
CENTRE FOR ADVANCED STRATEGIC STUDIES



**AIR MARSHAL Y. V. MALSE MEMORIAL LECTURE
BY
DR. BHARAT KARNAD**

**INDIA'S STRATEGIC ENVIRONMENT AND ITS IMPLICATIONS
FOR MILITARY MODERNISATION**

08th July, 2008

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INTRODUCTION TO THE SECOND
AIR MARSHAL Y. V. MALSE
MEMORIAL LECTURE

ADMIRAL (RETD) J.G. NADKARNI, PVSM, AVSM, NM, VSM

Many people walk this planet, this earth. Only a few, very few, leave their footprints behind. Air Marshal Yeshwant Malse was one of those who left large footprints behind when he passed away two years ago. Pay a visit to Air Headquarters and you will still hear his name mentioned in the corridors. Go to the Eastern Air Command and the Air Marshal's presence is still palpable there, more than 35 years after he left it.

We are gathered here this evening to honour this man. Appropriately this lecture to his memory is being organized by the Centre for Advanced and Strategic Studies, an institution he founded and where I had the privilege of being a co-founder with him.

My association with the Air Marshal was comparatively recent. After retiring from the Navy we had decided to settle down in Pune. On my very first day at the RSI golf club when I was a little lost and looking for my way around, a kindly looking gentleman who had the look of authority saw me and enquired who I was. When I said I was looking for a partner he immediately took me under his wing and we became fast friends, a friendship which lasted for over 15 years.

I soon realized that I was in the presence of an extraordinary man, a man full of ideas, a veritable dynamo of action even at that advanced age and to whom the words "taking

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I soon realized that I was in the presence of an extraordinary man, a man full of ideas, a veritable dynamo of

action even at that advanced age and to whom the words “taking thing easy” were unknown. We discussed many things, the services, politics, economy and even sports. It was during one of these discussions that the idea of setting up a think tank in Pune came up. To the Air Marshal an idea, especially one which he liked, was not something to be discussed on the golf course and forgotten once you got home. During the next few months Yeshwant Malse was busy setting up the institution . I am sure those of you who have ever done this exercise will agree that it is not an easy thing to set up an organization. Willing participants have to be found, the articles of association have to be drawn up, a place to house the institution has to be found and above all good people have to be found to support the institution.

In all these activities Air Marshal Malse took a leading role. With his connections he persuaded Shri S.L.Kirloskar and Shri Navalmal Firodia to be our sponsors. He got the eminent bureaucrat Shri P.V.R. Rao to be our first president. When we found difficulty in getting a place of work, he willingly gave us a part of his house to start the institution. He drafted the Articles of Association and the Bye-laws and above all he got the institute registered. The fact that CASS is today a well established and well respected institution is simply because Yeshwant Malse was its original founder. Having done so much to found the CASS, he rarely took any credit for it.

Yashwant Malse was also a great human being. Knowing his qualities he was much sought after both by the Government and the private sector after his retirement. He was an adviser to the Maharashtra Government for the welfare of ex-servicemen. After the Kargil war the Sakal newspaper appointed him to a board to dispose of the funds the newspaper had collected and it was his novel idea to set up a series of advisory boards to advise the widows who had come into a lot of money at young ages.

A man of many facets to his personality, Malse had a puckish sense of humour. We pulled each other's leg incessantly on the golf course, he about the Indian Navy and I in return about the Air Force. It was all done in good humour and without any rancor. When an opponent mistimed his drive he would always say "Bad luck " and then turn to me with a grin and a wink.

We should be grateful to Mrs Malse and his family for deciding to keep his memory alive by arranging an annual lecture by some of the most prominent personalities in India. Last years lecture by the Air Chief is to be followed this year by a highly respected and well known defence analyst, Dr.Bharat Karnad. The Air marshal, who never missed a single event organized by his beloved CASS would have indeed been happy with the subjects of the talks which were dear to his heart.

Let us continue the legacy left behind by Air Marshal Malse. The work he undertook will continue and we will remember him forever.

