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THE FEEL OF EXPERTISE,
THE POWER OF EXCELLENCE . . .

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National Governance and Internal Security

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There is always a crucial link between "National Governance" and "Internal Security". If Internal Security is not maintained Governance cannot be delivered and there would be grave threats to the very unity and integrity of the country. Likewise, Internal Security cannot be safeguarded if Governance is delivered by an inefficient and corrupt administration.

It is perhaps not necessary to define Governance. However, in the simplest terms, governance relates to the effective management of national affairs at all levels of functioning – guaranteeing the country's unity and integrity and securing the safety and overall welfare of its people. For the attainment of these objectives it would be essential that political, economic, executive and judicial authority is exercised in a manner which ensures that the people are enabled to enjoy their rights, discharge their obligations and resolve their disputes within the parameters of the Constitution and the Rule of Law.

Our exhaustive Constitution provides the basis of the relationship between the Union and the States and delineates the Legislative, Judicial and Executive framework within which the Union and the States shall discharge their respective responsibilities for delivering governance. The Preamble to our Constitution provides the key to its philosophy: it enshrines the sovereignty of the people and envisions a socialist, secular, democratic republic based on justice, liberty, equality and fraternity.

The principles of governance of our country are excellently enunciated in the chapter on Directive Principles of State Policy in the Constitution of India. It has been laid down (Article 37) that the provisions contained

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This is the text of the Admiral R.D. Katari Memorial Lecture delivered on December 7, 2007.

in this chapter shall be "fundamental in the governance of the country" and that it shall be the "duty of the State to apply these principles in making laws".

The founding fathers of the Constitution of India were acutely aware that political democracy would have no significance unless it was accompanied by social and economic democracy. It was their belief that, within the democratic framework, clean and efficient governance would transform the social, economic and political life of our people and build a strong, prosperous and vibrant nation. The Directive Principles, described as the `core' or the `conscience' of our Constitution, provide the goals and guidelines which, if vigorously pursued and timely implemented, would have led to removing the inequalities and disabilities suffered by large segments of our society and thus paved the way for the achievement of social and economic justice.

We have still to traverse a very long distance to achieve our nation-building goals. About a quarter of our population still lives below the poverty line. The persistence of large-scale poverty and illiteracy, the lack of employment, shelter, clean drinking water, basic sanitation and health care, food and nutrition, and the yawning gaps in the achievement of various other vital developmental targets manifest the serious failures of national governance. The default in achieving social and economic justice has perhaps been the most signal failure.

The failures of governance have led to the recognition that governance shall become honest and effective, and inequalities shall start reducing, when the people are empowered and the communities are enabled to manage their own affairs. In this context, the 73rd and the 74th Amendments to the Constitution provide the constitutional mandate for the provision of self-governance through the establishment of duly empowered rural and urban local self governing institutions. It is a matter for deep regret that the States have still to evince the required political will to effectively pursue the path of democratic decentralisation.

Thus, today, in large parts of the country, the people's sovereignty still means no more than the right to exercise their vote whenever elections are held. It is, however, a matter for enormous satisfaction that despite failures on various fronts and despite the serious shortcomings of the electoral processes, the spirit of democracy stands deeply rooted in our country.

Among the many reasons for the continuing failures of governance a significant factor has been the instability of the political regimes in the States from around the late 1960s and at the Centre in the past decade and a half. From 1989 onwards, there were six governments at the Centre in less than a decade. It has also been seen that frequent elections have not invariably engendered conclusive outcomes. In recent years no single party or pre-poll alliance of parties has succeeded in securing a clear majority. Unstable coalition governments in the States, perennially occupied in combating threats to their survival, have failed to deliver effective governance.

It may be relevant, to observe that, over the years, the politicisation of caste and communal identities has led to divisiveness and disruption of the national ethos. The failure of the electoral system to prevent anti-social, communal, undesirable and even criminal elements from contesting and winning elections has contributed to the progressive decline of the polity and the consequential failure of the State Assemblies and the Parliament to effectively discharge their vital constitutional roles.

Consequent to the 1993 serial bomb blasts in Mumbai, a Committee was established, on the direction of the Prime Minister, to enquire into certain aspects of the bombings. In September 1993 this Committee, generally referred to as the Vohra Committee, had reported the existence of a deep nexus between political personalities, public servants and crime syndicates. As per the Director CBI's report to this Committee "all over India crime syndicates have become a law unto themselves. Even in the smaller towns and rural areas, muscle men have become the order of the

day. Hired assassins have become part of these organisations. The nexus between the communal gangs, police, bureaucracy and politicians has come out clearly in various parts of the country". Quoting the Director Intelligence Bureau, the Committee reported that the Mafia network is "virtually running a parallel government, pushing the State apparatus into irrelevance" and that in certain States " these gangs enjoy the patronage of local politicians, cutting across party lines, and the protection of functionaries …. Some political leaders become the leaders of these gangs/armed senas and, over the years, get themselves elected to local bodies, State Assemblies and national Parliament". By all accounts, over the past decade and a half, this criminal nexus has enlarged and extended its reach.

Governance has been adversely affected also because political leaders remain incessantly preoccupied with the narrow, sectarian and partisan interests of their parties and the pursuit of day-to-day political gains, and have no time or patience to attend to the crying needs of the common man. The failure of the political executive to devote sustained attention to its constitutional responsibilities has led to the governmental functioning in the States being marred by gross delays, inefficiency, insensitivity, unaccountability and pervasive corruption.

Today, thanks to the information technology revolution and the fast spreading reach of the media, the awareness and expectations of the average citizen have been significantly enhanced. This has, correspondingly, generated much deeper dissatisfaction with the failures of governance. Unless urgent and ruthless steps are taken to check maladministration and corruption the anger and disgust of the common people, particularly the disadvantaged and oppressed elements, could lead to their alienation. And past experience has shown that alienated elements can be easily lured to adopting the gun culture and joining unlawful networks whose activities cause serious public disorders.

In the past decade and more, despite the constraints of governance under coalition governments, the rate of the country's economic growth has

been consistently higher than at any time in the past. It is heartening to observe that the new economic strength is being utilised to significantly enhance the investments in human development and poverty eradication programmes and for the execution of varied schemes for improving the quality of life of the common man.

In the obtaining environment of steady economic growth and dynamism, the interest of foreign governments, companies, investors and entrepreneurs has been growing steadily. Quite understandably, foreign investors would keep a close watch on the situation in our country, to be assured of the security of their assets and holdings. In this context, national governance has the super-added responsibility of ensuring that internal security is effectively maintained to promote our growing international trade and business interests which are vital for the steady growth of our economy.

Let us now take a quick look at the constitutional position in regard to national security management in our country.

The safeguarding of national security encompasses eternal vigilance to meet every threat to the Indian State from every possible source within the country and from anywhere across its land or sea borders or from across the air space.

Broadly speaking, national security would comprise external security, i.e. safeguarding the realm against any external threat, and internal security, i.e. maintenance of security within the entire country. National security management would also encompass employment, food, water and shelter security; fiscal and economic security; energy, science, technology and environment security; cyber security, et al. However, for the purpose of this Lecture I shall speak only about issues relating to internal security management.

For appreciating the implications of internal security it may be useful to keep in mind the physical parameters of our concerns which, while being generally well known, are invariably forgotten.

India is the seventh largest country in the world with an area of about 33 lakh sq kms. It has land boundaries of 15,200 kms, over 600 island territories, a coastline of over 7500 kms and an EEZ of 25 lakh sq kms. We have land frontiers and maritime boundaries with half a dozen neighbouring countries. Except some of our hinterland States, e.g. Haryana and Madhya Pradesh, all other States and some of the Union Territories have one or more land or sea borders which require to be guarded. Our borders with Pakistan and China are militarised; those with Pakistan have generated a variety of threats ever since Independence.

While discussing India's security concerns it would also be useful to remember that our country represents an immense cultural and geographical diversity and socio-religious traditions which go back to 5000 years of recorded history. The well over a billion people of India comprise multi-racial, multi-religious, multi-lingual and multi-cultural societies. We have 22 major languages and over 1500 dialects. Every major religion in the world is practiced in India. The roots of India's secular and pluralistic traditions are imbedded deep in our ancient history.

India's internal security problems, arising from varied sources, are influenced by a host of factors among which are its past history, geography, colonial legacy, a burgeoning population, sharp social and economic disparities and complex socio-cultural and ethno-religious traditions which interplay freely in our secular democracy. As events in the past decades have shown, regional and global developments have also been impacting significantly on our security concerns.

Under our Constitution, "Public Order" and "Police" are included in the State List (List II, Seventh Schedule). Consequently, for maintaining internal security the States have exclusive powers [Article 246(3)] to make laws and take all necessary executive action in respect of both the aforesaid subjects. Thus, in the normal circumstances, the States are responsible for maintaining internal security within their jurisdictions.

As regards the Centre's responsibility, the Constitution prescribes [Article 355] that it shall be the duty of the Union to protect the States against external aggression and internal disturbances and to ensure that the governance of every State is carried on in accordance with the Constitutional powers, failing which Presidential Rule may be imposed [Article 356] in the defaulting State, till constitutional functioning can be restored. The Constitution also provides [Article 352] for the enforcement of Emergency if a situation exists or there is an imminent danger of the security of India being threatened by war or an armed rebellion.

Looking back, from 1947 onwards the country has faced varied internal security problems. Some of the more serious threats have emanated from Pakistan's unceasing efforts to seize J&K and its sustained strategy to create chaos and disorder to de-stabilise and "break up" India.

India has been facing increasing internal security threats in the past years and, as today, the public order in about 40% of the districts is seriously affected by insurgencies, terrorist activities or political extremism. From around the early 1980s the Pak ISI succeeded in launching terrorist activities in Punjab, which suffered enormous human and economic losses for over a decade, till the situation was normalised. Benefiting from the experience gained from its foray into Punjab, Pakistan launched a proxy-war in J&K in end 1989. Over the past nearly two decades now, the continuing wave of terrorism has resulted in the loss of thousands of innocent lives, ruined the economy and, worst of all, shattered the historical secular fabric of Kashmir. In the North East region, several States have continued to face varying insurgencies, many of which have been accentuated by Pak's ISI cross-border networks. The illegal immigration from Bangladesh has led to a demographic upheaval and generated serious communal, political, social and economic tensions and conflicts in several areas of the NE region.

Instigated by the Pak ISI, and spurred by domestic factors, there has been a steady increase in the growth of pan-Islamic militant outfits which have

been preaching fundamentalism and spreading subversion and violence. Over the years, the reach of these networks has spread to areas in Central and South India.

The Left-Wing extremist groups, specially the People's War Group and the Maoist Communist Centre, have been continuing to enlarge their violent activities, which have progressively spread to cover vast tribal areas in several States.

Several organised crime and mafia groups have linked up with Pak ISI supported networks and progressively extended their criminal, subversive and communal activities. The narcotics and drug mafia outfits, also involved in the smuggling of weapons, RDX and other materials for causing death and destruction, have been carrying out large scale *havala* and money laundering operations. The enormous funds generated by the unlawful activities of these groups have been utilised for spreading Islamic fundamentalism, creating violence and executing terrorist activities. Serious threats to internal security have emerged from the Pak ISI linking up with organised crime and mafia outfits and exploiting this nexus to organise major violent incidents in various cities of India, virtually at their will.

For the past nearly three decades now, ever since Pakistan's initial venture to foment militancy in Punjab, the Centre has been kept incessantly engaged in dealing with serious internal security problems—in the North East region, Punjab, J&K, in the various States affected by the activities of the Naxalite groups, and in all the areas affected by violence caused by Islamic fundamentalist groups. The restoration of normalcy in any disturbed area has inescapably involved the application of coercive power, which, in other words, means the deployment of the required strength of Central Police Forces and, as required, contingents of the Indian Army.

From the experience gained in combating militancy, insurgencies and terrorist activities in the past years it has become abundantly clear that

the responsibility of the disturbed States does not end merely with the deployment of State or Central Police Forces, or even the Army, to restore the disturbed area to normalcy. The Armed Forces of the Union are deployed in aid of the civil authority and, constitutionally, the concerned State remains entirely responsible till normalcy is fully restored.

It is necessary to recognise that the deployment of Central Police Forces, or the Army, for carrying out anti- insurgency/terrorist operations may not yield the expected outcome unless the entire State administrative machinery, led by the Chief Minister, devotes continuous organised attention to sensitively dealing with the root causes which contributed to the breakdown of public order. Time bound initiatives would need to be implemented to identify and resolve the social and economic problems or the political demands and aspirations of the agitating groups. Simultaneously, the entire State administration apparatus would require to devote close and continuous attention to providing effective governance, systematic attention being paid to resolve the day-to-day difficulties faced by the common man, particularly those which may have emerged on account of the ongoing disturbed situation. Instead of slackening its functioning on account of the prevailing disturbed environment, the administrative apparatus would need to work overtime to ensure that all socio-economic development and poverty alleviation programmes are implemented with high efficiency and honesty and within an urgent time frame.

For timely dealing with arising internal security problems, the State Governments need to exercise constant vigilance, particularly in regard to the resolution of complex pending issues, and launch prompt initiatives to open meaningful dialogue with the leaders of the aggrieved groups or communities. Past experience has shown that very high human and economic costs have to be paid if there is a failure to deal timely with issues which can lead to conflicts and violence. The situation is further complicated when a violent agitation, arising from a sensitive demand, is dealt with merely as a law and order problem and the disturbance sought to be quelled with the application of force. In many

such cases the agitating elements are supported and incited by adversary external agencies and, when this happens, we see the beginning of much larger problems.

The deep despair and consequent alienation of the disadvantaged communities is heightened by the social, economic and political exploitation to which they are subjected. Feudal systems continue to exist in several parts of the country where the much needed land, agrarian and other, reforms have still to be carried through. It is indeed most unfortunate that despite the economic disparities and severe disadvantages from which they suffer, the neglected and oppressed segments of society are further subjected to continuing harassments which arise from the various political parties exploiting religious, ethnic and caste factors merely to secure electoral gains.

Besides the gross failures of governance to pursue the avowed welfare-state goals and deliver social and economic justice to the masses, there has also been failure to timely and sensitively respond to the felt needs and aspirations of ethnic and tribal communities, most of whom live in remote, difficult and harsh areas. The demands of such neglected communities have been ignored for prolonged periods and if and when any ameliorative action has been taken it has happened essentially to secure an envisaged electoral gain for the party in power. Such failures of governance have promoted distrust and alienation among the neglected communities, which no longer have any faith or trust in their State Governments.

The poor and neglected people have many other reasons to be angry and frustrated. For example, the large outlays provided to the States for poverty alleviation schemes are not timely or fully utilised. In many cases, the funds are diverted to other purposes or even embezzled. Such gross failures result in despair, cynicism and deep seated alienation among the poorest segments of society.

Failures of this kind arise from continuing mal-administration, unaccountability and corruption. Despite endless public criticism in the

past several decades, effective steps have still to be taken to deal with corruption at the highest levels and to enforce efficiency, honesty and accountability in the functioning of governmental and public institutions. The Lok Pal Bill has been awaiting enactment for the past nearly four decades now, and the functioning of the Lok Ayukts, established in many States, has still to see even the known crooks being brought to book. Needless to stress, if good governance is to be delivered perhaps the most crucial challenge is to restore ethical and moral values to public life in our country.

Corruption erodes and weakens the very foundations of the administrative and legal framework and disrupts the Rule of Law. Thus, internal security cannot be safeguarded unless the governmental apparatus is rid of corruption.

Corruption has the subversive effect of destroying discipline. And indiscipline leads to the unaccountability which has permeated the administrative apparatus and also led to the growth of the threatening politico-bureaucratic-criminal nexus, about which a reference was made earlier.

Efforts to reduce corruption do not invariably yield the expected outcome as most of the tainted elements enjoy the patronage and protection of their political masters who have placed them in key positions and continue to use them for the execution of their unlawful behests. As I had stated earlier, from the perspective of effective internal security management it is a matter for deep concern that even persons of highly questionable integrity, who may have close linkages with criminal and anti-national elements, could continue to hold responsible positions in the administrative system. The potential of such elements subverting national interests from within the system poses a most serious threat to the security of the State.

The continuing determined efforts of adversary external agencies to destabilise India by spreading religious fundamentalism, inciting tensions

which lead to conflicts, and perpetrating violence and subversion, have generated challenges which impinge on issues of external security management. In this context it needs to be recognised that issues relating to the management of internal and external security have got inextricably interwoven and, as such, the Centre would need to evolve a holistic approach to internal security management, in close coordination with the States. I would re-iterate that in the security scenario, which has evolved over the past three decades and more, it would be impractical, in fact extremely hazardous, to deal sectorally with the management of internal and external security issues.

Internal security cannot be maintained satisfactorily in the country unless the States effectively discharge their constitutional duty of maintaining peace and public order in their realms. The States cannot pass on this crucial responsibility to the Centre, as has been the continuing trend in the past years. A signal failure of the States has been the continued neglect and the political exploitation of their Police organisations. This has most adversely affected the discipline, morale, efficiency, honesty and trustworthiness of the constabulary. It is essential that every State undertakes a time-bound programme to enlarge, train and equip its Police to effectively manage the existing and emerging challenges as well as to provide very strong support for the implementation of the Centre's initiatives to maintain public order in the entire country.

It may be noted that a stable security environment cannot be engendered merely by promulgating new laws. In the ultimate analysis every citizen must discharge his duty to uphold and protect the sovereignty, unity and integrity of the country. It is indeed unfortunate that while the vast majority of our educated people are concerned only about their Fundamental Rights there are not very many who are even aware of their Fundamental Duties, laid down in Article 51A of the Constitution. Even if action were to be taken to enforce the Fundamental Duties of our citizens it would be unsound to assume that the citizenry of India would be overnight imbued with patriotic feelings to protect national interests if the environment in which they live and work continues to be vitiated by

discrimination, corruption and injustice. The requisite environment can be engendered only if the States perpetually demonstrate and ensure that the laws of the land apply equally also to the rich and influential and the highest placed public servants. Simultaneously, it must be particularly ensured that no injustice is done to the poor and the disadvantaged segments of society as this would result only in promoting distrust and despair among the masses and further eroding their loyalties.

In the aforesaid context it has also to be noted that lawlessness cannot be controlled and internal security maintained unless the entire framework of the criminal justice system functions with speed, fairness and transparent honesty. In 2005, of the over 23 million cases awaiting disposal in the country over 7 million IPC crime cases were pending trial. The ever increasing number of criminal cases awaiting investigation and trial and the correspondingly declining conviction rates, have generated the growing public perception that crime is a "low-risk, high-profit business".

Besides the enormous logistical inadequacies in the justice delivery system, the integrity of the magistracy and the subordinate judiciary is seriously tainted. In the recent past serious allegations of questionable integrity have been raised even against those who man the superior echelons in our judicial structure. Needless to say, the most urgent measures need to be taken to clean up the justice administration apparatus and enlarge and strengthen it to deliver speedy and effective justice. Another cause for serious concern is that while we continue to have hundreds of altogether obsolete and irrelevant laws, most of which were enacted during the colonial period, we do not have an adequately stringent law, applicable all over the country, which can effectively meet the requirements of dealing with terrorist offences, cyber crimes and the fast growing areas of organised criminality which pose a grave threat to national security. We also do not have a Federal Crime Agency which can deal with the serious offences committed by criminal networks whose activities may spread across the States, across the entire country and across various foreign lands. We also need a comprehensive law

for dealing with serious economic offences which, if not timely checked, have the potential of disrupting the national economy. Today, terrorist and criminal networks operate in a border-less world and, needless to say, the grave challenges posed by their activities cannot be tackled if the various concerned law enforcing agencies continue to operate within their respective limited jurisdictions. What is urgently required is an appropriate legal framework and an extremely well considered strategy which is executed in the most effective coordination between the Centre and the States, to deal with each and every aspect of internal security management.

Another matter for serious concern relates to the failure, over the past six decades, to develop a pool of functionaries who have been especially trained to manage the security apparatus at the Centre. Only the Intelligence Bureau has a sub-cadre of deputationist Indian Police Officers who, after acquiring the required experience, comprise the core of the Bureau and can spend their entire careers in this agency. RAW, the agency for external intelligence, has been facing serious personnel problems and recently there have been a number of incidents of grave professional failures. As per the continuing practice, the officers assigned to posts in the Home Ministry, drawn from various services and cadres, are not required to possess any past experience in the field of security management. The situation in the States is much worse. It is a matter for deep concern that despite the serious challenges to national security faced by the country it has still not been recognised that security management cannot any longer be entrusted to persons who have no training or experience in this field. It is also no longer viable to entrust the work of Intelligence agencies only to officers of one particular service. It is necessary that very high priority is accorded for raising a pool of adequately trained and trusted officers who can be assigned to posts in the Intelligence Agencies and the Departments and Ministries which are responsible for managing internal and external security.

In the aforesaid context, particularly keeping in view that even key posts in the Home and Defence Ministries and their related agencies are, on

many occasions, assigned to functionaries who have no prior experience of working in the security administration arena, I had proposed (in the Task Force Report on Internal Security, September 2000) that Government may consider the establishment of a dedicated Security Administration Cadre which is comprised of officers selected from among volunteers from the Civil and Police Services, Defence Services, Defence Science Research Organisation, Science and Technology, Information and Communication Technology, Broadcasting and Media and other relevant areas. It was envisaged that such a pool of officers, in various age groups, would be properly trained and assigned to posts in the security management machinery. After critically assessing their performance, the selected officers could be allowed, as is done in the Intelligence Bureau, to enjoy open-ended tenures so that, over time, they acquire the much needed professional expertise which is sorely lacking in the existing set-up. It was projected that, once such a dedicated cadre gets adequately established, Government would be able to select the most suitable officers, from within this pool of officers, to man posts at given levels in the Union Home Ministry, the Intelligence Agencies, National Security Council Secretariat, Ministry of Defence and other security management related areas. Side by side, the States could be provided required support, particularly well designed training facilities, to raise similar cadres. The Government had approved the aforesaid approach in early 2001. Nearly seven years have since elapsed. It is apparent that Government do not intend to terminate the continuing practice of even the topmost posts in the security apparatus being filled by persons who have no past experience in security management.

I would conclude by saying that considering the extremely worrying scale and pattern of the internal security failures in the recent past, the Centre would need to significantly enlarge the capacity of its Intelligence agencies, and to also ensure that the States take similar action, so that a constant vigil can be effectively kept across the length and breadth of the country. The Centre would also need to most vigorously pursue the States to ensure that the functioning of their Police forces is completely depoliticised and their autonomous working entrusted to the best available

officers, known for their integrity and professionalism. The speediest possible measures must also be taken to revive the criminal justice system and restore its credibility. It is equally important that the State Chief Ministers urgently bring themselves around to fully understanding the altogether grave consequences if they fail to maintain peace and order within their jurisdictions or dither in providing total support and coordination to the Centre's initiatives to make the management of internal security more effective.

And finally, I would re-iterate that effective enforcement of the Rule of Law is crucial to the maintenance of national security and delivery of good governance. Any threat to the constitutional values poses a threat to the very foundations of our polity and society and, consequently, to the very unity and integrity of our country. idsa

Indian Air Force in the 21st Century: Challenges and Opportunities

*Fali H. Major**

Introduction

I am indeed privileged to address this gathering and share my perspectives on 'IAF in the 21st Century: Challenges and Opportunities'. I propose to begin with a recap of the environment and then go on to discuss threat perceptions, nature of conflicts, role of aerospace power, the IAF, its modernisation, challenges and future opportunities.

History shows us that the global environment continually changes; sometimes in a predictable and evolutionary manner and at others in a random or revolutionary way. National institutions must reflect current realities, contemporary systems and technologies. It's a continuous process of change and adaptation that is particularly necessary for the Armed Forces.

The Environment

Global

One of the defining characteristics of the contemporary global geo-political environment is that a nation's power is increasingly determined by its economic might and technological prowess, rather than by its military strength. Though interdependent, the most fundamental is

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economic strength, without which, none of the other indices of power can be created or sustained. At the same time economic growth is not guaranteed without the protective cover of military power, in what is referred to as its 'peace dividend'.

Popular phrases that describe today's world are interdependence, global village, flat world etc. Certainly, there is heightened interaction and cross-pollination in every sphere. This interdependence leads to a 'balancing of interests'; instead of 'balance of power'; and the politics of 'confrontation' has been replaced to a large extent by the more nuanced – 'competition and cooperation'.

Asia and India

Indeed, Asia is the current power-house and every major power has presence and high stakes here. Asian countries have greater influence around the world as well and military capabilities are now substantial on the continent. The region is also witness to conflicts & instabilities, as peoples attempt to reconfigure their settings, the reverberations of which are felt around the world. It is also a region of nuclear proliferation and increasingly, the cradle and playground of terrorism.

India is situated in a turbulent part of the continent. Its size, resources, capabilities and growth also endow it with power, visibility, influence and responsibility for a greater role in regional affairs.

Threat Perceptions

So what is the impact on our security and threat perceptions? Territorial disputes still linger, our adversaries are acquiring ever greater military capabilities. Cross-border terrorism and internal security challenges persist. At the same time trade and energy security add to our considerations and are a potential source of conflict. This encourages an outward orientation, which is good.

Ideological divisions in the modern world still exist, but in other forms, such as democracies vs autocracies or fundamentalists vs the secular. These strains and tendencies exist within and outside our country too and impact our security calculus; turning into militant aspirations, that challenge national integrity. These have in the past sought to re-draw national boundaries and many still abound, even drawing covert support from outside the country. If we were to include the proliferation of weapons of mass destruction then we collectively face a very serious threat indeed. Meeting these challenges requires understanding, as well as careful handling. Invariably, in these situations, one finds the lines between policing and military operations blurred.

