

INDIAN ARMY DOCTRINE

First Edition : October 2004

Published By : Headquarters Army Training Command

Copyright Reserved : Headquarters Army Training Command
Shimla – 171003
India

PART - I



PROMULGATION

1. The Indian Army Doctrine is structured as a two-part document. The main part contains subjects for widespread dissemination in the Army, the second part is the classified adjunct to it and is intended for very restricted circulation.
2. Having been approved by Army Headquarters, the main part of the Indian Army Doctrine is hereby promulgated for information, guidance and implementation by all concerned.
3. Part I will be reviewed every five years and updated, as necessary. The Doctrine will be re-issued every ten years.

Shimla

22 October 2004

(K Nagaraj)

Lt Gen

GOC-in-C ARTRAC

CODE OF THE WARRIOR

*"I am a Warrior; defending my Nation is my dharma.
I will train my mind, body and spirit to fight,
Excel in all devices and weapons of war –
present and future,
Always protect the weak,
Be truthful and forthright,
Be humane, cultured and compassionate,
Fight and embrace the consequences willingly.
God, give me strength that I ask nothing of you"*

– The Bhagavad Gita



General NC Vij
PVSM, UYSM, AVSM, ADC

FOREWORD

***“How can man die better, than facing fearful odds,
for the ashes of his fathers and the temples of his Gods.”***

Like all other modern armed forces, the Indian Army has been considerably influenced by the Revolution in Military Affairs and the great strides being made in technology development. This has necessitated a transformation in strategic thinking along with a paradigm shift in organization and conduct of operations. As a consequence, military doctrines, weapon systems and force structures need to undergo a review. Our vision for the twenty-first century is to have a well equipped and optimally structured army, enabling it to respond effectively to varied situations and demands whilst it continually adapts itself to meet future challenges.

Such a vision places emphasis on the ability to augment existing strengths, develop new skills, think imaginatively and attempt innovative approaches to cope with the emerging environment. The challenges that we will be confronted with require us to visualize what our Army of the future should look like and accordingly develop suitable approaches to structures, equipping and training to emerge with flying colours in future conflict situations. The impetus for change must come from within and flow through the entire Army.

(ii)

The Indian Army has to maintain a high level of readiness for war in varied terrain conditions and should have the capability to operate in the complete spectrum of conflict. The Indian Army Doctrine (hereinafter referred to as the 'Doctrine') outlines a framework for a better understanding of the approach to warfare and provides the foundation for its practical application.

Funds scarcity or shortfall is a challenge faced by all armies of the world and hence there is a need for improved operating cultures and optimization of resources. The winning armies of the future will not necessarily be the ones that have greater combat power but ones that can visualize and comprehend battles more clearly. There will invariably be technological gaps between the systems that we possess and those developed up to that point in time. Notwithstanding this gap we have to continuously utilize all available resources imaginatively and effectively.

The emergence of Information Warfare as a major force multiplier points clearly towards the imperatives of network-centric warfare. Additionally, present trends indicate a marked shift towards the manoeuvre style of warfare and directive style of command. Concurrently, the requirement for joint operations and the need for greater integration and inter-dependence amongst the three Services are viewed as being essential for success.


This Doctrine emphasizes that the profession of arms is a calling. The hallmark of a good soldier entails having a sense of responsibility, professional expertise and loyalty to the Nation and the Army. The ethos and moral code set forth principles and ideals; these exhort every man in uniform to abide by his duty without regard to personal safety. This ethos forms the bedrock of the Army's preparedness in peace and is the key to its effectiveness in war.

Indian Army officers would do well to develop a broad-based, all-inclusive understanding of warfare and not become

(iii)

overly reliant on rigid adherence to prescriptive rules. The nature of this Doctrine is enduring and yet dynamic; it drives development of both, the art and science of war. In the Army it provides the focus for constructive debate within well-informed and professional circles and acts as a guide to the younger generation. Training in the Army should focus on management of change and operational adaptation to change. Towards this end, providing the kind of ambience that encourages and facilitates intellectual development should be an unceasing endeavour.

18 October 2004



(NC Vij)
General

***“Not by action Not by progeny
Not by wealth But by sacrifice alone
Can Immortal Goal be achieved.”***

– The Bhagawad Gita

*“And speak not of those who are
slain in Allah’s way as dead,
Nay, (they are) alive but ye perceive not”.*

– Sureh Bacarah, Ayat 154,
The Holy Quran

TABLE OF CONTENTS

Chapter 1- Geo-Strategic Environment and The Indian Army	2
Section 1 : Doctrine, Concept and Strategy	3
Section 2 : Environment and Threat	5
Section 3 : The Indian Army	9
Chapter 2 - Understanding War	11
Section 4 : Peace, Conflict and War	12
Section 5 : Types of Wars	15
Section 6 : Principles of War	23
Chapter 3 - Operational Perspectives	25
Section 7 : Elements for Operational Success	26
Section 8 : Operational Readiness and Effectiveness	34
Section 9 : Surprise and Deception	38
Section 10 : Impact of Technology on Operations and the Revolution in Military Affairs	40
Chapter 4 - Conduct of Operations	46
Section 11 : Offensive and Defensive Operations	47
Section 12 : Special Forces Operations	57
Section 13 : Joint Operations	60
Chapter 5 - Operations Other Than War	67
Section 14 : Low Intensity Conflict Operations and Counter-Insurgency Operations	68
Section 15 : Non-Combat Operations	77
Section 16 : United Nations Peacekeeping Missions	81
Chapter 6 - Logistics	84
Section 17 : Function, Principles and Logistic Support Systems	85
Section 18 : Future Trends in Logistics	89
Chapter 7 - Preparing For War	92
Section 19 : Force Structuring	93
Section 20 : Training	97
Section 21 : Professionalism and Military Ethos	103

CHAPTER 1

GEO-STRATEGIC ENVIRONMENT AND THE INDIAN ARMY



SECTION 1 : DOCTRINE, CONCEPT AND STRATEGY

SECTION 2 : ENVIRONMENT AND THREAT

SECTION 3 : THE INDIAN ARMY

SECTION 1 : DOCTRINE, CONCEPT AND STRATEGY

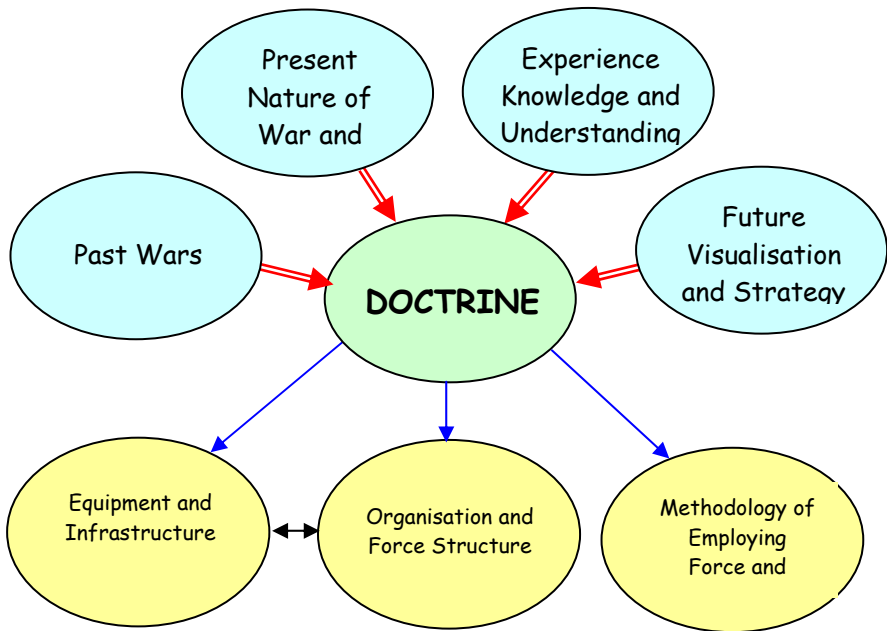
“Doctrine is indispensable to an army. Doctrine provides a military organisation with a common philosophy, a common language, a common purpose, and a unity of effort”.