AIR MARSHAL Y.V. MALSE MEMORIAL LECTURE
DR. BHARAT KARNAD
"INDIA'S STRATEGIC ENVIRONMENT AND ITS IMPLICATIONS
FOR MILITARY MODERNISATION

Military modernization is usually technology-driven. Or, it is driven by great power vision and ambition. Or, it is prompted by the threats posed by potential adversaries and their burgeoning capabilities. In India's case, great power status is as much the driver as the formidable military machine China is building up. India at present has a military that relies on mass and is capable mainly of fighting only second-generation wars. But the Indian Armed Forces will have speedily to transform themselves to effectively gain competency in third and fourth generation warfare, if they are to back up India's more assertive international presence and foreign and economic policies in the 21st Century.

Just so the concepts are clear: first generation war refers to primitive man-on-man massed engagements sans modern-era military technology; second generation war emphasizes firepower and attrition warfare; third generation war emphasizes information technology-enabled maneuver warfare; and fourth generation war conceives of smaller, lightly-armed, mobile, autonomous units directed by just enough processed data (without information overload) relevant to the current battlefield and the theatre of war, to be able to fight integrated and innovatively to a decision with operational agility, physical stamina, and endurance, logistics-wise. And 'transformation' refers to the process of makeover to radically overhaul not just the force structure and organization, the systems of logistics, intelligence, and decision-making but also the conceptualization of future war and ways of fighting it. The revolutionary advancements in the software aspects of war – the periodic exponential increases in computing speeds, the spectacular

improvements in the degree of connectivity, the remoteness of the sensors and targeting wherewithal, and in the lethality and precision of destruction with minimum collateral damage -- constitute the core of military transformation.

In a nutshell, a comprehensive modernization programme has to entail the speedy acquisition of the triad and the full panoply of strategic armaments with thermonuclear punch and intercontinental reach and, in the conventional military sphere, phased build-up of light mobile forces and Special Operation Forces (SOF) for offensive maneuver warfare in the mountains, including Kashmir, and on the Tibetan plateau, and as the lead expeditionary element. The augmentation of air and naval assets of army operations and to project power, initially in Central Asia and the Indian Ocean basin, and naval muscle eventually for sea control and sea denial of distant Asian waters east of the Malacca Straits, is a must. All these forces, will have to be operationally plugged into space-based sensors and a fleet of land and sea-based remotely-piloted surveillance, target-tracking and missile-firing drones.

The Changing Nature of Conflict

Conventional wars of the kind the Indian armed forces are equipped to fight – tank-on-tank engagements and movement of massed forces – may be a thing of the past. Future conflicts will feature, at one end of the spectrum, low intensity warfare and involve small unit clashes and interminable anti-insurgency and anti-terrorist operations and, at the other end, a nuclear equilibrium wherein states with more sophisticated nuclear and thermonuclear orders-of-battle seamlessly meshing with the conventional military organization and plans, will in crisis and contingencies, have the advantage. Sophisticated, multi-missioned, nuclear arsenals will be the mailed fist behind policies

of persuasion, pressure, intimidation, compellance and coercion aimed at non-nuclear states, threshold states, and even countries with untested, unproven and relatively primitive nuclear deterrents, such as India.

These two ends of the conflict spectrum are enlarging at the expense of the "great middle" relating to conventional military actions and capabilities involving big field armies and short-legged air forces India possesses. The capital ship, however, remains the autonomous operational unit at sea and still the best means of showing the flag, imposing law and order in the proximal seas, protecting the exclusive economic zone, policing the extensive oceanic trade and energy highways, especially the oil-bearing traffic in the Eight Degree North and the Nine Degree North channels, etc. and, if pushed, for warfighting. The most challenging adjustment will involve the restructuring of the existing military into more usable and useful forces.

Grand strategy, by definition, cannot be modest and there is no reason why India, expected by the 2030s to become the third richest country with an economy of around \$28 trillion, cannot mark out its defensive geostrategic perimeter expansively and to control the quadrant bound by the East African littoral, with the line going north to the Caspian Sea before east across Central Asia and encompassing Tibet, before reaching downwards to east of the Malacca Straits and the western approaches to Australia and closing up with the side in the southern Indian Ocean. The idea being to continuously improve India's relative power, leverage and bargaining position vis a vis China, the United States, and the other two nodes of emerging international power, the European Union and Russia. While the Indian government's characteristic diffidence, tendency to servile conformism – as reflected in the civilian nuclear cooperation deal with the US -- and pusillanimity is troubling, the Indian Armed Services will have to be orient and

prepare themselves for a more active role in the future.