Yet another area of concern for us, is ethnic Indian population, residing in other parts of the world, which at times may need protection and support. There have been instances of this in the past. On the flip-side, migrant populations have changed the demographic character of our border states and impacted their polity, with attendant security connotations. We are all aware that non-traditional threats create crisis situations that in the end require the military's organisational capabilities and technical support. Keeping the peace is yet another important international commitment for Indian Armed Forces.

There is no longer the comfortable immunity from problems in some distant part of the globe. This entwining of interests and effects can work both ways and nations that anticipate and act have the advantage. It is not easy for a single nation to ensure peace and stability for itself, on its own. This encourages, indeed demands international cooperation. This realisation or compulsion is very visible the world over. India's international cooperation too has considerably increased, translating into increased engagement in all spheres, including military exchanges and interactions. The role of military diplomacy has also been enhanced. The significance of collective security and cooperative organisations has increased over time. India too seeks increased and active part in cooperative mechanisms, though joining collective security organisations is not our policy. An associated challenge sometimes is

to prevent from being subsumed by a more prolific and larger friend and retain independence.

On the whole, India is faced with the full 'spectrum of threats' from nuclear confrontation, through conventional war; to conflicts limited in area, scope or objectives; to the lower end friction, such as insurgencies, terrorism etc. Moreover, India needs to be prepared for the escalation of conflict from limited upto nuclear. The spectrum has also acquired a complexity and technological sophistication, making it prudent and necessary to move away from a 'threat-based preparation', to a more accommodative and flexible – 'capability-based approach'. This would help lessen the uncertainty and unpredictability, because capabilities could then be readily tailored to suit the challenge at hand.

Nature of Conflict

While, the probabilities of total wars and extensive mobilisations may have reduced, India still must be prepared for a full-fledged and conventional conflict. Nuclear power-play has increased in the region and impacts postures and strategies. In a more integrated and interdependent world, the spillover of conflict in the neighbourhood and its negative global consequences makes it everybody's concern. While there would be supporters for either party, the sum of international pressure would be to end conflict. Moreover, the battle spaces are now transparent to the public, and legalities cannot be ignored. Therefore, limited, but high-tech wars of high intensity are more likely. Aerospace power has a distinct advantage in such a scenario. Determining the objectives and the end-state in a limited war is critical, but poses dilemmas. Perceptions matter too. The Indian politico-military leadership must continually work for clarity in military objectives and desired end-states.

While the future is uncertain, wars will be multi-dimensional, requiring an inter-disciplinary approach and the marshalling of all organs of national power. Military power is a critical component of national power, without which, as history bears out, progress is possible only up

to the point where it clashes with the interests of another stronger nation. Often, assumptions of conflicts and military capabilities are based on the classical war scenario. However, the IAF recognises that complex military challenges require different force constructs, for different situations, ranging from highly mobile and effective conventional forces, to 'rapid - reaction joint special-forces'. It is here that Air Power could provide the crucial edge. Clearly, future conflicts are likely to be short and sharp; more challenging & unpredictable, requiring a capability for assured, clean, swift, calibrated, varied and flexible responses and a transportability of national power in all forms.

Aerospace Power

Of all forms of military power, it is aerospace power that intrinsically possesses the characteristics that enable such responses. I am by no means lessening the import of other forms of military power, yet modern aerospace capabilities have as much, or perhaps greater impact than what maritime power did for colonising nations in the past. Unlike the latter, whose applicability is determined by a country's geographic location; and the land forces, whose shape and size are determined by relations with neighbours, size of the country and internal security compulsions; aerospace power has a more universal applicability. That is why even armies and navies strive to assimilate organic aerospace capabilities.

Recent technological developments, including the synergy of air & space, have enhanced aerospace force unprecedently, making it astonishingly reliable, effective, clean and responsive and the 'preferred instrument', in most situations of peace or war. It has enabled effects-based operations, made simpler parallel operations and creates strategic effects with a small footprint. Aerospace power is empowering and futuristic and easily lends its strengths and capabilities to other disciplines. In the Indian context, all forms of military power are necessary and important, however, strategic aerospace power offers newer options, both for our northern concerns, as well as for our outward orientations.

I wish to highlight that aerospace power is inherently flexible and its application is not constrained by geographical areas. It can easily be assigned to any task on priority to attain the objectives – current or overall. IAF's doctrines and plans are founded accordingly. I mention this as some believe that air power doctrines are rigid and unaccommodative. Debates have taken place on 'Counter Air Operations' (the so-called air war) vs 'Counter Surface Force Operations'. It has been said that the IAF attributes less importance to the latter. But contrary to perception in some quarters, a large part of IAF's effort in past conflicts has been in support of the surface battle. Our current plans too, allocate a sizeable portion of air effort towards CSFO.

The IAF

Evolution and Status

Lets take a brief look at the IAF, its Evolution & Status, Role and Goals. From Counter-Insurgency in its early years, to Army cooperation in WW-II, the IAF was a tactical force. Today, it is a strategic force – powerful, professional and proven. Though the transition to strategic capability has been slow in coming, the process must be sustained, if we are to effectively influence events within India's strategic boundaries.

In its 76th year, the IAF with its fine combination of Air Warriors, machines and ethos has proved itself time and again. Status of the Force and strength of the economy have boosted our International Defence Cooperation, including assistance to friendly air forces. Trans-continental reach has enabled exercises with friendly Air Forces on all Continents, which is an excellent way to train, assimilate best practices and strengthen bonds of friendship. The IAF is also a sought-after contributor to UNPKO. Currently, we have four highly acclaimed missions in the Congo & Sudan. The IAF also remains at the forefront of the Nation's HA / DR missions. IAF's uniqueness lies in its rich all-terrain experience and its diverse inventory. Its capability and reach have enhanced significantly in the last decade.

Roles

Given our situation, concerns and aspirations, a strong and comprehensive aerospace capability is inescapable. The IAF's roles can be described as Deterrence, Punishment, Protection, Projection and Peace-time roles. It will be readily apparent, that India needs its air force to execute all of these. The IAF must be a strong 'deterrent', in a tough neighbourhood. Implicit in the deterrence is the ability for swift, calibrated, but effective 'punishment'. Our deterrence currently includes the nuclear dimension. The IAF's primary and traditional role is 'protection' or Air Defence, the scope of which will expand as do our interests and reach.

A benign presence, or assistance to friendly nations in distress, is a 'projection' of interests that IAF would be expected to execute. This requires long-range presence, persistence, 'forward-basing arrangements' etc. Perhaps the most visible demonstration and utility are 'Peace-time' applications – both internal and external. They range from airlift and surveillance, to possible offensive action. Military diplomacy is yet another aspect that has increased in recent years yielding handsome friendship dividends. Indeed, IAF today is adequately suited and structured to execute these roles, should the need arise.

Goal

If we look at the way the IAF must evolve and compare it to any other evolving air force; and the path charted by the advanced air forces – there are essential similarities. In fact, but for minor variations, we are on a globally recognised growth path. So, depending upon the circumstances, threat perceptions and resources, it is the scope and pace of growth of the Air Force that essentially remain to be managed.

Clearly, the IAF must be equipped for long-reach, persistence, all-weather, precision, air dominance, networked and space-enabled force, capabilities. I am aware that not many air forces have such capabilities, but the IAF, among the leading air forces of the world, can, with the

right infusion of technology and training, attain such status. IAF is sensitive to the many competing demands on the nation and doesn't seek the 'best and now', but requisite capability, in time to keep ahead of our adversaries. 'Requisite Capability, Well in Time; Right People, Well Organised; Assured Performance' is a phrase that sums up our goal and our emphasis.

Modernisation of the IAF

Though we are a fairly balanced force – we also have shortages, reducing force-levels and gaps in our inventory, which are being addressed with all urgency and governmental support. IAF's modernisation plan, aims to sustain and enhance its operational potential and consolidate the specified force levels through judicious and cost-effective replacements and upgradation of existing resources. It is a gradual, but transformational modernisation. The approach is three-pronged – preserve upgrade and acquire. All fleets, including transport and helicopters, with residual life, are being upgraded to contemporary standards; so also is operational and maintenance infrastructure and logistic tools. The planned acquisitions are across-the-board and include platforms, weapons, sensors and equipment; spread over the next 10-15 years.

To run through some of our programmes, the MiG-27 and Jaguar upgrades are almost done; the MiG 29, Mirage 2000 are being negotiated and the IL-76, AN-32 and the helicopter fleets will follow. Capabilities of UAVs will also be enhanced. Airfield and maintenance infrastructure are also being enhanced in a phased manner.

The response to RFP for the MMRCA is expected soon. The Hawk AJTs have been inducted. The first AWACS will be with us this year end. Additional Dorniers, Boeings and upgraded Cheetah will soon join the fleet. The contract for C-130Js has already been signed and contracts will soon be signed for Mi-17 1Vs, ALHs, armed ALHs and additional FRA. The 1st LCA Sqn may be operational in IOC configuration by 2010. IAF also seeks new helicopters to replace the Chetaks and a new heavy-lift heptr. Inter-Government Agreements have been signed for

the 5th Generation Fighter and Medium Transport Aircraft with the Russian Govt.

Air defence will be significantly strengthened with modern weapon-systems and sensors, including the AWACS & Aerostats. Integration of civil radars will commence this year, for gap-free surveillance of the entire Indian airspace. Force-multipliers, air dominance fighters and a converged, secure 'Combat Communications Network' – including the IACCS and later the ODL – will fundamentally alter the IAF's Air Defence doctrine. For effective command & control, extended reach and to reduce the sensors-to-shooter loop, we are laying due emphasis on Networks and Space, which are essential 'next steps'.

Challenges

The Hardware – Technological Challenges

I now turn to the challenges facing the IAF. I am aware that in the challenges lie seeds of opportunity and thus how we address them will qualify our future. Technology is at the core of an air force – acquiring and assimilating it is our primary challenge. The lack of it curtails national options, impacting postures and doctrines. Denial and selective availability of technology are all enmeshed in international relations. As long as operationally feasible, the IAF supports the national quest for indigenisation. We recommend acquisition of core-technologies and core-competencies and developing emerging technologies. We also recommend a collaborative and participative approach – of partnerships between users, DRDO, the Industry, the Government and foreign vendors. In these multiple partnerships, we believe that the user must be the captain. We strongly support the Government's endeavour to transform our current 'buyer-seller' relationships to joint-ventures, co-development and co-production.

Maintenance Challenges

While our response to technological challenges will determine the 'shape' of things to come, maintenance challenges determine how long

they last and their cost-effectiveness. 'Maintainability', which includes logistical issues, is therefore, crucial. IAF is proactive on this and has energised interaction with vendors and entered into 'long-term spares and repair contracts'. We have also put our materials management and equipment accounting on-line.

The People and Organisation

While hardware is important, it is converted into capabilities by people. Aerospace power requires highly-skilled and impeccably trained personnel. Also, in aviation, optimum performance usually lies close to safety margins, which brings in the concern of costs – both in human and material terms. Attracting quality youth, training and retaining them is another of IAF's challenges. Inculcating qualities of leadership and innovativeness and ushering in meritocracy and productivity are important on our agenda. However, the expanding civil aviation sector exerts a huge 'pull' on this resource and we are doing our best to blend personal aspirations with organisational compulsions. We need Government support to make this happen. Updating of skills is an associated challenge, for which international exposure has been very useful. But in the long run we might need an Air University. Again, if our manning is adequate, we would be able to send our people on sabbaticals of higher learning.

As the hardware changes, new capacities and capabilities are generated that sometimes radically alter the way we do business. And it is hard to do things differently with the old processes, interfaces and organisational structures. Keeping pace and adapting to the changes, as an organisation, is another challenge.

Future Opportunities

Shape of Things to Come

I now turn to future opportunities. The most obvious and significant opportunity is already before us. I refer to the modernisation plan.

Ideally, modernisation should be evolutionary and continuous. Yet, for a variety of reasons the IAF has in the past modernised in spurts, often as a reaction to circumstances. Today, the IAF is in throes of a most comprehensive modernisation, as I described earlier. We call it transformational, for it will change everything dramatically. Being based on long-term perspective plans, most of it is already crystallised. Yet, a lot remains to be determined; many new capabilities are still short of the decision stage. At this juncture, if we are able to synchronise these plans with national security objectives, we would really have utilised this opportunity well. From that arises another opportunity that must be seized and that is the formal enunciation of long-term national security objectives, strategies, as well as technology roadmap and indigenisation strategies.

Much also depends upon the way aerospace power will develop in the future. Beyond the MMRCA and FGFA, with their 40 year 'lives', we are at 2060. It is not easy to guess the shape of aerospace power then. Would the accent shift to unmanned flight, to missiles; or would 'air' be more of 'space'. Technological advances are sure to revolutionise military affairs in future too. Despite the unpredictabilities, it is certain that the need for 'application and transportability' of national power – hard and soft – and thus for aerospace power, with enhanced fundamentals, would remain. Nations that lack it will seek it, as also will non-state agencies. Aerospace power is bound to proliferate. We also expect aerospace power to permeate the national security apparatus more completely, including for homeland security. IAF foresees greater specialisation; tailored capabilities for each occasion; an increased dependence on unmanned vehicles; greater accent on force enhancers; particularly the intangible ones, such as quality of people and their skills.

Networking and assimilation of space, both interdependent, are already the way forward and can tilt the balance considerably. A quiet 'space race' is the current reality and weaponisation, a distinct possibility. Perhaps more than any other, it is air power that is most significantly enhanced by the integration of space-enabled capabilities, for there are essential similarities. Evolving into an aerospace force is thus a

logical progression. But, it is getting crowded up there and we need to act fast. Certainly, 'space' empowers all, and the IAF supports tri-service initiatives. Yet, any fledgling capability requires residing in an appropriate 'parent capability'. Air Power, or the IAF, are the closest such 'capability', or organisation suitable to host and nurture 'military space'. India's rising status and acceptability are an opportunity for us to push for creating an adequate military space capability.

Since IAF requires a comprehensive capability, its future in the long-term, will largely mirror the future of aerospace power itself. Though this path is invariably influenced by leading nations, India and countries like it, must be selective and seek creative variations, both in terms of hardware and doctrine.

Outward Orientation

I have made mention of India's outward orientation and IAF's part in it. We find that our international interactions are increasing. Leading nations want to engage us and probably seek to include us in their calculations. Smaller nations look up to us for support, assistance and training. UN commitments are also considerable. We could ignore these opportunities, or we could use them to build Indian influence, generate goodwill and reap multiple dividends.

Synergies

I now turn to synergies and jointness, which the IAF is convinced is the way forward. Just as every tool has a place in the toolbox, every discipline too has its own niche. At the edges of our competencies in complex tasks we often confront impossibilities or failure. If we traverse the boundaries of our discipline into neighbouring or related ones, we can, in concert with them, achieve our aims. In other words, there are other organs of national power and we must learn to use them and interface with them effectively. Such synergy creates desired effects, perhaps at lesser cost and in quicker time. This calls for wisdom, knowledge of

other disciplines and lack of parochialism. The future also brings with it the opportunity for creating synergies and national capabilities.

I feel, therefore, that the trick lies in perfecting internal core-competencies, identifying complimentary capabilities in other organisations, developing effective interfaces and training to create and employ a new, enhanced hybrid. We are convinced that such 'jointness' is the way forward and that core competencies of each Service, indeed of all organs of national power, must be synergised to generate the required effect and capability. A capability-based approach from development to employment will encourage an inter-disciplinary integration and the coming together of all organs of national power. At the end, it is people that make an institution or system work. The best ones can be rendered ineffective for want of skills and commitment and vice-versa. Essentially, we believe jointness and synergy have less to do with new structures and ownership, but depends upon joint thinkers, planning, capability creations, as well as joint training and execution. Perhaps it is better to grow in an evolutionary manner.

Similarly, it is also imperative that military and civil aviation integrate, to take advantage of each others' capacities, for better efficiency, cost-effectiveness and for greater options. We have already made available 19 of our front-line air fields for civil air traffic and also allowed transit through Air Force controlled air space, to save time and fuel. IAF has also proposed the 'flexible use of air space'; and the process for integration of civil and AF radars has begun.

Beyond generating national synergies, aerospace technologies are so expensive, cutting-edge and hard to develop, that I dare say, our quest of these increasingly encourages joint-ventures and sharing of knowledge & resources between nations, and accord opportunity to forge international synergies.

Conclusion

Considerable changes are taking place in the global and regional scenario and in our neighbourhood. Old issues persist, while newer concerns are

added. The role of military power has increased, as security concerns spread beyond national boundaries. Aerospace power is futuristic and increasingly utilitarian. The IAF has come a long way and has demonstrated its professionalism and the world has acknowledged it. A strong and professional IAF can contribute to national options and to peace and stability, not only within the country but also within the region. It is a considered opinion that the IAF, with its current capability and plans has the potential to make a very significant impact on the postures we adopt in the future. IAF must therefore grow in step with nation. idsa

Jointness in Armed Forces and Institution of Post of Chief of Defence Staff are Mutually Exclusive

*Vinod Patney**

Interestingly the very first issue of "Journal of Defence Studies" published by Institute of Defence Studies and Analyses (IDSA) in August 2007 decided to focus on the subject of "Jointness in Indian Armed Forces". There are possibly many more pressing issues impinging on the Indian Armed Forces and National Security, but apparently they were not considered for one reason or the other. "Jointness" was given pride of place as the first topic to be discussed. It was also somewhat surprising that the vast majority of articles in the Journal argued, with palpable passion, that the institution of the post of Chief of Defence Staff (CDS) was essential for greater efficiency of the Armed Forces and the inculcation of desired jointness. The arguments presented in favour of the institution of CDS are one sided and as a consequence exclude the other possibilities for achieving jointness and efficiency in the armed forces of India. There was no article that represented a view that jointness is desirable but it is premature to think of a CDS at present or that the institution of CDS will be counter productive. Also, it is worth noting, as mentioned by many authors in the journal, that although the Group of Ministers recommended the creation of an Integrated Defence Staff (IDS) to be headed by a CDS in 2001, the then Prime Minister Vajpayee accepted the establishment of the IDS but postponed the appointment of the CDS. The situation remains the same today even after a new government under a different Prime Minister came to power in 2004. The IDS is headed by Chief of Integrated Defence Staff to the Chiefs of Staff Committee (CISC) and reports to the Chairman, Chiefs of Staff Committee (COSC). Thus, two Prime Ministers have not deemed it fit to institute a CDS. This cannot be without good reason.

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It is worth noting that there are a number of individuals who are of the conviction that a CDS will cause more harm than good. Their views have as much validity as those of the proponents of the CDS concept; points of view that deserve to be aired concurrently for obtaining a more balanced approach to the subject. Again, in spite of the fact that any number of Army Chiefs have ardently supported the establishment of a CDS, the last Army Chief to retire categorically stated that he did not recommend the creation of a CDS for the next 10 to 15 years. General J. J. Singh's considered views should be taken seriously as he was closely associated with the functioning of the IDS during his career. Yet, the proponents never tire of raising the issue over and over again.

This article will argue that the institution of CDS is neither necessary nor sufficient for achieving true jointness among the services. True jointness, however, is a desirable objective and this article will attempt to give an alternate approach to the subject.

We live in an age of specialisation. Jointness is indeed a laudable concept. Operational efficiency and effectiveness, however, should not be sacrificed at the altar of supposed jointness. It is a moot point whether it is desirable to impose if it undermines the very rationale it is meant to support. It has been often stated by the proponents of the CDS system that the concept of integrated defence staff had to be imposed from outside of the armed forces in a number of countries notably in the United Kingdom. Every country has a unique set of problems that demand individual solutions. The same is valid for India. In our case, unfortunately, we have adopted a system of questionable suitability. For instance, the manning of posts in the IDS has been reduced to a system of quotas for each service; and we have insisted on manning of appointments in the senior ranks on a rotational basis irrespective of the type of experience required and demands of the job. This situation highlights the absence of desired jointness in our armed forces. It can be argued that jointness in some form has been ensured, but are the results optimal? The answer is no. Turf battles, career prospect issues, continue to undermine the progress towards the institutionalisation of

jointness. As an aside, a senior officer working with the IDS when asked whether the IDS functioning was ensuring better jointness among the armed forces actually questioned whether there was any jointness within the IDS itself! A sad commentary on the state of affairs. It stands to reason that the most suitable person available should be selected for important appointments. This entails experience and on the job training in preparation for the tasks ahead. It is granted that some jobs require little specific specialisation. However, the more important ones do need training and preparation. One option, possibly the best option, is to adopt the system of lead service for different tasks and clearly spell out roles and missions for each service. The roles and missions should be expressly stated, without ambiguity and repetition, and formalised. This will hopefully put an end to turf battles and bring about jointmanship more readily. More importantly, the responsibility and accountability of different services should be unambiguously articulated. This cannot but have a salutary effect. Unfortunately, although the IDS has been in existence for well over six years, the subject has not received the priority it deserves. In the opinion of the author, finalisation of roles and missions is more important than the institution of a CDS. It is also opined that if the services are unwilling to tie themselves to detailed responsibilities under the present dispensation, the creation of a CDS will not help solve the problem. On the other hand, unless we establish responsibilities and accountabilities, jointmanship will remain elusive. The CDS system, as envisaged in the GOM report, places operational responsibility on the CDS but training and operational responsibilities on the service chiefs—an arrangement ill suited for ensuring unambiguous responsibilities and clear accountability. It should also be noted that establishing roles and missions and designating lead service for different tasks can be done by the armed forces themselves without recourse to Government of India orders. If it were to be done, it would be an example of true jointmanship, a far better alternative than a fiat issued that does not represent all shades of opinion.

In the six odd years of IDS functioning, inter alia, a Joint Doctrine has been issued, and some procedural aspects and organisational channels

have been worked out. Possibly the most notable achievement is the support given to the procurement process. This has been largely facilitated by the introduction by the Ministry of Defence of a more streamlined and effective Defence Procurement Procedure. However, the working out of priorities has been left to the individual services. A Joint Service prioritisation of procurement that is acceptable to all is still some distance away. The major task of a "purple staff" ought to be to work on required force levels and make recommendations to the COSC on how the Defence Budget should be distributed amongst the services. In fact, in an ideal "joint" situation, there should be only one Defence Budget without subdivision to the respective services. In the absence of stated responsibilities and requirements of future conflicts, a judicious allocation of the Defence Budget is unlikely to have tri-service concurrence. A CDS would also find it extremely difficult to take the responsibility of allocations in the "Defence Budget" over the clamour for funds by the individual services.

Emphasis on the procurement process is well placed, but the process is neither the beginning nor the end of operational capability. The basis of purchases needs to be defined with greater clarity. A good beginning would be to first define, in reasonably cogent terms, the possible and probable types of conflict situations that we are likely to face and the requirements for success. The Services have often complained that the possible threats and tasks should be spelt out by the government. This is unlikely to happen and the Services will have to decide on the threats themselves, hopefully in coordination with other elements involved in national security. In fact, this is as it should be. A joint service organisation like the IDS should take on this task. It is opined that an IDS attempt to establish the threats and opportunities will bolster jointmanship. It will actually represent officers of the three services working together in concert. The experience will be invaluable. Thereafter, the extant capabilities of the armed forces acting independently or in unison should be worked out. It is only afterwards that the planning of defence expenditure can be judiciously attempted. In this system, the analysis of extant capability could pose problems in the absence of a yardstick

for estimating capabilities. The process will be facilitated if the roles and missions have been established. Even if individual services are unwilling to spell out their capabilities, the IDS on its own has the required expertise to work out a fair estimate that would be suitable for planning purposes. The procurement process would thereafter be based on logic and rationality. It can also be stated with some confidence that a serious IDS effort to systematically work towards recommending a desired force structure will support and further jointness in a far more acceptable manner than an attempt to impose jointness. The procedure given above is somewhat simplistic. In real life there will be many hurdles and uncertainties but the recommended system, in principle, has considerable merit and should be tried. More importantly, the results will improve with experience. With a considerably better analysis of what we can expect, the demands on intelligence information required in terms of content, repetition etc., can be better established. The importance of good and timely intelligence cannot be over emphasised.

It has often been stated that, in modern conflict, joint conduct of operations is essential to bring about the needed synergy. A caveat may be in order. A single service operation is a valid operation of war and, at times, will be the option of choice. Similarly, occasions could arise where one service or the other is not actively involved in the combat. Again, the relative importance of the role played by different services could vary markedly. All these aspects will take on adverse significance if they are not preceded by joint planning. Joint planning is not a mere phrase or a one-time activity but is a way of life. It has to be a continuous process before and during conflicts. It is the experience of the author that effective joint planning is seldom carried out in peacetime; at best an outline plan is discussed, often with considerable rancour. However, once the shooting war starts, the differences among the services tend to disappear and the war is fought under a readily agreed plan or set of plans. Towards the end of the war, jointness is again given short shrift in the interest of claims and counter claims, accusations and counter accusations, and in attempts to cover mistakes made. Jointness is not one of our strong points. It is again iterated that the desired jointness

cannot be imposed except as a peace time exercise. In war, jointness is required not only in the higher direction of war but at every level of combat. An understanding needs to be fostered that jointness is in everyone's interest and must be attempted. Possibly, this understanding can be better achieved if the responsibilities of the actors are well defined and the requirement to continuously hone the plan based on better training or capabilities is formalised as a system. The planning team could also advise some alterations in training schedules. A part of the IDS has been established for this purpose on a full time basis and they must be tasked to carry out such planning on a continuous basis. The results of their efforts can then be discussed with those involved in the actual conduct of operations to continuously better the product. There is a possible disconnect in that those charged with the conduct of actual operations would much rather do their own planning and be responsible for it. This is a valid argument but the object is not to interfere in the planning for operations by the combat elements but to support them with studies and information to make their planning more scientific. The IDS should recognise that they perform a support or staff function and must not dictate to those charged with and accountable for the actual conduct of operations. A similar pattern should be followed in planning for contingencies and national calamities. Any attempts to portray the IDS as a quasi-superior formation can only be counter productive. It is a well known truism that authority without accountability cannot but lead to bad results. The IDS should have a selfless approach to work towards greater understanding and jointness amongst the armed forces. Such jointness will be based on recognition of need and is likely to be more enduring than attempts to impose jointness by the introduction of the institution sometimes referred to as the "military czar"—the phrase has many avoidable connotations.