– General George H. Decker, 1960.

Doctrine

1.1 Military doctrines have provided the basic approach to all important aspects related to war for armies of most nations over the past few centuries. Prevailing strategic realities, threats, challenges, visualised opportunities and national aspirations are the major factors which have a strong influence on the formulation of military doctrines. A doctrine is generally a written document; it could also be a widely accepted understanding without being specifically enunciated. In the Indian context the need for formulating and enunciating a comprehensive military doctrine has gained momentum with advancements in military technologies and the changing nature of war in our times. Military doctrine is neither dogma nor does it replace or take away the authority and obligation of the commander on the spot to determine a proper course of action under the circumstances prevailing at the time of decision.

1.2 In simple words, military doctrine is a particular policy taught or advocated; a set of principles by which military forces guide their actions in support of national objectives. Military doctrine can be defined as ‘a formal expression of military knowledge and thought that an army accepts as being relevant at a given time, which covers the nature of current and future conflicts, the preparation of the army for such conflicts and the methods of engaging in them to achieve success’. It is authoritative but requires judgement in application. The illustration below depicts the inputs that traditionally contribute to the formulation of a military doctrine and outputs that flow from its enunciation.



Concept

1.3 A concept is defined as ‘a general notion or statement of an idea, expressing how something might be done or accomplished, that may lead to an accepted procedure’. In the nascent stage a concept may be nebulous; however, it crystallises as it develops. In the Indian military context a concept is generally enunciated at the strategic and operational levels. It articulates, in very broad terms, a visualisation of the manner in which operations are to be conducted, and focuses on the principal elements which will drive them.

Strategy

1.4 Strategy is the art and science of developing and using elements of national power including political, economic, psychological, technological capabilities and military forces, as necessary, during peace and war to achieve national objectives. Military strategy is derived from the overall national or ‘grand’ strategy.

***“Winning Strategists are certain of triumph
Before seeking a challenge.
Loosing Strategists are certain to challenge
Before seeking a triumph”.***

– Sun Tzu, *The Art of War*.

SECTION 2 : ENVIRONMENT AND THREAT

***“There can be four dangers to a state;
That which is of external origin and of internal abetment;
That which is of internal origin and of external abetment;
That which is of external origin and of external abetment;
and that which is of internal origin and of internal abetment”.***

– Kautilya.

General

1.5 India is a country of continental size with land borders shared with a large number of countries, 1197 islands and a coastline of 7516 kilometres with a vast Exclusive Economic Zone. Despite her historically developed racial, cultural, linguistic and religious diversity, India is a nation with an innately all-embracing, secular polity that has welcomed and assimilated various cultures into her existing milieu. Her modern values are rooted in democratic governance and profound respect for human life. We remain peaceful without being pacifists and have a vision for the future with a measure of confidence in ourselves as we strive for economic progress and integration in the global environment. Defending India calls for defending her physical, economic and cultural identity in the prevalent geo-political milieu.

The Geo-political Environment

1.6 The geo-political scenario is fast changing and is likely to continue to do so in the coming decades. Although the USA remains the only super power today, the world is witnessing the emergence of various centres of power, with India emerging as one of the leading global players. Each centre of power is attempting to achieve a ‘balance of interest’ as opposed to the erstwhile ‘balance of power’. Greater reliance is being placed on democracy as a factor contributing to conflict prevention and increasing emphasis on bilateral or multi-lateral groupings as a means to deter aggression against weak nations. There is also a growing concern about the

proliferation of weapons of mass destruction and the spread of terrorism. Energy security and control of scarce resources are assuming trans-national proportions.

1.7 As part of the Southern Asian Region, India has considerable interests in the areas stretching from West Asia through Central Asia and South Asia to South East Asia. The Indian Ocean region is of great importance to India and it assumes strategic significance due to the high volume of Indian and international trade transiting through the Indian Ocean. Existing and emerging regional groupings give rise to competitiveness with the attendant possibility of increasing instability due to inter and intra-regional conflicts. The region also includes a number of nuclear weapon or nuclear-capable states. In addition, this region is witnessing an unprecedented proliferation in small arms and narcotics trafficking which, in turn, threaten the stability of states and societies. Trans-border migration on economic grounds also raises serious security concerns.

1.8 India is a member of the South Asian Association for Regional Cooperation (SAARC), the Association for South East Asian Nations Regional Forum (ARF) and the Indian Ocean Rim Association for Regional Cooperation (IOR-ARC). By virtue of her size and strategic location in the Indian Ocean region, India is expected to play her rightful role to ensure peace and stability in it.

The Economic Environment

1.9 With market forces playing an important role, economic strength is likely to become the currency of power. National economies are undergoing liberalisation to cater to globalisation. The dominance of the developed world over the global economy is, nonetheless, likely to continue. Even so, China and India have been acknowledged as emerging economic powers. Economic linkages and inter-dependence amongst countries are likely to result in mutual security becoming an important issue. Water, energy sources (mainly oil) and even environmental issues may emerge as causes of future conflict between states.

The Security Environment

1.10 The security challenges facing India are varied and complex. India has two unsettled borders. The country has experienced four major conventional border wars besides an undeclared war fought in Kargil in 1999. She is engaged in an externally abetted proxy war for the last several years in Jammu and Kashmir and has been combating terrorism perpetuated by militant and terrorist groups sponsored by a foreign State. At the same time, a number of insurgencies, spurred by tribal and ethnic aspirations in addition to left wing ideologies are being tackled in various parts of the country. A number of nuclear weapon states are in India's neighbourhood; hostile, radical or fundamentalist elements gaining access to and posing a threat with weapons of mass destruction (WMD) is also a possibility. It is in such an environment that the Indian Army is required to fulfil its roles in varied operating conditions across the entire spectrum of conflict.

Nature of Future Warfare

1.11 Like terrorism today, the likelihood of 'asymmetric wars' becoming the form of warfare of tomorrow is being discussed quite widely. Nonetheless, the fact that all countries continue to lay emphasis on preparedness for conventional war, underscores the predominant view that asymmetric wars cannot replace conventional wars, even though they can very much become an adjunct of and influence conventional wars themselves.

1.12 Future wars are likely to be characterised by: -

- Emerging at short notice, being of short duration and being fought at high tempo and intensity.
- Non-linear conduct of operations.
- Deeper and wider combat zones due to increased reach of integral firepower and surveillance resources, including space-based systems.

- Added emphasis on the all-arms concept and need for increased jointmanship between the land, naval and air forces.
- Enhanced reliance on a variety of surveillance systems and, resultantly, greater availability of information contributing to increased transparency of the battlefield.
- Improved accuracy, lethality and stand-off capability of weapons leading to greater destructive capability.
- Ascendancy of Network Centric Warfare (NCW), Information Warfare (IW) and conduct of operations under the glare of the media.
- Threat from enemy special forces, insurgents and terrorists to rear areas which will necessitate earmarking of troops to provide security to lines of communication.

“Let him who desires peace, prepare for war”.

– Vegetius, *De Re Militari*,iii,378.

SECTION 3 : THE INDIAN ARMY

“My Indian Divisions after 1943 were among the best in the world. They go anywhere, do anything, go on doing it, and do it on very little”.

– Field Marshal Sir William Slim, *Defeat Into Victory*, 1956.

1.13 **Role of the Indian Army.** The Indian Army is the land component of the Indian Armed Forces which exist to uphold the ideals of the Constitution of India. As a major component of national power, along with the Indian Navy and the Indian Air Force, the roles of the Indian Army are as follows :-

- **Primary Role.** Preserve national interests and safeguard sovereignty, territorial integrity and unity of India against any external threats by deterrence or by waging war.
- **Secondary Role.** Assist Government agencies to cope with ‘proxy war’ and other internal threats and provide aid to civil authority when requisitioned for the purpose.

