Indian Army-A Perspective on Future Challenges, Force Development and Doctrine

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BACKGROUND

As we move forward in the first decade of the 21st century, uncertainty, anxiety and pressures characterise the global security environment. With the disappearance of traditional and easily identifiable security threats the anxieties and fears have increased. The world has come to be dominated by one super-power and the global security agenda tends to be defined in terms of the US interests and perceptions and there is little likelihood of the situation changing in the foreseeable future. The events post 11 September 2001 have created a new security environment in which there is a paradigm shift in defining the nature of conflicts and in understanding the concept of national security. The lines between peace and war have become blurred and a large number of challenges, both military and non-military have become vital national security concerns. International terrorism now occupies an important slot on the security agenda of all nations. All countries affected by this phenomenon, have had to reassess their security estimates in view of the new challenges, to formulate well thought out long-term security strategies. In the Indian context this phenomenon is accentuated by the lack of a national security strategy that can be interpreted by the military to design a well defined national military strategy. Currently both are conspicuous by their absence despite the additional security structures like the National Security Council and the Integrated Defence Staff.

India's security environment is influenced by her exceptional security criterion which includes land borders which embrace 3310

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kilometres of borders with Pakistan and 3917 kilometres with China, with whom India has major territorial disputes; 5422 kilometres of main coast line, and approximately two million square kilometres of exclusive economic zone (EEZ). The defence perimeter encompasses some of the most difficult and treacherous terrain, which includes the glacial regions and the high mountain ranges of Himalayas in the north and North East, high and low mountains and jungles in the east and sandy deserts and Rann swamps in the west. India also has more than 650 islands in the Indian Ocean region (Andaman and Nicobar group and the Lakhshadweep Islands) where lie our sea lanes of communications. 95 per cent of India's overseas trade moves through the medium of sea. Another example of the importance of the sea (Indian Ocean Region) is our current oil consumption that is 80 million tons per year and by the year 2020 it is likely to rise to 150 million tons per year. Any stoppages will have a crippling effect on the economy.

Another factor affecting military security is the changed nature of warfare and the emerging technologies that are profoundly influencing all armed forces to review their military doctrines and their force development plans. Apart from traditional threats and challenges, international terrorism has assumed global dimensions. India has been facing a virulent strain of terrorism, for the past 15 years in Jammu and Kashmir (J and K), whose lineage is the same as the one that struck the US on 11 September 2001. Whereas the US has adopted the doctrine of "pre-emption" and "regime change", India prefers to fight it within its own borders. The impact and significance of the entire gamut of challenges and threats is, ostensibly, yet to be analysed and imbibed fully by the Indian Armed Forces. Their sluggish response is verily a true reflection of the lack of national will despite all the political rhetoric to the contrary.

While there is an enthusiastic surge forward by all nations to integrate their armed forces to the extent possible, in order to optimise their combat capabilities, the Indian Armed Forces remain satisfied by their eloquence of "jointmanship".

In the meanwhile, military planning is now constrained by a nuclearised neighbourhood, which means that if we go to war our political aims and military objectives will have to be carefully

calibrated, and our methodology of warfighting adapted to the prevailing conditions of the conflict with a nuclear backdrop. This situation demands intensive wargaming at military, strategic and operational levels in peacetime, for the military leadership to understand the nuances of such conflicts.

This paper gives a perspective on the future challenges, force development and doctrine for the Indian Army.

FUTURE THREATS AND CHALLENGES

To fully comprehend the emerging challenges, we need to examine these away from the traditional scenarios of Pakistan and China. Only then can the entire challenge be visualised in real terms.

India's sphere of influence encompasses the region from the eastern sea board of Africa in the west to Malacca Strait in the east and includes the Arab-Islamic world, Iran, Central Asia, East Asia and China. Hence there are a variety of challenges to national security, away from the set scenarios of Pakistan and China that need to be factored in our planning process for the future. The ones, which impact specifically upon the structure of the Army are:-

(a) Defence of Andaman and Nicobar Islands and other island territories separated by large distances from the mainland.

(b) Security of our offshore and onshore assets and resources rich area.

(c) Security of a large and unprotected coastline and the national assets and infrastructure along the coastline.

(d) Internal dissent and claims to autonomy and ethnic recognition by sub-national entities, who may be supported from outside.