It will be seen from the discussion so far that the IDS has an important role to play as long as it is intended to support the functioning of the individual services. Honest attempts in this direction will foster jointness. However, it is often argued, by those wedded to the institution of a CDS, that without a head, the IDS cannot function as well as it should. In fact

the CISC does report to the Chairman COSC, who becomes the essential link between the services and the tri-service support or staff organisation. Three other arguments put forth are that the Chairman COSC finds it difficult to wear two hats, the Chairman is rotated very often, and that a CDS will be more impartial in effecting agreements amongst the services. To this writer, all three arguments appear somewhat specious. As it is, the Chairman COSC does wear two hats. Heading the IDS should not be an onerous task given that the IDS is manned by as many as six three star appointments and over a dozen two star officers. The essential task of the Chairman COSC therefore is to guide and oversee the functioning of the IDS—not an onerous task. In fact, as he is the head of a Service, he is in a better position to guide the functioning of the IDS without over extending himself. Similarly, although it would be better if the Chairman COSC were not to be rotated too often, the impact of more frequent rotations should not be too serious. The CISC is invited to COSC deliberations and the Chairman COSC should, without exception, keep his counterparts from the other two services abreast of the functioning of IDS and the initiatives being progressed. In any case, the functioning of the IDS should interest all three service chiefs in near like measure. Thus a somewhat faster rotation of the Chairman COSC should not adversely affect the functioning of the IDS. On the critical question of impartiality of the CDS, the very thought casts avoidable aspersions. All Chiefs are equally responsible for national security, and their impartiality must be taken for granted. Differences in viewpoint are a healthy occurrence, generally arising out of different perceptions based on individual needs and experience. Such perceptions will tend to coalesce if the duties and responsibilities of individual services are formally established. It will also be beneficial if most decisions regarding inter service issues are taken at levels lower than that of the Chiefs. In any case, the CDS will also be a product of the same type of experiences as his counterparts and his perceptions are unlikely to be very different.

As per the current policy on the functioning of the CDS, when and if appointed, the CDS would have very limited operational responsibilities and it would be incorrect to place him as “primus inter pares” over the

service Chiefs who are charged with training and command of forces in combat. It would be akin to a staff appointment getting pride of place over an operational billet at the same level—an anachronism. For the same reason, operational recommendations of the CDS would be misplaced as he would be neither responsible not accountable for the results of his recommendations. Hence, either the CDS would be just filling a slot or, if he wants to be active, his recommendations are likely to be challenged by one Chief or the other. In either case, it will represent a retrograde step as far as jointness is concerned.

The CDS, when and if appointed, would also be responsible to provide the single point of military advice to the CCS/RM. It is difficult to imagine how a CDS who is not "hands on" in command of forces can give sound advice relative to or concerning the operational services. More often than not the CDS would be hard pressed to commit forces or address the capabilities of any of the services, particularly the services other than the service whose uniform he wears. Even for advice impinging on his own parent service, the Chief of the service could and would take offence at someone else taking decisions regarding his service. A "super Chief" will be far from welcome. Hence such advice rendered by the CDS would have to be based on either conjecture or second hand information that could lead to some difficulty in a detailed discussion on facts and capabilities. If the decisions are not ex parte, the value of the "single point of military advice" becomes increasingly questionable. An avoidable additional level would have been created that will result in neither better jointness, nor better and timely advice. The appointment of the CDS is not a panacea for all ills inflicting the armed forces—in fact quite the opposite. A CDS will add to the ills. A commitment to jointmanship is not synonymous with a commitment to the post of CDS.

Undoubtedly, future wars are likely to be faster using advanced technology. The old system of war fighting may not be adequate. Much greater cohesion is called for. Towards this end, the IDS has an important role to aid and support operational requirements and needs.

If IDS functioning is restricted to support rather than a propensity to impose, there is a fair chance that better jointness will result. Jointness can also be furthered with clear and formalised roles and missions for the three services. The use of space, communications, Infowar etc will shape the conflict arena and it is strongly recommended that a lead service be appointed for each such area with the IDS providing staff support. Once again jointness would be given a boost. More importantly, a healthy and frequent interaction between the IDS and the services should be encouraged at all levels. Moreover, a formalised system of near continuous inter service planning organisation for war, aspects of war involving two or more services, and a host of contingencies that could arise should be established with staff support from the IDS.

The IDS can be a worthy tool to bring about jointness. However, its tasks and functioning should be better nuanced. A good starting point of reforming the functioning of the IDS would be to audit its functioning over the last six years and more with a view to study the impact of the IDS on jointness and how to achieve better cohesion amongst the services. The recommendations made in this paper should be considered. Unless jointness has been achieved to a considerable degree, it will be premature to even think of the institution of a CDS, leave alone his job description. idsa

Need for Holistic Restructuring of the Indian Military

*Vijay Oberoi**

Introduction

In the over five decades since Independence, vast changes have occurred in the security environment within the country, in the region of immediate concern, and at the global level. The last two decades have been of special importance, on account of the ongoing Revolution in Military Affairs (RMA), the end of the Cold War, the global war on terrorism and the globalisation of the economy.

The defence forces of India, at over 1.3 million strong, are perhaps the fourth largest in the world, in terms of numbers, as well as in terms of some items of capital equipment. Since Independence in 1947, they have been engaged in active operations on a sustained basis, with only short periods of peace. These challenges have helped them to earn a formidable reputation of a force that delivers, usually against heavy odds.

Although the defence forces of India are highly professional, are they structurally, technologically and organisationally sufficiently modern to meet the challenges of the 21st century? They are no doubt large in numbers, but do they also carry the necessary punch? Do they create the necessary synergy that flows from a high degree of jointness? Are they capable of meeting the future challenges, which the country is likely to confront in the next two decades or so? If not, what changes are needed to enhance their capabilities? Should this be achieved by incremental changes or by radical and fundamental reforms? These are a few questions that need to be answered.

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Conventional wisdom is that the fighting potential of the defence forces of India has decreased over the last two decades. There are many reasons for this, including a lack of vision and knowledge of security-related issues amongst the political leadership, as also the bureaucracy; decreasing budgetary allocations; antiquated procurement procedures; a costly research department, whose output has been much below expectations and which has prevented the entry of private enterprise in the defence sector; antipathy to change; narrow parochial interests; hesitancy to take risks at the senior leadership level and a status-quo mentality amongst the decision-makers.

The result is that while accretions have taken place in the number of persons in uniform, in the number of additional units and formations, and in the quality and quantity of armaments, the overall structure of the defence forces and the methods of doing business continue to be much the same as they were nearly six decades back.

No person with even some knowledge of "matters military" will have a second opinion about the overwhelming importance of joint endeavours in wars and conflicts of today and even more so those of tomorrow. Besides many other facets, the obvious one of synergy is indisputable. Before initiating a discussion on the kind of jointmanship that needs to prevail, it would be a good idea to know where the Indian military stands in this respect today.

Force structures are never evolved in a vacuum. Many factors need to be considered while carrying out structural changes. Some of these are fairly obvious, while others need considerable thought. Factors which affect the security aspects of the global and regional environment are of great importance and need to be taken into account. Threats and challenges are of course perennial considerations, but at times we tend to forget that national aspirations are crucial to force structuring, as are the desired capabilities the nation wants from its defence forces. The changing security environment is another factor that needs to be taken into account. A consideration of all these factors should logically point

towards the size and shape of defence forces the nation needs, as well as the manner in which a transformation is to be achieved. These are the major aspects I intend to cover in this paper. For obvious reasons, the analysis would be broad-based in nature, the details being left to the concerned ministries and departments, which are tasked for such ventures.

Defence Forces of India

Let us briefly recapitulate the current defence forces fielded by India. The strength of the defence forces of India on the active list is approximately 1.3 million, with the army dominating with nearly 1.1 million personnel. The air force has a strength of 140,000 and the navy fields approximately 55,000 personnel. There is a Territorial Army component of approximately 40,000.[1]

The field force of the army comprises thirteen corps, three armoured divisions, four Reorganised Army plains Infantry Divisions (RAPID), eighteen infantry divisions and ten mountain divisions, a number of independent brigades, and requisite combat support and service support formations and units. The main combat and combat support units are sixty two armoured regiments and there are over three hundred and fifty infantry battalions and three hundred artillery regiments (including two Surface to Surface Missile (SSM) units). Amongst major armaments and equipment, there are nearly 4000 main battle tanks, 2000 armoured personnel carriers, 4300 artillery pieces and 200 light helicopters.[2] Unlike most modern armies, the Indian Army fields only reconnaissance helicopters in its aviation corps, with the air force still clinging to attack and medium lift helicopters, which should have been transferred to the army a long time back.

The organisational structure of the army is generally on traditional lines, heavily influenced as it has been by the erstwhile colonial British military. The Indian Army is competent in conducting both conventional as well as low intensity conflict (LIC) operations.

The navy has 26 principal surface combatants, including one aircraft carrier; 49 patrol and coastal combatants and 16 submarines. The naval aviation has 35 combat aircraft and 97 helicopters. There is also a coast guard with 52 patrol craft of various types.[3]

The air force fields approximately 680 combat aircraft, grouped in 32 fighter ground attack and six fighter squadrons; 40 armed helicopters grouped in three squadrons; 12 transport squadrons; 19 helicopter squadrons and miscellaneous squadrons covering tanker, maritime attack, electronic countermeasures, survey, VIP movement, training and so on.[4]

The growth of the defence forces of India in the past has usually been as a reaction to contemporary crises. Resultantly, the defence forces have generally remained unchanged, both structurally and in doctrinal terms, except for incremental changes to meet challenges as they arose. In recent years, however, there is a discernable doctrinal shift from attrition to manoeuvre warfare. Since the late 1980's, availability of funds has been a major constraint, with allocations for defence being less than 2.5 per cent of the GDP.

The three services are organised for conducting largely conventional operations, although a very large component of the army is heavily involved in Low Intensity Conflict operations. In all the three services, there has been some infusion of state-of-the-art equipment and armament, but much less than what is needed.

India is a responsible nuclear weapon state, with an unblemished record of non-proliferation, which cannot be easily matched by even nuclear weapon states of long standing. Our nuclear policy has two main components – minimum deterrence and no first use.

Our higher defence structure is perhaps the weakest part of the defence forces of India. The defence forces are not part of the government of India, but are an attached "office". The implications of this formulation are obvious and need not be amplified, except to highlight that this

arrangement effectively keeps them outside the policy formulation loop. No doubt, the service headquarters are consulted on security issues, but that is no substitute for being part of formulating policy. The highest policy formulation body in the country is the Cabinet Committee on Security (CCS). It gets its inputs from a variety of sources, viz. the National Security Council (NSC), the Cabinet Secretariat, different ministries, intelligence agencies and so on. The inputs from the services are channelled through the ministry of defence; neither the service chiefs nor the Chairman Chief's of Staff Committee are members of the CCS, although service chiefs may be called for consultations, like many others.

A National Security Council (NSC) was created in 1999. A National Security Advisor (NSA) was also appointed. We have had three incumbents so far for this appointment – two were retired diplomats and the third is a retired intelligence specialist. The NSA has a secretariat, which is headed by a Deputy NSA. This appointment too has been held by retired diplomats so far. As far as the secretariat is concerned, officers of various ranks hold senior, middle level and junior staff appointments, but the military is represented only by a handful of junior officers. An ironical state of affairs, indeed!

Within the Ministry of Defence, there is neither integration, nor any methodology for analysing issues jointly. The Ministry of Defence asks service headquarters individually or jointly to submit their views on issues, whether they are on operational, intelligence or administrative matters or relating to personnel, and thereafter the Ministry deliberates on them, despite having little or no competence to analyse such military matters.

A similar situation prevails within service headquarters, wherein the stance of a particular service on an issue is first finalised in-house, including by obtaining inputs from their respective commands. Thereafter, it is forwarded to the Chief of Staff Committee for consideration. The Committee comprises the three service chiefs, with the seniormost being

the Chairman. Such a structure and such formulations cannot hope to deliberate on issues objectively, as service biases are foremost in each member's mind.

Since last year, the service headquarters have started calling themselves as Integrated Headquarters. It is a meaningless exercise in semantics, as there is hardly any integration of the three services, let alone with the ministry of defence. Even the establishment of the post of Chief of Defence Staff (CDS) continues to remain unimplemented.

Global and Regional Security Environment

The global security environment will continue to be influenced by the unilateralism of the sole super power, the USA; the growing potential of regional powers, particularly China; fundamentalism and terrorism; and the internal upheavals in many developing countries.

The 21st Century had opened with the global environment focused more on economic issues and multilateral and bilateral cooperation amongst nations. However, after the events of 11 September 2001 (9/11), security issues have re-emerged and taken centre-stage. In addition to terrorism, the world continues to be plagued with conventional military threats, as well as non-military threats. This state of affairs is likely to continue in the next two decades.

The South Asian region is historically a conflict prone region, comprising post-colonial states, which have certain endemic vulnerabilities. Some of these are:

- Legacy of colonialism, the bloody Partition of India in 1947 and the break up of Pakistan in 1971.
- Tendency to dishonour treaties demarcating boundaries settled during the British Empire, and the use of military force to realign borders.
- The intolerant attitude of the super powers during the Cold War towards those states that sought to pursue independent policies.

- Discord amongst ethnic, religious and linguistic groups, resulting in internal turbulence.
- Uncontrolled population explosion, leading to poverty, illiteracy, disease, environmental degradation and unplanned urbanisation. This is compounded by demographic shifts, both within nations and across borders.
- Arms and drug trafficking, and a growing nexus between crime and politics.

The security environment in South Asia continues to be influenced by historical disputes; nuclearisation; paucity of energy sources; inadequate harnessing of the abundant water resources; the growing potential of China; the war on terrorism; the spread of fundamentalism; and the social upheaval in practically all countries, due to the rising expectations of their people.[5] The scenario is further complicated by a rise in trans-border terrorism, sponsored ethnic strife, and low intensity conflicts.[6] The impact of the unilateralism of the sole super power, the USA, over events and policies in Asia, must also be factored in. All this is against the backdrop of vastly increased economic activity, globalisation and the great potential of the information revolution, which is making steady inroads into every facet of life.

India and Pakistan are the two nuclear states in South Asia, in addition to China, an earlier nuclear weapons power. The risk of a nuclear war in the region stands greatly reduced, but the proliferation of nuclear weapons and missiles is of grave concern, particularly when the countries involved are those which are prone to be influenced by terrorist activities, or have a history of promoting terrorists, either as state policy, or by ignoring the rise of religious fundamentalism in their countries, for various reasons. The revelations of major proliferation activities by Pakistan and North Korea are now history. Iran's ambitions in the nuclear field are a major cause for concern. The obvious conclusions are that the nuclear non-proliferation treaty (NPT) has not worked and perhaps an entirely new dispensation is needed to control the spread of nuclear weapons. As long as blatant acts of major proliferation, like those of Pakistan and North

Korea, are glossed over by the major powers, especially by the United States, on account of their short-term gains, many new aspirants will attempt to go nuclear.[7]

On the conventional plane, while limited conventional conflicts are still likely to occur, they are gradually giving way to conflicts at the lower end of the spectrum of conflict. However, the proliferation of conventional weaponry and the transfer of weapons and equipment by China to Pakistan, Bangladesh and Myanmar, as also other countries on India's periphery, have adversely affected the South Asian regional military balance.

Threats and Challenges

India's sphere of influence needs to encompass not just the South Asian Sub-continent, but also the northern Indian Ocean area, from the eastern seaboard of Africa in the west, to the Malacca Straits in the east, and must include Iran, Afghanistan, the Central Asian Republics (CARs), China and Myanmar. India's credibility, as a regional power will be contingent upon institutional stability, economic development and military strength, including nuclear deterrence.

The long stretches of disputed borders with China and Pakistan and sizeable areas under their illegal occupation continue to be major irritants, notwithstanding the peace processes currently underway with both countries. These are unlikely to be resolved in the short term and will continue to generate tensions and instability at periodic intervals. Our vast island territories also need to be guarded.

Many of India's external challenges are related to its extensive land and sea frontiers. The land frontiers exceed 15,000 km, covering seven neighbouring countries. The border in the state of Jammu and Kashmir is perpetually volatile, except when a mutually agreed cease-fire is in force, as it is at present. Pakistan is in adverse possession of large areas of this Indian State. An on-going peace process between India and

Pakistan continues, and there are many positive fallouts of this process, but unless Pakistan stops the infiltration of insurgents and terrorists into Jammu & Kashmir, substantive improvement is unlikely.

India has a disputed border with China, too. China continues to be in adverse possession of 40,000 sq km of Indian Territory. A dialogue to resolve various issues between India and China is currently in progress, albeit at a slow pace. India-China relations have improved in recent years. A "Peace and Tranquillity" treaty is in place. The momentum towards confidence building and improved relations is continuing. There are no major disputes with India's other neighbours, but the borders are extensive and somewhat porous.

The long coastline (7683 km), the island territories off both coasts, and an Exclusive Economic Zone (EEZ) of over two million square kilometres all add up to various types of challenges. For example, the island territories to the east, i.e. the Andaman and Nicobar group of islands, are 1300 kilometres from the Indian mainland, but only 150 kilometres from Indonesia, 500 odd kilometres from Malaysia and Thailand, 250 kilometres from Myanmar and 400 kilometres from Bangladesh.

The time has come for India to look outwards. There are many tasks and contingencies outside our frontiers. These include coming to the assistance of our neighbours; rescuing or assisting Indian nationals abroad; safeguarding our vital economic or other interests; rendering aid during natural or other calamities; forming part of a multi-national force; and so on. For these challenges, we do need to have a state-of-the-art tri-service trans-national capability. This does not mean we have designs on other countries or that we are now becoming hegemons.

The escalating world oil prices have enhanced our energy crisis. Currently, India is the world's sixth largest energy consumer and in 2010 we will hit the fourth place. We have made heavy investments abroad in the oil sector. These include long term contracts for oil and gas supply, on-going negotiations for participation in pipeline projects, as well as energy

projects involving exploration, development, transportation and refining of hydrocarbons to meet our future needs. These investments, in locations as far afield as the Middle East, Africa, Central Asia and Southeast Asia, need to be safeguarded against any unforeseen eventualities.

The next security challenge is the state of our neighbours. The political and economic status of most of our neighbours is a cause of major concern, as any major upheavals will pose great security and economic challenges for us. In addition, the governing elite in these countries tend to blame India for all their ills. It is no doubt a political ploy that works domestically. We need to take initiatives at many levels, including at the military level, to allay their imagined and real fears, so that our relations with our neighbours can be brought to an even keel.

As far as the maritime dimension is concerned, the littorals of the Indian Ocean and the island nations are both important. We cannot have any hostile or inimical powers threatening them. These countries need to be given assistance in terms of military hardware, training or technical assistance and sometimes assistance in policing their waters or airspace.

The on-going and future threats from terrorism, insurgencies and resorts to mindless violence to meet political ends are other major challenges. These may well be the most important and biggest security challenges of the future.

We are a responsible nuclear weapon state, which entails the efficient management of this deterrent capability. For deterrence to be successful, the adversary must be convinced of the severity of our retaliation. In addition, we must ensure that our second strike capability is not only well protected, but that it is also overwhelmingly devastating.

The last challenge is to transform the defence forces into a lean, technology intensive, networked and joint entity. It sounds simple, but considering our historical baggage and a penchant for the status quo, it would be

a difficult proposition. We also need to function in a holistic manner, where security, foreign and economic policies must be integrated. At present, we are unfortunately functioning in separate compartments.

National Aspirations and Desired Capabilities

India's primary strategic priority and goal remains the rapid socio-economic development of its people. Our national objectives may be summarised as under:

- Develop as a fully secular, multi-cultural state, in which freedom of speech, thought and equal opportunity are available to all, regardless of race, religion, caste, community or sex.
- Ensure a secure and stable environment conducive to unhindered economic growth.
- Preserve and ensure the sovereignty, unity and territorial integrity of India.
- Contribute our share in international affairs, consistent with our policies.

To attain the above objectives, India needs to ensure a secure external and internal security environment. The defence forces of India, as the ultimate instrument of the state, are responsible for safeguarding the core values and national interests from external aggression and internal subversion.

Our objectives also need to have an ideological component and reflect the inner urges of the people. Keeping all these aspects in mind, our national policy could be stated as: "To establish a strong, economically vibrant and united democratic India, free from internal and external threats, enjoying a prominent status in the region and having its rightful and honoured place in the world."

India aspires to be recognised as an economic and military power of some reckoning, with a permanent membership of the UN Security Council. To achieve these objectives, India needs to ensure a peaceful internal

environment, security from external threats and capability to project power in the greater South Asian region. Such an aspiration requires India to modernise its defence forces and equip them with contemporary techno-equipment to meet the expanded roles they would need to perform, while ensuring sustained economic growth and development.

Environmental Changes Affecting Military Operations

Globalisation has had a profound effect in making the world smaller and more accessible, but it has also had a major effect on the security environment. While military force factors continue to retain their significance in international relations, economic, political, technological, ecological, information and energy factors are also playing an increasingly dominant role in the shaping of the security environment.[8]

The regional military environment in South Asia is affected by on-going conflicts; proliferation and transfer of weapons; advancements in military technology; and the changing nature of war. These are elaborated in succeeding paragraphs.

Conflicts have continued in varying intensities in South Asia. Most of these conflicts have a historical baggage, with solutions so intractable that they linger despite many changes in the regional and national environments. Like volcanoes, they erupt once in a while and then lie dormant, but festering within, till another catalyst causes yet another eruption.[9]

The notable conflicts in South Asia are the India-Pakistan adversarial relationship; the India-China border stand-off; and internal conflicts generated by a section of the people, like the LTTE problem in Sri Lanka, the Maoists' continuing struggle for power in Nepal, insurgencies and rebellions in Pakistan and a number of insurgencies in India.

In the last two decades, China's export of high-grade steel, navigational guidance systems and missile technologies to Pakistan had enabled it to

arm itself with nuclear weapons, with matching delivery capabilities. In turn, Pakistan used this clandestinely acquired capability to proliferate it to North Korea in return for missiles and missile technology, in some kind of a barter deal.

A similar situation obtains in the conventional arena. The accelerating recourse to conventional weapons proliferation in recent years has enabled many countries to possess high technology weapons at low costs. This has serious implications for regional security. Besides Pakistan, China has also provided conventional weaponry to Bangladesh, Myanmar, Sri Lanka and Nepal, to name only a few countries. These actions have tended to alter the regional military balance.

Rapid advancements in technology, in the fields of information, nuclear energy, biotechnology, aviation, space and underwater operations, are changing the concept of warfare. Capabilities for all weather surveillance, night vision devices, and extensive use of satellites and multiplicity of sensors have also affected all types of operations. In the field of information technology (IT), digitisation, networked communications, electronic warfare, as well as information warfare (IW), have highlighted the importance of systems integration. This has led to the concept of system of systems, which is a complete architecture of detection, selection, display, targeting and attack.[10]

RMA, which is manifested by high technology weapons, sensors, communications and information technology, will increasingly have an impact on all types of military operations. Warfare in the information age, irrespective of whether it is nuclear, conventional or low intensity in nature, will require highly complex planning and coordination, near real time and total situational awareness, decision support systems and massive data-base and information-exchange capabilities to tackle both friendly and inimical situations. Technology has made information more readily available, and it has now become a weapon of choice. The armed forces of India need to focus on IT and Information Warfare (IW) in a big way in the coming years and decades.

The continuing wave of technological change is different, in two ways, from even the IT revolution of the 1990s. First, it is a vastly more profound transformation, due to the synergy of three emerging technologies, viz. bioengineering, nano-engineering, and robotics and artificial intelligence. Secondly, it is a revolution that will occur at a speed never seen before. Observations of change over the past century indicate that technology is evolving exponentially, which means change is accelerating or the rate of change is increasing.[11]

The proliferation of all types of missiles; the versatility of modern aviation platforms; the precision guided and terminally guided munitions (PGMs and TGMs); and multi-dimensional manoeuvre vehicles are some of the breakthrough technologies which have changed the nature of warfare.

Missile Defence (MD), whether national missile defence (NMD) or theatre missile defence (TMD), is another technological advancement which will have a major effect on warfare in future. At present, in this region, only India in South Asia and China further afield, are examining it with some seriousness. MD is a strategic shift of major importance – from a doctrine of deterrence to that of interdictory interception. MD is already vehemently opposed by China, whose response may well be a further up-gradation of its strategic nuclear forces. This is likely to have a ripple effect in many parts of the world, including in South Asia, particularly India.[12]

The proliferation of Nuclear Biological Chemical (NBC) weapons, smart weapons, imaginative employment of IT, more lethal and precise weapons, the fielding of many types of missiles and major up-gradation of aviation assets, all have made substantive changes to the concepts and methodologies of waging war. Asymmetric Warfare, for example, focuses on fighting a stronger enemy and still winning. In the same context, non-nuclear deterrence, which is aimed at deterring regional conflicts with only conventional weapons, continues to be important.

