical form projects a country's military might, technological prowess, combat readiness and national resolve.

Carrier Task Force

Sea control is the central concept around which the *IN* is structured, and aircraft carriers are decidedly the most substantial contributors to it. This is because they possess ordnance delivery capability of a very high order, often greater than the balance fleet units in the Task Force. This is by means of their substantial integral air power, which provides integral, ubiquitous and enhanced combat power, with extended reach and rapid response capability. An aircraft carrier is the central platform for protecting and projecting naval power at and from the sea. Aircraft carriers usually operate with a composite task force, including multi-purpose destroyers, frigates and logistics ships. The Carrier Task Force (CTF) is a self contained and composite balanced force, capable of undertaking the entire range of operational tasks, including presence, surveillance, maritime strike, ASW, ASuW, AAW, IW, *et al*, and is critical to the success of amphibious/seaborne expeditionary operations.

*Destroyers and Frigates*

The traditional dividing line between destroyers and frigates lay in their role and

size. Destroyers were medium-sized ships capable of multi-dimensional engagement, and tasked to engage and destroy enemy forces. Frigates were next in size, with a single purpose, such as ASW or AAW, and tasked as escorts for force protection. However, this distinction has gradually blurred with both categories capable of multi-dimensional engagement and being interchangeably used for a wide array of tasks. The designation of destroyers and frigates, in fact, varies across different navies. In the *IN*, multi-purpose warships of 3,000 to 6,000 tons displacement are generally classified as Frigates, while those between 6,000 and 10,000 tons are termed as Destroyers.

Corvettes

Unlike frigates and destroyers which are multi-purpose vessels, corvettes are smaller ships that are designed for specific roles, which could be anti-surface, anti-air or anti-submarine. These ships are fitted with a wide array of weapons and sensors to undertake both offensive and defensive operations in their designed roles. Their size normally varies between 500 and 3,500 tons displacement.

Patrol Vessels

Patrol vessels are designed for constabulary tasks against low intensity threats, such as anti-piracy, anti-poaching, counter-infiltration, etc., which are undertaken mostly in the MZI, near offshore assets, and also international choke-points. Though these vessels have lesser combat power, they have high endurance and good surveillance capabilities. They are normally in the 500 – 3,500 tons class.

Fast Attack Craft

Fast Attack Craft (FAC) are small and fast vessels usually displacing between 200 and 500 tons, and armed with guns or surface-to-surface missiles (SSM). While FAC(G) denotes the gun- armed craft, the SSM-armed craft are termed FAC(M) or Missile Boats. With a relatively lesser draught, these craft are optimised for coastal and offshore defence or Local Naval Defence (LND). FAC(G) are also suitable for constabulary tasks closer to the coast or other shallow areas where the larger patrol vessels are constrained by their draught.

Submarines

Submarines are an essential component of a sea denial strategy. They effectively exploit their stealth characteristics and the opaque underwater environment to interdict enemy surface operations using anti-ship torpedoes and missiles. They can

also be used for ISR, laying mines, SF insertion and conduct of direct land attack, if fitted with land attack missiles.



Mine Warfare Vessels

These primarily refer to Mine Counter Measures (MCM) ships, required to clear sea-mines. These may be further subdivided into mine-sweepers or mine-hunters depending on the method used to clear mines. While the typical displacement of coastal MCM vessels lies between 500 and 800 tons, the ones designed for inshore tasks usually displace less than 100 tons. Furthermore, although many types of surface, air and underwater platforms are suitable for laying mines, dedicated mine-layers would also fall in the category of mine warfare vessels.

Amphibious Forces

Amphibious operations integrate virtually all types of ships, aircraft, and submarines in a concerted joint military operation. Of these, landing craft are the primary means of putting military troops ashore.

- **Landing Platform Dock (LPD).** These are large ships of about 15,000 - 20,000 tons displacement with substantial sealift capacity, which carry the landing force and launch it from a stand-off distance, including OTH, from the coast using integral landing craft and troop lift helicopters. These ships also possess advanced C⁴ facilities enabling them to perform command functions. Given their high degree of versatility, these platforms can also be effectively employed for HADR missions.

INDIAN MARITIME DOCTRINE

- **Landing Ship Tank (LST)/ Landing Craft Utility (LCU).** The *IN* operates three types of landing craft – the LST (Large), LST (Medium), and the LCU. These ships can beach and discharge tanks, artillery, personnel, vehicles and stores in support of land operations.

Auxiliaries

Auxiliaries include Logistics Support Ships, Training Ships (including sail training ships), Survey Ships, Diving Support Vessels (DSV), Research Ships, Ocean Going Tugs (OGT), Ships-Taken-Up-From-Trade (STUFT) and Torpedo Recovery Vessels (TRV). Each of these has specific functions that develop and support naval capability. The reach of the navy is enhanced by the availability and capacity of Fleet Logistics Support Ships that provide fuel, rations, water and stores to the fleet through Underway Replenishment (UNREP) at sea. STUFT may be used to augment fleet auxiliaries in replenishment of ships at sea. They can also be used in amphibious operations to transport personnel and equipment.



Integral Air Assets

The integral air element comprises carrier borne fixed and rotary wing aircraft and ship-borne helicopters. Integral air power at sea extends the combat reach and rapid response capability of the force. They are used for surveillance, ASW, ASuW, AEW and AD tasks, and are a vital force multiplier, essential to warfighting and any operational task necessitating force protection, either at or from the sea. A naval force



with a higher component of integral air power has considerable advantage over the adversary at sea. In the absence of sufficient integral air power, particularly carrier-borne AD interceptors, a naval force would be severely constrained and largely vulnerable in undertaking operations within hostile aerial maritime strike range.

Maritime Reconnaissance/ Patrol Aircraft

Maritime reconnaissance aircraft are invaluable assets for keeping large areas under surveillance and enabling development of MDA. In their Long Range Maritime Patrol (LRMP) role, these platforms deploy a wide range of sensors and weapons to conduct ASW and ASuW operations at extended ranges from own shores. These aircraft are also capable of enabling cooperative engagement by guiding maritime strikes at sea by other aircraft, ships and submarines.

Unmanned Aerial Vehicles

Modern Unmanned Aerial Vehicles (UAVs) can carry Electro-Optical (EO), Infra-Red (IR), Electronic Intelligence (ELINT) and Synthetic Aperture Radar (SAR) sensors. They can also be fitted with Maritime Patrol Radar (MPR) and laser designation equipment. Accordingly, UAVs are being increasingly used for ISTAR tasks, and are integrated into the MDA network to provide seamless collection, collation and dissemination of domain and target information. UAVs with combat payload may also have applications in the maritime domain.

Indian Coast Guard

The ICG was created with the objective of having a specialised marine armed force to ensure security of the maritime zones of India. The primary responsibilities of the ICG include protection of the offshore wealth of the country including oil, fish and minerals, M-SAR, safeguarding life and property at sea, enforcing maritime laws against poaching, smuggling and narcotics, preservation of the marine environment and ecology including pollution control, protection of endangered marine life and assistance to the scientific community for collection of scientific data. The *IN* and ICG maintain close operational coordination in peacetime. In times of conflict, ICG would function under the operational control of the *IN*, for national defence.

The Human Component

The Indian armed forces, apart from contributing to defence and security also provide a distinctive strand in the multi-hued fabric of our nation through high standards of integrity, professionalism and excellence. The core strength of the armed forces is the human resource – the officers, men and women, who exemplify the collective ethos, ‘Service Before Self’. The human component has three key aspects – leadership, training and team-work.