Changing the Threat Focus

The trouble with Indian military modernization is that so far it has been of the incremental, replacing an older weapon system with a newer version of the same genus of armament, kind, when what is needed is modernization as genuine military transformation to enable Indian armed forces effectively to fight the wars of tomorrow (rather than of yesteryears). But such a transformational initiative will demand – as first order of business -- the shifting of the military fixation away from Pakistan.

I have long argued that Pakistan is less a military threat than an, albeit serious, military nuisance. The disparity in the size and resources of the two countries is so great and growing, no credible case can be made for Pakistan as the principal foe. Accounting for 72% of the population, 72% of the region's land space and, by the late Nineties, 75% of the wealth produced in South Asia, India in the new century is in a still better situation. Its estimated Gross Domestic Product (GDP) of \$1.09 trillion by end-2007 was more than ten times that of Pakistan's \$106.3 billion -- which figure, incidentally, is less than a quarter of the market capitalization (\$466 billion) of just the Mumbai Stock Exchange. Unsurprisingly, the Indian defense expenditure is five times that of Pakistan, which differential is likely to grow along with India's economic growth accelerating at a pace that is set to equal US' GDP by 2050. The widening economic and resources gap renders the prospect of Pakistan as a serious competitor, leave alone a rival, to India militarily meaningless. The sheer inequality also reduces to near zero the possibility in the future of all-out conventional hostilities in South Asia; a nuclear exchange is even

more remote. In this context, nuclear weapons provide reassurance to Pakistan and confirm the system of meta-stability in the region, which is anchored in the fact of the extremely limited conflicts that the two countries have until now been engaged in owing to the organic ties of kinship, and shared religion, language and culture, which factors are reinforced by the growing electoral clout of the Indian Muslim community. In this unique context, total war or war of annihilation is politically impossible for Delhi to order. In the event, India-Pakistan "wars" have resembled, as the late Major General D.K. Palit famously noted, "communal riots with tanks". It is the reason for the absent "political directives" from the government and its "loss of nerve" in crisis that military-men often bemoan.

But not all the transformational capabilities can be bought or built at the same time. Even with a galloping economy (growing at an average of over 7% in the last seven years), competition for national resources will persist. If the paucity of resources is unavoidable, the least that can be expected is that the difficult military modernization choices the government makes will be the correct ones. The reason India cannot afford to err too much is, at a fundamental level, because it is pitted in Asia against an even more economically vibrant China able to devote immeasurably vaster sums to support its ambition and grand strategy. Based on current trends of India spending some \$20 billion in 2008 on national security and China nearly \$120 billion (Beijing owns up to only a third of this figure of some \$40 billion), India's security expenditure is expected to rise to \$50-odd billion by 2020, and China's to roughly \$300 billion. It leaves India with little margin of safety or, indeed, for error in force planning.

The geo-strategic logic for China as India's main rival and competitor in Asia is obvious and does not need belabouring. The point to note is that the Manmohan Singh regime's policy of

appeasement – hoping the prospects of \$60 billion trade by 2020 will soften Beijing's attitude on the border issue – has predictably been answered with renewed Chinese belligerence and determination to push India to the margins in Asia and the world. But suffice to point out that there could be war with China in the decades ahead for several reasons. Among these is (1) the unresolved border dispute with escalating Chinese claims on all of Arunachal Pradesh and parts of Sikkim; (2) the damming and diversion of the Yarlung-Tsangpo River in Tibet northwards at the bend before it enters India as the Brahmaputra; (3) the sharpening contest for energy and scarce natural resources in places as far off as Africa, Latin America and Central Asia; (4) the China-Pakistan nuclear and strategic nexus and China's firming up its bases in Myanmar and in Gwadar, transit facilities in the Maldives, and generally its naval and military presence in India's backyard; and, (5) the Tibetan Nationalist Movement and India's ultimately playing the "Tibet card".