1.14 **Command and Control of the Indian Armed Forces.** The President of India is the Supreme Commander of the Indian Armed Forces. As in all democracies, the Indian Armed Forces are controlled by the elected political leadership of the nation (Government of India). Executive control is exercised sequentially through the Union Cabinet, the Defence Minister, the Chiefs of Staff Committee (COSC) and the Chiefs of Army, Naval and Air Staff of their respective Services. The Ministry of Defence handles matters related to personnel, financial and resource management.

1.15 **Tasks of the Indian Army.** The Indian Army serves as the ultimate instrument for maintaining the unity and the integrity of the nation in the face of external threats and

internal unrest and disturbances. The major tasks of the Indian Army are as follows: -

- Effectively project deterrence and dissuasion through the medium of strong, well-structured combat capability.
- Be prepared to engage in and conduct all types of military operations, singly or jointly, in the entire spectrum of conflict.
- Provide the requisite land forces component of the Strategic Forces Command.
- Provide aid to civil authority when called upon to do so for maintenance of law and order, humanitarian aid and assistance during disasters and calamities or any other circumstances including maintenance of essential services.
- Participate in United Nations peacekeeping operations in consonance with India's commitment to the United Nations Charter.
- Be prepared to render military assistance to friendly countries when required to do so.

“It is not big armies that win battles; it is the good ones”.

– Maurice de Saxe, *Mes Reveries*, 1732.

CHAPTER 2

UNDERSTANDING WAR

SECTION 4 : PEACE, CONFLICT AND WAR

SECTION 5 : TYPES OF WAR

SECTION 6 : PRINCIPLES OF WAR

SECTION 4 : PEACE, CONFLICT AND WAR

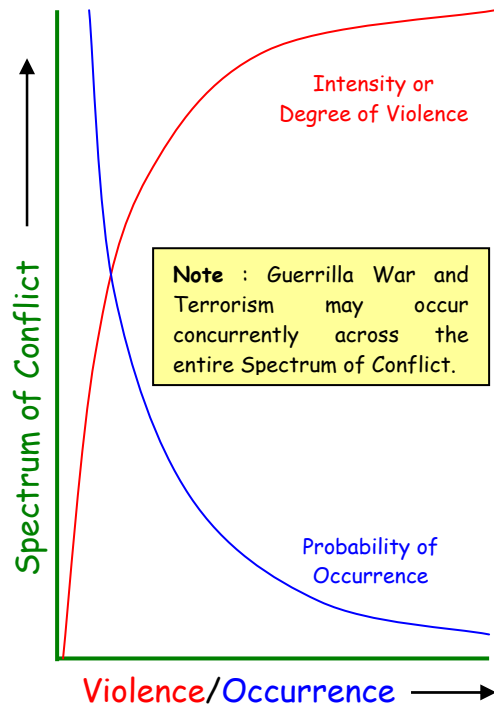
“There never was a good war or a bad peace”.

– Benjamin Franklin, 1773.

The States of Peace, Conflict and War

2.1 At any given point in time, a country will be in a state of peace, conflict or war or a combination of these. Nations act in their own self-interest which includes the pursuit of political, economic, ideological or cultural objectives. When the interests of nations or a group of nations are in harmony, or at least pose no real or perceived threat to each other, there is peace. However, when the actions or policies of one nation are viewed as a threat to the vital interests of another, a condition of conflict arises. Conflict may escalate to war. The illustration below depicts the entire spectrum of peace, conflict and war.

Nuclear War	
Conventional War	Global War
	Total War
	Regional War
	Limited War
Operations Other Than War	Civil War/ Revolutionary War
	Proxy War
	LICO Insurgency
	No War No Peace
Non Combat Operations	



2.2 **Peace.** Peace is defined as the absence of violence – direct or indirect, manifest or posed as a threat. Peace is often viewed as a temporary and fleeting condition. To be enduring and genuine, it must be based on mutual respect, shared interests and common values. Peace is most often the result of a balance of power and agreed political spheres of interest between nations or one nation manifesting a superior political will. This is invariably backed by preponderance of force which is militarily unchallenged by others. In either case, peace is ultimately sustained by, and is dependent upon, the willingness of states to use force to preserve it as well as restore it when lost.

2.3 **Conflict.** The essence of conflict is a clash, usually violent, between opposing human wills, each trying to impose itself on the other. In, both, inter-state and intra-state conflicts, the means to impose one's will could include diplomatic, economic and political mechanisms as well as the application or threat of violence by military force. Military action is just one instrument, amongst several, which may be used to impose a nation's will. Armed conflict is synonymous with war. Today international mechanisms, including the influence exercised by major powers, are in place to resolve or limit conflicts because of their potential to lead to undesired war.

2.4 **The State of War.** War occurs when diplomatic and other negotiation mechanisms for resolving conflict or achieving desired political objectives either fail or are not operative. In such circumstances political aims and strategies are pursued by the use of armed force. War is prosecuted by the employment of strategy which aims at breaking the enemy's will to fight. Disengagement from war is difficult because it develops its own dynamics and pace, which in themselves are unpredictable and could spin out of control. While war is always to be avoided, democratic societies must, nonetheless, be prepared to engage in it to safeguard their national interests.

“O friend, behold my chariot through which I am always decidedly victorious. Courage and tenacity are its wheels, immutable truth and character are its flags. Strength, discrimination, self-control and charity are its horses. Forgiveness, mercy and equanimity are the reins and devotion to the Lord is its charioteer. O friend, whoever possesses such a chariot can never be defeated.”

– Lord Rama, Ramayana.

SECTION 5 : TYPES OF WARS

“War is an act of violence whose object is to constrain the enemy to accomplish our will”.

– Clausewitz, *On War*, 1832.

CONVENTIONAL WAR

2.5 Conventional war conforms to the traditional image of war and is fought to achieve strategic and military objectives. It does not include the use of Nuclear, Biological and Chemical (NBC) weapons. It may be total or limited in terms of duration,



the range of weapon systems employed, scope, objectives and its ultimate outcome. Given the prohibitive costs in terms of human lives and material, as well as the rising lethality of modern weapons, conventional war may be of short duration. Regional wars arise out of regional issues. The Gulf War (1991) and the Kosovo conflict (1995) are two such examples even though they

had repercussions at the international level. A global or general war is a major unrestricted conflict fought between major powers involving some or all their allies. Initially it is likely to employ conventional weapons but may then escalate to the use of weapons of mass destruction to deny victory to the opponent(s). An extended global war of the Second World War pattern is highly unlikely.

OPERATIONS OTHER THAN WAR

2.6 Operations Other Than War (OOTW) encompass a wide range of activities where military power is used for purposes other than large scale combat operations normally

associated with war. These include sub-conventional and non-combat operations; they usually involve the combined and coordinated effort of government (civil and military) and non-government agencies. In essence, OOTW activities assist to deter war, resolve conflict and promote peace and well being with use or demonstrated threat of use of force.

Sub-Conventional War

2.7 **Low Intensity Conflict (LIC)**. LIC is a generic term encompassing all kinds of armed conflicts that are above the level of peaceful co-existence amongst states and below the threshold of war. These include proxy war, terrorism and insurgencies; border skirmishes also fall within this category. It involves protracted struggle of competing principles and ideologies. Low Intensity Conflict Operations (LICO) figures at the lower end of the spectrum of conflict and is characterised by one or all of the following conditions : -

- Asymmetry of force levels between the regular forces and the irregular opposition force.
- The force applied and the violence generated depends on the code of conduct and the capabilities of the weaker side.
- Laws of the land impose restrictions on the actions of security forces.