Leadership

In the Indian Navy leadership has been focused under the acronym ‘PRIDE’ – Professional Satisfaction, Reliable and Robust Teamwork, Intrinsic Pride and Ownership, Dedication to Nation and Devotion to Duty, Effective Training and Skill Development. PRIDE highlights the attributes deemed most important in the development and exercise of leadership in the *IN*. At each level of command, a leader strives to achieve his commander’s intent through coordinated employment of the human resource allocated in an effective and efficient manner. Leadership in the maritime environment is inherently different from that on land. The close proximity of officers and men in the highly confined working and living space onboard naval vessels places severe demands on the leadership. A leader in such an environment can neither be aloof, nor too proximate. All qualities – professionalism, personal abilities, sense of justice, physical and moral courage, stability in stressful



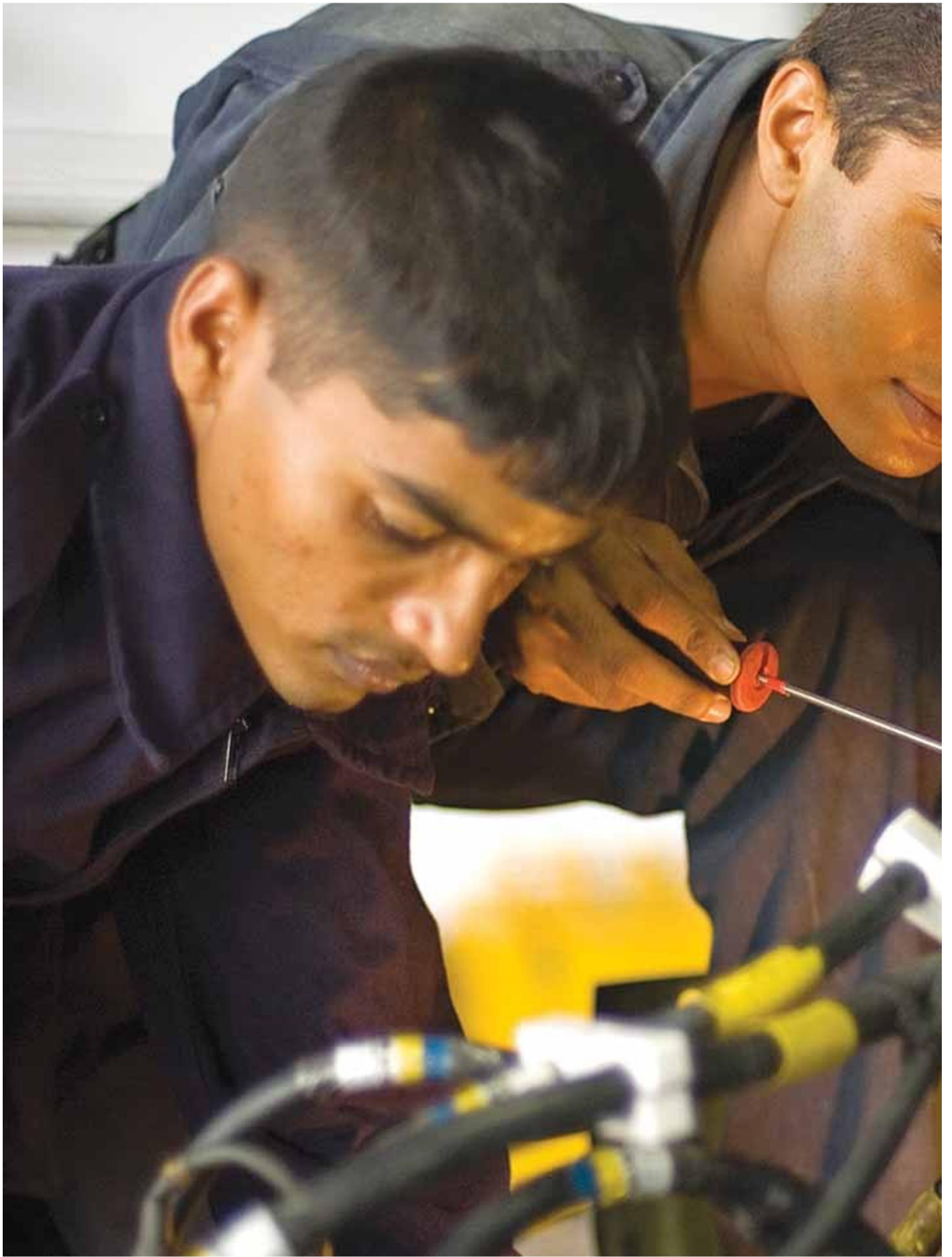
circumstances, etc. are placed under close scrutiny of the personnel he commands. He must strive to achieve acquiescence of the men he commands by personal example on these attributes. An impeccable sense of honesty in word and deed, and thorough professionalism are pre-requisites for effective implementation of leadership at sea.

Training

Training is the next human component, which demands that the personnel inducted into the complex network of warfighting must be taught and exercised appropriately to overcome the rigours that accompany the job profile. 'Train as you will fight for you will fight as you train' is the central theme of training in the Indian Navy. The human resource of the *IN* is sourced from a cross-section of the Indian populace, and from varying socio-economic backgrounds. The selection process of the *IN* ensures the selected personnel have the requisite physical, mental and intellectual potential. However, a substantial investment must be made to groom them. The revolutionised pace of development of advanced military technologies and concepts demand a higher degree of professionalism than ever before. While conventional class-room instructions are necessary to achieve this, complementing these with training and exercises at sea is indispensable. This imperative stems from the fact that the operational complexities, the effect of weather on operations, and the high stress levels in the maritime environs can only be appreciated through experience at sea. The *IN*, therefore, places very high emphasis on appointments and experience at sea, which is duly supported by focused training ashore.

Team-Work

The third, equally vital, component is team-work. This envisages that all arms and branches of the *IN*, and departments in a ship, are developed as one team, with a common and clear purpose and a common sense of identity and ownership. No naval operation or any other activity, however small, can be achieved successfully without coordinated teamwork. Successful conduct of naval operations, at any level, necessarily involves synergised efforts of various disciplines. This requires the personnel to understand and identify with the organisational goals and wilfully contribute their part in achievement of the task at hand. To achieve effective team work, leaders, at all levels, must maintain an open mind towards suggestions and encourage free thoughts and ideas. Each member of the team must feel proud and responsible. This can be achieved only by self discipline and giving due considerations to subordinates' views and aspirations and at the same time educating them to understand and identify with the organisational goals. Leaders must create conditions conducive for effective teambuilding within the organisations and nurture the teams to achieve the set goals.





Chapter 9

PLANNING MARITIME OPERATIONS

*“By failing to plan, you are planning to fail.
Every effective performance is based on thorough preparation.”*

- Chanakya in ‘Arthashastra’



Preamble

Military planning is the process by which commanders, through their staff, make informed decisions and formulate detailed plans for achieving the desired objectives. Military planning is based on a professional assessment of the aim, situation, relevant

factors, force levels and resources, obstacles and opposition, own vulnerabilities and enemy's likely courses of action (COA), whilst determining a viable plan for achievement of the selected aim. Planning is vital at every level of warfare – strategic, operational and tactical. Planning aids the military commander in catering for the complexities of the battle-space, including inherent fog, friction and possible contingencies, and in optimally using the resources to attain the desired objectives.

The plan for an operation should clearly focus on the end state to be achieved. It must harmonise all efforts and provide clear direction on how the objective is to be attained. It should anticipate and cater to possible hurdles that may be encountered. A sound plan should be simple but complete, and match the ends to the available means. Any mismatch must be reported up the chain of command, to either alter the mission or provide additional assets. An overambitious plan that does not factor ground realities may end in failure, regardless of the performance of forces at the operational or tactical levels.

Planning may be done for contingency and crisis situations. Contingency planning relates to a situation that is conceived and assessed as likely to occur. Planning is based on collating the best available information, to define the envisaged situation and resources as realistically and completely as possible. The planning process is then undertaken for that contingency and the desired end state therein. The resultant contingency plan is thereafter updated periodically. A crisis, as and when it occurs, may replicate part or whole of the envisaged contingency, for which a plan has been prepared. The contingency plan is, thereupon, adapted to a crisis plan for the actual situation, with the situational awareness being continuously updated. Crisis planning is time sensitive and may require simultaneous planning, within and across various levels. The success of crisis plans would, therefore, depend substantially on the accuracy and depth of related contingency plans.