(e) Demographic shifts in the South Asian region and other non-military threats which may impact upon the military.

(f) Inimical actions by powerful multinationals, which may affect own vital national interests and which may be supported by other states.

(g) The beliefs of a single, very powerful, state which views its security as more vital than that of the world.

(h) The proliferation of weapons of mass destruction (WMD) and advanced delivery platforms such as missiles.

(j) Overspill of ethnic conflicts in the South Asian region into India.

(k) Global terrorism perpetrated by non-state actors, which may be aided or supported by other states.

(l) Aid to Civil Authorities.

(i) Terrorist activity.

(ii) Flow of drugs and narcotics.

(iii) Antagonistic para-military groups.

(iv) Large scale civil disobedience and internal disturbances.

The Impact of Economic Development.

(a) Recent Western forecasts indicate an annual growth rate of gross domestic product (GDP) by seven to eight per cent. This growth rate will enable India to be among the top four economies in purchasing power party (PPP) by 2015.

(b) The logic of Cold War that kept the US and India apart has withered away and the economic rise of India has given it a new eminence on the global market for power and influence, which is also likely to facilitate settling of the border problems with both China and Pakistan.

(c) Such economic growth and a global and regional power status in the future necessitates autonomy in decision-making

and safeguarding of sovereignty in a new global security environment whose contours are currently hazy and need to be analysed, in greater detail, to ascertain their impact on our security.

Conflict Settings

Considering the challenges listed above and rapprochement processes underway with both our traditional adversaries, in the future, there could be three broad conflict settings, which need to be considered for force and capability development. These are:-

(a) Confront traditional adversaries plus the emerging challenges.

(b) Confront emerging challenges only.

(c) Confront one adversary plus the emerging challenges.

THE NATURE OF WARFARE IN THE FUTURE AND THE BASIS OF FORCE DEVELOPMENT

The basic nature of war never changes. We know that war is adversarial, dynamic, complex, uncertain and dangerous and it is rooted in individual and collective human behaviour. Hence it needs to be studied to gain an insight into it and have a clear understanding. Clausewitz, Jomini, Mahan and Liddell Hart have all stated that nature of war and strategy does not change ie, the components and structure of the subject remain constant–only details change. Moreover, the nature of the subject does not permit precision and exactitude and hence we should be careful while predicting the future.

Our methods and techniques of preparing for and waging wars have, by and large, remained unchanged for more than five decades since independence except for the introduction of a few defensive and offensive operational concepts. Hence the changes in our context will have to be radical in their content and form. These will have to include the following:-

(a) The method of preparing for and conducting wars

implying new methods of mobilisation, planning and execution.

(b) A revamped higher direction of war.

(c) A new war fighting doctrine (joint doctrine).

(d) Induction of new war winning technologies.

(e) Force development based on emerging challenges and likely conflict settings.

What makes the future highly uncertain is that we cannot know precisely when, where, or for what ends war will be waged. This dilemma gets even more acute when and if the animosity against our traditional adversaries disappears. Thus the issues related to doctrine, force structures and organisations have to be examined in relation to the role of the Army in the total spectrum of war and viewed conceptually. The doctrinal principles adopted should be broad and flexible enough to accommodate changes as we move forward in time depending upon the situation that may emerge.

Role of The Army

The role of the Army is to preserve national interests, safeguard territorial integrity and unity of the country against any external or internal threats. In the future the role may also include the preservation of sovereign rights, protection of the innocent, preservation of environment and preservation of free trade.

The Spectrum of War

The total spectrum of war includes the types of conflicts that the Army is currently involved in and the ones it may be ordered to undertake in the future. These are :-

(a) Limited conventional conflict under threat of use of nuclear weapons.

(b) Border skirmishes.

(c) Defence of island territories and/or dislodging an adversary from our island territories.

(d) Counter insurgency and counter proxy war operations.

(e) Global and regional terrorist actions including blackmail with WMD.

(f) Internal conflicts caused by dissent.

(g) Out of area contingency missions to assist friendly nations.

(h) Military reaction to unforeseen contingencies demanding a pro-active (including pre-emptive) or reactive response, inside or outside the country.

(j) Other forms of warfare such as information war including media, psychological, and space wars.