2.8 **Proxy War**. Proxy war is a war conducted between nations utilising non-state players to fight on their behalf. At least one of them employs a third party to fight on its behalf. The extent and type of support provided by the states involved in proxy war will vary but financial and logistic support are normally always provided. An example of a proxy war is the foreign sponsored terrorism in Jammu & Kashmir.

2.9 **Insurgency**. Insurgency is an organised armed struggle by a section of the local population against the State, usually with foreign support. The many possible causes of an insurgency include nationalistic, ethnic, linguistic, religious or cultural separatism, poor governance, economic deprivation, corruption, discrimination and oppression. Its goals may be seizure of power and replacement of the existing regime or

even liberation of a defined area. Employment of military force may not be able to stamp out an insurgency but may help to contain it. In most cases, it is a combination of military force backed by appropriate political and economic measures which can adequately resolve such situations. The latter part acquires even more importance than the use of force.

2.10 **Irregular War.** Irregular war may take many forms of which terrorism and guerrilla war are two important ones. Terrorism is the unlawful use or threatened use of force or violence against people or property to terrorise, coerce or intimidate governments or societies; this is most often resorted to with the aim of achieving political, religious, or ideological objectives. Terrorism thrives on a fear psychosis and could be achieved by arson, sabotage, hijacking, hoaxes, maiming, bombing, seizure, kidnapping, assassination, taking hostages, raids, ambushes and the threat to use or use of WMD. Guerrilla war is an irregular form of warfare which includes acts of subversion, assassination, attack on supply lines and terrorism. Terrorism and guerrilla warfare can be employed across the entire spectrum of conflict.

Non-Combat Operations and Aid to Civil Authorities

2.11 Non-combat operations are defined as military operations where the use of force may not be necessary but, at times, the most minimal use of force, or threat to use force, may be required. Non-combat operations include aid to civil authorities, disaster relief, humanitarian assistance and peacekeeping operations.

NUCLEAR CHEMICAL AND BIOLOGICAL WARFARE

2.12 **Nuclear Warfare.** A conventional war may escalate to a nuclear war when any of the belligerents decide to use nuclear weapons through any means of delivery to avoid defeat in the sphere of conventional warfare or to safeguard its vital national interests or even with the aim to bring the war to a decisive end. World opinion is against the use of such weapons. India is a nuclear weapon state and pursues a policy

of 'Credible Minimum Deterrence' and 'No First Use'. India's nuclear policy clearly states that she will not use or use the threat of use of nuclear weapons against those states which do not possess nuclear weapons or are not aligned with nuclear weapon powers. India reserves the right to retaliate with nuclear weapons in case of a strike against her by adversaries with nuclear, chemical or biological weapons.

2.13 **Biological and Chemical Warfare.** International conventions, to which India is a signatory, along with a large number of other countries, have banned the use of biological and chemical weapons. However, their use by adversaries and non-state actors cannot be ruled out. Chemical weapons are relatively easy to produce without any elaborate infrastructure. As a consequence, our forces must be prepared for operations in a biological and chemical weapons environment. Both, active and passive defensive measures are being instituted to cater to this requirement.

***“Slain, you will obtain heaven;
Victorious, you will enjoy earth;
Therefore, stand up, O son of Kunti,
Resolved to fight”***
– The Bhagawad Gita.

INFORMATION WARFARE

“Information Warfare, in its most fundamental sense, is the emerging ‘theatre’ in which future nation-against-nation conflict at the strategic level is most likely to occur”.

– George J. Stein, *Cyber War*, 2000.

2.14 IW can be defined as actions taken to achieve ‘information superiority by adversely affecting the adversary’s information, information-based processes, information systems, and computer-based networks whilst simultaneously protecting one’s own information, information-based processes, information systems and computer-based networks’. Correct and timely information made available to commanders at all levels contributes directly to effective Command and Control (C²) and helps in shortening the Observe-Orient-Decide-Act (OODA) Cycle (also known as the OODA Loop). IW has a vital impact upon the first three activities of the OODA Loop by disrupting the enemy’s observation and surveillance systems, corrupting his orientation and misguiding his perception and thereby inducing him to arrive at wrong decisions.

2.15 **Objectives of IW.** The basic ingredients of IW are collection of data, sifting (to extract relevant information), analysis and assimilation of information to create intelligence which will help to achieve the objectives of IW. These objectives are:-

- Develop and maintain a comprehensive information base of the capabilities of adversaries and forecast their likely actions.
- Deny information about own and friendly forces to adversaries.
- Influence perceptions, plans, actions and the will of adversaries to oppose own and friendly forces by offensive employment of IW techniques.

- Influence non-combatant and neutral organisations to support friendly missions or, at least, not to resist friendly activities.
- Protect friendly decision-making processes, information and information systems.
- Degrade the information systems of adversaries.

Forms of IW

2.16 The seven forms of IW are Command and Control Warfare (C²W), Intelligence Based Warfare (IBW), Electronic Warfare (EW), Psychological Warfare, Cyber Warfare, Economic Information Warfare and Network Centric Warfare (NCW). These are discussed in succeeding paragraphs.

2.17 **Command and Control Warfare.** The aim of C²W is to influence, deny information to, degrade or destroy enemy C² capabilities while protecting own C² systems against such actions. C²W is a dominant component of IW in the military arsenal. C²W operations integrate and synchronise the capabilities of EW, military deception, physical destruction, psychological operations and operational security.

2.18 **Intelligence Based Warfare.** IBW is a traditional component of IW and occurs when intelligence is directly fed into operations (notably targeting and battle damage assessment) to bring transparency to the battlefield rather than being used as an input for overall C². IBW is the direct application of battlefield intelligence instantaneously into the battle and aims at creating an asymmetry in the level of transparency or situational awareness in relation to the enemy.

2.19 **Electronic Warfare.** EW is a set of military actions taken to deny the use of the electro-magnetic spectrum to hostile forces while retaining the ability to use it oneself. This basically implies that the endeavour is to deny, degrade, delay or disrupt information in order to create a false picture so that the enemy is duped into making incorrect assessments and taking wrong actions. EW involves the use of electro-magnetic and directed energy to control the electro-magnetic spectrum

or to attack the enemy. One of the most important developments in the field of EW has been the introduction of automated and integrated EW systems, which provide a high degree of information in addition to interception, direction-finding and jamming activities.

2.20 **Psychological Warfare.** Information is one of the several means to target the human mind. Psychological warfare is achieved through mass media such as newspapers, radio and television broadcasts and distribution of leaflets. The prevailing state of information technology allows effective psychological warfare to be conducted in a very subtle manner. In order to be effective, psychological operations need to be conducted in conjunction with other operations. During peace time and in LIC operations, this effort can be termed as “psychological initiatives”.

2.21 **Cyber Warfare.** This entails techniques to destroy, degrade, exploit or compromise the enemy’s computer-based systems. Cyber warfare includes exclusive attacks, known as hacking, on enemy computer networks. Computer hacking has evolved to a stage wherein information stored or passing through computer networks is interfered with to degrade the adversary’s C² structure.

2.22 **Economic Information Warfare.** This form of warfare uses information as power to destabilise the economy of the adversary. Since all revenue-generating industries of a country such as aviation, transport, power, banking and the like use computer-based systems, IW at the strategic level can play havoc with the national economy of the adversary.

2.23 **Network Centric Warfare.** NCW focuses on the combat power that can be generated by the effective linking or networking of the war-fighting machinery and organisations. The basic elements necessary to generate the requisite shared battle-space awareness that can be exploited through self-synchronisation to achieve the overall objective are given below: -

- A virtual sensors grid that would provide a ‘grid of capabilities’ overlaying the battle-space instead of

series of independent single sensors. This grid is termed as the Surveillance Grid.

- To leverage the strength of the worldwide telecommunications infrastructure, all communication networks could be viewed as virtual grids overlaying the tactical, operational and strategic areas. This grid is referred to as the Communications Grid.
- An abstract grid that comprises weapons available, sorted by suitability and availability against a hostile order of battle is termed as the Tactical Grid.