It is, however, important to note the importance of inter-service synergy for conduct of joint operations. For effectiveness of joint operations, the concurrent need for detailed joint planning cannot be overemphasised. Notwithstanding the global trend of individual armed forces (representing a nation's land, maritime or air power) augmenting their capabilities for multi-dimensional operations, no service can be self contained to be able to address national objectives without support of the other services.

Operational Readiness Planning

RM's Op Directive

The RMs Op Directive issued to the armed forces provides an overview of the national threat assessment. It provides guidelines for defence preparedness and planning, including for the five year defence plan.

CNS Op Instructions

IHQ MoD (Navy) conducts an estimate based on the RMs Op Directive and any amplifying instructions from the COSC. Plans are developed at IHQ MoD(Navy) for maintaining the requisite operational readiness and for various contingencies. The CNS Op Instructions are thereupon issued to the Operational Commands. These provide guidelines for the military-strategic objectives and missions for the *IN*, as well as the force and readiness levels to be maintained by the respective Commands.

C-in-C Op Instructions

The Command Headquarters carry out further estimates based on the CNS Op Instructions for their respective maritime areas of responsibility, and develop their operational readiness plans. The C-in-C's Op Instructions are then provided to the subordinate Operational Commanders, specifying the maritime threats and force preparedness measures to be undertaken by each.

Operational Commander's Instructions

The Operational Commanders maintain force preparedness as per the C-in-C's Op Instructions, and provide amplifying Op Instructions to their subordinate forces for the same.

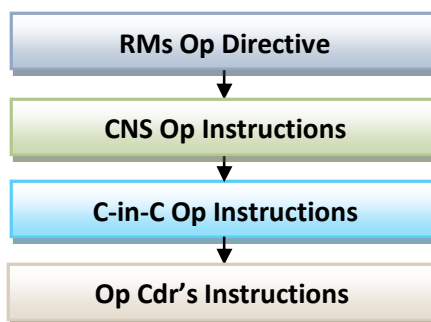


Diagram 9.1 - Op Readiness Planning Chain

Operational Response Planning

CCS Directions

In response to a prevailing or anticipated crisis at the national level, the CCS decides on the necessity for use of military force. The CCS thereupon authorises the COSC/respective Armed Forces Chiefs for use of force, and provides directions on the conditions, purpose, constraints and restraints for the use of such force.

CNS Op Directive

Based on the CCS directions and any further COSC Directive, an estimate of the situation is carried out at IHQ MoD (Navy). This identifies the military-strategic objectives and develops the maritime plan for accomplishing the same. The CNS Op Directive is, thereupon, issued to the Naval Commanders-in-Chief. This specifies the strategic mission, desired end state, constraints and restraints for the maritime campaign, allocation of additional force levels (if necessary), and provides intelligence and operational information. The CNS Op directive includes an element of sequencing, which may include a time schedule. It may also incorporate distinct phases, especially for joint operations, with each phase involving a varying force mix.

C-in-C Op Directive

The Command Headquarters carry out estimates based on the CNS Op Directive, and develop campaign/operations plans for their respective maritime theatres. The C-in-C's Op Directive is then provided to subordinate operational authorities, specifying the precise missions to be accomplished by each. The Operational Commanders, viz. Fleet/ Area/ Submarines Commanders, etc., in turn prepare their separate estimates for the respective missions, which are submitted to the C-in-C. The C-in-C's staff examines these estimates to ensure coordination, synergy and economy of effort in the theatre. This is necessary to avoid mutual interference and risk of fratricide between our forces, including submarines, shore-based aircraft, ships, integral aircraft, specialised craft, etc., operating in the same theatre.

Operational Commander's Orders

The Operational Commanders thereafter issue Op Orders to their participating forces, which also conduct their own estimates in relation to the missions/tasks allotted to them, and develop their own subordinate task group/task element plans for achieving the same.

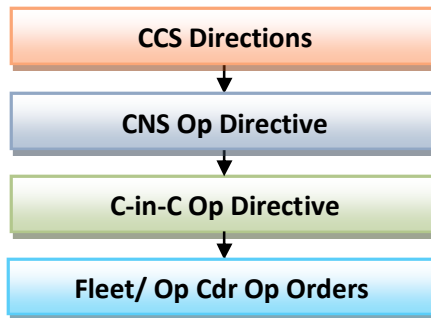


Diagram 9.2 - Op Response Planning Chain

Concepts of Military Operations

Art of War

The art of war is the skilful application of military knowledge and military power to obtain the desired results. This skill is drawn from an amalgamation of study, observation, experience and instinct. It encompasses application of military leadership, military art and military science, which are closely linked and intertwined. It depends, in large measure, on the personal acumen and ability of the military commander and his staff to effectively use military science to analyse the situation and manage resources, military art to envision situations and solutions beyond available scientific knowledge or processes, and military leadership to ensure efficient and effective conduct of the operations. It needs synergised team-work and harnessing of a high degree of imagination and intuition, based on sound professional knowledge, high situational awareness and deep subjective analysis. It necessarily takes into account all factors concerning the operation, including better understanding enabled by employing operational analysis and military sciences. It then takes these forward in methodical, objective and subjective manner, to determine ways in which the resources can be used for delivering the desired results in the face of likely hostile opposition and environment. It finally employs skilful leadership to ensure efficient implementation of the plan, including changes necessitated by unfolding events, and effective performance of assigned tasks towards attainment of the operational objectives. The art of war encompasses all levels of war - strategic, operational and tactical.

Operational Art

The art of conducting warfare at the operational level of war is termed as Operational Art. It entails the skilful application of military knowledge and military

power at the operational level to obtain the desired strategic and/or operational objectives. It deals with conducting a major operation or campaign, including its planning and execution. The plan must cover all preparations, including resource mobilisation, training, logistics and information operations. It must also provide clear, unambiguous directions on the employment of forces, including mission statement, allocation of forces, Command and Control organisation, tasking, timing, sequencing, coordination, communication and ROE. Execution requires application of operational leadership, including maintenance of situational awareness, tempo, operational logistics, reserves, rapid response, resolve and flexibility.

Major Maritime Operations

A major maritime operation can be described as a set of related maritime actions carried out by diverse and often dispersed maritime and joint forces, to accomplish an operational objective in a given maritime theatre of operations. These operations are planned and conducted in accordance with the tenets of operational art. They are the principal methods of employing maritime forces to attain operational and sometimes strategic objectives in a maritime theatre. Major maritime operations are usually carried out by diverse forces, including ships, submarines, auxiliaries, ICG ships, integral and shore-based IN/ICG/IAF aircraft and SF, which are usually dispersed in time and place, but with their actions coordinated as part of an integrated operation serving a common purpose. A maritime campaign would consist of a series of major maritime and joint operations in a maritime theatre, which have been sequenced and synchronised to accomplish a strategic objective.

Concepts of Operational Art

The planning and conduct of warfare at the operational level is backed by the principles of war and warfighting doctrines, and powered by equipment, organisation, training and education. It is further shaped by the theatre, objectives, resources and opposition; oriented by the missions and tasks; steered by the operational plans and orders; and sustained by operational logistics. It is finally directed by the leadership through hostile environment, fog and friction to achieve the objective. The core components of Operational Art are the Operational Principles, Enablers, Factors, Actions, Planning, Logistics and Leadership.

Operational Principles

The principles of war are the underlying precepts on the conduct of warfare at all levels, and have been discussed in Chapter 4. The single and joint force doctrines

amplify the same for warfighting. These are particularly applicable at the operational level of war, since this is the level where major military operations take place, encompassing tactical engagements and delivering strategic objectives. These precepts, suitably amplified and placed into the context of tangible operations, constitute the operational principles. They entail the application of doctrinal knowledge and experience to the preparation and conduct of operations.