(k) Undertaking United Nations (UN) peace keeping operations.

Economic interdependence, international opinion and availability of nuclear weapons in the region may preclude full-scale conflicts (open wars) in the future. Hence our responses to the future threats and challenges explained above are likely to assume the forms other than a full scale conflict.

The Changing Face of Land Warfare

While military development is a continuous and evolutionary process, the modern era has witnessed three watersheds in which the change has been qualitative. The first generation of warfare was reflected by the tactics of the era of the smooth bore muskets and the linear battle of lines and columns. The second generation warfare was a response to the rifled musket, breechloaders, barbed wire, and machine gun and indirect fire. Tactics were based on fire and movement and they remained essentially linear. The third generation warfare was also a response to the increase in battlefield firepower. Germans were, in World War I, aware that they could

not compete in a contest of material because of their weaker industrial base; hence they developed radically new tactics, which were based on manoeuvre rather than attrition.

The basic concepts of third generation tactics were in place by the end of 1918. The advent of the aircraft and tanks brought about a major shift at operational level in World War II. This operation was named 'Blitzkrieg' by the Germans in which emphasis was placed on manoeuvre, speed and tempo to carry out wide outflanking movements avoiding defences to strike at rear areas in order to cause psychological collapse. Germans exploited their tactical excellence to cause unprecedented defeats in the first two years of the war.

The Americans picked up ideas from the Germans regarding 'Manoeuvre Warfare', and simultaneous engagement of operational components of the enemy's defensive system, structured hierarchically along the entire depth of the opposing system, to cause 'operational shock' and development of an operational momentum far exceeding the relative reaction capability of the opponent. The US Airland Battle concept developed along with principle of directing main strike into the opponent's principal operational weakness. Military analysts in the USA are now deliberating and reflecting on a fourth generation of warfare in which the target will be the whole of enemy's society (ideology, culture, political, infrastructure and civil society). This generation of warfare, they say, will be characterised by dispersion, increased importance of actions by small groups of combatants, decreasing dependence on centralised logistics, high tempo of operation and more emphasis on manoeuvre. Masses of men or firepower may become a disadvantage, as it will be easy to target. Small, highly manoeuvrable, agile forces will tend to dominate. The aim would be to cause enemy to collapse internally rather than physical destruction. There will be little distinction between war and peace. It will be non-linear, possibly to the point of having no definable battlefields or fronts. Major military and civil facilities will become targets. Success will depend heavily on joint operations. If we combine these general characteristics with new technology we see one possible outline of the new generation.

Combat Status of the Indian Army

The Indian Army is organised, equipped and trained for second and third generation, industrial age and low technology conflicts. Our traditional methods favour deliberate set piece military operations against fixed defences, which are attrition oriented and tactically biased. The Army excels in defensive operations and has considerable staying power with exceptional resilience. Over the past five decades or so it has gathered rich experience in counter insurgency operations. However the higher leadership, by and large, remains mired in conservative attrition oriented methodologies. In the 21st Century the Indian Army, the Indian Navy and the Indian Air Force are still planning for conflicts essentially Service wise, the way it was in the early years of World War II. We have not even started our journey for the type of integrated warfare contemplated in the future.

Use of Air Power in Recent Conflicts

Modern airpower has certain characteristics that permit military power to be applied uniquely and in a different manner. The vital characteristics of air power are its reach, responsiveness, concentration and flexibility. Modern multi-role fighter aircraft can be configured to undertake any type of offensive role and deliver a wide variety of conventional or non-conventional munitions. Even transport aircraft and helicopters can be used to deliver weapons in addition to their primary role of logistic support. The flexibility of airpower is limited only by the imagination of the user. With the advent of precision guided munitions (PGM) and target designation; modern technology has given airpower the capability of destroying targets with single digit circular error probable (CEP) and with least amount of collateral damage. Given the wherewithal these characteristics endow air power with the ability to psychologically and physically imbalance an opponent and achieve strategic aims set by the national leadership with highly selective employment of land forces.

There is a general feeling among many senior officers of the Army that land operations determine the outcome of wars. Recent conflicts are helpful in understanding the role of air power. Consider

Operation Allied Force, the North Atlantic Treaty Organisation (NATO) operations that caused Slobodan Milosevic to surrender in Yugoslavia. It was a cumulative effect of air strikes, which led to the surrender.