SECTION 6 : PRINCIPLES OF WAR

“There exists 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.

2.24 The Principles of War are broad guidelines which influence the conduct of war at every level of military operations. They are based on past experience wherein their application with judgement led to victory. They are not rules; yet disregarding them involves risk and could result in failure. These principles are outlined briefly in succeeding paragraphs.

2.25 **Selection and Maintenance of Aim.** The aim is expressed as an intention, purpose or end state. It should be selected carefully, defined clearly and stated simply and directly. Once selected, it must be maintained.

2.26 **Maintenance of Morale.** Morale is one of the more important elements of war. High morale fosters the offensive spirit and the will to win.

2.27 **Offensive Action.** Offensive action is the chief means of achieving victory. It results from offensive spirit and helps in the seizure and maintenance of initiative.

2.28 **Surprise.** Surprise implies catching the enemy off balance thereby forcing him to give battle in circumstances unfavourable to him.

2.29 **Concentration of Force.** Concentration of superior force at the chosen place and time ensures success in battle.

2.30 **Security.** Security relates to the physical protection of ground, troops, equipment, material and documents. It also involves denial of information.

2.31 **Economy of Effort.** Economy of effort connotes balanced deployment and judicious employment of forces to ensure success with minimum casualties.

2.32 **Flexibility.** Flexibility is the capability to react appropriately to changing situations.

2.33 **Cooperation.** All agencies involved have to work jointly towards achievement of the overall aim to achieve success in war. Jointmanship leads to cooperation; cooperation produces synergy.

2.34 **Administration.** Placing the resources required at the right place and time to help commanders at all levels to achieve their respective objectives is the function of administration.

2.35 **Intelligence.** This is an addition to the widely accepted principles of war because of its pre-eminence in any future conflict. Military Intelligence involves acquisition and exploitation of information about the enemy. Informatics plays a major role in ensuring that intelligence is available in time and in the desired form.



“War should be made methodically for it should have a definite object; and it should be conducted according to the principles and rules of the art”.

– Napoleon, *Maxims of War*, 1831.

CHAPTER 3

OPERATIONAL PERSPECTIVES

SECTION 7 : ELEMENTS FOR OPERATIONAL SUCCESS

SECTION 8 : OPERATIONAL READINESS AND EFFECTIVENESS

SECTION 9 : SURPRISE AND DECEPTION

**SECTION 10 : IMPACT OF TECHNOLOGY ON OPERATIONS
AND THE REVOLUTION IN MILITARY AFFAIRS**

SECTION 7 : ELEMENTS FOR OPERATIONAL SUCCESS

“War is an art and as such is not susceptible of explanation by fixed formula.”

– General George S. Patton, Jr, *War As I Knew It*, 1947.

3.1 **Operational Success.** War is a national undertaking that is coordinated from the highest levels of policy-making to the basic levels of execution. The objective of military forces in war is to achieve early and decisive victory over the opposing forces with minimum casualties to own forces. The major aspects that contribute towards operational success are: -

- Understanding the various perspectives of war.
- Employing operational art.
- Judicious application of combat power.
- Efficient exercise of C² in the battlefield.

Perspectives of War

3.2 The perspective of war varies based on which level it is viewed from even though the objectives to be achieved at strategic, operational and tactical levels would flow downwards from the top. For clarity of understanding of the complex nature of operational scenarios, it is imperative that the commanders at all levels recognize the fine differences between the three levels of perspective given in succeeding paragraphs. These perspectives are, however, not mutually exclusive and do tend to overlap at the fringes.

3.3 **Strategic Perspective.** Viewed from the strategic perspective, war is a continuum to secure national policy objectives in concert with defined or perceived national security goals. The end state of a war must provide the

desired political advantage. Military activity at the strategic level will thus be clearly influenced by political and national considerations. At the strategic level, military power is one of the elements of national power available to a state to achieve its goals and enforce its policies. A military commander at the strategic level would be required to render advice to political leaders which should be in the form of strategic inputs through the established chain of command. Strategy itself has various levels. At the apex there is 'grand' or national strategy which coordinates the overall approach pertaining to each element of national power, such as national will, economic, political, geographic and military power. Whereas military strategy is only concerned with military operations, grand strategy must, of necessity, take a long-term view and therefore encompass all elements of national power. Military strategy has been defined as the art of distributing and applying military means to fulfil ends of national policy. A more modern definition could be 'the art and science of employing the armed forces of a nation to secure policy objectives by the application of force or threat of use of force'. In formulating military strategy it is important to note that it encompasses the following salient aspects: -

- Identifying aims and objectives in a theatre of war.
- Outlining the general course of major operations and campaigns.
- Understanding the restrictions placed on military operations based on national policy.
- Allocating adequate resources for successful conduct of operations.

3.4 **Operational Perspective.** The operational perspective focuses on achieving military aims or objectives at the theatre level and coordinating the effort of the land, air and naval forces where and when applicable. The operational level uses tactical results to achieve strategic objectives. It involves planning of a campaign within the specified time and space to achieve desired strategic goals. Viewed in comparison to the tactical level, it covers larger areas of conflict, has a larger time and space horizon and has a more critical impact on theatre

level operations. Major elements of the operational level of war are: -

- Substantial combat power is kept out of contact till the opportune time. This is in sharp contrast to the tactical perspective wherein opposing forces actually see and engage each other and is thus more narrowly focused on specific military objectives.
- The operational perspective provides a wide enough view for the commander to enjoy independent command of military forces but is narrow enough to be relatively free of having to coordinate with the other elements of national strategy.
- Nonetheless, there is a need for a clear understanding of the strategic perspective.
- An operational perspective prevents a commander from over-identification with tactical battles. It is concerned with translation of abstract strategic aims to achievable tactical objectives through the design, organisation and conduct of major operations.

3.5 **Tactical Perspective.** The tactical perspective, having the narrowest view in the hierarchy of war, essentially concerns itself with optimising the application of military forces to achieve specified objectives. This level focuses on the application of combat power to defeat the enemy in combat at a particular time and place. It includes the employment of firepower and manoeuvre, the integration of different arms and the exploitation of success. Commanders at this level concern themselves with purely military objectives laid down for them, such as destroying enemy forces, seizing specific objectives or denying specific pieces of ground and so on. The means used in tactics are combined-arms formations and the ends are tactical victories. These engagements may be more than one, running concurrently in a theatre of operations spread over hundreds of kilometres. Seemingly disjointed in application of force, they are, nevertheless, bound to a common higher goal. A link is required to bring these various tactical pieces together to create the military conditions that can achieve strategic goals. That link is the operational level and it is for this reason

that tactical battles are built and fought around an over-arching operational design.

3.6 **Level of Conduct**. In our context, the operational level of war is generally at the Theatre or the Command level, while tactical level operations are conducted at Corps and lower levels. However, in certain cases where a Corps has been allocated an operationally strategic objective, it would be deemed to be conducting operations at the operational level. At times, depending upon the spectrum of conflict such as in LICO, there could be situations where even commanders subordinate to Theatre (Command) and Corps will have to work on an operational perspective as their activities may directly influence the achievement of strategic objectives in a theatre of operations.

3.7 **Operational Art**. In seeking to structure major operations, battles and engagements in pursuit of objectives, the operational level commander should design his campaign plans around a number of building blocks which help him to visualise as to how the operation would unfold. His skills at this stage form the essence of operational art. Based on the desired end state, he derives operational objectives, decides upon the 'centres of gravity', 'lines of operation' and 'decisive points' and analyses the options thrown up by the conclusions drawn from these. He must also keep in mind the importance of 'shaping the battlefield' by the employment of firepower and manoeuvre, maintaining the tempo and factoring in operational pauses when drawing up plans.