Operational Enablers

The ability to undertake warfare is premised on available, properly equipped, organised, trained and educated forces. These elements mostly precede conduct of the operation, as they require considerable time, and there is lesser scope for addressing them later. However, since they have a major impact on the application of military power, they form part of operational art, wherein these enablers have to be appropriately addressed, exploited and catered for by the operational commander. For example, the application of a well equipped and 'worked-up' warship would be different from one that has recently emerged from a long maintenance period. Similarly, the organisation and combat efficiency of a set of forces for the envisaged role could either be immediately exploited, if good, or else need to be deferred till duly rehearsed and trained.

Operational Factors

The operational factors are those that define the environment in which the operation is to take place. In essence, these are the factors of Time, Space, Force and Information, and their various inter-relations.²⁸ The combined, inter-related factors have to be considered for both own and enemy domains, as also for any third party influence that may affect the operational environment. The operational factors define the contours of the operation, in terms of geography, combat power, ROE, constraints, critical strengths, critical vulnerabilities and force multipliers. Operational factors determine what is possible and the available freedom of action. Hence, they are the central element of any operation, which govern development of the plan and its execution, and can even shape the objective itself. Operational factors constitute the major portion of any contingency planning, and need to be constantly updated and analysed both, before and during the conduct of an operation.

- **Time.** Time is a pivotal factor in warfare, which can be used to overturn other factors of space, force and information, if used appropriately. Other equally important factors can be recovered, but time once lost is irretrievable. Time dictates both, the timing and tempo of operations, and can be a force multiplier. Time has been getting compressed in modern warfare, generating new

possibilities and vulnerabilities, which require to be addressed in the operational enablers of organisation, equipment, training and education, as well as in the planning and conduct of the operation.

- **Space.** The factor of space includes size, shape, distances, geo-strategic location, demography, climate, economy, culture, etc. It defines the fixed portion of the environment that provides largely finite and rigid possibilities, which must be catered for in the planning, conduct and sustenance of major operations. It is a truism that space has shrunk because of technology. At the same time, the space for conduct of military movements has also expanded due to the same reason. Further, regardless of the medium, whether land, sea or air, the 'last long mile' remains, especially if not catered for. Space, therefore, represents a definite medium that has to be crossed in every operation, which has to be viewed along with its relation to factors of time, force and information.

- **Force.** The factor of force includes evaluation of the combat potential and power of our and enemy military force. Combat potential relates to the assumed capability, based on force architecture and the possibility thereof. Combat power, however, relates to the actual capability, after adjusting the potential for what is feasible, catering to the operational enablers, the operational environment, including factors of space, time and information, and the operational leadership. It must also take into account the relative power against the opponent that may be applied as per the environment and resultant freedom of action. The evaluation should also examine ways in which the relative combat power can be altered by either side, to enhance respective freedom of action and decisive combat power that may be applied.

- **Information.** The factor of information is closely linked to the other three factors of time, space and force, and affects them profoundly. It also affects the basic IDA cycle. Information is critical to the conduct of operations. Advances in information technology have enabled the gathering as well as harnessing of information in many ways. This could have pivotal influence on the relative combat power. However, this has also introduced associated problems of information overload and the need to sift information from a mass of data. Information is a means and an enabler, not an end. It is, thus, an operational factor that needs to be *actionable*. This requires the information to be accurate (true), relevant (applicable to the mission/task at hand), timely (in time for permitting the IDA cycle to move smoothly), usable (in simple, understandable format), complete (no critical gaps), and precise (required level of detail).²⁹

Operational Actions

Operational actions are those actions that are required for maintenance, enhancement and exploitation of our freedom of action, as well as for the generation and sustenance of asymmetry in our favour. These have also been discussed as part of the principles of war in Chapter 4. In essence, operational actions comprise four basic tenets: -

- **Exploit Own Freedom of Action.** This entails actions taken to exploit our own freedom of action, and develop a favourable asymmetry in relation to the enemy. This is the enabler for gaining advantage over the enemy and using it to advance towards own objectives. This requires retention of the initiative and offensive action, such as by sea control, manoeuvre warfare, force projection, maritime strike, etc.
- **Defend Own Freedom of Action.** This includes the actions necessary for defence against enemy endeavour to attack or reduce our own freedom of action. This requires protection of own critical strengths and vulnerabilities, Command and Control/Information domains, logistic and attack routes, reserves, resources, etc.
- **Attack Enemy Freedom of Action.** This constitutes actions that can be taken to reduce the enemy's freedom of action. This would delay or divert the enemy from advancing towards his objective, and provide a relative favourable balance to own forces at the DP. This requires keeping the enemy off-balance, through strike, interdiction and denial operations targeted at the sources of enemy freedom of action. These include enemy critical strengths and vulnerabilities, Command and Control/Information domains, logistic and attack routes, reserves, resources, etc.
- **Counter Enemy Freedom of Action.** As long as the enemy retains some freedom of action, he would exploit it to attain his objectives. Hence, even whilst attacking enemy freedom of action, it would be necessary to undertake measures that counter any progress made by the enemy whilst he retains some freedom of action. These would aim to undo any advances made by the enemy towards his objectives, and include counter-strikes, counter-IW, counter-denial operations, etc.

Operational Planning

This refers to the determination of ways and means of attaining our objectives at the operational level of war, in the given environment and with available resources. This takes into account the operational principles, enablers, factors and actions discussed above. It caters for the necessary coordination between forces, sequence of

their actions, and measures for their sustenance. It provides the template for conduct of the operation. It is the central portion of operational art. An overview of operational planning concepts and tools is given below.

Operational Logistics

Logistics is one of the most important operational functions. Naval warfare is centred on mobility and reach, and both are governed by logistics. While ships are self-reliant to an extent due to organic logistics, and capable of rapid response, a major maritime operation would require a different scale of logistic support. Hence, logistics is a pivotal factor that determines whether an operation can be undertaken in a particular way, and if the operational or strategic objectives can be attained before reaching the culminating point. The



quantum of organic logistics on deployed ships; the type, number and capacity of specialised Logistics Ships available; the availability of Forward Operating Bases (FOBs) and OTR ports near the area of operations; the feasibility of positioning critical operational logistics material at the selected FOB/OTR port; the speed and scope of OTR; and the distance from the OTR port to the area of operations; are all essential factors in planning and sustaining a major maritime operation.

Operational Leadership

Leadership at the operational level of warfare is termed as Operational Leadership. It differs from both tactical and strategic leadership in the scale at which it operates. Tactical leaders are personally and directly involved in combat. They require intimate knowledge of their subordinate commanders, the men and warfare systems, and the methodology of fighting the battle. They personally direct their forces in battle and engagements in the field, in the face of enemy resistance and prevailing conditions. Strategic leaders, on the other hand, are generally far removed from the forces and resources they direct. At this level, understanding of 'what' their forces can do is more important than 'how' they will do it. They look at the macro issues on whether use of force is needed and what can be achieved by the same, in

pursuit of strategic goals. Operational leadership is the bridge between these two levels – it deals with the preparation, planning and execution of major operations and campaigns. Operational leadership is required to translate strategic aims into operational objectives, and apply military force to attain the same. Accordingly, the operational leader must have an implicit understanding of why force is to be used and for what political objectives. He must issue explicit directions on the ways and means of using force and the operational objectives. He must also be aware of the capabilities of the forces and men under his command, including those of his subordinate commanders. The military role of operational leadership in peace is to develop operational principles and enablers, consider operational factors and actions, and prepare and practice contingency plans. In impending crisis, it must revise these components and plans as applicable to the current operation. On the operation being ordered, it must review all components, design and promulgate a clear, feasible operational plan, apportion missions and resources to subordinate commanders, coordinate and de-conflict subordinate plans, and finally direct the operations to attain strategic and operational objectives.