In Operation Enduring Freedom, the US operations in Afghanistan, US air power directed by Special Forces and Air Force personnel operating in conjunction with local forces, crushed Taliban and scattered Al Qaeda in a matter of few weeks. Conventional army was employed only at the commencement of Operation Anaconda in March 2002, after Taliban regime had fallen. The regular army's role in these operations has been to eliminate the Taliban and Al Qaeda remnants and to provide assistance to the new government in Kabul.

In Operation Iraqi Freedom there are many examples of use of air power to achieve strategic aims. In northern Iraq, the refusal of Turkey to allow the US 4th Infantry Division to stage through Turkey posed a major operational dilemma for General Tommy Franks of US Central Command (CENTCOM). Instead of using regular army in the north he employed elements of 3rd and 10th Special Forces Groups, together with the Kurds militia to engage the Iraqi Army. Operating with US fighter aircraft and AC-130 gun ships, this force, tied down four Iraqi corps and prevented them from being shifted south. Whenever the Iraqi forces were able to organise a new defence, aerial firepower either destroyed them or drove them off their positions.

Another example of effectiveness of the US air power is of Iraqi armour that manoeuvred during a sandstorm in order to meet the coalition forces as they closed on Baghdad. Iraq's Medina, Baghdad and Hammurabi divisions, counting on the cover provided by the sand storm, repositioned to meet the coalition forces. Joint Surveillance and Target Attack Systems (JSTARS) and long range unmanned aerial vehicles (UAVs) detected the movement and guided B-1 and fighter-bombers to intercept them. Using infra-red (IR) targeting devices that could penetrate the clouds of sand and the aircraft inflicted severe damage.

The issue that we need to ponder over is that the US Air Force and Naval Aviation was able to deliver PGM, either in direct

support of ground forces or in strike operations where ground forces were not participating. This ability of air power to deliver precision fire in all types of terrain, in all weather, if acquired by the Indian Armed Forces, will call for a "sea change" in the methodology of military operations. It promises a capability of achieving operational and strategic level objectives with selective use of regular army. The Indian Armed Forces require enhanced intelligence, surveillance and reconnaissance capability and greater quantity and variety of precision munitions. But most of all we require a national will for an "Air- First" response considering that the Indian Air Force was made to sit out the war in 1962 and in Kargil in 1999 the air response was delayed as it waited to be "cleared" by the Government. Such "operational disconnects" could prove embarrassing in the next war.

Approach to Force Structuring

In the next decade or so, there are distinct possibilities of rapprochement in India's relationship with Pakistan and China. This would have a very significant impact on Indian Army's organisation and force structure. In this new environment, away from the set scenario in which we have spent more than 50 years we could downsize, restructure and transform the Army, based on new technologies and a new joint doctrine. This would have to be a holistic and joint effort of the three Services. However, should the expectations fail to materialise then the approach to restructuring would have to differ. In the latter case we would have to re-engineer (reorganise, reorient and re-equip) the existing force levels to acquire the additional operational capabilities desired. We could also be confronted with another scenario in which one adversary is marginalised, while the second adversary continues to pose a military challenge. Such a setting would also require the adoption of the former methodology. Hence the two basic methods identified, based on the emerging patterns of threat are:-

(a) Downsizing and transforming the Army based on new technologies and new threats.

or

(b) Re-engineering the existing force levels to acquire new capabilities.

Under these circumstances, and in view of the present strategic settings and our current operational culture, we have no option but to develop force structures that are both capability and threat based. We must also operationally integrate the three Services through reorganisation of our higher formations to optimise our operational capabilities to ensure coherence, synergy and success in war.

Capabilities Desired

In view of the current and future threat patterns, the force development process will have to consider the range of operations mentioned earlier. This would mandate the development of the following capabilities:-

(a) A smaller high technology conventional force to fight limited wars.

(b) Rapid deployment forces, re-engineered from defensive formations, to deal with border skirmishes and other contingency missions.

(c) Amphibious task force (tri-Service) operating with Special Forces for defence of island territories and for out of area missions.

(d) Special Forces for unforeseen contingencies and to counter terrorism (in all its manifestations including WMD).