End States

3.8 **Conflict Termination**. Conflict is either resolved or terminated; military force contributes by the defeat of an opposing force. Defeat is defined as 'diminishing the effectiveness of the enemy to the extent that he is either unable to participate in combat or, at least, not being able to fulfil his intention'. Conflict termination describes the point at which the principal means of conflict shifts from the use of force to other means of persuasion. Conflict termination may take several forms; for example, the adversary may surrender, withdraw or negotiate an end to the conflict. Commanders and

staff must plan for conflict termination requirements when developing campaign plans.

3.9 **Exit Policy**. Victory may not always be an appropriate term to describe the desired outcome of an operation; it may have to be defined in other terms such as reconciliation, stabilisation (acceptance of the status quo) or acceptance of an agreed peace plan. Where such acceptance is hesitant or reluctant, the prospect is of protracted involvement. While planning conflict termination it will be prudent to plan a suitable 'exit policy' which should cater to various contingencies related to politico-military aims.

Application of Combat Power

3.10 **Combat Power**. Combat power defines an army's ability to fight. It's three basic components – conceptual, moral and physical – have been dilated upon in Section 8. Overwhelming combat power is achieved when all combat elements are brought to bear simultaneously with violence, giving the enemy no opportunity to respond in a coordinated or cohesive manner, and thereby achieve victory at least cost.

3.11 **Modes of Application of Combat Power**. In combat the intention is to bring about strategic dislocation of the adversary by causing psychological paralysis amongst its decision-makers. In the physical and logistical planes this is produced by a combination of IW, securing or isolation of critical objectives, threatening other objectives, capture of high value territory and selective destruction of the adversary's combat potential. The means to achieve such a state include the following: -

- **Destruction**. Physical destruction of the enemy's capability to fight is but one of a number of means to defeat him. This would require focused and coordinated application of decisive combat power.
- **Attacking the Enemy's Will**. Conflict is subject to political, economic, ethical and moral constraints. These limit the freedom of military action. In this context, attempting to destroy the enemy's will solely by direct attack on his forces may be, both, costly and, at

times, counter-productive. He must be made to feel constantly off-balance by one or more of the means enumerated below: -

- **Pre-emption.** To pre-empt the enemy is to seize an opportunity, often fleeting, before he does, in order to deny him an advantageous course of action. Its success lies in the speed with which the situation is subsequently exploited. Pre-emptive operations rely on rapid decision-making and surprise rather than ponderous preparation.
- **Dislocation.** To dislocate the enemy is to deny him the ability to bring to bear his strengths. Unlike pre-emption, dislocation is a deliberate act, and is critically dependent on sound intelligence rather than intuition. Its purpose is much wider than the frustration of the enemy's plan; it is to render his strength irrelevant. It seeks to avoid fighting the enemy on his terms and can be achieved by either avoiding his strengths or by so fixing them that they cannot be used effectively. 'Posturing,' deep penetration thrusts and envelopment are classic forms of dislocation.
- **Disruption.** To disrupt is to attack the enemy selectively, to break apart and throw into confusion the assets which are critical to the employment and coherence of his fighting power. Its purpose is to rupture the integrity of the enemy's fighting potential and to reduce it to less than the sum total of its constituent parts. The enemy's moral and physical cohesion can be shattered by manoeuvring in a manner which surprises him, using firepower selectively to attack targets that contribute to his cohesion and by imposing on him the effects of tempo and simultaneity.

Command and Leadership

3.12 Command is the legal authority exercised by the commander over his troops to accomplish his mission. It carries with it the responsibility for planning, organising,

training, directing, coordinating and controlling military forces to accomplish assigned, implied or inherent missions together with administrative responsibility for supply, health, welfare, morale, discipline, assignment and relief of personnel.

3.13 **Exercise of Command in Battle.** The art of command lies in conscious and skilful exercise of authority through visualisation, decision-making and leadership. Effective battle command demands timely and correct decisions based on the accurate and skilful judgement of battle situations. Effective decision-making combines judgement with information as an element of combat power. The commander must be able to perceive the plan being implemented and the critical junctures where his personal decision-making will facilitate success. Clear thinking and level-headedness in trying situations greatly help in recognising the practicability of possible courses of action before embarking upon one of them.

3.14 **Leadership in Battle.** Yet another essential quality of a commander is effective and enlightened leadership. He should be fully cognizant of the strengths and vulnerabilities of the force that he commands. Closely overseeing and monitoring critical junctures in battle, being up forward to read the situations, offering encouragement and making on-the-spot decisions, particularly in adverse situations are the hallmarks of good leadership. Military history is replete with excellent instances of how great battles were won because of inspiring and decisive leadership.

3.15 **Command and Control.** Command has two components – the commander and the C2 systems. Communication systems, surveillance systems and computer networks form the backbone of C2 systems and enable commanders to lead from any point on the battlefield. Reliable communications are central to such systems. Sound C² should ensure unity of effort, provide for centralised direction and de-centralised execution, provide an environment for applying common doctrine and ensure inter-operability. Centralised direction and de-centralised execution are two key prerequisites for successful C². Centralised direction is provided by the national leadership at the national-strategic level. This is then converted to a joint-services plan jointly by

the three Services and following which directives are transmitted to theatre commanders for execution. Information-gathering and decision-making must be centralised to enhance coordination and control over subordinate forces albeit with requisite freedom of action for subordinate commanders.

“War is a science which depends on art for its application.”

– Captain Sir Basil Liddell Hart, *Strategy in Encyclopaedia Britannica*, 1929.

SECTION 8 : OPERATIONAL READINESS AND EFFECTIVENESS

“The sword drawn to prevent the drawing of swords”.

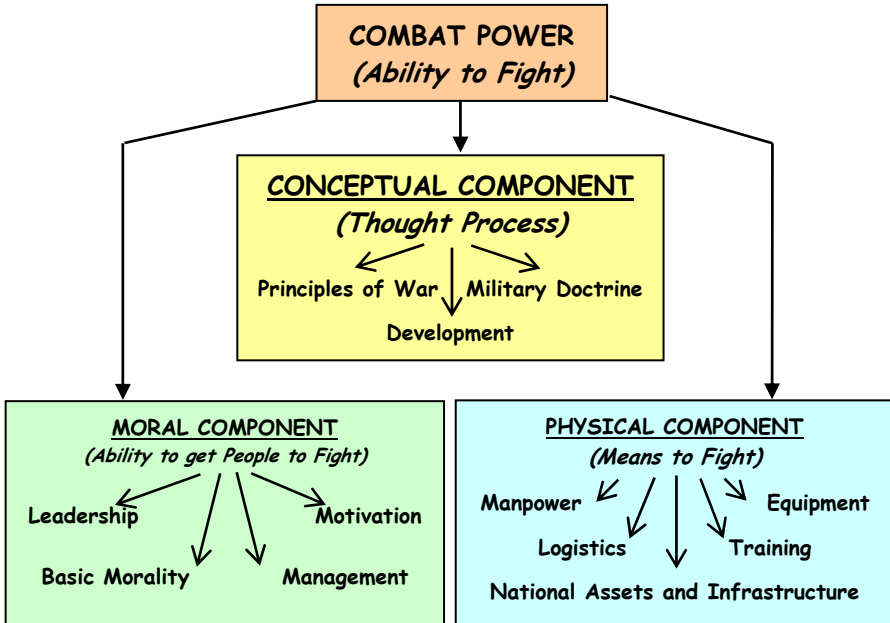
– Samuel Purchas, *Purchas His Pilgrimage*, 1612.

3.16 Operational readiness is the state of preparedness of an organisation to perform the mission for which it is organised or designed. Military effectiveness is the standard by which the Army, from the platoon to the highest levels, is judged in peace and war. The efficiency with which operational readiness and effectiveness is achieved also needs to be optimised to ensure availability of maximum possible combat power when and where required. The level of operational readiness and effectiveness of a force has a major bearing on its ability to launch and successfully conduct operations. Ensuring operational readiness and effectiveness is a command responsibility.