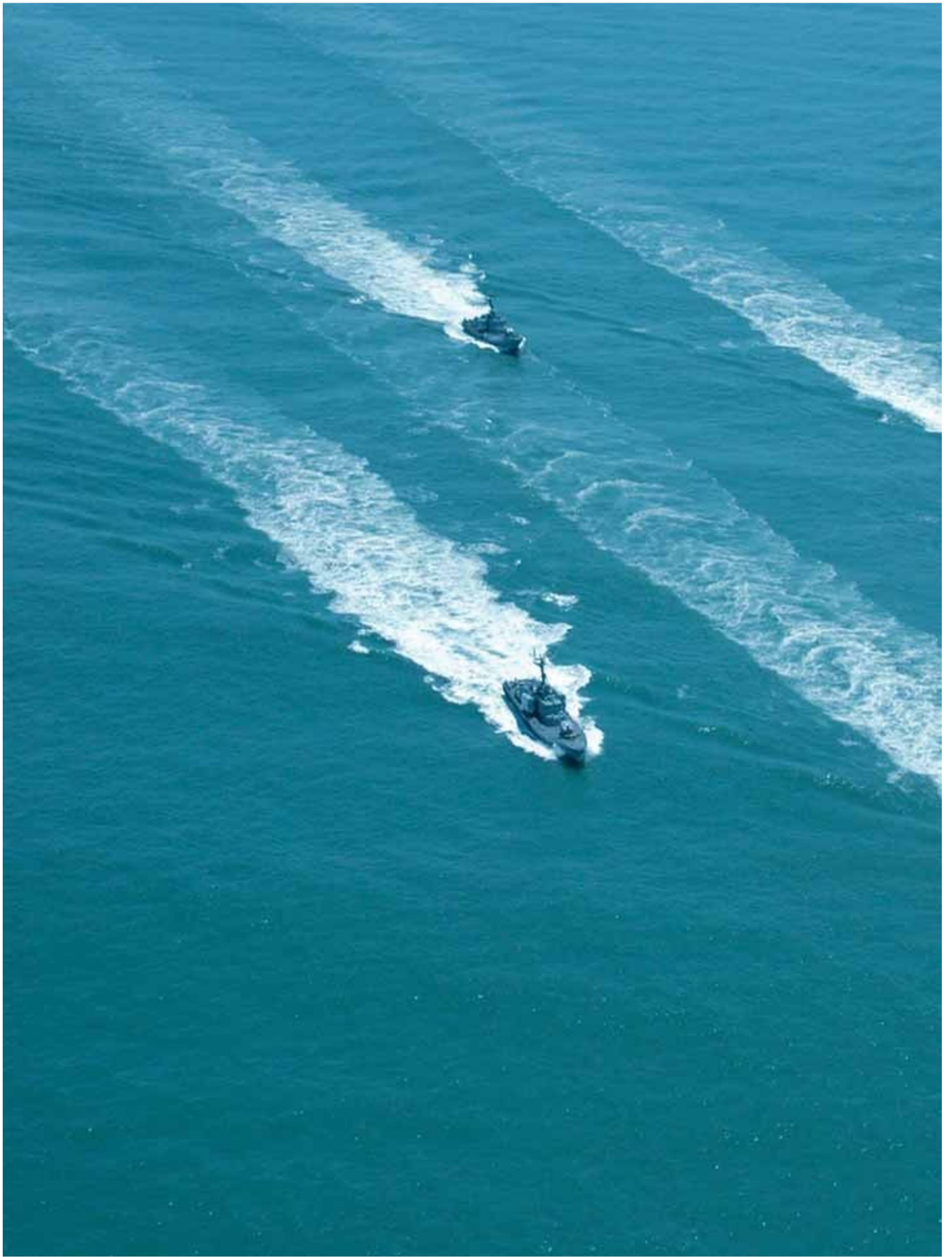
Concepts of Operational Planning³⁰

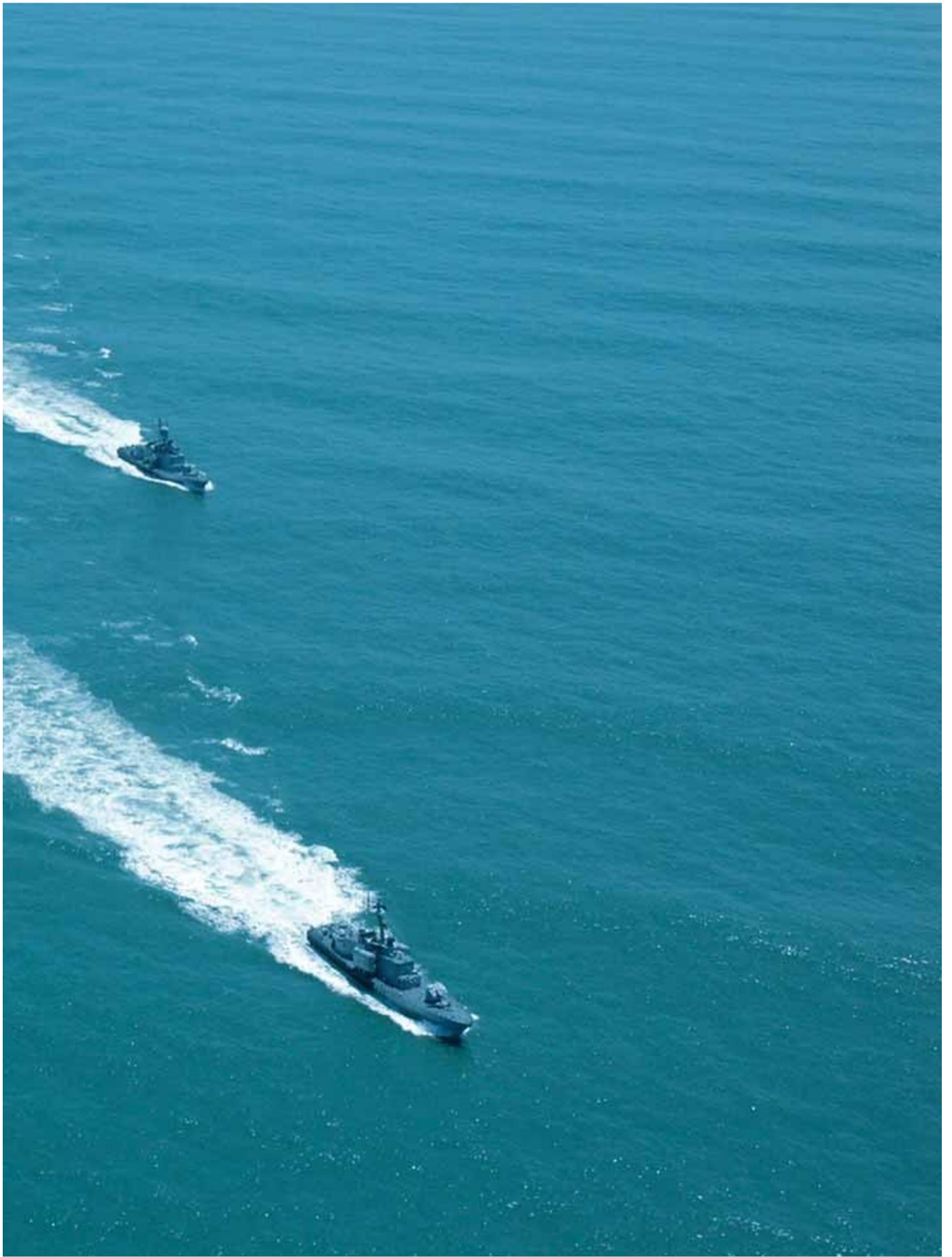
End State

The politico-military state of affairs that needs to be attained at the conclusion of a major operation or campaign is termed as its *end state*. It defines the desired state when military operations are terminated, and qualifies whether the operation is deemed as a success. Hence, the end state must be both tangible and attainable, which also flows from the first principle of war, viz. selection and maintenance of aim. The end state could be the overall political war aim itself, or else a politico-military objective that would enable the war aim to be attained through conflict resolution means. This latter is the preferred case for limited wars and where the war aim is not a direct military objective, but where the use of force would create the necessary politico-military conditions for its attainment through diplomatic means.