(e) Manpower intensive counter insurgency force for fighting insurgencies, proxy wars and for internal employment.

(f) Strategic Forces for Deterrence. Land component to have multi-range missiles with nuclear warheads capable of a wide range of nuclear responses and options.

(g) Army Aviation and supporting arms to support operations for entire spectrum of war.

(h) Integrated airpower at strategic, operational and tactical levels through integrated theatre commands.

(j) Ability to wage information wars (including media wars) and psychological wars.

(k) All capabilities to be integrated in the tri/bi – Service context.

The size of each capability will have to be threat based. One alternative which relates to the existing set pattern of threat coupled with additional threats, will require a gradual transformation through re-engineering (reorganisation with existing assets) to acquire the desired capabilities. This alternative will be more expensive but the nation will have to pay the price of "existential realities" of living in a dangerous and hostile neighbourhood. A flexible plan in which mid-course corrections are feasible should be drawn up after deliberate tri-Service analysis involving military, scientists, academics, strategic analysts and the retired Service officers.

Power Projection. A regional and global economic status also bestows on India a responsibility of projecting military power to support her friends and allies and to safeguard her interests in Southern Asia (including the Indian Ocean Region). This capability, which would essentially be integrated and tri-Service in nature, will have to be built into our future force structure. We would have to bear in mind that we have a strategic geography, which demands long-range power projection.

Technologies Desired

Effective employment of our forces on the battlefield will necessitate the use of some of the following technologies:-

(a) Digital communication networks linking sensors, communication devices and weapons for real time response of the command, control, communication, computers, intelligence and interoperability ($C^4 I^2$) system.

(b) Ground and airborne surveillance with an array of manned aircraft and UAVs sending data direct to the Integrated Command Headquarters with the intermediate units and formations receiving the data simultaneously.

(c) Situational awareness and identification friend or foe (IFF) for combat vehicles and tanks for receiving and transmitting important information and data and for IFF.

(d) Multi-role aircraft (fighters and bombers) fitted with compatible equipment and IFF.

(e) Digital imaging with global positioning system (GPS) to allow commanders to draw up fresh battle plans with accurate and up to date information of enemy movement.

(f) Increased self containment of logistics for combat elements.

(g) Networked logistics with tracking system for functioning in a mobile and dynamic environment.

(h) Suitable transportation system (air and ground) for rapid movement of troops, equipment and logistics at strategic, operational and tactical levels.

(j) Accurate long-range firepower with a variety of munitions including precision munitions.

(k) Some light tank units with heavier firepower capable of strategic and operational mobility (between and within command theatres).

(l) Effective protection, firepower and communications for the individual soldier.

DOCTRINAL ISSUES

Army Doctrine

Major General JFC Fuller in *The Foundations of the Sciences of War,* in 1926 wrote that–"The central idea of an Army is known as its doctrine, which to be sound must be based on principles of war and which to be effective must be elastic enough to admit mutation in accordance with change in circumstance. In its ultimate relationship to the human understanding this central idea or doctrine

is nothing else than common sense – action adapted to circumstance."

Charles Grant in *The Use of History in The Development of Contemporary Doctrine* states that doctrine has three components. He calls the first component the intellectual component which draws the enduring tenets (principles of war) from the experience of earlier successful armies and their commanders; principles which remain relevant today. The second component is a practical dynamic component that interprets the principles of war in light of the current circumstances and finally the predictive component, which analyses the recent conflicts in order to learn from them. It looks into the future to analyse how military forces may be used and it reviews emerging technologies to assess their military potential. This component can also be called force development that has been explained in the foregoing paragraphs. What follows is an amalgam of the first two components called Doctrinal Principles.

Definitions of Doctrine

Two definitions are given for consideration:-

(a) Doctrine is a system of views adopted in given period on the aims and character of a possible war, on the preparation of a country and its armed forces for such a possibility as well as on the method of waging war should it break out. Changing circumstances (e.g. demography and technological changes) must be constantly evaluated because they can modify beliefs and necessitate changes to doctrine.

(b) Doctrine is a formal expression of military knowledge and thought, that 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.