Operations in the future may not be easily divided into conventional and low intensity conflicts.[13] The modern battlefield will be characterised

by short, intense operations, against a nuclear backdrop. There will be a large number of short, swift, and lethal engagements, using precision weapons, with heavy attrition, but with minimum collateral damage. Wars will be fought in all six dimensions – space, cyber, air, land, sea and sub-surface. Increased use of various types of sensors will bring total transparency to the battlefield. This will affect the achievement of surprise, both strategic and tactical, and there would be an overload of information at the command posts.

In conventional operations, front, depth and rear areas would be engaged simultaneously with real time surveillance, integrated Command Control Communication Computers Intelligence Interoperability (C4 I2), target acquisition and highly lethal precision weapons systems. The battlefield will become more digitised, more transparent and would experience a major increase in deployment of electronic devices, signalling the growing primacy of the electromagnetic spectrum.[14] Escalation will have to be carefully controlled to ensure that no nuclear red lines are crossed. Despite this constraint, sufficient space for conventional operations will continue to be available. The ability of ground forces will depend upon the speed with which they can move, concentrate and regroup rapidly over any type of terrain.

Today, joint and combined operations are the norm. IT, in all its manifestations, affects decision-making. At the same time, IW, including the creation of a favourable public opinion, is a necessary adjunct to the higher direction of war. Military planners will need to give considerable thought to the likelihood of terrorist threats, along with fighting conventional operations. Resultantly, greater number of troops and equipment would be required to cope with such threats.[15]

Future Role: Defence Forces of India

In the coming decades, the role of the defence forces will continue to be "to preserve national interests and safeguard territorial integrity and unity of the country, against any external or internal threats, by deterrence or by waging a war".

The defence forces have to deal with both traditional missions of deterrence and war fighting, as well as non-traditional missions. They also play an important role in nation building. The missions of the defence forces can be listed as under:

- Deterring hostile neighbours possessing NBC weapons and missiles.
- Sub-national threats from hostile neighbours, including proxy war and terrorism.
- Operating under the aegis of the UN, other groupings, or even independently, in roles like peacekeeping, peacemaking, humanitarian assistance, disaster relief, or national reconstruction.
- Tackling overseas crises that threaten Indian citizens, property and interests.
- Domestic emergencies that exceed the capacity of other agencies like state governments, police forces or central agencies.

Excessive involvement of the defence forces, particularly the army, in internal security duties adversely affects their combat potential. Continued deployment on such duties also tends to alienate the populace and tarnishes the image of the defence forces. These are difficult operations, as their resolution essentially lies in the political domain and the army has to operate under a number of constraints. Therefore, over-exposure in internal security duties is counter-productive, especially when their employment on such duties is for a prolonged period.

Although there has been an exponential growth of many types of police forces in our country, they are currently incapable, or unwilling, or both, to tackle insurgencies. Consequently, I foresee that the defence forces, primarily the Army, will continue to be called out to tackle insurgencies, terrorism, proxy wars and even high-grade internal security situations.

India's military strategy has to be effective across the entire spectrum of possible conflicts. Increased focus on information technology and information warfare is also essential. The army particularly needs to

transit from manpower orientation to high technology, tempering it with the knowledge that sub-conventional operations are manpower intensive.

India's aspirations for peace and security require the modernisation of the defence forces, restructuring them and equipping them with contemporary technological equipment. The restructuring should be such that the military continues to remain professionally strong. Restructuring includes optimisation of doctrine and concepts, restructuring of the field force, efficient management of internal conflicts, upgrading human resources, streamlining logistics and modernising the training methodology of the military.

At the upper end of the conflict spectrum, only nuclear weapons deter nuclear weapons. However, at the conventional level, the need is to build a capability for small-size operations, which are executed swiftly. At the sub-conventional level, the approach should be multi-faceted, with the military part being pro-active. Special Forces would play an extremely important role in such operations.

In the coming decades of the 21st Century, our defence forces need to address the following:

- The growing number of non-traditional threats will continue to increase, and I fear that the nation will continue to rely on the defence forces as the principal instrument to deal with them.
- The defence forces, as presently structured, may not be able to meet all the potential challenges ahead, which could span the entire spectrum of conflict.
- For meeting the challenges of the new century and adapt to the rapid development of new technologies, the defence forces have to change radically and become increasingly unified.
- The enormous human potential in the Army, its judicious harnessing, moulding it to exacting standards, providing it with special skills and injecting a high level of motivation, are also essential. Combat power is not simply the sum of machine

performance. Machines can assist, but warfare will continue to be an intensely human activity.

- There is a definite need for better decision-making and the integration of all instruments of power (political, economic, military and informational) to tackle the multidimensional challenges ahead.

Jointmanship

Modern War cannot be fought with outdated structures, wherein the army, the navy and the air force conduct operations independently, with coordination only being achieved with organisations as old as nearly seven-eight decades back. War is a joint endeavour, wherein the entire nation has to gear up for fighting it. Today, this truism is even more relevant, because waging war today is a complex phenomenon. This complexity is likely to increase in the future. The reasons include high technology, the nature of modern war, new threats and challenges and the reality of nuclear weapons in the arsenal of our potential adversaries. Consequently, a joint force, which acts in an integrated manner, is not just desirable but an imperative. Gone are the days when individual services, like the army or navy, fought wars on their own.

Most professional militaries have adopted jointmanship, not merely in their organisations and structures, but in their very approach to tackling military problems, big or small. Unfortunately, the Indian military is an exception amongst the more professional militaries. While everyone who matters endorses the need for joint endeavours, it eventually turns out to be merely lip service. This must change, for if we continue in this mode, we will be unable to generate the necessary synergy, so essential for winning conflicts, battles and wars.

The Indian military had realised the importance of jointmanship soon after our Independence. This vision was translated into reality by the setting up of joint institutions like the National Defence Academy (NDA), the Defence Services Staff College (DSSC) and the National

Defence College (NDC). These institutions, all joint, covered a wide canvas, from pre-commissioning training to the highest level of formal training an officer undergoes. Unfortunately, somewhere along the way, we lost our focus and drifted into separate entities, which became institutionalised over time.

The wars we fought since our Independence added to this "lone ranger" syndrome. Our first war, in Jammu & Kashmir in 1947-48, was essentially an army affair, with some support from the air force. The navy was not involved. In 1962, when China attacked us, the army again operated alone, as it was decided not to employ the air force. Once again there was no role for the navy. The next war, against Pakistan in 1965, saw all the three services fighting the enemy, but mostly independently, although the army and the air force did carry out coordination in specific operations.

It was only in the 1971 war that the three services were employed synergistically and won the war decisively. Synergy during this war was achieved largely because of the personalities of the dramatis personae and the nearly nine month long planning and preparation time available and not because of any structural or organisational changes. Unfortunately, the example of the 1971 war continues to be quoted by those opposed to greater jointmanship, on the specious plea that since the structures worked during 1971, there was no need for instituting reforms now! This is of course absurd logic, considering that nearly four decades have passed since then. The entire nature of war has changed now and there is no surety that the personal chemistry of the new actors would again work positively.

Besides the above mentioned conflicts, the army has also been involved, almost continuously, in fighting different types of insurgencies and terrorism in various parts of the country. The nature of these operations does not need the navy and the air force to step in. So essentially, it is again the army operating on its own. This had its repercussions during the Kargil conflict in 1999, when initially the air force refused to participate,

on the plea that it would escalate the conflict. When they did come in later, it took time to build up the necessary synergy. It is apparent that our experiences post-Independence lulled us into a state of complacency and we made little effort to forge joint concepts, structures and institutions, thus obtaining less than optimal results.

A major recommendation of the Kargil Review Committee set up after the Kargil conflict to recommend reforms, including in the higher defence structure, was the need to set up joint structures at the earliest. The GoM eventually accepted the recommendations, after some changes and implementation instructions were issued in mid-2001. While an integrated defence headquarters and two joint commands have been formed, a key recommendation, i.e. the establishment of the post of Chief of Defence Staff (CDS), remains unimplemented. Resultantly, the integrated headquarters gets its directions from the ineffective Chiefs of Staff Committee, an organisation which has neither the teeth nor the inclination to take any strong and meaningful decisions, including in the realm of jointmanship. Unfortunately, this state of affairs suits the principal actors, viz. the political leadership which continues to be bugged by the non-existent spectre of a military takeover, however preposterous it may sound; the bureaucracy, who see the CDS as threatening their overlordship over of the service headquarters; and even the service headquarters, who are highly reluctant to part with any power which will dilute their fiefdoms.

The service headquarters may not want to dilute any of their powers, but at least two out of three used to speak in favour of jointness. Now, nearly six years after the GoM had given their directions, even that has changed. Apparently, none of them are now interested in the appointment of a CDS. There is no discernable change in the stance of the political leadership as well as the bureaucracy. So we flounder along, believing in our fatalistic fashion that everything will turn out right in the end and through some sleight of hand the Indian military will, for the umpteenth time, again pull the chestnuts out of the fire, as it always has when the chips are down! The moot question is, should policies of such great

importance, relating to the security and indeed the very existence of our nation, continue to be sacrificed at the altar of expediency or sloth or indifference, or all three?

Transformation

There is a need to transform our military in a deliberate manner. The transformation must be major in scope. This can only be done if sufficient resources are made available. For this, the armed forces have to convince the political leadership, as well as the people, of the legitimacy of their needs. Defence allocations continue to be meagre, at less than 2.5 per cent of the GDP. Our decision-making systems and processes are also slow. These need to change.

The transformation should begin with the development of a realistic strategic direction. The national strategy must clearly spell out interests, goals, priorities, and resource allocations. From this, a national military strategy should be evolved. This, in turn, will enable the military to decide on the details of restructuring, hopefully without the influences of service bias or sentimentality. Some assets will have to be phased out over time, as new, innovative systems come on line through the process of transformation.

The process of change must be extensive and should also include a review of our personnel system. We need to produce junior leaders with broader and more sophisticated educational and service experience. Quality-of-life areas, compensation, benefits, personal development, challenging experiences, and personnel stability have to be major considerations in getting and keeping the best and brightest our society has to offer. The future military will be an even more complex institution and will require truly competent and dedicated members.

We must seriously address joint warfare. The Services must eliminate the inter-service bickering that continues to be the bane of the defence forces. At the apex level, our structures for the management of higher defence and

the systems for providing military advice, as well as recommendations for national security policy, also need to be re-examined. The CDS must be appointed without any delay and additional joint commands must be set up. While the eventual structures we should aim at must be integrated commands, this should come about in an evolutionary manner. The appointing of a CDS and gradual addition of new joint commands will, over a period of time, suggest the numbers and types of joint commands we need. For the next few years, we may leave operational commands as they are at present, except that the jointness amongst them must be substantially increased. There are other areas like Special Forces, Space, Training, Communications, Logistics and so on, which lend themselves for restructuring into joint commands

Within the army, having two sets of forces, a small-sized traditional army for deterrence and waging war and a much larger, lightly equipped internal security force (ISF) for combating low intensity conflicts is perhaps one answer for restructuring. In the Navy, while the enhancing of blue water capability must continue, some focus will have to shift to counter terrorism and militancy at sea, including greater control of coastal waters and our EEZ. Till now, the role of the Air Force in counter-terrorist and counter-insurgency operations has been confined to air transportation. This would need to change. Future low intensity threats would require the fielding of air power. Whether this takes the form of restructuring a part of the air force or enhancing army aviation assets so that they can take on these roles, can be debated, but the latter has obvious operational advantages. Major reforms and restructuring would be required for this, which would be opposed by large numbers, both within and outside the services.

In sum, the force structure of the defence forces of India should be such that it is able to achieve the objectives the nation expects from it. We need to be regional players of eminence, as well as have a say in global strategic formulations. The capabilities of the armed forces, therefore, must include the following:

- *Nuclear:* We need to refine our nuclear doctrine, which should

continue to be primarily for deterrence, but for use in case we are forced to use the nuclear option. Our retaliatory capability must be potent, comprehensive and timely. This entails, besides a range of warheads, the requisite delivery and support systems. We need to build up our current missile capability substantially, so that the army is equipped with a full range of missiles, capable of reaching all possible targets. It is important for India to continue to work towards a triad capability in the nuclear field. The military interface needs to be enhanced as it is currently less than desirable.

- *Conventional:* Credible conventional deterrence will continue to be important. The conventional capability of the defence forces must be comprehensive against our likely adversaries. The armed forces must maintain an effective superiority in conventional forces vis-à-vis Pakistan. They must also have the capability for punitive response to provocations short of war. The challenge China is expected to pose in the mid and long terms requires that our deterrence capability be upgraded, by adding a potent offensive capability to our current posture. In the maritime arena, we should have the capability to effectively guard our sea lanes of communications in the northern Indian Ocean region and protect our interests in the nation's EEZ. The air force must be capable of creating a favourable air situation at least in specified corridors, which have a direct linkage to offensive operations of the ground forces. The air force must also create additional strategic lift capability for tasks within the country's area of interest.
- *Low Intensity Conflict (LIC):* The LIC commitments of the defence forces, particularly the army, are likely to increase in the coming years, as there has been no improvement in the capabilities of the central police forces in tackling insurgency and terrorism, despite their increasing numerical strengths. The defence forces must be capable of fighting both internal insurgencies as well as those launched or supported by other countries or foreign entities. However, its conventional capability must not get diluted on account of excessive employment on counter-insurgency and

counter-terrorism roles. The army, particularly, must have adequate capability to fight high-grade insurgency in any part of India, including in our border states, as it is currently doing in Jammu and Kashmir. As both state and non-state actors are likely to resort to low intensity conflicts as their preferred mode of waging war, major restructuring may be required amongst the armed forces to meet this challenge. This may well imply a separate force, which must be equipped, manned and trained specifically for this role.

- *Peacekeeping:* The defence forces will have to play an enhanced role in peacekeeping operations, mostly under the aegis of the United Nations, but perhaps under other circumstances, too.
- *Joint Endeavours:* In all the above types of roles and operations, there would need to be a high level of jointness, otherwise the defence forces will not be able to achieve synergy and consequently the best results.

Conclusion

Today, the defence forces of India are at the crossroads of a revolutionary change, marked by nuclearisation of the subcontinent, asymmetric threats like the on-going proxy war in Kashmir, our rapidly increasing interests within the region, military aspects of globalisation and rapid technological changes. In this new milieu, the defence forces must not only retain a combat edge in conventional operations, but also handle sub-conventional challenges effectively.

Focus on LIC operations must not distract the defence forces from other roles. We need to look at the totality of roles, which the military would need to perform. Deterrence is an essential element in all the roles of the military, whether they are in the conventional, non-conventional or sub-conventional arenas.

Change is no doubt difficult, as we are highly conservative. The bureaucracy, both civil and military, and the political leadership

with vested interests in preserving the status quo, will resist change or will support only marginal changes. This will further complicate implementation of the needed reforms.

India is now genuinely poised to shine. It cannot do so with a feeble military machine, which functions on ad hoc basis or on the glorious past. We need to revamp and restructure before we are actually faced with the challenges we have talked about. The need today is for a synergistic and visionary national approach for the strong, purposeful and modern India that is just over the horizon. idsa

Notes

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Revamping the Military Training System

*S.K. Saini**

"Victory smiles upon those who anticipate changes in the nature of war."

Giulio Douhet

Introduction

According to Andrew Marshall, former director of the Office of Net Assessments under the US Secretary of Defence, "a revolution in military affairs (RMA) is a major change in the nature of warfare brought about by the innovative application of new technologies which, combined with dramatic changes in the military doctrine and operational and organisational concepts, fundamentally alters the character and conduct of military operations." RMA has three main constituents, namely, doctrine, technology and tactics.[1]

The foremost global trend transforming the security framework is the dramatic growth in information technology (IT) and the RMA it has created.[2] India has been acknowledged as a major IT base in the world, with a large work force possessing the necessary skills. It also has reasonably well developed civil programmes in satellite, telecommunications, space and nuclear technology. Besides advanced indigenous technologies being available to the armed forces, a major modernisation programme is underway, wherein state-of-the-art technologies are being acquired

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from abroad, especially after the Kargil conflict. Thus technology is not a limiting factor in the Indian context any more.

The other two components of RMA – doctrine and tactics – are within the capabilities of the armed forces for making significant changes as determined. To fully exploit the potential of new systems, operational concepts incorporating and integrating the new technologies must be developed into coherent doctrines. The armed forces should also train extensively to translate doctrine into a war winning capability. While the relevance of RMA in the Indian context has been recognised by the Kargil Review Committee Report and the doctrines of the Services, an integrated plan to harness its potential is still awaited. Similarly, the debate and write-ups on RMA in India have so far been confined to understanding the dynamics of RMA, rather than suggesting ways to take its advantage. One of the fields that holds abundant potential to leverage the emerging RMA is training of the armed forces.

This article assesses the impact of the ongoing RMA and suggests policy changes in the conduct of training in the armed forces.

It is laid out as follows:

(a) RMA and conduct of warfare.
(b) Drivers for change in the training system in the armed forces.
(c) Recommended changes.

RMA and Conduct of Warfare

RMA is already bringing about profound changes in the conduct of warfare. The salient aspects are summarised below:

(a) As the means of observation and surveillance improve, time available for orientation, decision making and action reduces. The battle space, however, has expanded enormously. The use of outer space will have a major effect on the conduct of warfare in the coming years.
(b) The use of new precision weapons and command and control systems has added a force multiplier effect, unknown earlier, to the combat potential. Individual combat platforms are being linked

into a network and will all be equipped with increasing amounts of electronic information equipment.[3] The transportation and logistics systems will also be transformed to be more responsive to the sustainment needs of the forces due to better exploitation of the IT.

(c) In coming years soldiers will still carry conventional rifles and hand grenades, but they will also use small, light-weight, multi-media electronic information equipment.[4] Situational awareness of information-intensified soldiers will improve immensely.

(d) Information Warfare will be the most complex type of warfare in the 21st century, and it will decide who will win and who will lose the wars.[5] Digitisation of the existing equipment by retrofitting or inserting new technology will improve the command, control, communications, computers, and intelligence systems.[6]

(e) Media has already impacted the conduct of military operations worldwide in a profound manner and its intrusive role is likely to increase further. In the coming years the military will be forced to have its own facilities to feed the electronic media channels.

(f) The human factor will be more prominent in high-technology warfare.[7] Making the most of the combat effectiveness of high-technology weapons and application of correct strategy and tactics will depend on the calibre of military personnel. Warfare in general will not only become more of a mental than a physical contest in which the technology content is high, but this will also be the case in limited warfare and even in soldier-to-soldier combat. This means that the education and technical skills of military personnel in the future information society will have to be higher than at present.

(g) The services need to be integrated institutionally, organisationally, intellectually and technically to fight future wars, which will increasingly require the armed forces to fight jointly.

Drivers for Change in Training System

(a) **Strategic Security Environment:** The Indian armed forces will have to be prepared for an enduring requirement for high intensity

war fighting skills in order to deter and, if required, fight and win wars. This was underlined during the Kargil campaign by the need to prepare for a possible limited conventional war. But they should also be ready for a wide spectrum of operations, including the growing requirement for counter insurgency/terrorist operations. However, given the constraints in terms of resources and time, they will need to carefully manage the balance between training for conventional war and other operations in the spectrum of conflict. Individual training must provide the basic skills that can support conventional war and high intensity operations, but needs to be supplemented to meet other scenarios.[8]

(b) **Short Notice Deployment:** Operation PARAKRAM highlighted the requirement for versatile, adaptable and rapidly deployable forces. This generates demanding individual training requirements for the Services.

(c) **Skills for Joint Operations:** Future operations will be increasingly joint and progressively integrated between space, air, maritime and ground elements. The Kargil campaign also reinforced the need for a more integrated approach to war fighting between the Services.[9] They will need to work with other civilian agencies whose contribution may be equally critical to strategic success. The human dimension of command will remain paramount.

(d) **Increased Responsibility of Junior Leaders and Individual Soldiers:** Increased fluidity, intensity of swift engagements, sensor-to-shooter technologies, direct communication interface to lowest level commanders/individual soldiers and reduced time for decision making will place soldiers and commanders alike under increasing pressure. Junior commissioned officers and non-commissioned officers will have key roles to play, particularly in exercising leadership and management. Junior leaders hold the key to warfare in the 21st Century.[10] This will require training in leadership skills and education to develop the required mental agility.

(e) **Technological Challenge:** Future operational success will depend on the ability to exploit and integrate new digital systems. Studies

into future military skill requirements consistently show a growing need for cognitive skills.[11] Information and communications technology also offers exciting opportunities to improve training and is becoming a major learning medium. However, learning via such technology is a mainly individual activity which may impair some inter-personal skills. Many individuals, while confident about working in the Information Age, may be less physically fit and robust. This will need to be addressed appropriately.

(f) **Changed Socio-Economic Values:** Technology has not only affected the armed forces in the last two decades but the entire country as such and raised the living standards immensely. Some potential recruits may find Service life incompatible with their individual expectations, but others may be attracted by the Services' different ethos and values. Training and education will continue to play a major role in helping to instil the core values that provide the moral framework for Service personnel to meet the physical and mental challenges of the future battle space.

(g) **Enhanced Importance of Specialisation and Continuity:** As high end technology is inducted into the Services, need for specialists in various fields, and the requirement to give them continuity in key positions, will increase. More graduates may join the Services as sailors, soldiers and airmen, especially in the technical specialisations. Imperatives of career progression, particularly for officers, are already putting increased pressure on both training and personnel management.

Recommended Changes in the Training System

Appraisal of the Present Training System and Policy Objectives: The operational success in Kargil has shown that by and large the training standards are adequate. But to meet the challenges being thrown up by the emerging RMA, the armed forces need to modernise their training system. Education and individual training consume a significant proportion of the Defence Budget and therefore the armed forces should

get the best value from the large amounts of money being spent on it. Training should also lead to innovation in doctrine, operational concepts and battle drills.

Despite the recent shift towards joint operations, individual training is still mostly conducted on single Service basis; while it is important to generate and maintain single Service identity, emphasis should gradually shift to joint and integrated training. Integrated training between the services will help to develop jointmanship and eliminate unnecessary duplication. Training should, where appropriate, be offered to industry and civil institutions, reflecting the joint approach.

Training needs to be better focussed to meet the operational needs. In some aspects we over-train to the detriment of others, resulting in imbalance between training and operational imperatives. Technical and weapon system/equipment-specific training for sailors, soldiers and airmen, who constitute a major portion of the armed forces, is generally of a high standard, but improvements are required to reflect the changed operational environment and the modus operandi of operating within it. The *training of senior officers at operational and strategic levels* needs greater emphasis.

The training also needs to be able to *rapidly absorb lessons from operations* and to respond to changes in educational priorities to meet the increasing complexity of operations. All personnel should have the necessary skills and confidence to exploit new information and communication technologies.

There is also a requirement of a more comprehensive and consistent *overall approach to education.* To meet the challenge of technology it must be ensured that all personnel have the necessary skills. It could be partly achieved by developing e-learning to provide greater flexibility and shorten training time during courses. This should be balanced against the requirement of personnel deployed in field areas where such facilities may be non-existent.

The armed forces must ensure that the training system is cost-effective, while maintaining or enhancing operational capability. The intent should be to make more imaginative use of common training facilities in the armed forces and eliminate duplication by sharing common resources wherever possible. Commercial training arrangements for the delivery of training, where desirable, like in the field of IT, should be exploited.

Measures to Integrate Training in the Armed Forces

Officers' Training

(a) Recognition of the importance of joint activity must first be introduced at the tactical level, within a predominantly single Service environment. Young officers need to be encouraged to adopt an open-minded approach towards their own and the other Services, and begin to appreciate the wider defence environment, including the increased joint focus. This then needs to be nurtured and progressed throughout an officer's career. Short common modules on defence and joint awareness training should be introduced in the initial training commencing from Young Officers' Course.

(b) The joint phase of the Defence Services Staff Course should be increased appropriately by shortening the single service segment.

(c) The main requirement for joint training for the officers is at the operational and strategic levels. There is generally little formal training for officers of the rank of Brigadier and above. To meet the training requirements for commanders of joint operations, a Joint Operations Wing should be established. It should be charged with the responsibility to train officers of the rank of Brigadier and above of all the three services through a mixture of very short modular courses with interactive war-gaming. Opportunities should also be provided to the senior bureaucrats posted in the Ministry of Defence to attend such courses. The Wing could be located at any of the institutions conducting the Higher Command Course for single Services like the Army War College, Naval

War College or the College of Air Warfare, depending upon the feasibility of developing the infrastructure.

Enlargement of Scope of Joint Exercises and War-games: At present a truly joint exercise is conducted only in terms of the training for the amphibious component. The participation is at a very low level considering our amphibious capability. The scope and level of joint exercises should be enlarged and not restricted to amphibious operations. Similarly, participation in the war games at division level and above should include officers of all the Services. In the case of Air Force the participation should not be restricted to the commander of the Tactical Air Centre who is affiliated permanently to the army formation.

Joint Institutes for Common Training Aspects: It is essential to ensure that training and education is delivered as cost-effectively as possible. Otherwise it puts at risk the sustainability of the capabilities it supports. Each Service has a training base that is too large and unaffordable in the long term. Besides it does not support the concept of integration of the Services. A leaner training base will bring recurring savings in overall support costs, and release land for disposal, thereby making more capital available for modernisation. Areas of joint training could be those that support joint structures, where there is a commonality between subjects and syllabus or the operational/training process is common or converging. This can be achieved by establishing Defence Training Institutes in the fields of communication and information systems, logistics, computer literacy, engineering, aeronautical engineering, and common missile systems/weapons.