Combat Power

3.17 The term 'combat power' defines an army's ability to fight. Combat power has three basic components and their inter-relationship is shown in the figure below :-



3.18 The Conceptual Component. This can be described as the thought process behind the ability to fight. It is a vital component in that, commanders at various levels have the benefit of the concepts and doctrines evolved over a period of time as well as the experience of their predecessors. It also helps commanders to imbibe a common understanding of principles and yet allows the freedom of exercising individual styles of command. The conceptual component comprises principles of war, military doctrine and development. The contribution of principles of war and military doctrine towards accomplishing operational readiness and effectiveness has already been amplified in earlier sections of this book. Development requires knowledge, an innovative approach and a mind open to all aspects of warfare; this includes force organisation, structuring and equipping of

various types of units. Commanders also need to keep abreast of developments taking place in the environment and should have adequate knowledge of management of change so that they can work as facilitators. The higher the level of a commander, the wider should be his knowledge horizon so that he can understand the necessity to implement the desired change.

3.19 **The Moral Component.** The moral component concerns the ability to get people to fight. Maintenance of morale is a principle of war and, as such, embraces the moral and physical aspects of combat power. High morale stems from sound training, confidence in equipment and good administration as well as confidence in commanders, discipline, self-respect and clear knowledge of what is going on and what is required. Yet the ability to get people to fight is not just a question of morale; it also involves the following aspects:-

- **Basic Morality.** It is extremely important that the basic morality of individuals in the Indian Army is always above board. Professional honesty, courage of conviction, integrity, tolerance to accept reality and differing points of view are some of the essential qualities which should always be encouraged. The higher the position in the hierarchy, the greater should be the commitment to moral values. In addition, a commander should possess the courage to take hard decisions.
- **Motivation.** Soldiers who are well motivated, and well led work as a team. Teamwork breeds comradeship which, in turn, leads to pride in belonging to a team and fosters *esprit de corps*. Motivation thrives on a continuing sense of purpose and it is the job of the commander to instil this purpose. Although national will, reflected in Government directives, serves to give the soldier this sense of purpose, it is the responsibility of the commander to make soldiers fully identify with these. It must be clearly understood that leading soldiers in pursuit of causes that they do not understand is a daunting task.

- **Leadership.** There are many definitions of military leadership. However, most simply defined, military leadership is the projection of personality and character by the leader to get soldiers to do what is required of them. Skill in the techniques of leadership is the foremost quality in the art of command and contributes very largely to success at all levels of war.
- **Management.** Good management can have considerable bearing upon morale and on military effectiveness. It involves making the best use of available resources in accomplishment of the mission. Management skills are essential elements of good and efficient military leadership.

3.20 **The Physical Component.** The physical component is the means to fight. It is defined as the total means of destructive or disruptive force which a military unit or formation can apply against the opponent at a given time. The 'total means' include the organising and provisioning of the main elements of combat power which are manpower, equipment, logistics, training and national assets.

Operational Readiness

3.21 Readiness of the Indian Armed Forces to meet national emergencies is a facet of national level endeavour. It calls for a synergised effort by all instruments of the Government to ensure that these forces are moved to their areas of operations, fully-equipped and within an acceptable timeframe. The Government, on its part, would indicate and maintain a clear and strong resolve to go to war when it orders a general mobilisation. There may also be other methods of preparation for war even without ordering general mobilisation. On the part of the Armed Forces, they are responsible for ensuring that they are operationally ready, troops are in a high state of morale and units are appropriately trained to execute the missions assigned to them.

3.22 Military mobilisation in the Indian context involves considerable effort because of the wide geographical spread of the peacetime locations of our units and formations, the considerable extent of our borders and the multiplicity of agencies that need to coordinate their actions in order to make it effective.

SECTION 9 : SURPRISE AND DECEPTION

***“Generally, in a conflict,
The Straightforward will lead to engagement and
The Surprising will lead to triumph”.***

– Sun Tzu, *The Art of War*.

Surprise

3.23 Surprise in war is a potent force multiplier. The payoffs of surprise are almost always in geometric proportions and it multiplies the chances of achieving quick and decisive military victory. As a decisive factor at all levels of warfare, and duly acknowledged as an autonomous principle of war, surprise allows the side that achieves it to concentrate superior forces unnoticed at the point of decision and to beat the opponent in terms of time, place, method or new technologies. The purpose of surprise, in essence, is to make the enemy react in an irrational and uncoordinated manner.

3.24 Strategic surprise can herald both the beginning and the end of a war. Considering the scope of its effects and the level at which it is planned, the phenomenon of military surprise can be classified as strategic, operational or tactical. However, in practice, the distinction between the strategic and operational and operational and tactical surprise is often hazy and they invariably tend to overlap. With battlefield transparency improving by the day, the ability to effect true surprise is progressively reducing. Military planners, therefore, need to concentrate more on deception, as a good and well-coordinated deception plan would help to achieve surprise.

Deception

3.25 Deception needs to be developed as an integral component of peacetime and wartime national security policy. Deception is intentional, purposeful, calculated and deliberate. The target of deception should be the adversary's decision-making system. Deception should create perceptions and thereafter reinforce them. Deception should aim at misleading an adversary with regard to detectable information, whether

actual or notional, by obscuring it. Often, the best and simplest deception is the presentation of the truth but in such a form that the adversary disbelieves it.

3.26 It must be clearly understood that given today's battlefield transparency, deception, in addition to surprise will be very difficult to achieve in the first instance; retaining the advantage that flows from it for an appreciable period of time will be even more difficult. For that reason alone this is one aspect which will require very thorough study, preparation and conceptualization.

3.27 Military deception operations are an inherent and expected responsibility of command at division level and above. It needs to be coordinated at the highest level to be effective and, should therefore, be indivisible from all other parts of the conception, planning and execution of military operations in peace and war. Deception ought to be intrinsic to and inseparable from all military thought and action, rather than a mere annexure, afterthought or an adjunct. The planning and practice of deception must be systematically integrated into devising a military strategy.

3.28 The process of deception is interactive and follows the sequential steps of planning, evaluation, coordination, integration, approval and execution. On completion of the last step of execution the situation needs to be re-analysed and process repeated, if required. The advent of IW offers unprecedented opportunities for deception operations in scope, effect and imagination. It is imperative that deception operations are planned as meticulously as actual operations, if not more. Deception plans may even be implemented by designated headquarters, supported by suitable allocation of resources. Nothing should be left to chance as an unfounded or unacknowledged assumption, supposition or assertion. Those charged with planning, approving, and executing deception operations, as well as the operators, must be absolutely adept in all the processes that these involve. Training and exercises should integrate the aspect of deception and appropriate resources should be instituted to develop and refine the art.

“Modern technology provides battlefield transparency and hinders concealment; audacity of plans and speed of operations could be potent instruments to gain surprise”.

– General NC Vij.

SECTION 10 : IMPACT OF TECHNOLOGY ON OPERATIONS AND THE REVOLUTION IN MILITARY AFFAIRS

“Information Warfare has the potential not only, to be a force multiplier, but also to be a force equaliser”.

– Michael Loescher, *Cyber War*, 2000.

Impact of Technology on Operations

3.29 **Emphasis on IW.** With the induction of better communication systems and the creation of a networked environment, our ability to collect, collate and analyse diverse inputs received from various agencies has been greatly enhanced. However, the vulnerabilities of such systems to disruption by the enemy have also increased and its resultant impact on conduct of operations would be magnified in proportion to the dependence on it. Due to the dependence of military forces on such systems, the role of technology in future warfare has expanded considerably, thereby enlarging our earlier concept of EW to C²W, which incorporates all functions of command dependent on communications and computers. Thus in a network-centric environment, the emphasis will shift to IW and the various active and passive measures which form part of it.