Strategic Capabilities

If the sea was the prime strategic medium of the 18th and 19th Centuries and the Royal Navy the United Kingdom's strategic rapier as well as broad sword, post-1945 thermonuclear forces have dominated the strategic and international politico-military space. But some fifty years after Independence, a latter day variant of India's historic "sea blindness", that is "strategic blindness" afflicts Delhi, in the main, because of its myopic notions of minimal deterrence that has led to a belief in minimal deterrence and a small sized force with the simple fission design as a proven weapon system in its armoury. The hydrogen bomb and the intercontinental-range ballistic and cruise missiles are yet to be appreciated as the tools to realize India's legitimate great power ambitions. For deterrence, dissuasion, and compellance purposes, a minimum force by 2030 of roughly 400

plus boosted-fission and thermonuclear warheads/weapons, a fair number in the megaton range, riding 25 ICBMs and 40 IRBMs and onboard a fleet of at least five nuclear-powered submarines (SSBNs), which will permit at least two of these boats to be on station at any given time, and a squadron of strategic bombers – Tu-160s obtained on lease-buy basis from Russia. But this strength of 400 plus nuclear weapons should be on a sliding scale, coupled formally to the size of the Chinese nuclear arms inventory. If China builds up for any reason beyond its current level of 500 plus nuclear weapons, India should follow suit with a proportional increase.

Hence, as priority, the Indian thermonuclear weapons and designs need to be proof-tested – something sought to be prevented by the India-US nuclear deal, the reason why it is a liability and should be rejected. Thus, an open-ended nuclear testing regime is required to verify and validate a host of advanced boosted fission and thermonuclear weapons designs, including the design that fizzled in 1998. These weapons need to be tested, moreover, when affixed on all the designated vectors. Secondly, an equally active scheme to develop, test-fire, and rapidly induct into service the 5000 km plus Agni-V, the 12,000 km range ICBM, and the Sagarika SLBM upgraded to genuine IRBM range, has to be initiated. Thirdly, while the indigenous nuclear-powered submarine project needs to be ramped up to serially produce the follow-on SSBNs – the most secure and invulnerable leg of the triad -- after the first one is pushed into harbour tests in 2010, a parallel program to the conventional air defence ship under construction in Kochi, to produce a nuclear-powered aircraft carrier – with the 100 MW miniaturized enriched uranium reactor of the SSBN – should be fast-tracked. Fourthly, the acquisition on lease-buy terms from Russia of two or more Akula-II SSNs are an urgent necessity. These SSNs are the most effective means of tailing and harassing Chinese naval ships that venture into the Indian Ocean, and to make Beijing aware of how

tenuous their presence should it venture this far from home shore.

It follows that the Strategic Forces Command (SFC) has to be fully operationalized and the system of the Indian Navy and the Indian Air Force in a crisis transferring control of the platforms under command to the SFC, needs to be streamlined. The SFC needs to have at least a fair number of these assets under its control in peacetime in order to hone their skills in communications in crises, specialized nuclear delivery and warfighting. It will reflect force "readiness" and inject credibility into the country's nuclear deterrent. Considering the "the bunker buster" low yield nuclear weapons in the employ of many advanced nuclear states, including China, that can be used to preemptively destroy underground command posts and nuclear command and control links, the need for a series of redundant command posts is obvious, preferably housed deep under mountain massifs of the Himalayas and even the Western Ghats. A number of such complexes deploying the Agni IRBMs have already come up. This will ensure that under no circumstances can near-ready Indian nuclear forces and the Government and SFC's control of the nuclear weapons, can be taken out. The mountain tunnel basing of missiles targeted at China is a prudent option, especially because the option of the railway flatbed car-mounted-Agni missiles is extremely vulnerable to preemption owing to the latest satellite-based mobile target tracking capability China has now secured.

Theatre-level Warfighting and Power Projection Capabilities

The short-ranged mainly Pakistan-oriented Indian armed forces optimized for short duration, indecisive, wars will have to be radically overhauled to project meaningful military power and

to wage distant limited wars. The restructuring can be affected in stages over the next 30 years. This is expeditionary or force projection capability and India was among only five countries in the world to have it, courtesy the two airborne Divisions in its orbit circa 1945, both of which were demobilized a few years later. Other than maintaining a sufficient holding force for a Pakistan-related contingency, this capability can be derived from the extant plains infantry Divisions. At present, there is one paratroop brigade and, on the amphibious side, the Andaman Integrated Command cannot field a force larger than of brigade-strength for interventions from the sea into littoral states whose regimes may be in distress, under threat from major adversary countries, or who may be resorting to actions deleterious to Indian national security interests. A minimum force requirement is two Divisions able to succeed in contested intervention in the area bounded by the entire Indian Ocean littoral and, landward, as far north as the Central Asian Republics. One Division each for amphibious and airborne operations with the appropriate support establishment, including right-sized logistics and sea and air heavy lift components, is necessary.