Enlarging Role of Integrated Defence Staff: It has been experienced that because training and education is generally provided on a single Service basis, it lacks overall coherence and direction from the MoD perspective. In particular, there is no central focus to provide an overall policy perspective and no overarching strategy to promote best practices. The existing training branch in the Integrated Defence Staff is not

charged with this responsibility and does not issue any policy directives to the Services. To address these deficiencies, the training branch in the Integrated Defence Staff needs to be strengthened and given the mandate to coordinate these aspects. This will maximise the benefits of training rationalisation by implementing the proposals outlined above and ensuring that there is no duplication.

National Defence University

While the proposal to establish a National Defence University (NDU) has been accepted in principle, the project has not progressed in right earnest, wherein even its location is yet to be finalised. In order to take advantage of the RMA, it is imperative that a National Defence University is established at the earliest. At present there is no interaction, coordination and synergy between various training institutions of the Services. There is also no organisation exclusively responsible to conduct meaningful research in defence matters, especially related to military strategy, doctrine and tactics. Therefore the NDU should act as a *centre of national and international excellence,* providing military and civilian personnel with high quality education, primarily at the postgraduate level, and conducting research in fields related to defence. Other institutions like the National Defence College, Defence Services Staff College, and Joint Operations Wing should be affiliated to it, in order to provide the required synergy.

Value of War Games and Exercises

War games and exercises are conducted at present in a stereotype manner which stifles any innovative and new ideas about doctrine, concepts and weapon systems. The value of exercises, particularly when resources are scarce, lies not merely in their conduct, but in their planning and post-action analysis.[12] They must aim at understanding rather than validating already existing plans, concepts and doctrine.

Establishment of a Leadership Academy

The College of Defence Management in its present form does not support the development of new leadership skills required to meet the challenges of the ever-changing demands placed on officers, especially junior leaders. To optimise use of resources, better co-ordination of leadership training and development is required. The armed forces should also make the leadership expertise available as a resource for the country as a whole.

To achieve these aims, a Leadership Academy to design an overarching policy framework and strategies for leadership development needs to be created. It could draw on the expertise already available with the College of Defence Management. The Academy will provide a more focussed and coherent approach to leadership training throughout an individual's career, particularly for junior leaders and those likely to reach the operational and strategic level. It will also undertake research, establish links with relevant organisations, public and private, set standards and provide a reservoir of knowledge on leadership, including training and development opportunities.

Exploiting the Information Age

Exploiting information is central to all military operations so as to manage the increasing use of information and communication technology in the battle space. The daily workspace and administrative processes are also increasingly supported by information and communications technology. The armed forces must develop the essential competences in personnel to exploit new technologies and systems to the full and to ensure that leaders have the right skills to deliver and integrate information projects successfully. To help meet these requirements, there is a need to develop information age skills for everyone joining the armed forces. All sailors, soldiers, and airmen should receive IT awareness training during initial training. This will require improvements in facilities. Efforts should also be made to increase opportunities for personnel already serving

to develop relevant skills and qualifications. Digital skills are highly perishable.[13] As the saying goes, "If you don't use them, you lose them." These must be continuously refreshed with on-the-job usage.

New Methods of Training

(a) Achieving information age skills will also facilitate new methods of training, particularly e-learning. There should be a major shift towards e-learning to reap benefits by providing better support to deployed units, particularly in terms of refresher and more efficient training to enhance operational effectiveness. The aim should be to exploit a combination of CD-ROM, Intranet and Internet delivery to exploit fully the particular advantages of each medium. But it must be recognised that e-learning is not a panacea. Much military training requires human interaction, particularly to develop such qualities as teamwork, leadership, ethos and courage.

(b) The non-formal education system, like distant education based on electronic media, needs to develop faster to cope with the increasing demand for life-long learning in the armed forces to keep its cadres updated and well prepared.

(c) Good progress has been made in simulation over recent years by developing large training systems, such as aircraft and ship simulators. With new technologies, improving computer skills and increasing access to new information and communication systems, it will be possible to exploit virtual training more fully at the individual level of training. This will be of particular benefit, given the ever-growing costs of training on real equipment and the need to avoid unnecessary risks and reduce environmental impact.

(d) Although the Army has created a separate organisation to develop computer war-gaming facility, it is still in the infancy stage at company/battalion level. Integrated computer war-gaming needs to be developed for higher levels as well to include operational and strategic aspects, for all the three Services.

Development of Asymmetric IW Capability and Training: The armed forces must take advantage of the country's strong IT base and develop an asymmetrical IW capability in relation to our adversaries. IW is a vast sphere and the armed forces will have to take the help of civilian specialists and establish joint training institutes. Training in new spheres like the Economic Information Warfare, Cyber Warfare, Command and Control Warfare, Hacker Warfare, Intelligence Based Warfare and Psychological Warfare will have to commence in right earnest.

Evolve a Long Term Digitisation Training Policy: The convergence of computing and digital telecommunication systems makes it possible to link together hitherto separate information or sub-systems into networks. This is the basis of all information and decision support systems being currently developed in the Army and at the strategic level. There is a long learning curve for digitised equipment, and there is need, therefore, for training to acquire the skills to manage the infrastructure that ties together the battlefield functional areas making up the Command Information and Decision Support System.

As the systems are fielded, communication infrastructures in Operations Room/Command Posts will become more complex. In order to exploit the system it will require collective involvement of key leaders, operators, and staff. There is a pressing need to evolve a training policy to ensure the operational effectiveness of formations and units by providing digital-sustainment training. Personnel trained in digital equipment may have to be retained for longer duration in units/formations to overcome the turbulence created due to current posting policy.

Institutionalising Experimentation and Innovation: New ideas in tactics and concepts can evolve only when the actual perception of the full combat elements in a unit/formation is experienced during training and experimentation. Opportunities of conducting large scale exercises on civil land are going to progressively decrease due to concerns over environmental degradation and damage to civil infrastructure.

Consequently the training at unit and formation level will be hampered and restricted.

There is thus an urgent need to create a modern facility where at least the ground and air components can train together. Such facilities could be created next to major field firing ranges for more realistic joint training.

Acquisition Training

The present RMA is already throwing up new technologies and weapon systems. To drive forward an effective long term acquisition process, there is a vital requirement of training for all those connected with acquisitions, including the MoD officials. This training can be imparted by establishing an Acquisition Cell under the Integrated Defence Staff.

Conclusion

Warfare is changing, perhaps more rapidly and fundamentally today than at any point in history. To take advantage of the ongoing RMA, India will need to reform the way it plans, thinks, procures, trains, and fights. Technology alone does not constitute RMA; it requires synergy with organisation and doctrine. This can be achieved by training, innovation and adaptation.

Attaining the full benefits of RMA will remain a challenge in the present environment. RMA will impact profoundly on training requirements of the armed forces. It is imperative that the armed forces commence re-structuring of the training base and methodologies so as to be ready to acquit themselves creditably in the next war. idsa

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Notes

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Synergising Indian Navy and the Coast Guard

*Alok Bansal**

Armed Forces all over the world are beginning to realise the importance of jointmanship, and accordingly enormous efforts have been made of late to promote jointmanship and bring about integration of the three armed forces in India. However, no attempt has been made to formally integrate the Coast Guard, which has also been termed as an armed force of the union, with the other forces, especially with the Indian Navy (IN). Presently, the naval-coast guard relations are cordial and joint operations are conducted without any major hitch but in the absence of any formal mechanism, there is scope for problems in future. Although a beginning was made by incorporating a Coast Guard component into the tri-service command at Port Blair, the Coast Guard has been kept out of the ambit of Headquarters Integrated Defence Staff (HQIDS). This reflects that the service is not likely to be placed under the Chief of Defence Staff (CDS) as and when it is created. For some inexplicable reasons, the Coast Guard (CG) has been treated like one of the Central Police Organisations (CPOs), even though the service is an armed force of the union and functions under the Ministry of Defence (MoD). The paucity of resources at sea requires that various agencies operating at sea must coordinate their efforts and pool their resources to obtain optimum results. As the two premium agencies operating in the seas around India, there is a need to institutionalise the relationship between the two services.

The two Indian maritime security forces, the IN and the CG are diverse services, but have a common role towards the nation's defence. "The

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CG ships and aircraft, and personnel manning them along with the shore infrastructure, have the inherent capability to switch over to a variety of specialised tasks in times of hostilities."[1] They need to cooperate to optimise limited resources and to enhance their effectiveness in their areas of operation. This paper aims to analyse the problems likely to arise in future cooperation between the IN and the Indian CG and to suggest remedial measures. The irritants which have the potential to undermine mutual cooperation have been studied with the purpose of eliminating them. The study has been carried out with the aim that relationship between the IN and the CG does not suffer from inter-service rivalry and mutual bickering as has happened in the case of the Army and the Border Security Force (BSF).

It is intended to highlight the differences in service conditions of the two services with special reference to absence of common or equivalent rank structure, differences in recruitment and promotional norms and its likely impact on command and control while operating together. It is also intended to highlight the absence of clear cut guidelines for the jobs likely to be entrusted to the CG in times of war and in less than war situations to suggest remedial measures to overcome these shortcomings and to optimise IN and CG resources and their organisational structures to evolve a doctrine for the joint operations.

Background

It has been three decades since the inception of the CG. The youngest unit of the Armed Forces, the Indian Coast Guard was formally inaugurated by the then Prime Minister Morarji Desai on 19 August 1978, making India one of the few countries to have established such a force to fulfil its obligations in the maritime zones under its jurisdiction.[2] An interim CG organisation had been set up earlier within the Navy on 1 February 1977 with the aim of undertaking non-military maritime duties and enhancing ocean management. The requirement of the new organisation emerged from the preliminary discussions at the third United Nations Conference on the Laws of the Sea (UNCLOS). The existing infrastructure and the

organisation for the protection of life and property at sea had not kept pace with the substantial increase in the maritime activity taking place in the waters surrounding India. The Indian Navy (IN) was the only organisation capable of enforcing Indian jurisdiction in the maritime zones. It was therefore felt necessary to create an organisation for the safety of off-shore installations in peacetime, control of smuggling across the seas and for meeting various international obligations at sea like pollution control, search and rescue and preservation of various marine species. According to a former Director General (DG) of CG, "The Indian Coast Guard was created … to maintain economic and environmental discipline … in its waters, and protect national and other interests in its maritime zones."[3]

It was probably felt that entrusting these additional responsibilities to the IN would not only dilute the primary function of a defence force but also expose the service to undesirable civilian influences. In addition, these peace-time law enforcement duties would have required large financial outlays and would have led to a substantial increase in the naval and consequently the defence budgets. This would have positively raised eyebrows in the littoral countries of the Indian Ocean in the Seventies and the Eighties and would have led to wider international ramifications. Based on some of these factors, it was decided to create an Indian CG organisation under the Ministry of Defence.

The CG Act was brought into force on Aug 19, 1978, constituting CG as the fourth Armed Force of the Union. The statutory duties of the CG as prescribed in the Act include protection of maritime and other national interests in the maritime zones of India, by such measures as the CG deems fit. These measures could provide for enforcing the provisions of the Maritime Zones of India (MZI) Act, assisting Customs and other authorities in anti-smuggling operations, providing protection and assistance to fishermen, ensuring safety and protection of artificial islands, off-shore terminals, installations and other structures and devices in the maritime zone, preserving and protecting the maritime environment and preventing marine pollution, safety of life and property at sea and

assistance in collection of scientific data.[4] Although, the Rustomji committee, which recommended setting up of the CG, had recommended that in an emergency, the service be placed under the operational control of IN to supplement the naval fleet, there is no specific mention of this in the CG Act. Nevertheless, the CG has been assisting the IN and rendering yeoman service during peacetime operational commitments.[5]

For the first ten to twelve years of its operation the CG was basically manned by IN personnel and all the ships and establishments were commanded by IN officers or ex-IN officers who had joined the CG. Even today, the DG and some of the top hierarchy of the CG consist of naval and retired naval officers but at the lower levels the number of IN personnel manning the CG ships and establishments has come down drastically. Today, most of the CG ships and establishments are commanded by CG officers. In the absence of common or equivalent rank structure and differences in promotional norms, difficulties have been experienced in command and control while operating together. Because of the lack of clear cut guidelines on the jobs likely to be entrusted to the CG in times of war and in less than war situation, there is a growing feeling in the lower echelons of the CG that they are doing most of the dirty jobs of the IN. On top of this, except a handful of officers, most of the CG officers have not served on IN units except during their initial training. They are, therefore, not totally aware of its operating procedures and this often creates problems in the smooth conduct of joint operations.

Growing Maritime Interests

Indian maritime interests are growing at a very fast pace in terms of sea trade, off-shore hydrocarbon explorations and other economic activities in the Exclusive Economic Zone (EEZ). Besides, a 7500 km border is open to sea and is easier to breach and the geopolitical scenario around us is not too encouraging as we continue to remain surrounded by hostile neighbours. Indian offshore oil assets are spread over an area of over 48,000 square kilometres and are expected to double by 2015. Overseas

trade, 95 per cent of which transits through the sea, is expected to cross $ 400 billion by 2010 and $ 1 trillion by 2020, when over 8000 tankers are expected to be touching Indian ports.[6] With growing trade, mostly by sea, there is a proportionate increase in Indian liabilities towards the protection of shipping, off-shore assets and protection of EEZ. Any laxity on the nation's part may cripple the economic lifeline of the nation. Thus, there is a need to consolidate Indian maritime defence in the best possible way. In a developing country like India, IN and the CG will never have adequate resources to meet all their requirements of platforms and equipment. Therefore, it would be logical to augment the resources of one service by making available the resources of the other in times of crisis. In view of the similarities of facilities required by the two services and the nationwide resource crunch, the cooperation between the two is inevitable.

Coast Guard's Potential for National Defence

Being a maritime service the CG possesses numerous resources and skills which could make enormous contribution to the nation's defence. In times of war, it could not only meet the naval requirement of additional ships and aircraft for various military tasks like patrolling and convoy escort, but also provide a vast pool of trained manpower which could be used to man the naval ships and aircraft. In times of hostilities it may be feasible to acquire additional weapon platforms from friendly countries, but it is virtually impossible to get trained manpower to man them at short notice. Today it takes five and a half years to train an officer through the National Defence Academy. Even if the Navy were to recruit graduates from outside, it would take two and a half years to train them to become effective watch-keeping officers. The two most demanding areas are training mariners and teaching command. It may be feasible to train and indoctrinate a large number of newly enlisted personnel into military life quickly and effectively but it takes time for them to acquire the ways of the sea by spending time at sea, whether on board an aircraft carrier or a CG boat. Similarly, command cannot actually be taught, because it is learnt through experience. The true lessons of command can only be acquired while commanding a ship.[7]

The CG can provide the Navy with a cadre of experienced mariners who have gained the knowledge of the sea through extended and extensive sea-time on numerous ships, boats and small craft – experience that cannot be traded. With the basics of military training already provided, these mariners can take up any naval task, with very little additional training. The CG can also bring to the Navy a pool of officers with command experience. With numerous smaller ships and patrol vessels, these officers would be an invaluable asset for any sudden expansion of naval assets and responsibilities in times of a protracted war.[8] It is therefore essential that CG should be able to "dissolve" into the Navy in case of any eventuality and the navy must be able to "fuse" CG in times of war by suitably equipping it and frequently exercising with it.[9]

Challenge of Terrorism

A new phenomenon that has made naval CG cooperation even more crucial is the growing phenomena of terrorism. Hitherto confined to land, terrorism could spread its tentacles over Indian maritime assets also. Owing to the suitability of geographical environs, it is feared that terrorism may shift into maritime realm. If so, terrorists could then exploit the vulnerabilities of global trade and shipping and disrupt the sea lines of communications passing through the neurological choke points. They could even carry out attacks on hub ports.[10] Arms, weapons and explosives are readily available in the world market. A number of nations are ready to promote its proliferation – whatever be the pretext. Terrorism is here to stay and will remain an important element of the political process to intimidate governments and influence public opinion. The smuggling – limited to gold, silver and drugs till recently – has now proliferated to include weapons and explosives. Further, much of the military technology is freely available to the smugglers and terrorists. Their modus operandi is likely to become more sophisticated, due to easy accessibility of hi-tech equipment and connivance of the states themselves. Use of warships, aircraft or submarines to a limited extent cannot be ruled out.

To counter this threat, India needs to keep its coastline and the waters around under constant surveillance. Proactive and preventive capabilities are essential and the maritime forces have to play a lead role in such interfaces.[11] With the resources currently available with the CG it is well nigh impossible for it to maintain continuous presence. The naval assets will have to be pressed into service to meet these terrorist threats which would continue to be supported by our enemies. It would be more of a low intensity conflict than an internal security problem. Even with the existing resources of the two services, the IN and the CG have just managed to bring the situation under control on the western and southern coasts.

Problems in Naval Coast Guard Cooperation

Today, the CG and the IN are getting along fairly well. This, however, is due to the fact that, barring two short interregnums, CG has been headed by a naval officer. Despite this the bickering has started at the lower levels. The situation could worsen as time passes and the CG is manned totally by its own cadre of officers. This has happened in the case of the BSF and the Army, where the former was supposed to be a service with an army ethos and culture but as the army officers on deputation were phased out and BSF/Police officers took over, its orientation and attitude changed. Today, it has acquired police culture and resents being put under army command and control when the need arises. It is feasible that the CG could also evolve the same way in times to come, especially since the CG Act has no specific provision to place the CG under the operational control of the Indian Navy when the need arises.[12] The bureaucratic conflicts have the potential to cause considerable harm and may affect both the Navy and the CG.[13]

Some of the important problem areas that adversely affect the relationship between the IN and the CG have been analysed in the subsequent paragraphs. All of them have the potential to cause serious inter-service rivalry and bickering in future.

Service Conditions

Differences between the service conditions of the IN and the CG, especially the lack of common or equivalent rank structure and difference in promotional norms, has the maximum potential to cause problems in any future cooperation between the Navy and the CG. IN inducts officers through the National Defence Academy and the Naval Academy and as direct entrants in the technical branches. The CG officers are also inducted through the Naval Academy, but while the Naval officers join the Academy as cadets, the CG officers join as Assistant Commandants. This anomaly can be basically attributed to the fact that the CG officers at the time of induction are usually older than their naval counterparts. As a result, by the time a naval officer finishes his Midshipman's time and gets commissioned, his course mate in the CG is already an Assistant Commandant of one and a half year seniority. Later, when a CG officer comes up for watch-keeping ticket, the naval officers who have already got the ticket are still junior to him. In the past CG officers have got their tickets under naval officers who were technically junior to them – purely by taking into account years of service. Further, if a CG officer got his promotion at the right time he could become a Commandant in eight years. By this time a much senior naval officer would not have been considered for promotion to the rank of Commander. In the absence of clear cut directives and common rank structure, the Commandant got equated to the Commander and led to serious problems.

One of the most glaring examples pertains to a CG ship based in the Andaman and Nicobar Islands in the early Nineties. The ship commanded by a naval Lieutenant-Commander, entered Campbell Bay during one of its patrols to the southern group of islands. When it had to sail, a problem arose as to who should make the sailing order.[14] Commander CG District Ten (COMDIS 10) based at Campbell Bay was a Commandant who in service was much junior to the Commanding Officer (CO) of the ship who had not yet been considered for promotion to the rank of Commander. Both the CO and the shore authority felt that they ought to make the sailing order based on their own logic and thinking. The

CO eventually made his sailing order and left harbour but was asked to return back by the Commander CG Region (COMCG) based at Port Blair. The CO of the ship at this juncture expressed his intention to hand over command to his Executive Officer (Second in Command). The CO was subsequently allowed to make the sailing orders and the matter was somehow hushed up and no clear cut directives were issued at that time on this contentious issue. This sort of an ambiguity can be catastrophic in times of war. Even today there are problems regarding the issuing of sailing orders in ANC, where the sailing orders for CG ships are being issued by COMCG rather than the Commander in Chief of ANC.

Another incident pertains to joint operations in Palk Bay. During an escort operation, which involved an IN and a CG ship jointly escorting a merchant ship repatriating Sri Lankan refugees, the CO of the IN ship, a Lieutenant Commander, was appointed the Officer in Tactical Command (OTC). However, the CO of the CG ship, who was a Deputy Commandant and whose total service was almost three and a half years less than the commissioned service of his naval counterpart, objected to it claiming that he was senior as he had become a Deputy Commandant before the naval officer had become a Lieutenant Commander. In order to avoid unpleasantness and to skirt the issue, an even more senior naval officer was appointed the OTC and the shore authority controlling the operations requested higher ups about the relative seniority of the COs by signal but failed to receive a definite reply.

The problem therefore definitely exists; unfortunately, no attempt has been made to address it. Rather than taking the problem head on, a deliberate attempt has been made to sweep the issue under the carpet. The remedy invented by the CG Headquarters to remove these situations causing unpleasantness was to reduce the number of CG ships being commanded by naval officers. The result was that Deputy Commandants of less than eight years service including time spent in Naval Academy, basic Sub-Lieutenant's courses and afloat training that is less than six years after the award of watch-keeping tickets were commanding ships like Inshore

Patrol Vessels, Seaward Defence Boats and Fast Patrol Vessels, leading to a spurt in navigational accidents – numerous ships were damaged on account of grounding and mishandling during the mid-Nineties. It is not intended to cast aspersions on the navigational skills of the CG officers, who are as good or as bad as any naval officer of equivalent seniority; but just to bring out the relative inexperience of some of these officers commanding ships.

Except for wartime risks and the risks inherent in operating and firing various hi-tech weapons, the CG officer is essentially doing the same job as the naval officer. When the day of reckoning comes, however, being an armed force of the Union, the CG too will have to go in harm's way and come under fire.[15] Therefore, the CG officers justifiably feel that they should also get most if not all the facilities available to other defence personnel, like rations in kind for officers and sixty days annual leave. In case of lower ranks, there exists a rank structure in the CG which is more or less equivalent to that of the Navy. Although in the formative years the promotions were much faster in the CG, and even today continue to be relatively fast, this has not really caused much problem. Due to the presence of a similar rank structure, there is generally a good understanding amongst the naval sailors and CG naviks about inter se seniority. Moreover, their direct interaction is also considerably less as compared to the officers. Initially, there were a few problems regarding the status of Pradhan Naviks (equivalents of Petty Officers in the Navy) who, according to the CG Rules, are not subordinate officers (equivalent of Senior Sailors in the Navy). There was also a problem of mess-men as the CG Naviks initially felt that it was not in their charter of duties to serve Senior Sailors or their equivalents in the CG. However, most of these problems have been resolved by now.

Common service conditions for the two services with a common or equivalent rank structure for the officers is considered a must for removing mutual irritants and enhancing cooperation between the two services. CG being the fourth Armed Force of the Union must be given privileges as applicable to the other defence forces. Qualifications and

other requirements for entry in the CG should be made similar to those for the Navy. The promotion norms also need to be made similar. In order to retain the naval character of the force, it is felt that a significant number of the officers manning the CG should be naval deputationists. Similarly, as in the US, the CG officers should be deputed to naval ships and units. This will not only improve mutual understanding but also acquaint the officers with each other's operating procedures.

Sharing of Training Facilities

As of now, most of the training is common for the Navy and the CG. The CG is using the existing naval facilities for the basic and subsequent professional training of their officers and lower ranks. Some years back, a serious thought was being given to start a CG Academy near Hazira, but the idea seems to have been shelved now. It is essential that the CG should continue to use naval facilities for training. With the Naval Academy at Ezhimala becoming operational, the Navy should be in a position to meet the entire training requirement of the CG. The CG should also start inducting their officers after the "Plus Two" stage so that they could train together with the naval cadets in the Naval Academy just like the naval cadets train together with their Army and Air Force counterparts at the National Defence Academy. This will establish excellent lifelong rapport amongst the officers of the two services.

The subsequent professional training for the two services is generally carried out together. Almost all the CG officers and lower ranks complete their initial and subsequent professional training in the naval establishments. This system of training together needs to be continued if the two services are to operate together in times of war and in less than war situations. However, there is a growing feeling amongst the CG personnel, specially the officers, that they get a step-motherly treatment in the naval training establishments. In order to eliminate this feeling, it is necessary that all the major training establishments of the Navy training CG personnel should also have the CG personnel in their training teams. This will enable the training package for the CG

personnel to be continuously modified to suit the CG requirements. This will also eliminate the feeling of alienation that many CG officers suffer from when they are undergoing training in the naval establishments.

It is also felt that all the naval personnel, especially the officers, should undergo a basic capsule on subjects like pollution control, anti-smuggling and anti-poaching operations. The CG should set up training facilities for training their personnel in these subjects and naval officers should also go there for short courses. At the same time, it is felt that the quantum of gunnery training being imparted to the CG officers needs to be enhanced so as to enable the CG to undertake its war-time responsibilities more effectively. It is also imperative that some Anti-Submarine Warfare (ASW) training should also be imparted to the CG personnel, especially officers. This along with the likely presence of sonar and ASW weapons in future CG ships will enable the CG ships to be used for anti-submarine patrols in times of war.

Maintenance, Logistics and Communication Facilities

The CG is presently utilising the logistics and communication facilities of the Navy and to some extent the maintenance facilities of the Navy. Of late, the CG has started setting up its own facilities. It is strongly felt that rather than duplicating the infrastructure, the CG should set up logistics, Communication and maintenance facilities where naval facilities do not exist, like Porbandar, Haldia and Campbell Bay. By this sort of an arrangement the two services can utilise each other's resources most optimally.

The CG should pay the Navy for the facilities used by it, including the training facilities and the manpower. As the finances for the CG are provided by the Department of Revenue (Customs), this could help in keeping the defence budget low.