Doctrinal Precepts

Considering the enlarged spectrum of war and the new dimensions of warfare, which are contextually germane; some

guiding principles or doctrinal precepts which are central to our requirements of war fighting in the future are being highlighted and recommended so as to be prepared to win across the full range of military options available in any theatre of war or in any theatre of operation, in any future contingency. Doctrinal precepts advocated for inclusion in the Army Doctrine are now discussed.

Indian Way of Going to War. There should be an Indian way of going to war. As citizens and soldiers of this great nation, we conduct military business in a peculiar Indian way. This needs to be formalised. Currently there is no formal procedure followed. Our security environment is characterised by the following:-

(a) Insufficient overall direction.

(b) Too many ad hoc structures and responses.

(c) Poor inter Service and inter agency coordination.

(d) Shortages of appropriate equipment and material.

(e) Inappropriate support systems.

(f) Cumbersome regulatory systems.

(g) Serious institutional resistance to change.

(h) Limited dedicated resources.

(j) Peacetime oriented security plans.

(k) Lack of joint doctrine and training.

In fact our political leadership, perhaps for political reasons, shies away from giving written directives to Service Chiefs. On receipt of the aforesaid political directive, the Chiefs of Staff Committee (COSC) is required to convert the abstract political aim(s) of war to achievable military aim(s) and objectives and if after analysis they come to the conclusion that the political aim (s) set forth is not achievable, they must have the courage to say so. The nation must not go to war for an unachievable political aim. This process is a part of the higher direction of war.

The Approach to Warfare. The methodology advocated by operational art should be adopted. This approach advocates the employment of all military forces (tri-Service in our context) to achieve strategic goals in a theatre of operations or a theatre of war through a unique contextual design, organisation and conduct of operations. It is the intermediate level of warfare, which connects strategy (policy) to tactics. The essence of operational art is to convert the given political objective (strategic goals) into achievable military objectives and to achieve these goals most skillfully, with least cost to own side. Hence this approach recommends innovative use of technology, firepower and manoeuvre as opposed to attrition to fight and win wars. A new, unique and creative operational design is conceived for every situation confronted so as to achieve the strategic goals with maximum efficiency and least cost. It involves a tri-Service approach to an emerging or existing operational problem and, therefore, advocates integration of all elements functioning in a theatre under a single commander and hence the conduct of the campaign, its sequence, methodology and procedures are jointly evolved.

Effects Based Operations (EBO). These are enabled by "network centric warfare". Improved and updated knowledge of the enemy through situational awareness along with the ability to generate accurate and lethal firepower and non-lethal effects against multiple targets in close succession allows for defeating the enemy without the need for the complete destruction of his forces or infrastructure. This demands a complete understanding of enemy sources of strength and coherence whereby use of relatively smaller number of strikes or manoeuvre forces will have disproportionate effects on the enemy's will and his ability to conduct future operations. EBO looks at our force structures from the perspective of achieving the effects desired. At the strategic level EBO requires close integration of military means with diplomatic, economic and other elements of national power. In other words EBO sets those conditions which defeat an enemy's ability to wage war rather than focusing on attriting his war fighting capability. EBO requires superior military capabilities, to be built into the force structures, through the use of technology coupled with innovative operational art.

Integrated Operations. We should transcend from joint operations to integrated operations to unleash the full potential of combat power of joint operations. This demands integrated command structure at military strategic and operational levels in the context of the campaigns in the future. We must progress to integrated regional theatres to achieve the type of synergy required to win wars in a short time frame.

Shared Fighting Culture. Currently the planning for war is peculiar and exclusive to each Service. Advocates seem to argue from a single Service perspective and there is a tendency to underplay a single Service weakness while overplaying its strengths. In the 2001 offensive that destroyed Taliban regime in Afghanistan, air power could not have succeeded on its own. Even if all structural targets had been destroyed from ramshackle command posts to the handful of ammunition depots and fighter aircraft and so on – the Taliban would not have been weakened significantly. Yet the bombing was effective. Information networking was the key to this responsiveness but the final resolution and discrimination for targeting was provided by small, mobile land forces that had secure satellite communications and accurate positional data to cue the weapon systems. Such employment and deployments will demand a shared fighting culture, a complete change in the way we plan and conduct military operations currently. This can be done through joint training and intense joint war gaming.