The deployment of the bulk of the Division-strong ready amphibious force will have tremendous political impact in the region if most of the force assets are stationed in-area with at least a small flotilla of sea lift ships anchored in Port Blair and half a squadron of large transport planes for heavy air lift and a like-sized unit of combat aircraft to provide fighter cover for any operations based in the Andaman Sea. A second navalized Jaguar Squadron ought to be raised for permanent basing in the Nicobar Islands. The time is high to secure from Vietnam permission to deploy (whether we immediately deploy our assets there or not), on long-term basis, Indian warships and aircraft at Cam Ranh Bay in the South China Sea by offering Hanoi various inducements it cannot easily resist, like ready Prithvi missiles, missile

technology and nuclear wherewithal, which the Vietnamese government and military will appreciate. It will be tit-for-tat policy, with such measures leveling the strategic playing field vis a vis a coldly calculating China which, armed Pakistan with nuclear weapons and missiles.

For reasons of strategic presence in the Indian Ocean, it is imperative India obtains on long lease the ex-RAF base at Gan from the Maldives government as well for a permanent strategic air presence in that part of the Indian Ocean expanse. The Abdul Gayoom regime owes its survival to the Indian military's Operation Cactus and is unlikely to refuse, especially as an Indian military presence on its islands will be a permanent deterrent to future adventurers and potential coup d'etat-ists. The Gan base, for starters, can embark maritime reconnaissance planes armed with anti-ship missiles and torpedoes, and provide Indian flotillas on distant patrols. It can also be used for pre-positioning stores and as a jumping off point for military assistance to friendly states on the East African coast.

By way of restructuring the present army, it is imperative that the 19 army Divisions tasked for defensive positional warfare in the mountains, have an offensive war component, to start with, in 3-4 Light Mountain Divisions able to initiate engagement and stay with an up-tempo pace of fighting on the Tibetan plateau and elsewhere on the other side of the Himalayas. The current strategy based on the line of pre-positioned stores behind the Line of Actual Control constricts the army's tactical options, compelling it to accomplish the difficult job of fighting defensively uphill, without the recourse to push the Chinese Peoples Liberation Army on the defensive. This will require the Light Mountain Divisions – other than the forces debouching from the Demchok Triangle on to the Tibetan high altitude desert, to be provided with a strong air lift component to get them, in the

first instance after hostilities have commenced, "over the hump" and on to the flatland ready to prosecute sustained offensive action on "Chinese" turf. As part of obtaining the capability to take the fight to the PLA, the placing of a fairly substantial formation of light tanks in the Demchok Triangle, will be fruitful in operations to, say, cut the Chinese mainland's lifeline to Xinjiang, the Lhasa-Xinjiang Highway. It is this offensive capability that will help neutralize the inherent high ground-advantage the PLA holds in any potential confrontation with its Indian counterpart. But for offensive-defence to be viable, the IAF has to have strike forces ready in support of land force operations. IAF's insistence on its primary role of establishing air superiority at the expense of other missions, like ground support, will continue to limit the army's efficacy and is the most telling argument in support of the army's insistence on having its own air force (of helicopters).

The IAF has also restricted its ambit of operations by its choice of aircraft - mostly air-defence fighters, fighter-bombers and multi-role aircraft that fully laden have only short radii of operations. While the Su-30 MKI is talked of as a strategic bomber it is effectively only medium range capable and without midair refueling it cannot make bombing runs to critical Chinese targets. In war time, the need for placement of aerial tankers en route to targets while evading Chinese land based air defence sorties will become tricky business, and complicate the tactical routing of the Sukhoi-30s. The opportunity in the early 1970s to obtain the Tu-22 bomber was missed, but the more advanced Tu-160 should now be the IAF's priority strategic acquisition. It will firm up that leg of the triad, give the country a recallable manned strategic bomber option and the air force a genuinely strategic role. In order to stretch its operational legs will require the IAF to add hugely to its aerial tanker fleet.