Doctrines for Joint Operations

Today, the Navy and the CG are moving forward in their development without much regard to the other service's thinking and planning. They

have a common role towards the nation's defence. The CG is expected to operate in support of the Navy in times of emergency. This requires a great deal of cooperation between the two services in peace-time so that the CG could change over to its war-time role more smoothly. The two services need to develop as forces complementary to each other so as to avoid wasting scarce national resources in duplicating infrastructure. This requires the two services to take a holistic view and plan their future developments with mutual consultation. If the CG is to function as an integral part of the Indian maritime force structure during hostilities, it should be provided with the wherewithal for playing such a role efficiently. In addition, the staff requirements of each new addition of either service need to be dovetailed keeping the integrated force requirements in mind. They need to ensure commonality of basic ship designs, common operation procedures, unambiguous command and control organisation for joint operations and cross deputations from one service to the other so that the personnel are not only familiar with one another but also with the problems and procedures of the other service.

The Navy and the CG are two Armed forces of different characters and need a doctrine to govern their relationship, which must clearly highlight that the main roles of the CG are maritime law enforcement and marine safety missions. However, maritime defence should be one of the three missions of the CG and accorded equal importance. The following principles should govern this relationship:

(a) The CG should complement the Navy's capabilities rather than duplicate them, for optimum utilisation of scarce national resources.

(b) By incorporating combat capability in existing CG platforms, the CG could provide significant accretion to the maritime defence capabilities at a nominal cost and in LIC and other low threat scenarios, the CG should meet the Navy's platform requirements.

(c) In times of war or other emergencies the CG should carry out tasks such as Naval Control of Shipping, search and rescue, harbour defence and security and surveillance. As far as possible efforts should be made to allocate only such jobs as are similar to the tasks being performed by the CG in peace-time.

(d) The selection of ships and aircraft for the CG should be in

consultation with the Navy to facilitate inter-operability and standardisation for logistics support. The CG should therefore avoid operations and procedures that would change in the event of the Navy's control, and develop its own combat system and command and control system.

As the CG grew out of the Navy, presently there are many areas of duplication as well as blurring of responsibilities. Efforts would have to be made to sort them out. The CG draws upon the expertise and the infrastructure of the Navy and will continue to do so for times to come. Within a short span of three decades, the CG has begun to acquire an independent identity of its own. While retaining its separate identity, the CG can provide significant support to the Navy, both in times of war and peace. The growing network of CG bases, its infrastructure and equipment could fill crucial gaps, especially in maritime surveillance and escort role, in the inshore and off-shore regions, thereby relieving the Navy of part of its responsibility and freeing it to concentrate on the major role of engaging and neutralising adversaries away from the home water.[16]

Maritime Defence Zones

The United States has established Maritime Defence Zones (MDZ) to enhance cooperation between the Navy and the CG, thereby reducing combat deficiencies. It is felt that establishment of these zones in India will help the Navy and the CG to establish standard practices for protecting the ports and the coastal waters.

MDZ are naval commands, headed by CG Area Commanders who report to their respective naval Commanders-in-Chief when activated for operations and for planning and exercise purposes during normal peacetime. MDZ responsibilities include contingency planning, exercising the plan with regular and reserve forces and operational command of designated Naval and CG forces when mobilisation occurs. The MDZ area of operations includes the navigable waterways, port areas, harbour approaches and ocean area up to the limit of EEZ. The MDZ staff is made up of officers from both the Navy and the CG. The

forces destined for MDZ operational control when activated include most of the CG ships, aircraft and port security units, naval mine warfare units, inshore undersea warfare units and a limited number of frigates, destroyers and maritime patrol aircraft.[17]

In the Indian context, there is a need to establish five Maritime Defence Zones – two each on the Western and Eastern coasts and one for the Andaman and Nicobar islands. These could be headed by a naval officer of the rank of Rear Admiral or a CG Inspector General. The forces allocated for the MDZ should include almost all the CG ships and aircraft and naval ships earmarked for Local Naval Defence (LND), including minesweepers and missile boats.

The threat with which the MDZ must deal includes the entire spectrum of covert and overt hostile actions that could compromise a port or sink a ship at sea. This ranges from mine and submarine warfare to terrorist attacks to intelligence gathering and special operations. In the face of these challenges, the CG must take advantage of every opportunity and every available resource in peace-time to develop expertise and amass experience doing the kind of things that can readily be applied to MDZ operations in the event of hostilities.[18]

MDZ must ensure that the battle groups, amphibious groups, submarines and support ships deploy unimpeded from Indian ports when hostilities are imminent. It must also ensure that the reinforcement and resupply shipping in support of forward deployments safely departs Indian ports and coastal areas and safe and secure water transportation of economic cargoes continue from Indian ports and coastal areas.

Wartime Role of the Coast Guard

It is imperative that closer ties are established between the CG and the Navy so as to facilitate a smoother transition whenever the CG is required to fight alongside the Navy in times of war. It would be ideal to take a leaf from the US Coast Guard, which "is a military, multi-mission, maritime service ... .. and one of the nation's five Armed Services"[19]. Besides

defence of the US coast, the CG ships and aircraft actively participated in the Vietnam War and made sacrifices along with the personnel of other services.[20] According to the US CG policy document it along with the Navy is expected to create "fully interoperable, multidimensional, naval and maritime forces" to meet future maritime challenges. To achieve this "the Navy and Coast Guard must work even more closely".[21] In the Indian context this can be achieved in peace-time by CG participation in joint readiness exercises and multi-service interdiction training and operations. The process has been initiated and would be a catalyst in improving the CG readiness and an asset in improving the professional relations between the Navy and the CG. Coastal defence and coastal law enforcement are complementary. As brought out earlier, with careful planning, a Rupee spent on either of these missions will directly benefit the other.[22] Since 1990 a non statutory forum called the Navy Coast Guard Board (NAVGUARD) has been established to resolve contentious issues and provide solutions to issues of mutual interests, covering the whole gamut from standardisation of equipment to community interactions and welfare measures.[23]

Reality dictates that the CG would always be most useful when it takes on the mission the Navy cannot fulfil. The Navy comprises of a force of large, high technology extremely expensive ships. The CG comprises of essentially low cost ships. It is, therefore, envisaged that the CG would take on the responsibilities where low intensity conflict exists. With the addition of some inexpensive combat systems, these ships will be ideally suited for low intensity conflicts. The CG will provide the platform and personnel and the Navy would provide combat systems for these platforms. While incorporating the combat capability in existing CG platforms, the CG will provide a low coast addition to the national defence resources.[24]

The CG should support the Navy as a general purpose force in being, and for operations in low to high threat environments. Generally, CG units should confine their operations to littoral waters in low threat environments. The wartime tasks of the CG should include defence

of off shore installations, local naval defence of ports and harbours, examination services, control of merchant shipping, augmentation of naval resources in amphibious operations, maritime surveillance and Patrol and Logistic Support.

Conclusion

The CG was established to fulfil the long felt need of an organisation to ensure the safety of life and property at sea and for enforcement of national laws in the waters under our jurisdiction. This had become essential from the trends emerging from the preliminary discussions at the Third UN Conference on the Law of the Sea. It was also considered desirable that these predominantly peace-time law enforcement activities should not be undertaken by the Navy, since these will detract from the Navy's operational role and interfere with combat training. Moreover, it would not be cost effective to deploy sophisticated warships and trained manpower of the Navy in a law enforcement role on a continuous basis in peace-time. It was also felt that entrusting these jobs to the Navy would probably require higher defence outlays and cause an uproar in our neighbouring countries.

The CG Act was brought into force on 19 August 1978. This act formally constitutes the CG as an Armed Force of the Union under the Ministry of Defence. The CG is, however, not paid out of defence estimates but its budget is covered under the allocations for the Department of Revenue (Customs). The duties assigned to the CG by this act are mainly maritime law enforcement and marine safety missions. Even though the founders of the CG expected the service to contribute to the maritime defence, no mention of this is made in the CG Act.

The Navy and the CG are two maritime forces operating in the same environment, with overlapping functions and responsibilities in certain areas in peace-time. Indian maritime interests are growing at a tremendous pace and to guard them would be beyond the resources of any one maritime force, especially in view of the resource crunch. Low

intensity conflicts have become part and parcel of the scenario evolving around us. Infiltration of arms and explosives from across the maritime boundaries has increased the security threat to Indian maritime assets and the spectre of maritime terrorism is looming large. This requires increased maritime surveillance, which can only come about with close naval and CG cooperation.

In order to enhance cooperation between the two services and to remove the problems likely to arise in their future cooperation, personnel from both the services must be sent on cross-deputation to the other service. The service conditions, rank structure, perks and privileges must be similar for the two services. CG personnel should continue training in naval training establishments and the logistics and maintenance facilities of the two services should complement each other rather than duplicate them. MDZ on the US pattern must be established and a set doctrine must govern joint operations. The requirement of platforms of the two services must be coordinated and as far as possible commonality of equipment must be maintained. CG platforms must be built to naval specifications and must have the capability to stage naval helicopters and to be fitted with naval weapons and sensors. There is also a need to give the CG a representation in HQ IDS. This will not only affirm its identity as an Armed Force but also enable the HQ IDS to get valuable inputs on the maritime zones and CG. idsa

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Aircraft Carriers and India's Naval Doctrine

*Gurpreet S. Khurana**

Introduction

Epic sea battles between aircraft carriers have not recurred after World War II; in the post-war period, most carriers began to retire without even having participated in a battle. Many countries that possessed carriers or were aspiring to get them thus began to re-assess the military-strategic utility of such platforms in the radically altered global geo-strategic environment. The operational concept incorporating carriers also came under the scanner due to the risk to these high-value assets by the proliferation of sea-denial platforms and weapons. For example, the acquisition of submarines by Indonesia and Pakistan in the mid-1960s led to India's employment of INS Vikrant with much hesitation.[1] Whether the enormous financial investment needed to acquire and operate a carrier can be justified against its need has been another contentious issue. Notwithstanding these protracted debates over the years, the *aircraft-carrier* has still not followed the *battleship* into oblivion.

Merely on the basis of reduced employment of aircraft-carriers in the recent past, or by a casual reckoning of the shifting offence-defence balance against these platforms, it may be perilous to infer that aircraft-carriers are redundant in contemporary times. The current regional geo-political and security environment is marked by ambiguities and uncertainties. It is still unclear as to what kind of world order will emerge after the bipolar one ended with the Cold War. The only certitude is that

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the process will involve substantial geo-political competition wherein the possibility of military conflicts, albeit of short duration, cannot be discounted. Furthermore, given the shifting global focus to the Indian Ocean-Pacific Ocean (from the Pacific-Atlantic combine), the competition is more likely to manifest in this region. Coupled with India's expanding vital interests, such a regional environment may necessitate a carrier capability. This paper aims to examine this need and assess the related operational-level and tactical aspects of carrier operations in the Indian context.

Strategic Imperatives

The Asia-Pacific is largely a maritime-configured region. Therefore, there is much rationale for a regional power like India to possess a carrier capability. Even if India could obtain access to extra-territorial air-bases for use by its land-based aircraft, it may not be prudent to factor such bases, since these may not be made available in the most critical occasion due to geo-political factors. There are numerous possible scenarios wherein a carrier capability would be indispensable; some of them are as follows:

- **In Support of Land Battle:** The concept of using a carrier to support a continental war is not alien to India. During the 1971 operations for liberation of Bangladesh, the aircraft onboard INS *Vikrant* was employed very successfully to strike strategic targets deep inside the erstwhile East Pakistan. It is important to note that as long as much of India's land boundary (stretching from north-west to north-east) remains disputed, the potential of a border conflict, and thereby the likelihood of such a need, will persist.

- **Security of Sea-Lines of Communication (SLOC):** In the event of a military conflict, a carrier is the only naval asset that can provide a comprehensive protection to merchant shipping carrying strategic commodities to India. The Indian naval chief recently expressed apprehensions on the future vulnerability

of energy imports through the Strait of Hormuz due to China's strategic "foothold" in Pakistan's Gwadar port, as part of its overall "String of Pearls" strategy.[2] Like Gwadar, many other locations ("pearls") in the Indian Ocean littoral dispersed along the arterial shipping routes bear a similar potential. Owing to the ongoing diversification of energy sources away from the Persian Gulf area, these distant SLOCs are also assuming strategic significance for India.

- **Maintaining Influence in IOR:** India's security is directly linked to and closely enmeshed with that of the Indian Ocean and the adjoining littoral region (IOR)—the area of its primary strategic interest. The Chinese "pearls" in the Indian Ocean, besides addressing Beijing's strategic vulnerability in terms of its energy imports is likely to be aimed at "displacing" India's influence in the IOR. A possible Chinese politico-military intervention in the region will seriously impinge on India's security. In that sense, a carrier can best bestow on India a capability to maintain its influence in these waters and achieve a strategic "dissuasion" against any inimical extra-regional power.

- **Safeguarding Vital Interests Overseas:** Carrier aviation will enable India to safeguard its strategic interests overseas, not only in the IOR but also beyond. India's economic/strategic stakes are conspicuously increasing in Afro-Asian states, many of which are plagued by political, socio-economic and ethnic instabilities. Besides, many Indian citizens are working in these countries, and past events have amply demonstrated how their lives and property can be jeopardised. New Delhi will need to safeguard these interests in conjunction with the host nations. When the operational situation so warrants, it may be preferable to carry out precision air-strikes to "soften" the target before inserting ground forces, since to do otherwise may lead to avoidable casualties. The Gulf wars conducted by the US are instructive in this regard. Even if its own interests are not directly endangered, India may

need to meet its international obligations by participating in a peace-enforcement operation under the aegis of the UN.

- **Security of Island Territories:** Integral naval aviation is essential for defence of India's far-flung island territories, particularly the Andaman and Nicobar Islands (A&N) that lie more than 1,000 km from the Indian mainland. These islands are also extremely vulnerable due to their geographical spread, and the fact that most of these are uninhabited. The possibility of foreign military occupation or claim may be unlikely in the foreseeable future, but cannot be ruled out altogether. The take-over of the Falklands Islands by Argentina was also considered a remote possibility until it actually occurred in 1982. By all indicators, high-value naval/air assets are unlikely to be based in the A&N Islands. This makes the aircraft carrier indispensable, even as a deterrent.

- **Non-military Missions:** Although the concept of a carrier is essentially centred on its military role, such a platform would substantially increase India's operational options to respond to a natural disaster in the regional seas or littoral. While it has begun inducting large sealift platforms with integral helicopters like the INS *Jalashwa* Landing Platform Dock (LPD), a disaster of a large magnitude may necessitate the employment of a carrier. Akin to a floating city, a carrier can provide virtually unlimited sealift, substantial airlift and all conceivable essential services ranging from freshwater to electric supply, and medical to engineering expertise. There is an effort to further enhance the usefulness of a carrier for such roles, such as by incorporating a modular concept. It incorporates modular spaces/containers carrying specialised personnel, engineering equipment, medical facilities, etc., which can be rapidly deployed for specific missions.[3]

Not the least important is the employment of a carrier to fulfil the politico-diplomatic role of the navy. The large platform is an awesome

symbol of national power. Its overseas missions and port-calls, when used with prudence and in a non-threatening pose, can yield intangible, but substantial, dividends to the country.

Air Power: Sea-based versus Land-based

The recent past is witness to quantum advancement in aviation technologies, leading to the induction of "fourth-generation-plus" aircraft by many countries, including India (SU-30 MKI). Their intrinsically enhanced flight endurance is further augmented by in-flight refuelling capability. It may therefore seem that land-based air-power can meet any of the aforesaid strategic objectives, which hitherto necessitated carrier-borne air operations. However, the following considerations indicate otherwise:

- Aerial refuelling has its own operational constraints, such as in terms of safety of the tanker-aircraft.

- The "time on task" of a land-based aircraft in the conflict zone would be significantly less than that of its sea-borne counterpart.

- Carrier-borne aircraft are better able to maintain combat efficiency, in contrast to the lengthy transit of land-based aircraft, which would degrade crew efficiency by the time the aircraft reached the conflict zone/ "task" area.[4]

- Positioning the carrier in close geographical proximity to the conflict zone enables the commander to better monitor the changing operational scenario and execute timely measures.[5]

- In case of some scenarios like a military conflict across the land border, the targets may lie well within the striking range of land-based strike aircraft. However, employment of carrier-based aircraft will be necessary to present an element of surprise and uncertainty to the adversary.

- For India to defend its widely dispersed island territories, carrier-based aviation may be a more cost-effective option as compared to land-based aircraft, which would need elaborate supporting infrastructure. Besides the airfield, it will need an air-surveillance radar chain, a fixed anti-submarine sensor network, fuel stores, ammunition depots, and so on.

- In many cases, as compared to an airfield, a carrier is less vulnerable to the enemy's pre-emptive strike due to its mobility.

The Weak Case Against Carriers

The arguments against a carrier essentially revolve around the increasing operational vulnerability of such a high-value platform, which is bound to be a focal target for an adversary's military strategy during war. It is true that a carrier is more prone to detection today due to the advent of spaced-based surveillance, unlike in the past when it could "hide" in the vast expanse of the ocean. It is also stated that once detected, it is also more assailable to sea-denial forces than hitherto. This assertion may however be too simplistic, and does not reckon the inherent defences of a carrier taskforce. The raison d'être of a carrier is to establish *sea-control* (including air-dominance) in a sizable area around it, with its precise size being contingent upon the threat perception and the forces at the carrier's disposal. This implies that before a carrier is put to sea, it must be capable of sanitising all possible threats (in all dimensions) in the sea-control area. The case against the carrier also pertains to some specific threats, which are examined and accounted for later.

The hype on insecurity of a carrier largely stems from a larger fear – if the carrier is lost to the enemy, it would not only severely and irreversibly degrade the nation's military capability, but will also lead to a major symbolic dent to its morale and pride: after all, nowhere in the annals of military history has the loss of a single asset to the enemy, including that of the battleship, ever been so damaging to national interest. The following accounts for the oft-stated arguments against the carrier and their inherent weakness.

Vulnerability to Anti-Ship Missiles has Increased

The new generation anti-missiles like *Exocet, Harpoon* and *Moskit* are characterised by increasing lethality in terms of their speed; sea-skimming flight profile to evade the targets radar; sophistication of its Electronic Counter-Counter Measures (ECCM) to evade ship's "soft-kill" defences, and so on. However, the technological effectiveness of defence has also increased substantially, almost in tandem with the offence.

Besides, considering that the adversary is likely to resort to concentration of force to "saturate" its defences, tactical doctrines have been re-oriented accordingly to bolster the defence. For example, it has now become necessary to destroy the launch-platform before it launches the missile. The platform could be a warship or a maritime patrol aircraft, like the P-3C Orion operated by Pakistan. It could also be a submarine, which is examined later in greater detail. The value of "organic" aviation of a carrier here lies in the availability, at virtually immediate notice, of a means to search and positively identify distant hostile platforms, and thereafter "kill" these, before a missile launch. This makes the carrier-borne aircraft in anti-air, anti-ship and anti-submarine roles imperative, to protect not only the carrier and its escorts, but also other units operating in the area.

To cater for the possibility that the destruction of launch platform is not achieved, the many subsequent layers of defence directed at destruction of the incoming missiles are facilitated by the various sensors on the carrier taskforce units, including those of the carrier-borne Ka-31 helicopters that provide a continuous Air Early Warning (AEW) cover.

Furthermore, a carrier's inherent battle-damage resistance is often underestimated. History has shown that large ships are significantly less vulnerable than small ships and can withstand high degrees of damage without loss. Even if a carrier is hit by one or two missiles, this is unlikely to affect even its fighting efficiency, let alone its ability to come back to harbour or to stay afloat.

Vulnerability to Submarines has Increased

In the increasing "transparency" of maritime battlefield brought about by space and information technologies, the intrinsic attributes of underwater medium have undoubtedly provided an edge to the submarine. It is however important to note that an aircraft carrier can bring to bear substantial anti-submarine capabilities to prosecute the enemy submarine, much greater than what any taskforce devoid of a carrier can do. According to one account of the 1971 Indo-Pak war, had INS Vikrant (with its Alize anti-submarine aircraft) not been deployed in the Bay of Bengal, the Pakistani submarines would not have been so successful in the Arabian Sea. (One of these sank even INS *Khukri.*)[6]

The induction of underwater-launched long-range missiles by the submarines of India's potential adversaries has presented a more serious threat. The Exocet (on Pakistan's *Agousta*-class), *Klub-S* (on Chinese *Kilo-class*) and YJ-8-2 (on Chinese Song-class) are capable of striking a carrier at extended stand-off ranges. However, the employment of such capability must necessarily be preceded by precise location of the carrier through the submarine's radar or electronic support measures (ESM). A submarine is severely constrained here, since this would require it to come to the surface/periscope-depth, making it vulnerable to detection and prosecution. Even if it does so, due to the limited height of its radar/ESM mast, its "horizon" for electronic search/tracking is extremely limited in relation to the maximum range of its missile.

Ties Down Substantial Forces in Escort Role

It is true that a carrier never sails in a "hostile" environment without numerous consorts in escort role to cater for a multi-dimensional threat. However, the argument that this "ties down" these forces is based on ignorance of the mutual support that carriers and the other ships offer as part of an integrated force. The carrier supports the consorts as much as the consorts escort the carrier, if not more.[7] Besides, a full-

fledged protective "screen" around a carrier is not always necessary. In accordance with the prevailing threat scenario, the force commander can exercise his discretion to detach forces for other missions intimated by the shore command.

Besides, the "overwhelming" naval forces being employed for the protection of the carrier could be reduced significantly if the platform possesses adequate weapon-systems. To keep the cost low and have space for larger number of aircraft, this is not being resorted to by India in case of the *Admiral Gorshkov(future INS Vikramaditya)*. Nonetheless, it remains an option for India's future carriers. Another option is to increase the carrier tonnage (size). This will enable the platform to carry more aircraft (in anti-ship and anti-submarine roles) for its own defence, without commensurately increasing its vulnerability in terms of radar signature or manoeuvrability.

It is pertinent to note the global technological developments in favour of the carrier. For example, the fixed-wing unmanned aerial vehicles (UAV) have already been operationalised in many countries. The induction of rotary-wing craft and underwater vehicles is on the anvil. In the coming years, such force-multipliers will further augment the defence of the carrier, which may reduce the necessity for a large number of escort vessels.

Acquisition and Operating Cost is Prohibitive

While a current-generation destroyer (5,000 tons displacement) costs about Rs. 3,000 crore, an aircraft carrier of about 35,000 tons displacement costs twice that amount. But this also indicates that the procurement cost of a carrier on a per-ton basis is substantially less than that of a destroyer. Furthermore, when seen in the context of a carrier's ability to perform varied roles, including that of a floating airfield, which no other type of naval asset can perform, the high induction and operating cost is well justifiable.

During the aircraft carrier debate in Australia in the 1970s, one of the proponents stated that "Virtually all weapon acquisitions are expensive; but a carrier to meet the… requirements need cost no more than two destroyers. And no other equipment acquisition can match the essential capability of the aircraft carrier at equivalent cost."[8]

Conclusion

Given the aforesaid considerations, prima facie, the imperative of including carriers in its naval doctrine far outweighs its cost, both financial and operational.

It is important to remember that many of the arguments against the carrier mentioned in this paper were used even before World War II. The statistics of the war pertaining to allied forces later disputed these – in comparison to 11 per cent carriers, the allies lost 18 per cent battleships, 33 per cent cruisers, 36 per cent frigates, 21 per cent sloops and 37 per cent submarines.[9] The post-Cold War global trends of carrier acquisitions are instructive. Despite the fact that only Indian and British carriers went into action in the Cold War-era, France, Italy, Spain and Thailand did not hesitate to acquire carriers.

Like India, China is another major regional power. With the exception of its maritime-territorial claims in the western Pacific, China's emerging vital interests are likely to be similar to those of India. Although China has not yet operationalised a carrier, it is more due to geo-strategic compulsions specific to it, rather than for any reason applicable in Indian context. Furthermore, while such compulsions are likely to persist in the foreseeable future, Beijing has maintained a long-term vision to acquire carriers and has also been working towards it, such as in terms of formal induction in January 2007 of the old Soviet Varyag as Shilang (hull no 83) and the ongoing negotiations with Russia to procure the carrier-capable SU-33 naval aircraft.

In the US, the debate was not about the need of carriers, but their optimum numbers to support its global interests.[10] Likewise, the debate in India must be on the number and size of its carriers, rather than on the platform per se.

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Growth and Implications of Private Military Corporations

*Shantanu Chakrabarti**

New Security Concerns and the Evolution of the PMCs

Security, both as a concept and a policy objective, has been undergoing steady expansion in terms of its scope and focus. The concept, on the one hand, has steadily lost its traditional military-security oriented approach and has been broadened into a more holistic and comprehensive paradigm by linkages with non-traditional security issues. In this connection, the "Security sector reform (SSR) has emerged in recent years as a way of tackling the security and development questions together. It combines a wide range of activities that reform the security institutions of the state – the military, police, intelligence services and the criminal justice system – in order to make them capable of delivering security to citizens in a way that is consistent with democratic norms. It is an increasingly common element of development policy… ."[1] On the other hand, the gradual retreat of the state with a concomitant trend towards privatisation in even the sphere of "high politics" including war and international security, as well as "public sphere" areas, like maintenance of domestic security, has become a globally established trend since the 1990s. According to one analyst, the process of globalisation: "is splintering the concept of national security, generating new markets for both supra-national and sub-national security providers… ."[2] In this connection, a noticeable trend in the post Cold War period, or more particularly, since the beginning of the Global War on Terrorism(GWOT) after the 9/11 incident, has been the sharp proliferation of Private Military Companies (PMCs) and

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Private Security Companies (PSCs) and their use by the states along with international organisations, NGOs, humanitarian agencies, members of the international media and the MNCs. In the internal sphere also, "Internal security is increasingly being privatised as private security companies (PSCs) and other non-state agents supplant state agencies as providers of individual security[3]." This has either been because of the failure of "weak states" or as in cases of "stronger states", a part of the overall drive towards outsourcing, in order to increase efficiency and cost-effectiveness.