Centre of Gravity

The CoG is the key characteristic that enables victory or prevents defeat. It is specific to each adversary and level of war. At the operational level, the enemy's Operational CoG must be overcome in order to defeat it and attain the operational end state. As a corollary, own CoG must be protected to ensure victory and thwart defeat. The CoG is the singular, key enabler for a protagonist at a specific level of war. At times, it may appear that there are several CoGs at the same level. However, a closer examination will usually reveal that these are more likely DPs that lead on to a higher common characteristic, which is the actual CoG. A strong adversary will tend to have a higher, more diffused, CoG, such as 'national will' or 'armed forces',





which entails a longer, more difficult route and larger numbers of DPs to reach and overcome it. On the other hand, a weak adversary would generally have a lower, clearer CoG, such as 'air power', 'presidential guard', or even a key person or location, which can be more easily defined and targeted. It may be possible to target an amorphous, unreachable strategic CoG by targeting the operational CoG, which would then serve to unlock the higher CoG and serve as a strategic DP.

Decisive Points

These are the events that are necessary preconditions for unlocking the enemy's CoG. DPs surround the CoG and prevent our actions from directly reaching it. Hence,

these points must be first reached, in order to attack the CoG. For example, if the CoG at a certain level is taken to be the aircraft carrier, then the DPs are the screening units, which must be separated or degraded to expose the CoG. Similarly, if the CoG is the SLOCs, then the DPs would be the sea control ability of the



force, in turn giving rise to several other DPs like CTF, SAGs, sea denial against own force, etc. The collation of DPs provides a set of operational objectives. These should not be confused with targets. These are events and conditions, each of which is required in getting to the CoG. Further, each of these events may require a set of subordinate tasks to be performed, which would deliver the DP. In the above example, this could include surveillance, targeting, preventing OTR/UNREP, and striking part/full SAG. The test of a DP is its effect in progressively exposing the CoG.

Lines of Operation

In an operational plan, the aim is to get to the enemy CoG (and thence to the end state) by attaining the DPs. The imaginary line that links the DPs in time and space on the path to the enemy CoG is known as a *line of operation*. This line of operation could be as per dimension, such as land, sea, air; or function, such as combat power, logistics, information; or geography, such as North, West, South-West, etc. In an operational plan, there can be several lines of operation as per the number of common groupings for various DPs. Each line of operation is distinct. However, there may be certain DPs in the adjacent line that are a pre-condition for further movement along a line of operation. For example, the DP of 'air superiority' on the air line of

operation may be necessary before attaining the DP of a certain ground objective along the land line of operation.

Sequencing

The arrangement or sequence of DPs in an operational or campaign plan is known as *sequencing*. The sequence indicates the order in which various DPs are intended to be attained, to reach the enemy CoG. This sequence is across the various lines of operation and not along any one particular line. Hence, a DP in one line may be followed by a DP that lies on another line of operation. Sequencing allows the overall operational plan to progress in a cohesive manner, in the order deemed most efficient. The above example of air superiority DP preceding the DP of taking a ground objective is factored into sequencing, to facilitate all components to work in coordinated manner. This also allows the Operational Commander to direct the operation more cohesively.

Phases

The overall operational plan can be divided into several segments called *phases*, for better control and coordination. A phase is a portion that groups together various DPs across all lines of operation, in terms of time, space or resources. E.g. Phase 1 - MDA, Phase 2 - Sea Denial, and Phase 3 - Sea Control, etc. In a joint operation, it could be Phase 1 - Mobilisation, Phase 2 - Sea Control, Phase 3 - Movement, Phase 4 - Assault, etc. In each phase, there are several DPs, which are numbered as per the original sequencing for the overall plan. The sequence of DPs remains unchanged by phasing. Phasing is done to handle a large operation or campaign by splitting it into smaller segments. This allows closer attention to each phase, and ensures that movement along all lines of operation is coordinated and focused on the main effort. It also allows forces to be reoriented and redirected, as per the results and requirements of each phase.

Main Effort

The *main effort* is the key issue identified in each phase of the operation or campaign plan as the focus of effort. It allows various components to maintain synergy and for the Operational Commander to clarify the functional relationship between them as per requirements of the phase. In the example above, for Phase 3 - Movement, the main effort may be on ensuring safe movement of the amphibious group to the AOA. Here, the Commander Amphibious Task Force (CATF) would be the supported Commander, and the fleet and air element ashore would dedicate their efforts to provide protection to the ATF.

Branches and Sequels

The operational plan caters for options and contingencies, both within and across different phases. These are called *branches* and *sequels*. Branches are alternative options for a line of operation within a particular phase. These options can be developed in case of contingencies. The line of operation would then take the alternative path till the CoG or it may revert to the earlier line at a later stage. Sequels are options for the next phase. On completion of a phase of operation, the next phase that is adopted is the sequel to that phase. This may be the phase planned earlier, or it may need change as necessitated or enabled by the outcome of the just concluded phase.

Operational Pause

A pause in operations is termed as an *operational pause*. This may be along a certain line of operation, or it may be between phases. An operational pause is used to regroup, and reallocate time and resources, to concentrate effort on the adjacent line of operation or prepare for the next phase. It could be either planned or forced by events. It may be adopted as a defensive measure, due to inability to maintain the line of operation, or as an offensive measure, to consolidate after rapid advance and synchronise the various lines of operation.

Culminating Point

This is the point at which the current operation can be just maintained but not pushed or developed to any significant advantage. It is the point where the pendulum has reached its furthest point, just before it starts swinging the other way. A culminating point may be reached for several reasons, such as over-extended lines of communication, limitations of logistics, attrition, combat fatigue, materiel defects, weather, dwindling morale, etc. This is a dangerous point for a military force, as it risks over-reach and is vulnerable to counter-attack. At this point, the military force needs to disengage and switch to another line of operation, or else rapidly insert more resources, before the tide of battle swings the other way.

Operational Planning Process

Planning is an essential and significant part of the broader field of command and control. It has been defined as the art of envisioning the desired end state and

determining effective ways of achieving the same. The function of planning is to develop enhanced situational awareness, objectively examine various actions and likely responses in the given situation, link the actions needed to achieve the desired goal, develop the enabling tasks for each action, both independently and holistically, identify the resources and manner of use for achieving each task, and finally provide a framework for efficient implementation and monitoring of the various tasks and actions. It also includes forecasting and catering for possible contingencies. In other words, planning is a process that defines the path to be taken and describes the movement required along that path, to reach the desired objective. The planning process entails conduct of an Estimate of the Situation, development of an Op Plan and, finally, issue of Op Orders.

The *IN* now uses the 'Commander's Estimate of the Situation' (CES) format instead of the earlier 'Appreciation of the Situation', since the former has been found to be better suited for planning at the operational level. The CES process seeks involvement of the Commander from the initial planning stages, caters for planning to be progressed simultaneously, in parallel and at different echelons, facilitates contingency planning, re-appraisal and updating, and enables co-ordinated preparation and tasking even while the plan is being developed. The methodology of conducting a CES and related orders/instructions are covered in INBR 34. The process is described in brief in the succeeding paragraphs.

Environment Scan and Review of the Situation

The plan is developed with respect to a contingency situation, or one that is developing. In both cases, there is information available and broad awareness of the geo-strategic, military-strategic and operational environment in which the plan would need to be undertaken. This environment scan and review of the situation is done at the start of the planning process, as it provides the parameters for the plan and employment of military force.

Mission Analysis

This is led by the Commander, and goes through the following process: -

- **Commander's Intent.** It starts with examination of the superior Commander's intent, up to two levels higher, and determination of own role in achieving the same.
- **End State.** The desired end state is determined, in keeping with review of the

situation and superior Commander's intent.

- **Centre of Gravity.** Own strategic and operational CoGs are identified.
- **Tasks.** The specified and implied tasks are both reviewed. These are catered to in development of the plan and Courses of Action (COA).
- **Assumptions.** Any assumptions that provide the basis for the plan are noted. Any change herein would require the entire plan to be reworked.
- **Constraints and Restraints.** Constraints and restraints in dealing with the situation are noted. These may be imposed by higher leadership/strategy/plan, or due to limitations in availability/applicability of force.
- **Mission Statement.** A clear statement of the military mission is made, against which the various factors are to be considered and COA developed. These include the elements of who, what, where, when and why.
- **Commander's Direction.** The Commander provides direction to his staff, to focus their efforts during the planning process. This is in the form of laying down planning guidelines as also any critical information requirements.