The navy is dogged by the delays in the Gorshkov-Vikramaditya project and the ancient Hermes-Viraat will have to be persisted with for lot longer than was originally planned. But the paucity of carriers shows up the real costs of unconscionable delays in approving the indigenous AD ship programme and an inability still to work the Russian system on the Gorshkov, despite some 40 years of exposure to the Russian defence industry and way of doing things. Further, power projection and distant presence missions, while possible in short bursts, have been hindered by an unimpressive capital ship-to-tanker ratio, which makes it impossible for Indian naval ships to operate far from home base for long periods of time, leave alone mount decisive fleet action. The strength of tanker/replenishment ships need, at a minimum, to be quadrupled.

Subconventional Capabilities

The most effective instrument to fight terror and insurgents in the years to come will be Special Forces (SF), which are best able to prosecute anti-guerilla and anti-terrorist actions, fight minor bushfire wars, and be the lead element in affecting rapid intervention. Special Forces will have to be hugely increased to eventually two Divisions equivalent. Besides their utility in the expeditionary/interventionary mode against the Chinese PLA Airborne brigades and Special Action Forces in Tibet, and in fighting the jihadis in Kashmir, the central government, owing to the growing failure of state police, may end up ultimately calling on the SOF to quell the Maoists and other insurgents, whose elimination requires action by stealth.

Except that the two Division-strong Special Forces will have to feature more than the paratroop-type of units that in and of themselves define the Indian SOF today resulting in the Indian

Special Forces being not particularly versatile. This, possibly fatal, weakness is reflected in their limited technical and other skill-sets. To correct this anomaly, it is necessary to get the SF out from under the control of the Parachute Regiment and for the best use of the SOF as strategic asset all Special Force elements in the three Services should be controlled by a separate Special Forces Command in the Ministry of Defence.

IT-enabled Jointmanship and Space-based sensors

Jointmanship has been talked about more than it has been implemented on the ground. Small consolation this but in combined operations, the Chinese PLA as well as the Russian Federation armed forces may not be much better off, both being at a level an American expert recently described as “non-existent”! Whatever the other reasons for the individual Services' resistance, a genuinely “combined ops” mindset necessary to propel joint operations may have to await the government's appointment of a Chief of Defence Staff and a setting up of CDS secretariat.

With the fast improving indigenous satellite-based infrared and photographic sensors for strategic intelligence and the availability of sensor-laden drones for tactical intelligence the battlefield has been rendered partially “transparent” for the Indian military. The trouble though is that the extant great powers, especially US and increasingly China, the military space in all the three mediums – land, sea and space, is almost wholly transparent. This differential in transparency may be the crucial difference that will handicap a low capability country like India in any confrontation with a major adversary. This disparity cannot be tolerated for much longer. And one way speedily to bridge the gap may be to involve the country's private sector IT more fully in

the development of the software and attendant technologies both for active self-defence and for aggressive cyber war – something the Chinese are making huge investments in. The proof of this Chinese effort is in the repeated hacker attacks on Pentagon communications networks and other secret facilities.

Transparency is the product of an array of satellites bearing loads of photo-imagers, infrared and other sensors-acquired data being downlinked to end-users on real time basis, with the continuously changing coordinates of mobile targets at long range to guide precision munitions, being the acme of such technical proficiency. India is still far from realizing such capacity, which will require, for starters, a system of at least 24 military satellites with a footprint over most of southern Asia and China, some of them low altitude-orbiters for tactical intelligence and tracking and missile targeting, others in geosynchronous orbits for continuous real-time coverage of the entire enemy terrain. But, with sufficient investment in a series of low altitude micro-satellites – jointly developed and launched with Israel – to complement the Indian satellite building capability for medium altitude and geo-synchronous earth orbiters, a layered space security architecture is eminently achievable in the next three decades. With space assets becoming critical to the conduct of military operations, so do anti-satellite weapons to knock out Chinese satellites. It is good the government has finally woken up to this need and sanctioned monies for developing such weaponry, which China last year showed it possesses.