The increased capacity of the global media to inflame and influence popular concerns regarding "casualty sensitivity" or the "body bag syndrome" – either in support of or opposition to foreign intervention – has also been a subject of broad concern among the global strategic community. This has led to "force deployment" in actual conflict situations: A difficult task for the policy makers. States, thus, seem to accept a prominent role for private business interests in the regulation of violence. This, in turn, amounts to a process of "commodification" of security. Employment of such Private Military Corporations (PMCs) in global conflict situations seemed to have become a well established practice since the 1990s. The rising menace of various non-state oriented security threats taking centre stage in the security discourse has also increased the importance of the PMCs. Privatisation of security has been advocated as a better approach to deal with such new threat scenarios and conflicts.

The PMC is an industry that is growing with some estimating annual contracts in the $10-$20 billion range. Though this growth has been a worldwide phenomenon, the United States, Great Britain, along with countries like South Africa, account for over 70% of the world's market for their services. While the use of civilian contract personnel providing mostly logistical services during operations has been a common affair in armies all over the world, what has been, however, a more significant development in the post-2001 counter-insurgency operations is the extensive use of armed contract personnel to conduct military missions

such as security operations and training of personnel in combat zones. As one analyst notes:

"…However well intentioned the moral concerns surrounding both the employment and deployment of PMCs, they are now very much part of the security landscape as states and Intergovernmental Organizations (IGOs) struggle to balance concern over how best to deal with the proliferation of internecine conflicts across the globe. Indeed, with the current concern over the activities of transnational terror groups, PMCs appear well placed to act as force multipliers among states anxious to bolster internal security without necessarily incurring a concomitant rise in defence expenditure."[4]

Availability of an emerging pool of highly trained ex-army men from various levels, thanks to the ongoing retrenchment and privatisation drive in major armies of the world, and the commensurate supply of arms, weapon systems and ammunitions at cheap rates, have been the main reasons behind this. Apart from the globally operating organisations, the growth of private security agencies/companies functioning internally has also witnessed a steady growth in recent times. As one analyst notes: "Some estimates suggest that the ratio of private security guards to police in developed countries is 3:1. In less developed countries it may be 10:1 or more."[5]

The implications of rising numbers and increasing prominence of such internal private security companies in Asia constitute a major area that requires substantial focus, but that is beyond the scope of this present commentary, which restricts its focus upon the arrival and operations of international PMCs in the Asian region and the resulting strategic and social implications.

PMCs in Iraq and Afghanistan

The deployment of the PMCs has become a major part of the post 9/11 US global security strategy involving intervention in the global "hot

zones". The two currently most important conflict zones in Asia, Iraq and Afghanistan, for instance, have witnessed large scale deployment and involvement of the PMCs. Numerous PMCs are in operation in Iraq, while in Afghanistan, one PMC named the Dyncorp International, has been playing a prominent role along with the others. In Iraq, for instance, an estimated 15,000 private security agents from the United States, Britain and countries as varied as Nepal, Chile, Ukraine, Israel, South Africa and Fiji have been operating since the fall of the Saddam regime. They are employed by about 25 different firms that are playing their part in Iraq's highly dangerous post-war environment by performing tasks ranging from training the country's new police and army to protecting government leaders to providing logistics for the US military and also protecting the various civilian commercial enterprises.[6] In fact, contractors compose the second largest force in Iraq after the US military. In December 2006, The Washington Post reported that there are approximately 100,000 government contractors operating in Iraq, let alone subcontractors, a total that is approaching the size of the US military force there. Among them, many are armed "security contractors". Far from restricting themselves to doing mundane logistical operations, some of the private contractors are getting involved in more direct combat related activities. During the Iraq invasion in 2003, for instance, some of these contractors maintained and loaded many of the most sophisticated US weapons systems, such as B-2 Stealth bombers and Apache helicopters. They even helped to operate combat systems such as the Army's Patriot missile batteries and the Navy's Aegis missile-defence system.[7] Armed contractors are playing a more prominent role within the battle zone itself; they use military training and weaponry to carry out missions in the midst of a combat zone against adversaries who are fellow combatants.

One major indication of the rising importance of such contractors is the casualty rate among private contractors in Iraq soaring to record levels in the year 2007. At least 146 contract workers were killed in Iraq in the first three months of 2007, by far the highest number for any quarter since the war began in March 2003, according to the US Labour

Department, which processes death and injury claims for those working as United States government contractors in Iraq. That brought the total number of contractors killed in Iraq to at least 917, along with more than 12,000 wounded in battle or injured on the job. Though contract employees such as truck drivers and language translators account for a significant share of the casualties, the recent death toll also includes others who make up what amounts to a private army. The actual figures of such casualties may be quite higher than these estimates. According to Lt. Col. Joseph M. Yoswa, a spokesman for the US military in Iraq, "the responsibilities for tracking deaths, injuries, locations and any other essential requirements lie with the contractor. Unless there is something specifically stated in the contract about accounting for personnel, there is no requirement for the US government to track these numbers."[8] Incidentally, many employees belonging to such private firms have been charged with undisciplined behaviour, harassment and killing of innocent civilians, inflicting torture, etc. "Black Water International", now renamed as "Black Water Worldwide", has, perhaps, become the most notorious among such private firms operating in Iraq. Its employees have been involved in several incidents of indiscriminate firing including the latest one which took place on 16 September 2007, which led to the death of twenty Iraqi civilians.

In the conflict zone of Afghanistan, things are no better. Though other PMCs have been present, the most prominent to operate during the US led coalition's involvement in Afghanistan has been "DynCorp International", a leading professional services and project-management firm serving governments, corporations, and international organisations worldwide with 14,000 employees in about 33 countries. It is headquartered at Irving, Texas. The United States Department of State has recently awarded DynCorp International a contract to train, equip, and build the capacity of the police forces in Afghanistan. The potential value of the award is $117,236,158 for the first year and $85,275,734 and $87,487,630, respectively, for two option years. This is a follow-on award for DynCorp International, which has been training the newly created police force in Afghanistan since 2003.[9] Apart from organising

such training programmes, Dyncorp is also involved in providing security to the Afghan political leaders and was until recently in charge of the Afghan president Hamid Karzai's security. The company is also involved in missions destroying poppy cultivation fields in order to target a major source of funds to the insurgent groups like the Taliban.

Several recent reports, however, have been critical of the operations and functions of such PMCs. Many PMCs have been accused of gross human rights abuse and participation in illegal activities, apart from being generally insensitive to the local populace in the conflict zones in which they operate. Several Dyncorp employees, for instance, were accused of being involved in running a prostitution ring consisting of under-age refugee or orphaned girls during the Bosnia crisis. The anti-drug production operations in Colombia, also involving the Company, have also been reported to have led to gross human rights violations. Several PMC employees have also been accused of being involved in the recently reported atrocities committed on Iraqi prisoners in the Abu Ghraib prison. Several acts of "high-handedness" by the Dyncorp employees have also been reported from Afghanistan.

Not surprisingly, because of the legal vacuum, most of these acts committed by the PMCs have gone un-punished. Most of the PMCs continue to operate under de-facto legal immunity in the conflict zones, being answerable only to the top brass of their respective Companies and not to the government or the army authorities. The US political establishment, however, has tried to impose some checks on this proliferation in recent years. The US Democrat Representative in the Congress, Jan Schakowsky, for instance, has been critical of the policy of the Bush government to indiscriminately sign high value contracts with such PMCs. Recently, Democrat Representatives Jan Schakowsky and David Price introduced an amendment on the contracting oversight amendment to the National Defence Authorisation Act for Fiscal Year 2008. It was passed by the House. This amendment seeks to garner more information about the private contractors deployed with US military personnel in Iraq and Afghanistan. After the passage of the bill, Jan Schakowsky commented:

"I am thrilled that our amendment is now attached to the defence authorisation bill. This bill will now provide much needed transparency and oversight to an industry that has gone by completely unchecked. Under this bill, we will finally be able to see the contracts and get the answers to basic questions about private military contractors in Iraq and in Afghanistan. The American public has a right to know where and how their taxpayers' dollars are being spent."[10]

The National Defence Authorisation Act would also create a database that would collect descriptions of the contracts, including the value of the contracts, amount of overhead spent, total number of personnel employed on the contracts and other general information that would give Congress a better understanding of the role contractors are playing. The Schakowsky/Price Amendment will make certain that Members of Congress will have access to this database and that they can request to view individual contracts. Currently, Congress is unable to provide oversight of these contracts because they do not have access to them.[11]

The Dyncorp training programme in Afghanistan has also been criticised in a recent New York Times Report. The report says that management of the DynCorp contract by United States government officials in Afghanistan has fallen into a state of disarray; conflicting military and civilian bureaucracies could not even find a copy of the contract to clarify for auditors exactly what it called for. Mismanagement and corruption have been leading to virtual ineffectiveness of the Afghan security forces against the resurgent Taliban and other militias who still retain control over strategic areas in the southern provinces.[12] Dyncorp officials have tried to refute the findings of the report by claiming that the Inspectors General belonging to the US Departments of State and Defence have praised the quality of both the police training and the trainers provided by DynCorp International in Afghanistan.[13] The fact remains, however, that there is a general prevailing perception of deteriorating security situation in Afghanistan. In a recent report prepared by the think tank, International Crisis Group (ICG) on Afghanistan, for instance, concerns have been raised over the slow and halting process of the disarmament,

demobilisation and reintegration (DDR) of armed forces in order to initiate a process of peace under the Afghanistan New Beginnings Programme (ANBP) initiative. One major area of concern covered by the report has been the proliferation of armed militia groups.[14]

Implications for South Asia

The involvement of the PMCs in direct operational activities in an intra-state conflict situation has new strategic implications for the entire region of South Asia, since the intra-state level conflicts in the region have become the main source of concern for the regional policy makers and strategists. While much work on the rising prominence of the PMCs and its strategic/legal/socio-political implications has been done by western scholars, their involvement and security and strategic implications in the Asian region have not been dealt with in an adequate manner so far. In this connection, one has to remember that most often the PMCs perform tactical, not strategic, functions. In other words, their day-to-day actions are not aimed at serving to transform the overall political, military, and social environments in which they operate. One must, however, keep in mind that the very involvement of private security groups against non-state groups tends to generate new strategic imperatives and necessities. Though such imperatives and concerns are often localised and specific in nature, certain general and broad strategic implications can nonetheless be outlined.

One major international concern has been the relative legal lacuna in dealing with these PMCs. Existing international laws and treaties to control mercenary activities include the following: The Hague Conventions (1907); the Geneva Conventions (1949); the UN Charter and related Resolutions; Article 47 of Protocol 1, additional to the Geneva Convention of 1949 (1977); The Organisation of African Unity's (OAU) declarations and conventions; and the UN Mercenary Convention. But none of these international conventions or more specific country-wise legislative attempts – as in South Africa, the United Kingdom and the USA – have not really been able to specifically address the issue of PMCs in a satisfactory manner. As one scholar notes:

"…At the international level, active military assistance operations conducted by private military companies are indeed legitimate, but that measurement of legitimacy can only be assessed as being de-facto and amoral. Moreover these missions are being conducted within a vacuum of effective regulation and accountability at the international and national levels that is decidedly inappropriate for the international realm in the twenty-first century."[15]

Given the tendency of the PMCs to often transgress the line of appropriate authority and legality on numerous occasions in different conflict zones where they have been involved, as in Sierra Leone, Kosovo, Iraq and Afghanistan, such legal vacuum can set a dangerous portent for the future.

The second major theoretical implication is whether the process encourages the prevailing trend towards growing commodification of security. It has been argued that a process of privatisation in security sector is a natural part of the entire process of the globalising trend. One scholar, however, argues that:

"…Privatisation can be inconsistent with globalisation in localising and isolating what is provided; in the case of security services, privatisation can lead to pockets of highly different types and levels of security across communities and countries, with numerous gaps in between protected regions and populations. Security privatisation appears to have a greater potential than other forms of privatisation to lead to fragmentation rather than integration of the global community.[16]

More important, one must consider whether privatisation of security poses a danger of further eroding state authority at a time when the state structure is already facing severe assault from within and without. Another issue of concern is whether privatisation led commodification of both conflict as well as security trends to make these self-perpetuating as they get increasingly determined by the profitability and affordability motive. As one analyst argues:

"Many of the unruly groups involved in security-eroding "deadly transfers" across national boundaries find the privatisation of security to be a real advantage. The spread of transnational criminal organisations, themselves using private enforcement systems motivated by profit rather than political gain, is completely in tune with the proliferation of privatised defensive measures taken against them. Gunrunners involved in clandestine arms transfers find privatised security forces a ready market for their wares. Because of the apolitical stance of privatised security forces, rogue states, terrorist groups, drug lords, and other unruly actors find means of coercion more readily available for their use than they would otherwise."[17]

Strategically more significant aspect of such PMCs operations in the region is whether it could lead to the formulation of new strategic imperatives for the Indian security concerns. In other words, whether employing of private security groups can be considered to be an appropriate and adequate strategy to fight evolving threats emerging from non-state actors internally, which are evolving into more complex and dangerous ones in recent years. Continuous involvement and engagement of state security forces, particularly the army and the paramilitary forces, in such internal conflict zones can project the image of the state security forces as an "occupation force", a tag that any army would like to avoid. Several senior members of the Indian army have, time and again, warned against the dangerous implications involved in such continuous presence of the army.[18]

One aspect of the Indian state's counter-insurgency strategy, in this connection, has been to organise rehabilitated militants/extremists into private vigilante groups and to use them against non-state threats, primarily consisting of terrorist or dissident groups. Use of such pro-government private groups has been a complementary effort to the more traditional application of force through the army and paramilitary groups and the police. To give some regional examples: In Assam, for instance, where the Indian state has been facing a long term threat from the United Liberation Front of Assam (ULFA), a pro-India outfit the SULFA

(Surrendered ULFA) consisting of the surrendered militants has been functioning since 1992. These former members were allowed to retain their weapons to defend themselves against possible ULFA retaliation and were also offered special government schemes. Reports, however, indicate that many members of the SULFA have also become involved in violent and illegal activities including extortion. In another major internal conflict zone of Jammu and Kashmir, several counter-militant groups have been operating since the 1990s, the most important one being the Ikhwan-i-Muslimi. According to one Human Rights Watch Group, although the Indian government routinely denies any responsibility for the actions of these groups, these are organised and armed by the Indian army and other security forces and operate under their command and protection, primarily targeting the "pro-azadi" or pro-Pakistan militant groups and their political sponsors and sympathisers.[19] Several cases of human rights violations and illegal activities have also been reported against several members of the Ikhwan.

Externally, the regional pull factors have already led to the participation of several retired Indian security personnel in the regional PMC operations. There have been several reports in newspapers and journals of hundreds of Indian ex-servicemen being recruited by some of these PMCs operating in Iraq, in spite of the Indian government's decision not to get militarily involved in the conflict. Another prominent regional PSC to emerge in recent times has been The Gurkha International Group, founded in 1994 by members of the British Army's Brigade of Gurkhas to provide reputable employment for ex-Gurkha soldiers and for Nepalese men and women worldwide. Though such participation has not yet become very significant so as to affect the recruitment process of the regular state controlled security forces, one should at least become more concerned about the process.

The greater employment of PMCs in global conflict zones also raises further questions regarding the future United Nations led peacekeeping operations. It has already been estimated that the number of personnel in UN operations has fallen from a peak of 76,000 in 1994 to around 15,000 today.[20] Given the reluctance of many countries to involve their

own armed contingents in global conflict zones, the use of PMCs is being advocated by many analysts as the only alternative for the UN and other multi-national organisations. David Shearer, for instance, while building his case for deployment of private security forces under the UN mandate, cites the example of Sierra Leone. According to Shearer:

"Sierra Leone's citizenry, when asked, preferred the return of the private military company Executive Outcomes to UN peacekeepers. During Executive Outcome's time in Sierra Leone, April 1995 to January 1997, it completely turned the tide of the war. Most importantly, in those places where it was based, civilians experienced the first security from the ravages of both their own army as well as the rebels."[21]

Such possibilities of greater deployment of PMCs by the UN in future peacekeeping operations would again threaten to take away another important strategic lever which India has so long employed as a major player and contributor to the UN Peacekeeping operations. The PMCs, mostly western in origin, would help in further pushing the UN into the grip of the US dominated global security paradigm.

Conclusion

While the issue of privatisation of conflict and security has become a major concern with security analysts all over the world, the focus on this issue in the region of South Asia has been rather limited so far. Whatever little research has been done in this field has primarily been concerned with the issue of privatisation in defence-related production and procurement in the Indian context. Privatisation of security and its related implications, however, are too large a concept to be restricted to this aspect alone. Globally, it is being projected, particularly by the US strategic paradigm, as the best strategy to combat the new threats posed by non-state oriented dissident/subversive/terrorist groups, on a long term basis. Severe flaws, however, have been detected, which have affected the credibility of such a strategy. It must send out a loud and clear warning to other security communities and groups not to either ignore the implications or blindly adopt similar policies on a regional

scale. A more integrative security strategy has become a regional imperative instead.

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The Strategic Dimension of Iran's Leap into Space

*G. Bharath and Harsh V. Pant**

In February 2007, Iran launched its first sub-orbital rocket that reached an altitude of 150 kms before falling back to Earth and deploying a parachute for recovery.[1] Iran claimed that the rocket was intended for research and part of its goal of launching Iranian manufactured satellites on Iranian manufactured rockets.[2] It is estimated that the rocket's operational range against a ground target might be 4,000 km.[3] Iran followed it up by launching a rocket designed to carry its first locally-made research satellite, Omid, which is expected to be launched by March 2009.[4] These launches, however, assume significance not only for Iran's satellite effort but also for the development of its long-range delivery systems. Any space launcher is in effect a potential Inter-Continental Ballistic Missile (ICBM) that could reach anywhere on earth with very little differences in their guidance systems.

Iranian Space Programme: Civilian and Military Dimensions

Much like other states that have benefited militarily from improvements in their space programmes, Iran is also using the development of its space programme to improve its conventional (WMD) delivery systems.[5] Iran began its space programme in 1998 with the stated purpose to develop new communications capabilities, improve weather forecasting, assist in disaster relief and provide other public services. Iran, apparently in a bid to fulfil the aforementioned objectives, approved a bill to create the Iranian Space Agency (ISA), which would subsequently serve as a

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policy-formulating organisation for space initiatives. The ISA carries out research and related activities on technology and remote sensing projects, develops national space equipment, and participates in the development of national and international space endeavours. In addition, the ISA also coordinates all space-related activities carried out by various research institutes, universities and several administrative agencies. These efforts play a major role in helping the ISA execute decisions from the Supreme Aerospace Council.[6]

The Supreme Aerospace Council was created in 2003 in order to approve various space-related programmes and promote important partnerships among other organisations.[7] This council functions with substantial inputs from senior government officials. The director of the ISA serves as the secretary while the country's president serves as the chairman, thus raising the profile of the ISA. Other significant members include the defence minister and four "space experts".[8] This arrangement raises concerns since there is a high possibility that one of the unspecified experts could also include a commander from the Islamic Revolution Guards Corps (IRGC), which manages the Shahab ballistic missile programme. Although the IRGC is commanded independently, its administrative functions are within the regular armed forces at the General Staff.[9] It is instructive that Iran avoided disclosing the IRGC or the council's efforts to safeguard security at the 2002 United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) meeting, possibly to minimise accusations that it wanted to exploit space for military purposes. This is because the military reforms of 1989 curtailed the independence of the IRGC from the defence ministry.

Iranian officials often discuss space and missile developments simultaneously, perhaps indicating the parallel nature of the programme. They have openly admitted that the Shahab missile system has been used as the basis for Iran's space launch vehicle.[10] In fact, Nasser Maleki, deputy director, Aerospace Industries Organisation (AIO) openly acknowledged that the same technology used for building a satellite launch vehicle could be used to manufacture

missiles.[11] In 2005, Brigadier General Ahmad Wahid, Chairman of the AIO, commented that Iran was developing its space programme for both military and civilian uses.[12] Both programmes fall under the organisational management of the AIO. It is directly responsible for developing the military aspect of the programme. Specifically, AIO develops guidance systems and solid rocket boosters that are used in any space launch vehicle and missile system. Iran uses its educational institutions to develop greater capabilities in missiles and space.[13] Much of the research (i.e. work on structures, aerodynamics, thrust effect, and vibrational characteristics) undertaken at these institutions could be used for a long range and/or guided missile programme. In 2005 Iran allocated $500 million for space projects for five years and also launched its first commercial satellite, Sina-1, into orbit from a Russian rocket. Iran is now intent on constructing its own satellite and rockets to launch them. In 2003, Rear Admiral Ali Shamkhani, Iran's then defence minister, had stated that in a few months time, "Iran will be the first Islamic country to penetrate the stratosphere with its own satellite and with its own launch system."[14]

Strategic Goals of Iran's Missile Programme

Iran's missile programme has been geared towards serving its security interests and has shown a steady progress in its range, precision, and sophistication. During the 1980s, it was Iraq that was Iran's main adversary and most of its missile capability was geared towards countering the threat from Iraq. During the eight year war with Iraq, most of Iran's major cities, including Tehran, came under repeated attacks of Iraqi Scud missiles. It used Oghab and Mushak-120 missiles against Iraq in the Iran-Iraq war and also sought short-range Scud missiles from North Korea. China, North Korea, and Russia have been Iran's primary partners in the development of missile capability. It purchased CSS-8 short-range ballistic missile from China in the late 1980s. From early 1990s, Iran's focus shifted towards the development of intermediate range Shahab-3 and Shahab-4 missiles. Shahab-3 has been flight tested at least six times since 1998 and is based on North Korea's No Dong

missile. It can carry a 1200 kg payload at least 1300 kms, giving Iran the capability to hit every major city in Israel and some in Saudi Arabia and Turkey. Though Shahab-4 has been characterised by Iran as a space launch vehicle, it could be used as a technical base for intermediate and intercontinental-range missiles. Shahab-4 is based on Soviet R-12 (SS-4 Sandel) technology obtained from Russia.[15]

As concerns about Iraq's WMD programme grew after the First Gulf War, Iran accelerated work on its own missile capability. Shahab-3 is seen as central to Iran's deterrent posture, particularly vis-à-vis Israel's nuclear capability. Iran is also keen on acquiring missile capability that counters hostile American foreign policy towards it and as tensions between the US and Iran have increased in recent years. Iran's efforts to acquire nuclear and concomitant missile capability have also gathered momentum. According to Shamkhani, the satellite launch would be in response to American actions: "The Persian Gulf was once a place from which constant threats against the Islamic Republic emanated. But now, with the resources that we are gaining, this region cannot be used against us by any outside force." This announcement was made because Tehran had figured out that it could be a likely target after Iraq since Iran was part of President Bush's "axis of evil". This could possibly explain Iran's persistence in possessing a space capability.

Even Iran's current missile arsenal of artillery rockets and short and medium range ballistic missiles give Iran a deterrent capability vis-à-vis the US as it can target US forces and infrastructure in Iraq and other parts of the Persian Gulf. Iran has officially declared that it had ballistic missiles with a range of 2000 kms and could produce ones with a greater range even as it has tried to maintain ambiguity on the specifics of its arsenal.

Iran's pursuit of nuclear weapons has gained momentum, and so have its attempts to acquire adequate delivery capabilities. And much like its nuclear programme, its missile programme is also shrouded in mystery. What makes Iran's recent test troubling is the concern that the

international community has about Iran's missile programme and about the possible nexus between that and their nuclear ambitions.

Iran's Nuclear Ambitions

Iranian nuclear programme has been under global scrutiny since August 2002 when the existence of two unknown nuclear sites, in Natanz and Arak, was revealed to the world by Alireza Jafarzadeh, a prominent Iranian dissident. While the pursuit of nuclear energy and weapons by Iran dates back to the reign of Shah Mohammad Reza Pahlavi, the recent revelations have brought Iranian nuclear ambitions into sharp relief and the international community, led by the US, has not been willing to give Iran the benefit of the doubt in an international security environment transformed by the events of 11 September 2001. In August 2002, the representative office of the National Council of Resistance of Iran in Washington revealed the existence of two top-secret nuclear sites in Iran and the clerical regime's new nuclear, biological and chemical weapons projects. On the surface, the Iranian regime's main nuclear activities are focused on Bushehr's nuclear power plant, but in reality secret nuclear programmes seem to be at work without the knowledge of the IAEA. One of these top secret projects is Natanz's nuclear facility, about 100 miles north of Isfahan. The other one is Arak's atomic facilities, in central Iran, 150 miles south of Tehran.

Iranian President Mahmoud Ahmadinejad announced in April 2006 that Iran had enriched uranium to 3.5 percent U-235 using 164 centrifuges, claiming that Iran has joined the group of states which have nuclear technology. He reiterated that the enrichment was performed for purely civil power purposes and not for weapons purposes. Later that month, the IAEA reported to the UN Security Council that Iran seems to have stepped up its uranium enrichment programmes during the period covered by the report.[16]

Iran's nuclear programme goes back many decades. In recent years global political developments have caused Iran's programme to fall

under intense scrutiny and even occasioned charges that Iran is seeking to develop nuclear weapons. Iran, however, has maintained that the purpose of its nuclear programme is the generation of power; any other use is a violation of the Nuclear Non-Proliferation Treaty (NPT), of which Iran is a signatory.

The foundations for Iran's nuclear programme were laid during the Cold War, in the late 1950s within the framework of bilateral agreements between the U.S. and Iran: A civil nuclear co-operation programme was signed in 1957 with the U.S. under the Atoms for Peace programme.[17] The Shah Mohammad Reza Pahlavi was ruling Iran at that time.