3.30 **Increased Battlefield Transparency and Situational Awareness.** Today newer and better systems are available for the conduct of surveillance, identification and monitoring of the enemy and these have improved situational awareness. The nature of sensors and their platforms have extended the range of observation and enhanced the resolution thereby providing greater accuracy and detail in a shorter timeframes. The overall aim is to create a technological asymmetry so as to be in a better position to see, locate and monitor enemy forces and to plan for their destruction, degradation or disruption. In such an environment newer techniques or methods would be required to achieve surprise and deception.

Increased reconnaissance and surveillance capability will enable manoeuvre force commanders to concentrate superior combat power at points of decision.

3.31 **Enhancement in Degradation Capability.** The range, precision and throw-weight of weapon systems have increased substantially and have greatly enhanced the degradation capability of all forces. These weapon systems, coupled with



air power, will be used in exploiting gains in battlefield transparency to shape the battlefield. Enhanced precision and stand-off engagement capability, along with transparency sensors, will act as force multipliers.

3.32 **Reduced Reaction Time.** The time required for passage of information and orders will be reduced due to improved communications and networking. Accordingly, greater emphasis will have to be placed on directive style of command. The use of Command, Control, Communication, Computers, Intelligence, Information, Surveillance and Reconnaissance (C⁴I²SR) systems will result in expansion of the battle-space and compression of the time dimension. However, the adverse impacts of 'information overload' on the decision-making process of own forces need to be borne in mind and avoided.

3.33 **Night Fighting.** Technology has significantly improved night fighting capability. The ever increasing availability of new generation night vision devices will impact beneficially on tactical concepts.

3.34 **Deception.** Enhanced battlefield transparency will demand greater emphasis on deception so as to confuse or deceive the enemy about own movement, concentration, aim and intended area of operations. Management of the enemy's perceptions through C²W would become important in the future. This could well be achieved with modern technology by attempting to reinforce the enemy's beliefs and thereafter employ the tools of IW to blind or mislead enemy surveillance as part of a well coordinated plan.

3.35 **Enhanced Mobility.** Mobility of ground forces, especially in the plains and deserts has improved considerably. Enhanced battlefield transparency will facilitate and even require a shift from the existing attrition-based or positional concept of operations to that based predominantly on manoeuvre in offensive as well as defensive operations.

3.36 **Enlarged Battle Area.** Better surveillance capabilities, enhanced mobility of forces in the tactical battle area, longer ranges of weapon systems, state-of-art communication systems, information technology enabling effective C² of forces over vastly extended areas have enlarged the battle-space. The ability to conduct non-linear and simultaneous operations at greater depths adds to the battle-space over which a commander needs to exercise C².

Revolution In Military Affairs (RMA)

3.37 Recent conflicts have highlighted the dramatic impact of technology on warfare. This has caused a significant shift in the very nature of war-fighting and is bringing about a RMA. Although we may not have the wherewithal to draw full benefits from it at present, the underlying message is unambiguous – technology gives a clear edge and needs to be exploited to our advantage. We need to conceive and work towards a 'homespun' RMA that meets our needs and gives us an edge over our potential adversaries. Towards this end it will

be essential to institutionalise methods for assimilating technology and adapting, and even anticipating, changes in doctrine, tactics and organisations. In so doing, special attention needs to be paid to the impact of RMA on LIC and asymmetric warfare waged by non-state actors.

3.38 RMA is termed as 'a major change in the nature of warfare brought about by the innovative application of new technologies, which, combined with the dramatic changes in military doctrine, operational concepts and operations, fundamentally alters the character and conduct of military operations'.

3.39 The main constituents of RMA are doctrine, technology, tactics and training. Although the revolution is driven by technology, changes in doctrine, tactics and training are equally if not more important. Thus, the RMA, apart from the aspect of routine evolution that an Army undergoes in the process of modernisation, involves a transformation in the nature and conduct of military operations. It is the synergetic outcome of advances in technology suitably absorbed and applied by armed forces. There is a need, therefore, to focus on emerging technologies available to the armed forces to meet the strategic, operational and tactical requirements of the future and analyse the effect of cutting-edge technologies on future requirements. While doing so, aspects relating to orchestration of human resources and re-orientation of training, which are imperative for unleashing the full potential of emerging technologies, must be factored in as technology alone can not influence the course of war unless there is a transformation in the manner armed forces think, train and fight.

3.40 The backbone of RMA is a C⁴I²SR system which facilitates dominant battle-space awareness and will therefore constitute a major thrust area. Five major components of RMA are IW, dominant manoeuvre, precision engagement, full dimensional protection and focused logistics. Advances in C⁴I²SR also make possible a new concept in war fighting viz NCW.

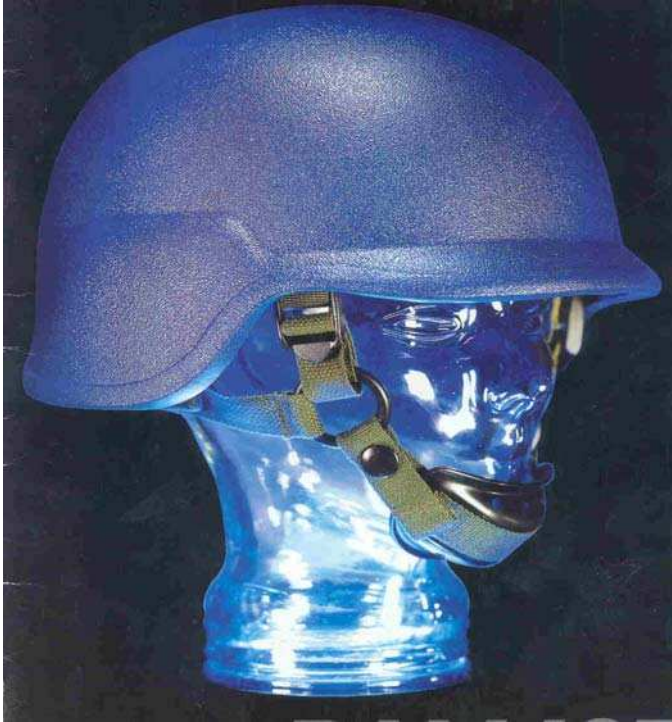
3.41 Analysis of major components of RMA indicates that they have great applicability in our context. We may however, have to follow an incremental approach in embracing these principles and acquiring the relevant technology. IW will form a key component of our war fighting doctrine. The excellent support base and infrastructure in information technology that is available in the country should be optimally exploited.

3.42 NCW has great potential in our context. We need to evolve our concept based on our security compulsions. Investment in '*infostructure*' is an absolute imperative. This must be done jointly in conjunction with other Services so that seamless operations can be undertaken. As we progress to higher levels of technology, our ability to undertake NCW operations can be further refined. The advantages of operating with geographically dispersed forces must be fully exploited particularly in the backdrop of a nuclearised environment.

3.43 Meeting the challenge of RMA may demand substantial changes in our concepts, organisational philosophies and, most of all, attitudes. Concepts and organisational structures for exploitation of RMA would need to be evolved as the inevitable move towards greater use of high technology takes place.

3.44 RMA will have a dramatic effect on the Army and conduct of warfare through trends like lethality and dispersion, volume and precision of fires and their effects, processing and use of information, invisibility and detectability. Technologies that would need to be invested in are in the spheres of projecting and protecting the force, decisive operations, shaping of the battlefield and integrated logistics. Indigenous development of technologies to achieve self reliance will need sufficient investment to keep pace with RMA.

3.45 The impact of RMA on LIC is not as dramatic as in the field of conventional conflict. This does not imply that RMA has little to do in LIC; on the contrary, technology can play a significant role in LIC. We need to constantly refine our doctrines, concepts, organisations and tactics so as to optimise the effect of RMA in LIC.



“The instruments of battle are valuable only if one knows how to use them”.

- Ardant du Picq, *Battle Studies*, 1821-1870.