How to Bear the Conversion-cum-Modernization Cost

The plan outlined above in broad brush strokes is ambitious, not least because of its mainly strategic orientation. This strategic focus is prudent because weapons effective over

longer ranges can be used in shorter range contingencies, but the reverse is not true. But, if the Armed Services persist in their present thinking and ways, it will mean their choosing deliberately to dwarf their future capabilities. There are no soft alternatives to converting the Indian military into a strategic force of consequence capable of forcefully backing the country's larger political objectives.

But the conversion of the Indian military from a mainly subcontinental theatre force to one that can operate at considerable distances, has costs but nothing that cannot be borne if several things are done. There are four things the government can do. It can speedily implement the recommendation of the 11th Finance Commission and increase the defence spending to three percent of the Gross Domestic Product. Secondly, it should have a separate budgeting stream for strategic forces, so the conventional military does not feel as if strategic and nuclear capabilities are being obtained at their expense. Thirdly, it can reorganize defence budgeting on the basis of costing missions/roles, as is done in most advanced countries. And fourthly, it should resist the internal calls and external pressures for making huge but wasteful investments precipitately in unproven and immature technologies, such as those relating ant-ballistic missile defence.

The rest is within the purview of the Armed Services. What mission/role based costing/budgeting will show, for instance, is that the 26%-32% of the total defence budget – the average over the last 40 years – expended on armoured and mechanized forces is excessive, considering the ever shrinking threat from Pakistan. And that, the army's allocations would be better spent on diverting manpower and resources to raising three to four Light Mountain Divisions for offensive operations by converting two of the three extant strike corps for offensive mountain warfare. This will

diminish the scale of requirements for such things as self-propelled artillery, freeing up funds for other programmatic thrusts.

Funds can also be better used by rethinking the central principle of incremental modernization India has to-date adhered to – the purchasing of new, exorbitantly-priced, weapons platforms, when older ones can perform almost as well by retrofitting them with the latest electronics/avionics, night vision equipment, and fire-control computers and allied systems and weapons. This is because the basic platforms, especially tanks and combat aircraft, are at the end of their useful lives. For example, there is nothing mission-wise that even the most advanced combat aircraft can do that sophisticated RPVs cannot do better. Indeed, the man in the cockpit losing consciousness in aircraft pulling sustained turns at 9 g's cannot hope to outmaneuver missiles able to turn at 11 g's, and has become a liability. Futuristic air forces will be monopolized by lethal remotely-piloted aircraft. So, it makes sense to upgrade the performance of aircraft in the inventory with retrofits as an ad interim measure until such time as the drones take over most of the IAF missions.

More efficient use of the defence rupee can also be achieved by merging the separate logistics and intelligence organizations in the three Services into integrated Logistics and Intelligence Commands under the Ministry of Defence, in lieu of a CDS. And defense industry needs to be privatized. The optimum solution would be to divide up as equally as is possible, the nearly forty odd defence science and defence research and development laboratories and ordnance factories in the public sector into two competing defence industrial complexes but headed by the two best known, most ethical, private sector Companies in the defence business, say, Tata and L&T (Larsen and Toubro) and leave it to

these two large combines to produce weapon systems prototypes meeting individual Service QRs, with a fixed amount of public funding. They would be free to import the required technology, develop it in-house, outsource, sub-contract, and otherwise win the production contract, with evidence of performance provided by a face-off between the prototypes. This was a scheme I had fleshed out in a paper as a member of the National Security Advisory Board over a decade ago. It will not only hugely increase labour productivity but by introducing competition, profit motive, and the prospect of arms exports, turn the Indian defence industry into a revenue earner (instead of a sump in which public monies are drained) and put it on the cutting edge of technology, making advanced weaponry available weapons at reduced unit and transaction costs. It will also permanently do away with the interminable acquisition process and eliminate the "politics of commissions" involving foreign suppliers.

There has never been a real dearth of money for defence use; it is just that it has usually been frittered away by sub-optimal usage on capabilities that neither increase either India's military clout nor reach, nor further its great power ambition.

Conclusion

Most advanced countries have been mulling over the characteristics of the "Army (Air Force or Navy) after Next" for many years. Many of the ideas germinating in such exercises are being researched and systems incorporating cutting edge technologies developed and tested as prelude to induction. Compared to the advanced militaries, the Indian Armed Forces, apparently, seem averse to changing their habit of mind even when confronted by lack of success as judged by effects-based criteria. Thus, tried and failed solutions are persisted with. Like

the use of massive field armies, instead of Special Forces, to fight the guerilla insurgents, for instance. Or, the air force's preference for high-end weapons platforms rather than weapons or specific mission enabling technologies retrofitted on slightly older aircraft. And the army's going in for the T-90 tank when the T-72S could have done as well by various technology retrofits.