Evaluation of Op Factors

The various Op factors are examined in detail, in the course of plan development. In this process, many associated tasks may emerge, which would be progressed even as the plan is developed, such as information needs, ROE requirements/authorisation, force augmentations, logistics preparation, additional training, etc. The evaluation is done in parallel by the operational staff for respective segments, with regular interaction amongst them for ensuring coordination and synergy in the planning process.

- **Enemy Force.** The enemy force is examined in detail, including its aims/intention, the order of battle, the combat potential, actual combat power, strategic and operational CoG, SWOT (Strength, Weakness, Opportunities and Threat) Analysis, etc.
- **Own Force.** The available forces are reviewed, including their actual combat power and limitations, and measures necessary to augment the same. A SWOT analysis is again carried out for one's own force.

- **Time and Space.** The factors of time and space, and their inter-relation are examined with relation to our own and enemy forces, and implications derived.
- **Information.** The above process is repeated for information factors.
- **Environment.** Climatic, weather and hydrological conditions and their implication on our own and enemy forces are examined.
- **ROE.** The ROE that are required, with any constraints and restraints due to neutrals, legality, etc. are reviewed.
- **Tasks and Constraints/ Restraints.** The list of tasks that have emerged as part of the evaluation of factors is noted, along with constraints/ restraints that would need to be suitably addressed.

Enemy COA

Options for the enemy are examined and enemy COA developed, based on the foregoing, including the most likely and most dangerous. This may be done by the same operational staff that undertakes the evaluation of Op factors, or even a dedicated 'Red' team.

Own COA

Options for own COA are developed, considering the foregoing. The following are reviewed: -

- **Decisive Points.** The list of DPs that are required to be addressed for unlocking the enemy CoG.
- **Common Points.** The points that may remain common to all COA, which have to be addressed in all cases.
- **COA 1/2/3.** Own possible COA 1/2/3 are developed, including the Concept of Operation (ConOps), advantages and disadvantages.
- **Comparison of COA.** Own COA are compared with each other, and with assessed enemy COA. Each COA is evaluated for success and risk potential.

- **Decision of Own COA.** Own COA is selected, based on the above, and consideration given to risk mitigation, through various means.
- **Outline Plan.** The CES ends with the outline plan for the selected COA. This is further developed, in detail, in the operational plan.

Operational Plan/Orders

The operational plan is then developed as per the COA, ConOps and risk mitigation, and relevant Op Orders thereupon issued to subordinate commanders and forces. These address the following issues in detail: -

- Review of Situation.
- Mission and CoG.
- Desired End State.
- Allocation of Forces.
- Task Organisation.
- Decisive Points.
- ConOps, including Lines of Operation.
- Phasing/Sequencing/Main Effort.
- Objectives and Tasks.
- Logistics.
- Communications.
- Coordination/Synchronisation.
- Deception.

Chapter 10

EPILOGUE

“To be secure on land, we must be supreme at sea.”

- Pandit Jawaharlal Nehru

The past two decades have seen major changes in the global geo-political and security environment, the contours of which are yet to fully crystallise. The relations between states and the identification of core national interests have also undergone monumental change, with changes in alliances. Whilst it has been widely accepted that there are no permanent friends, the last decade has brought out that even interests are amenable to change and reinterpretation.

The present international security scenario is in a state of flux, and is likely to remain characterised by uncertainty and ambiguity in the coming decade. However, it does have two concrete indicators. The first is the ongoing geo-political movement under the effects of globalisation, leading to the imperative to safeguard our interests both by unilateral deterrence and by multilateral diplomacy. Secondly, the focus of activity is steadily shifting from the West towards Asia. Both would have major ramifications for countries, particularly in Asia, depending upon the means they adopt to achieve their security and developmental needs.

Amidst the continuing changes in the regional and global strategic scenario, India has also been undergoing significant changes. In pursuit of its core national aim of unhindered economic and socio-political development of its citizens, India has made strides in these spheres. In the coming decade, the challenges can be expected to rise, both from within and from without, in meeting the legitimate, growing aspirations of our mostly youthful populace. Towards this, India would need to maintain an external environment that is friendly, with due security and safety for her citizens to freely pursue national and individual development and growth.

The maritime environment in our areas of interest, and the basic attributes and characteristics of warships, enable multiple roles and objectives for the Indian Navy, ranging across military, diplomatic, constabulary and benign. In keeping with the changes in the geo-political environment and national security imperatives, the Indian Navy would have to prepare itself for increased effort and ability in discharging these roles, with a larger canvas of objectives and missions that may be necessitated.

Many of the threats to safety, stability and security at sea are today common to most states, especially in the IOR. This emphasises the need for a greater degree of coordination and cooperation in keeping with the need for respective national growth. The Indian Navy would need to develop the ability to coordinate and cooperate with regional and other navies for meeting challenges to international law, maritime safety and security on the 'great common', and in response to humanitarian disasters.

The core role of the Navy, however, is in its military function. The Navy aims at being able to effect deterrence, both singly and jointly with the other armed forces and organs of national power. In case of deterrence not succeeding, the Navy must be able to undertake operations in a manner that is both efficient and effective, in synergy with the other armed forces, to deliver decisive victory and attain the military-strategic objectives, towards achieving the political aim.

The various roles of the Indian Navy, amidst likely increasing requirement for their discharge, would need due development of naval combat power – physical, conceptual and human. The scale of changes amidst the fast changing technical and tactical environment requires a veritable transformation in all these components to meet the extant and emerging challenges. To effect the required quantum change, the development of these components necessitates a strong foundation in terms of a clear statement that lays down the vision, the plan and tasking. Such guidance is elucidated in IN's document "*Strategic Guidance for Transformation*."

The maritime doctrine is aimed at providing this base, by defining and describing the core, underlying concepts governing the scope and use of maritime power. This would, in turn, enable related doctrines on the various aspects of development, deployment and employment of maritime power in pursuit of India's core national interests. The *Indian Maritime Doctrine* is the capstone doctrinal publication of the Indian Navy, which is aimed at not just the professional sea warrior, but also at the thinker, planner, supporter and stakeholder amongst the Navy, other armed forces, government, think-tanks, media and the larger public of India.





NOTES

Chapter 1

1. Jawaharlal Nehru Indian Cultural Centre, at <http://www.jnicc.org/>.
2. Kincaid, History of the Maratha People, (S Chand and Co: New Delhi, 1968), pp 240.
3. Hermann Kulke, Dietmar Rothermund. A History of India, 4th edition (Routledge, London: 2004).
4. International Military and Defense Encyclopedia, Vol.2 (Brassey's: Washington, 1993), p 773.

Chapter 2

5. The levels of violence/counter-force that may be necessary may not be hierarchically uniform.

Chapter 3

6. The earlier Observe-Orient-Decide Action (OODA) loop was devised at the tactical level, in relation to air combat. The IDA cycle covers the larger ambit of modern operations at all levels.
7. The San Remo Manual on International Law Applicable to Armed Conflicts at Sea (Cambridge: Cambridge University Press, Grotius Publications, 1995).

Chapter 4

8. Gen McArthur's amphibious landing at Inchon, Sep 1950.
9. The word synergy comes from the Greek word 'synergia', which means joint work and cooperative action.