Address the Vulnerabilities and Weaknesses of the Opponent. To avoid attritional warfare and to use the asymmetry of even a superior opponent to our advantage, we should concentrate on his vulnerabilities and weaknesses. To learn this art we have to have detailed knowledge of our potential adversaries that is kept updated at all times, even during the conduct stage of war, through situational awareness. We have to prepare our senior commanders, for all contingencies through intensive joint war-gaming.

Rapid Deployment and Environmental Mobility. Future wars will demand such a capability to be used for proactive missions or as a reactive response to any developing situation.

This capability will be required across the board at strategic, operational and tactical levels.

Directive Style of Command. For successful application of innovative operational art, in future wars, the command style cannot be rigidly centralised as per our current practice. A more flexible style, which encourages risk taking and maximum initiative by subordinate commanders, will have to be adopted. This change of culture will also allow subordinates to conceptually grasp the higher commander's intention and the higher framework of war and facilitate the adoption of the manoeuvre approach to warfare in the Indian context, through all mediums (air, sea, land, space and ether) and in all types of terrain.

Manoeuvre. There is an imperative need to evolve manoeuvre approach as the key element underpinning our approach to war fighting, through all mediums and in all types of terrain including our mountainous regions because it targets vulnerabilities rather than mass. Our force development and organisations will have to cater for this capability, which in the future will involve close integration of air, ground and naval forces and other dimensions of warfare such as information war and psychological war.

Transformation Through Technology. We should achieve faster transformation through use of new technologies and innovations coupled with operational art. This will not only change the method of war fighting but also confer distinct advantages, which could be maximised through fusion of technology with training, organisational structure and force development.

Information Superiority. Information superiority is fundamental to the transformation of the operational capabilities of a joint and integrated force. It confers a competitive advantage in ones own favour. It is transitory in nature and must be created and sustained through conduct of information operations. The information revolution is progressing at such a rapid pace that there is a risk of being left behind if we are not constantly studying the phenomenon to examine how to use new findings to evolve new military concepts of exploiting information superiority for military gains.

Non-Linearity. This calls for an attitudinal change in the military mindset with regard to conventional and unconventional ground, air, sea and space operations. We should be able to translate our idea of fighting the close, intermediate and deep battles, in all five dimensions, in near simultaneity and synchronise the destructive effects of battles on the ground, at sea and in the air. This will require fusion of new technologies and a thorough understanding of operational art to psychologically imbalance the opponent and achieve cognitive effects targeted against his will.

Operational Wargaming. A tri-Service wargaming centre should be established for strategic and operational level war games, with gaming software, to analyse issues such as emerging threats, new settings, new technologies, new concepts and war fighting methodologies. Without such a facility we will not be able to validate the concepts and doctrines that should be adopted in the future. This is an urgent requirement.

Close Politico-Military Interaction. Given the restrictive aspects of short duration wars, nuclear backdrop and other factors, destruction of adversary's strategic forces or capture of large tracts of territory will neither be possible nor desirable. War aims will have to be modulated, tempered and calibrated according to the environmental constraints. Therefore, translation of political aim(s) to achievable military objectives of war and skilful conduct of war will require a close politico-military interaction throughout.

Visionary Leadership. Yet another requirement of the future is the need for enlightened leadership at military strategic and operational levels with a large enough vision to fully comprehend the entire perspective of strategic and operational level of warfare without over identification with tactical objectives. This mandates sound training and selection procedures and unbiased policies in which our track record is not flawless. The key attributes of operational and strategic level leaders are considered to be as under:-

(a) Professionally astute (possess a penetrating intellect).

(b) Vision.

(c) Wisdom.

(d) Contemplative and reflective approach.

(e) Self-restraint and self-control.

(f) Self knowledge (self realisation).

(g) Ability to inspire as a role model.

(h) Sacrifice of personal interest.

(j) Possess all attributes of intelligence, intelligence quotient (IQ), emotional intelligence and spiritual intelligence.

The transformation of the Armed Forces through technological improvements coupled with innovative operational art and application of combat power through joint and integrated operations should be the essence of our war fighting doctrine, which will confer distinct advantages over a potential adversary. We must acknowledge the genuine strengths and weaknesses of the three Services capabilities and achieve a level of integration, which will allow us to unleash the full potential of joint combat power. This is vital for preserving and furthering our national interests as a global and regional power in the future.