Worse, the Armed Services seem, by and large, to have their strategic blinkers on (if their acquisitions plans are any guide). This has left strategic thinking to the government which is what the Services' pleading for "political directives" is all about. But the government, as the record shows, is in many ways far less qualified and mentally equipped to think strategically about issues affecting the country's national security and the transformation of the armed forces. In the event, what India is faced with is a situation in which the infirm are being asked to lead the disinterested into a military cul de sac, if not over a strategic abyss.

**CONCLUDING REMARKS BY THE CHAIRMAN
LT GEN (RETD) R.K. NANAVATTY, PVSM, UYSM, AVSM**

Ladies and Gentlemen,

Dr Bharat Karnad - with his refreshingly bold and imaginative strokes - has painted a vast canvas this evening.

He mentions the twin factors that he thinks should drive India's military modernisation; he identifies the essentials of such modernisation; he emphatically argues for an expansive grand strategy and geo-strategic perimeter; he is unambiguous in stating that China is India's principal rival, is dismissive of Pakistan's military capability and calls for a shift in focus from Pakistan to China. Dr Karnad goes on to suggest the broad restructuring of the Indian Armed Forces; the acquisition of military bases in our area of interest; the means of exploiting cutting-edge technologies; and innovative ways of involving the private sector in Defence related research, development and production. He even outlines measures that will enhance Defence spending and improve fiscal discipline. Strong strategic weapons forces, special operations forces, expeditionary forces, and light mobile forces for offensive operations in the mountains is his underlying theme.

Clearly, Dr Karnad is no dove. He has this enviable and uncommon ability which enables him to gaze into the crystal ball. And, he is unafraid to speak his mind. I found his talk exciting and enthralling. It has certainly set us thinking. It also raises several questions.

Is India destined to be a great power simply because of its double-digit economic growth coupled with a few favourable

factors? What about several other intangibles that are conspicuously lacking – leadership, national will, discipline, the rule of law and internal stability?

Most analysts will readily acknowledge the existing – and steadily growing - military and economic disparity between India and Pakistan. Unfortunately, Pakistan does not. How else can one explain its persisting with a deliberate strategy to destabilise India through subversion, terrorism and covert war – Fourth Generation War? Can India's current approach - sans all forms of military pressure – result in the normalisation of relations between the two countries? Whereas conventional general war between our two countries is improbable can we afford to shift focus from Pakistan?

An analysis of the term Fourth Generation War suggests that military style combat is only a small part. Should we refer to it as war at all? Is it the responsibility of the military to deal with it? If the answer is yes, then – as Martin Van Creveld said several years ago – the Army should become the police. Today, the nation needs modern, efficient and effective police forces as much as it needs modern armed forces.

Dr Karnad disfavours the Indo-US Nuclear deal. His stance appears contradictory: can India - in isolation - acquire the technologies and stature that his vision demands? He says that strategic weapons - thermo-nuclear weapons - are a means of deterrence, dissuasion and compellance. He is obviously of the view that the concept of minimum nuclear deterrence is inadequate. In today's world can nuclear weapons be used as a means of compellance? Does it imply that India should be prepared to fight a nuclear war?

Today we speak of wars of necessity and wars of choice. In a

situation where even the most powerful seek to build coalitions is it realistic to assume that India - in isolation - will have the freedom to embark on a war of choice? What is the likely shape of future war with our principle adversaries - China and Pakistan? What are India's likely political and military objectives in the event of war? If a strategic offensive can only be linked to a freedom struggle can the strategic defensive alone ensure the territorial integrity and security of a nation? What impact will such an approach have on the restructuring of forces?

In conclusion, Dr Karnad voices his concerns over the infirm leading the disinterested into a military cul de sac. Is higher military leadership in the country capable of playing its role in the formulation and articulation of national strategy? Will the political-bureaucratic combine permit the military the space that it needs and will it heed what it says? How should the military assert itself and fulfil its legitimate role?

Dr Karnad, thank you for a very interesting and stimulating talk.