Chapter 5

10. Geoffrey Till. Guide to Seapower in the 21st Century (London, Frank Cass, 2004), p. 34.
11. The limits of oceans and seas are specified in 'Special Publication 23' of the International Hydrographic Organisation (IHO).
12. 'World Oil Transit Chokepoints', Country Analysis Briefs, Energy Information Administration (EIA), January 2008, at www.eia.doe.gov.
13. Ibid.
14. C Uday Bhaskar, "Regional Naval Cooperation," Strategic Analysis (IDSA), Vol. 15(8), Nov 1992, p. 736. Also see, Gurpreet Khurana, 'Securing the Maritime Silk Route: Is there a Sino-Indian Confluence?' The China and Eurasia Forum Quarterly, Vol. 4(3), Aug 2006, p. 89.
15. Department of Shipping, Annual Report 2007 - 2008.
16. Ibid.
17. Rahul Roy-Chaudhury. India's Maritime Security (IDSA/ Knowledge World, New Delhi: 2000), p. 84.

Chapter 6

18. A French word literally meaning 'War of Chase'.

Chapter 7

19. India's Draft Nuclear Doctrine, 1999.
20. Ibid. In January 2003, the CCS clarified the scope of NFU policy. It stated that a nuclear strike could be ordered if India or its forces anywhere in the world were attacked with nuclear, chemical or biological weapons. See, "The CCS Reviews operationalization of India's Nuclear Doctrine", PM's Office PIB press release, 4 Jan 2003 at <http://meaindia.nic.in/pressrelease/2003/01/04 pr01.htm>.
21. Operation Sukoon for the evacuation of Indian nationals from Lebanon', Ministry of Defence (Govt. of India) press release, August 24, 2006.
22. Indian warships provided escort to more than 20 American and other coalition ships carrying high value cargo through the Straits between April and September 2002 in an operation code-named "Sagittarius". 'Escort Operations by the Indian Navy in the Strait of Malacca, Indian Navy press release, July 16, 2002.
23. 'Indian warships to ensure security to African summit', Times of India, July 4, 2003.
24. India joined the UN as an independent member, and signed in its own right on 30 October 1945, though a colony at the time, in evident recognition of its huge contribution in the Second World War. Nearly 2.8 million Indian volunteers served in this war and fought in all theatres, with nearly 90,000 Indian lives sacrificed. They are commemorated in 59 countries across the world.
25. The Coast Guard Act was passed by the Parliament on 01 February 1978, and notified vide the Gazette on 19 August 1978.
26. Japan Ministry of Foreign Affairs (MOFA) press release, September 4, 2006 at <http://www.mofa.go.jp/announce/announce/2006/9/0904.html>.

Chapter 8

27. Kautilya in his famous treatise on statecraft Arthashastra described the power of a state as an amalgam of its physical, intellectual, and moral strength, in ascending order.

Chapter 9

28. Milan Vego, Operational Art (NWC 1004, 2000).
29. Ibid.
30. The definitions/explanations of various concepts in this section are derived from a study of various publications on the subject listed in Bibliography.

ABBREVIATIONS

AAW	Anti-Air Warfare
AD	Air Defence
ADIZ	Air Defence Identification Zone
AEW	Air Early Warning
AIS	Automatic Identification System
AMD	Anti-Missile Defence
AOA	Amphibious Objective Area
ASEAN	Association of South East Asian Nations
AShM	Anti-Ship Missile
ASuW	Anti-Surface Warfare
ASV	Anti-Surface Vessel
ASW	Anti-Submarine Warfare
ATF	Amphibious Task Force
C2	Command and Control
C4	Command, Control, Communications and Computers
CATF	Commander Amphibious Task Force
CCS	Cabinet Committee on Security
CES	Commander's Estimate of the Situation
CI	Counter Insurgency
C-in-C	Commander-in-Chief
CIWS	Close-in Weapon System
CNP	Comprehensive National Power
CNS	Chief of the Naval Staff
COA	Course of Action
CoG	Centre of Gravity
COMINT	Communication Intelligence
ConOps	Concept of Operation(s)
COOP	Craft of Opportunity
COSC	Chiefs of Staff Committee
CTF	Carrier Task Force
DF	Direction Finding
DP	Decisive Point
DSSC	Defence Services Staff College
DSV	Diving Support Vessel
ECM	Electronic Counter Measures
ECCM	Electronic Counter Counter Measures

INDIAN MARITIME DOCTRINE

EEZ	Exclusive Economic Zone
ELINT	Electronic Intelligence
EO	Electro-Optical
ESM	Electronic Support Measures
EW	Electronic Warfare
FAC	Fast Attack Craft
FOL	Fuels, Oil and Lubricants
GIUK	Greenland-Iceland-UK (gap)
GRT	Gross Registered Tonnage
HADR	Humanitarian Assistance and Disaster Relief
IAF	Indian Air Force
ICG	Indian Coast Guard
IDA	Information-Decision-Action (cycle)
IHQ, MoD(N)	Integrated Headquarters of Ministry of Defence (Navy)
IFF	Identification Friend or Foe
IN	Indian Navy
INBR	Indian Naval Book of Reference
INS	Indian Naval Ship
INSAT	Indian National Satellite (system)
IONS	Indian Ocean Naval Symposium
IOR	Indian Ocean Region
IR	Infra-Red
ISA	International Seabed Authority
ISL	International Shipping Lane
ISPS	International Ship and Port Security
ISR	Intelligence, Surveillance and Reconnaissance
ISTAR	Intelligence, Surveillance, Target Acquisition and Reconnaissance
IW	Information Warfare
LCS	Legal Continental Shelf
LCU	Landing Craft Utility
LIC	Low Intensity Conflict
LIMO	Low Intensity Maritime Operations
LND	Local Naval Defence
LNG	Liquefied Natural Gas
LOC	Line of Control
LPD	Landing Platform Dock
LR	Long Range
LRIT	Long Range Identification and Tracking
LRMP	Long Range Maritime Patrol (aircraft)

LST	Landing Ship Tank
MARCO	Marine Commando
MDA	Maritime Domain Awareness
MCM	Mine Counter Measures
MEZ	Maritime Exclusion Zone
MMEZ	Mobile Maritime Exclusion Zone
MMT	Million Metric Tonnes
MPA	Maritime Patrol Aircraft
MPR	Maritime Patrol Radar
MR	Maritime Reconnaissance or Medium Range
MRCC	Maritime Rescue Coordination Centre
MV	Motor Vessel
MZI	Maritime Zones of India
NATO	North Atlantic Treaty Organisation
NCO	Network Centric Operations
NCAGS	Naval Cooperation and Guidance to Shipping
NEO	Non-combatant Evacuation Operations
NFU	No First Use (nuclear weapon policy)
NSC	National Security Council
NSP	National Security Policy
OGT	Ocean Going Tug
ONGC	Oil and Natural Gas Commission
OOTW	Operations Other Than War
OPSEC	Operational Security
OTH	Over The Horizon
OTR	Operational Turn Round
OVL	ONGC Videsh Limited
PDMS	Point Defence Missile System
PSO	Peace Support Operations
PSYOPS	Psychological Operations
ReCAAP	Regional Cooperation Agreement on Combating Piracy and Armed Robbery against ships in Asia
RM	Raksha Mantri (Defence Minister of India)
RMA	Revolution in Military Affairs
ROE	Rules of Engagement
SAM	Surface to Air Missile
SAG	Surface Action Group
SAR	Search and Rescue or Synthetic Aperture Radar
SAU	Search and Attack Units

INDIAN MARITIME DOCTRINE

SF	Special Forces
SIGINT	Signal Intelligence
SLOC	Sea Lines of Communication
SOP	Standard Operating Procedure
SRR	Search and Rescue Region
SSBN	Ship Submersible Ballistic Nuclear (Submarine)
SSM	Surface to Surface Missile
SSN	Ship Submersible Nuclear (Submarine)
STUFT	Ships Taken Up From Trade
SWOT	Strengths-Weaknesses-Opportunities-Threats (analysis)
TEZ	Total Exclusion Zone
TRV	Torpedo Recovery Vessel
UAV	Unmanned Aerial Vehicle
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNOSOM	UN Operations in Somalia
UNREP	Underway Replenishment
USS	United States (Naval) Ship
VA	Vital Area
VBSS	Visit, Board, Search and Seizure (operations)
VP	Vital Point
WMD	Weapons of Mass Destruction

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