The 1979 Islamic Revolution in Iran, however, was to change the attitudes of the West towards the Islamic state for ever. The revolution was a turning point in terms of foreign cooperation on nuclear technology. Despite this, the Iran-Iraq war revived Iran's interest in the pursuit of nuclear weapons and after the first Gulf War, Iran was as shocked as other states with the revelations about the Iraqi nuclear programme that had advanced much beyond anyone's expectations. In the 1990s, Iran began to look outwards towards partners for its nuclear programme; however, due to a radically different global political environment and punitive U.S. economic sanctions, few candidates existed. Iran signed a secret nuclear-cooperation agreement with Pakistan in 1985, the provisions of which were not known at the time though it was detected by US intelligence. Iran's ties to the infamous A.Q. Khan network date back to this year. Iran purchased P-1 centrifuge blueprints from Khan's associates in 1987 and tried to acquire the parts and machinery needed to make centrifuges but failed. Iran returned to Khan and Pakistan in the mid-1990s and received components for P-1 machines, thereby laying the foundations for its own secret industrial uranium enrichment capability.[18]

As a result of this external help, Iran had launched the most rapidly expanding nuclear programme in the Middle East by early 1990s. There is a general consensus that Iran's efforts are focused on uranium enrichment, though there are some indications of work on a parallel plutonium effort. Iran claims it is trying to establish a complete nuclear

fuel cycle to support a civilian energy programme, but its critics argue that this same fuel cycle would be applicable to a nuclear weapons development program. Iran also appears to have spread its nuclear activities around a number of sites to reduce the risk of detection or attack. Though Iran had ratified the Nuclear Non-Proliferation Treaty in 1970, it is only since 1992 that it has allowed the IAEA to inspect its nuclear facilities.

Drivers of Iran's Nuclear Programme

It is not very difficult to comprehend why Iran might view the acquisition of nuclear weapons to be in its strategic interest. In a world where states have to fend for their own security, there is no better deterrent than a nuclear weapon. Nuclear weapons may not be popular with the public opinion in the West but all major states that have nuclear weapons know their importance and therefore have no intention of giving them up. Which states can be more secure than Britain and France today, and yet there are no indications that these states want to renounce their nuclear arsenal!

Compared to these states, Iran is highly insecure, located as it is in a highly volatile region. Its neighbours, India, Pakistan, and most importantly, Israel have long had nuclear weapons and do not seem to have done too badly for themselves. Moreover, after 11 September 2001 Iran has to contend with the presence of its biggest adversary in its very neighbourhood, with the US straddling Iran from both sides in Iraq and Afghanistan. It is also possible that the one lesson Iran may have learnt from the US intervention in Iraq is that the only way to prevent the US from invading is to acquire nuclear weapons as soon as possible. Moreover, the historical memory of the Iran-Iraq war – when Iran faced the onslaught of chemical weapons from Iraq – has long been a major factor in Iran's quest for an assured retaliatory capability.[19]

The global situation is also working in Iran's favour. The credibility of the US is at an all time low in the comity of nations after the Iraq fiasco. Few states will be willing to place their bets on American pronouncements

even if they are accompanied by evidence. Despite their agreeing to send the Iran case to the Security Council in July, Russia and China, two states with real leverage vis-à-vis Iran, are unlikely to support meaningful sanctions for the fear of hurting their own economic interests. Iran has carefully cultivated commercial and strategic relations with powers such as China and Russia in the last few years and that might now help it to counterbalance the threat of Western sanctions.[20] Meanwhile, Iran's standing in the Middle East seems to be at an all time high, especially after the perceived victory of Hezbollah over the mighty Israeli army. The West and many in the Islamic world are openly expressing their anxiety about the emergence of a "Shiite crescent" from Iran through the Persian Gulf to Iraq, Syria and Lebanon. Even without nuclear weapons, Iran now wields considerable influence in Lebanon, Syria, with the Palestinians, and in Iraq.

The intelligence estimates on how long it will take Iran to become a "nuclear weapon state" vary. The best guess of US intelligence agencies is found in a classified National Intelligence Estimate, released in 2006. It says that Iran is determined to build nuclear weapons if left to its own devices but it is unlikely that Iran could produce highly enriched uranium for a bomb before "early to mid-next decade." On the other hand, British officials claim that Iran will have the technology to enable it to develop a nuclear weapon by end of 2007, while Israeli estimates put it at 2008. The consensus seems to be that the earliest Iran might be able to produce enough highly enriched uranium for weapons is likely to be between 2008 and 2010.[21]

It is a classic case of latent proliferation in which a state while continuing to maintain a façade of adhering to its formal obligations under the NPT regime, gradually develops the capability needed for a nuclear weapons programme. Iran has remained within the NPT even as it seems to be maintaining the latent capability for the rapid realisation of nuclear weapons as a hedge against future threats. Iran is also at the centre of what has been termed as the first and second tier proliferation. First tier proliferation involves technology and materials sold or

stolen from private companies or state nuclear programmes that end up assisting non-nuclear weapons states in developing illegal nuclear weapons programmes. Second tier proliferation involves countries in the developing world trading among themselves to bolster one another's nuclear weapons efforts.[22]

Iran's case is symptomatic of the larger weaknesses in the non-proliferation regime in the face of the new kinds of challenges that it confronts.

External Assistance and Collaborations

The Iranian missile programme and the speed of its development would not have been possible without extensive assistance from North Korea, Russia and China. Iran receives outside assistance for both its space and missile programmes from Russia and China,[23] and has collaborated with North Korea and Pakistan on its missile programme.[24] For example they have cooperated to develop guidance systems, booster technology, airframes etc. as described below:

- **Guidance systems:** Russia has also helped Iran develop its missile guidance systems.[25] Chinese guidance systems are used in the Shahab missile systems. Possible transfers have been through the Khan network.[26] As mentioned earlier, the significant difference between a Space Launch Vehicle and an ICBM is in its guidance capability and this transfer helps the Iranian cause.
- **Airframes/motors/launchers:** In 2001, Iran purchased missile airframes, rocket motors, and ballistic launchers from North Korea. In 2002, Iran procured SCUD engine clustering and stage-adding technology from North Korea.[27]
- **Booster Technology:** Propellant motor for the Ghadr-101 and Ghadr-110 may be the Iranian variant of the Shaheen-I and Shaheen-II design of Pakistan, possibly transferred through the Khan network along with Chinese M-9, M-11 and M-18 technologies. Payload spin up demonstrated by the

Paeutusan-1[28] third stage solid propellant rocket motor appears in both, Pakistan's Ghauri-II and Iran's Shahab-III. Pakistan's long-range Ghauri missiles are based on N. Korea's No-dong missiles. In 2005, North Korea reportedly transferred No-dong B missiles.[29] The Tae-po-dong-2C/3 upper stage is a high-altitude version of the No-dong B.

- **Testing:** Russia has helped Iran with wind-tunnel testing of missile nose cones, the use of high-strength steels and special alloys, and manufacturing.[30] In November 1999, Iran imported 12 No-dong missile motors from North Korea. Less than a year later, on 15 July 2000, Iranian engineers tested a Shahab-3 missile fitted with a North Korean motor. On 17 January 2006, Iranian flight test of No-dong-1 for North Korea took place. Members of the Iranian Revolutionary Guards Corps also reportedly attended North Korea's 12 July 2006 Taepodong-2 missile launch.[31]
- **Facilities:** In the 1980s, North Korea built Iran's largest missile production facility at Esfahan using Chinese supplied technologies. The North Koreans also helped Iran develop a series of missile test facilities located around the Shahroud region.[32] The North Korean's helped Iran to develop a testing range and accompanying tracking system in Tabas.[33] In 1987, Chinese engineers built a second missile production plant, located in Semnan. Also in 1987, China built Iran's Bandar Abbas facility.[34]

The level of sophistication of Iran's ballistic missile programme and the speed of its development would not have been possible without extensive assistance from abroad, notably from North Korea, Russia and China. While North Korea furnished the basic hardware for liquid-fuel rocket propulsion, Russia supplied materials, equipment and training. China supplied help with guidance and solid-fuel rocket propulsion. Like India, North Korea, and Pakistan, Iran is not a signatory to the Missile Technology Control Regime (MTCR) and continues to advance its missile programme.[35] In addition to developing their own missile capabilities, they are also becoming sellers rather than simply buyers on the global arms market. North Korea, for example, is viewed as the

primary source of ballistic missile proliferation in the world today. Iran has supplied missile production items to Syria. Additional assistance with development has also been provided by Pakistan to Iran.

Furthermore, existing international technology transfer agreements recognize that an SLV could be converted relatively quickly by technologically advanced countries (in about one or two years) to a surface-to-surface missile.[36] Acquiring an ICBM capability by purchasing an SLV or its production technology is recognised as a purchase of a delivery vehicle, but the acquisition of an SLV does not establish an operational ballistic missile delivery system. The construction of preparation, maintenance, test, and launch facilities and associated equipment is a lengthy and technologically complex process beyond the capabilities of most countries without extensive foreign assistance. Iran has been successful at coordinating its efforts with North Korea, China, Russia, Pakistan, and others through its ballistic missiles and SLV programmes. Iran's space programme is likely a cover-up for Iran's development of longer-range missiles like the IRSL-X-2 and Shahab-6, and close coordination with other proliferators in possession of critical materials and knowledge is inevitable.

Implications of the Recent Space Launch by Iran

It is difficult to determine exactly which rocket/space vehicle Iran indeed launched. On 26 February 2007, Ali Akbar Golrou, deputy head of Iran's aerospace research centre said that Iran had launched a sub-orbital rocket for research purposes, not a space rocket to launch a satellite indicating internal confusion over the nature of the launch.[37] Some have argued that the rocket was "basically a sounding rocket… half-a-century-old technology"[38] and that the launch did not indicate any technological advances by Iran as it was merely intended to be a show of Iran's defiance by it being launched at around the same time as the United Nations Security Council's deadline to halt uranium enrichment.[39]

However, there is enough evidence to support the claim that Iran is close to having the capability of launching satellites. According to Alexsei

Arbatov, to put a satellite into orbit one would require a missile with enough power for an "intercontinental range", that is a range of greater than 5,500 Km.[40] Arbatov believes that Iran could have the technical capability now to accomplish this.[41]

The technology needed to construct a space launch vehicle (SLV) raises concerns since it is similar to what is needed to produce an Inter-Continental Ballistic Missile (ICBM). SLVs and the ICBMs use the same core technologies with very little difference in the guidance systems or fuel packages.[42] Therefore, the existence of an SLV programme is a possible indicator of an ICBM programme. In 1957, the Soviet Union developed an SLV to launch a four kilogram satellite into orbit, which also served to demonstrate the Soviet Union's ICBM capability.

As was noted earlier, countries have successfully masked their ICBM developments under the cover of their space programmes. Both programmes require extensive testing on booster, aerodynamics, and guidance systems, and both require the programming of ballistic trajectories. However, according to the Federation of American Scientists (FAS), it is quite difficult to mask a warhead re-entry under the guise of a space launch;[43] Nations with SLVs could be able to convert them into ICBMs quickly and with little or no chance of detection before the first flight test, provided the nation has developed a proper re-entry vehicle (RV). [44]

Although there is disagreement over the level of capability this launch demonstrated, it indicates progress towards an eventual satellite launch. In 2005, the Defence Intelligence Agency of the US assessed that Iran "will have the technical capability to develop an ICBM by 2015."[45]

Regardless of the technical characteristics of what was launched, the launch itself demonstrates Iran's continued intent to advance its delivery capabilities. Although the Iranians are determined to enhance their space programme they are equally focused on developing their long-range WMD delivery systems. Iran is following parallel paths with their civilian and military programmes to legitimise purchases and maintain

an ambiguous posture. It is apparent that any improvements in Iran's peaceful space programme will also benefit Iran's military programme and the broad trajectory of Iran's progress in its space programme remains clear which is to have capability to threaten the US and Europe even though the time-line as to when it might achieve that capability remains far from clear. idsa

Notes

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India's Affordable Defence Spending

*Laxman Kumar Behera**

Introduction

Defence expenditure is an important component of national security and every country allocates a significant portion of its resources for this purpose. However, given the scarcity of resources and the competing demands from other sectors, a nation's ability to meet all its Defence requirements is not unlimited. Even the United States, the only military superpower, is unable to afford many of its major programmes, forcing it to scale down the number of items to be procured.[1] The sheer size of the Defence budget and its impact on other sectors of the economy thus, more often raises the question as to how much a country can afford for its Defence.

In the absence of any clear framework of evaluating affordability of Defence spending, many analysts tend to view the same from the perspective of a country's share of Defence in gross domestic product (GDP) over a period of time, or by comparing these shares with those of other countries. This method of relative measurement, however, suffers from ambiguities as it does not take into account a country's specific security concerns and the economic compulsions in its totality. In the global context, the affordability of military spending of some of the world's major military spenders[2] varies not only in degree but also from time to time (see Figure-1). While the variation in the degree of affordability indicates the changing security threats that are perceived differently by countries, the fluctuation in affordability over time points to the fact that what may be affordable at one point in time, may not be so at another time. Among the major powers, except for Japan,[3] no other country has been able to sustain consistently high level of Defence

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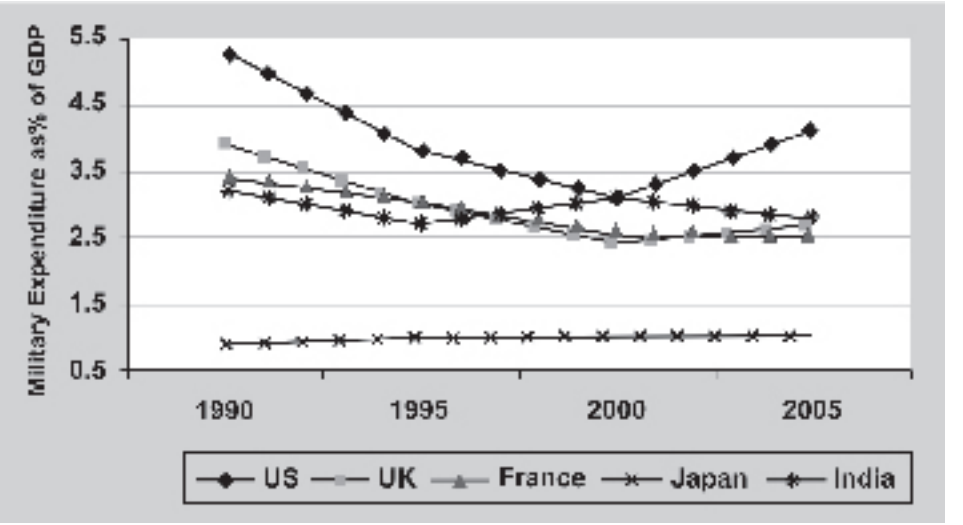
spending (in percentage of GDP) over a length of time. The macro economy, which guides major spending heads of the government, could be a factor in controlling Defence spending over a period of time. In the US, the present level of military spending has contributed to fiscal distress,[4] raising doubts whether such large-scale military spending is affordable or sustainable in the future.

Figure-1
Military Expenditure of Major Spenders
(Percentage of GDP)



Source: Figure derived from The SIPRI Military Expenditure Database, at http://first.sipri.org/non_first/milex.php

In the light of the above, the article tries to examine affordability of India's Defence spending. However, as illustrated above, there is no established or universally accepted framework of evaluating affordability as such, and the relative method of measurement does not take into account the economic aspects. The present article tries to approach the issue by taking into account different factors, but is restricted to an economic analysis. In particular, it examines Defence spending with respect to resource gap; estimates of the various Finance Commissions; fiscal responsibility of the government; the country's national resources expressed in terms of the GDP; total resources available to the government; the priority of resource allocation; and financing of Defence expenditure.

Defence Projection and Allocation: The Resource Gap

India's defence spending[5] in current prices[6] has increased substantially over the years, from nearly Rs. 1200 crore in 1970-71 to Rs. 1,05,600 crore in 2008-09[7] (this represents a five-and-a-half fold increase in constant prices, from nearly Rs. 13,418 crore to Rs 73,360 crore).[8] In the last one decade, it has increased by an average of nearly 10 per cent per year from Rs. 47,070.63 crore in 1999-2000. A figure depicting India's Defence spending since 1980-81 is appended at Annexure-I. Notwithstanding the growth in Defence spending, the Defence outlays do not necessarily match the demands of the Defence establishment. For instance, in the last five years, the unmet demand by the Services/Departments varies between some Rs. 5,880 crore and Rs. 26,150.7 crore, which is nearly 6-27 per cent of the total projected demands. The shortfall on the Revenue side ranges between 4 per cent and 13 per cent, and that on the Capital side varies from as low as 6.9 per cent to over 49 per cent (see Table-1).

The lesser percentage of 'shortfalls' in Revenue expenditure compared to that of Capital expenditure shows that while the former is more or less fixed, the latter is relatively flexible. At the same time, the 'shortfalls' both in absolute and percentage terms indicate that all the demands made by the Defence sector are not fully in conformity with the resources available with the government. However, over the past five years, the

Table-1
Projections, Budgetary Allocations and Shortfalls on Defence

Year	Projections made by Services/ Deptts. (Rs. in crore)	Budget allocation as per ceiling made by MOF (Rs. in crore)	Shortfall (Rs. in crores)	% Shortfall	% Revenue Shortfall	% Capital Shortfall
2003-04	89374.16	65300	24074.16	26.9	8.0	49.1
2004-05	103150.7	77000	26150.7	25.4	13.3	36.8
2005-06	94567.89	83000	11567.89	12.2	3.6	22.1
2006-07	94880.09	89000	5880.09	6.2	--	--
2007-08	103940.47	96000	7940.47	7.6	8.2	6.9

Source: Complied and extrapolated from the Reports of the Standing Committee on Defence, Demands for Grants (relevant years).

percentage 'shortfalls' are coming down, indicating that the government has found the wherewithal to afford and meet the increasing requirements projected by the Defence establishment over the past five years.

Finance Commission Estimates and Defence Expenditure

The Finance Commission of India, a statutory body under the Constitution, plays an important role in providing fiscal recommendations to the Government. The body is tasked, among others, to review the state of finances of the government, assess the requirements of the various sectors of the State and provide guidelines for distributing the State's resources among the Centre and States. The recommendations of the Commission provide the basic foundation for restoring 'budgetary balance, bringing macro-economic stability and equitable growth.'

The 11th Finance Commission[9], after reviewing the broad requirements of the economy, acknowledged the need for steady growth in Defence Capital expenditure, and accepted the need for overall Defence budget to grow by 15 per cent per year during the Commission's forecast period (2000-01 to 2004-05).[10] Based on the projected 'fiscal profile' of the Central Government, the Commission assumed the Defence budget to reach the level of 3 per cent of the GDP by 2004-05, to meet the increased requirements of the Capital expenditure.[11] However, at the end of the Commission's forecast period, Defence spending increased by only 10 per cent per year, while its share in GDP was much lower than the Commission's estimate of 3 per cent.[12] As regards the growth of Revenue expenditure, the Commission also accepted a 10 per cent growth rate per year for the period from 2000-01 to 2004-05.[13] Against this projected growth rate, the actual growth rate of Revenue expenditure during this period was 4.6 per cent. The corresponding growth figure for the Capital expenditure during this period was 21.4 per cent.[14]

Unlike the 11th Finance Commission, its successor, the 12th Finance Commission,[15] allowed for a relatively moderate growth rate of 6.5 per cent per year for the Revenue expenditure for the five-year period from 2005-06 to

2009-10.[16] In three years – from 2005-06 to 2007-08 – the annual growth rate on this account stood at 6.6 per cent,[17] which was close to the forecast range provided by the Commission. However, unlike its predecessor, the Commission did not link the Capital expenditure directly with GDP,[18] which grew by 14.5 per cent per year, in nominal prices, between 2005-06 and 2007-08.[19] Compared to this, the Defence Capital expenditure during this period was increased by annual average of less than 8 per cent.[20]

If the recommendations of the past two Finance Commissions of India are taken into consideration, Defence spending has largely remained within the Commissions' projected range and within the country's macro-economic framework. The lesser percentage growth of Defence spending, when compared to its projected figures, suggests that the Defence expenditure has remained within the government's desired objectives of budgetary balance, economic stability and equitable growth.

Fiscal Responsibility and Defence Expenditure

The 'persistent fiscal problems' of the country led the Government to pass the Fiscal Responsibility and Budget Management (FRBM) Act, 2003. The Act required eliminating the revenue deficit and bringing it below 3 per cent of GDP by 2008-09. A Task Force, which was constituted to ensure this fiscal responsibility of the government, recommended a number of policy proposals pertaining to reforms in tax, and government expenditure.[21] The 'fiscal projections under the reforms scenario', as estimated by the expert group, was expected to accelerate the GDP growth to 13.0 per cent per year, in nominal prices, by 2008-09.[22] The higher growth of the economy along with the proposals under 'reforms scenario' was also expected to take Defence expenditure to a higher level and 'stabilise' it at 2.3 per cent of the GDP from 2006-07 to 2008-09.[23] However, during this period, the growth of the economy though marginally outpaced the estimates of the Task Force, yet the percentage share of Defence in GDP fell short of 2.3 per cent of the GDP.[24] If

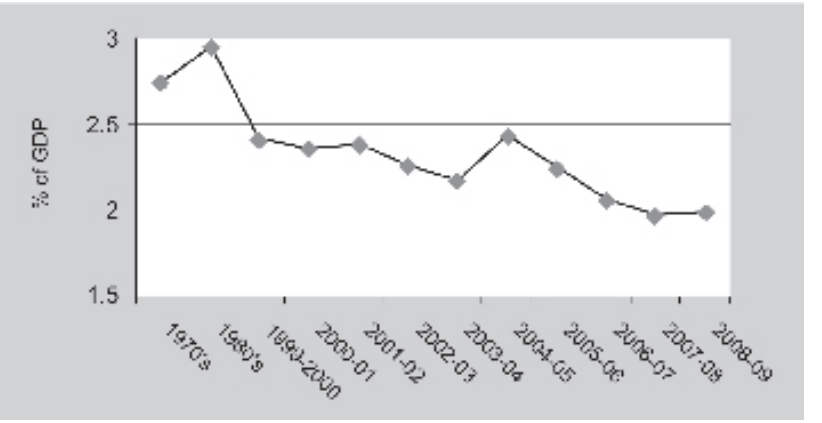
Defence were allowed to receive 2.3 per cent of the GDP, as projected by the Task Force, then between 2006-07 and 2008-09, it would have received nearly Rs. 95,000 crore, Rs. 1,08,000 crore, and Rs. 1,21,000 respectively. The Defence budgets for these three years are Rs. 89,000 crore, Rs. 96,000 crore, and Rs. 1,05,600 crores, respectively.[25]

The higher growth of GDP and the reduced share of Defence in it means some of the funds meant for Defence are, in fact, transferred to other sectors (especially towards interest payments and subsidies) so as to keep the FRBM targets under control. From the Defence point of view, the increased allocations that were expected to accrue to it due to the proposed reforms, have not fully materialised while its own spending remaining well within the estimated range of the country's fiscal responsibilities, as outlined by the Task Force.

Gross Domestic Product and Defence Expenditure

The percentage share of Defence in GDP is considered as a common measure of a country's Defence expenditure and gives a fair idea about its affordability. On the basis of this, comparison is often made to see where a country stands vis-à-vis other countries, and also to arrive at a 'norm' by looking at a particular country's own past trends.[26] Going by this indicator, India's current Defence affordability at around 2 per cent of GDP[27] is less than its neighbours, especially Pakistan's nearly 3.5 per cent and China's over four per cent.[28] Regarding the affordability 'norm' from the past trends, India's Defence spending as a proportion of GDP is fluctuating and more specifically, on a declining path in the recent past (see Figure-2). Compared to the seventies and eighties, when the percentage share of Defence in GDP averaged 2.74 per cent and 2.95 per cent respectively, in the last one decade (1999-2000 to 2008-09), the average has come down to 2.18 per cent. Moreover, if the present growth rates of GDP and Defence spending continue, in the next one decade the share of the latter in the former will remain within 2 per cent of GDP. A matrix of projected GDP-Defence spending, at different growth rates, is appended at Annexure-II.

Figure-2
Percentage Share of Defence in GDP



1. Defence data for year 2007-08 and 2008-09 are Revised Estimates (RE) and Budget Estimates (BE), respectively.
2. GDP data for 2006-07, 2007-08 and 2008-09 are based on Quick Estimate (QE), Advanced Estimate (AE) and Budget Estimate (BE), respectively.
Sources: Defence Services Estimates; Handbook of Statistics on Indian Economy; and Budget at a Glance.

The declining share of Defence in GDP can be ascribed, among others, to the strong performance of Indian economy in the recent years. For instance, the Indian economy in the last 5 years (2003-04 to 2007-08) grew by an average of more than 14 per cent per year, in current prices, compared to less than 9 per cent per year during the previous five years. The strong performance of the GDP over the years means an enhancement of the country's economic ability to afford more on various sectors including Defence. However, Defence, which earlier received a larger share of the national resources, is now receiving a declining share, and is consequently more affordable, in the relative terms.

Defence Expenditure and Central Government Expenditure

Unlike GDP, which gives the value of national resources generated in an economy in a given year, government expenditure gives the total resources available to the Government for allocation among different sectors. The pattern of allocations from the government expenditures

suggests the priority attached on each allocation for each sector. Though this priority is best explained when Defence spending is expressed in terms of its share in Central Government expenditure, yet the analysis can further be extended to that of 'General Government'[29] expenditure (central and state together) to see the priority at the national level.

During the past one decade (1997-98 to 2006-07), total 'General Government' spending and total Central Government spending have increased significantly, by nearly 188 per cent and 168 per cent, respectively.[30] On the other hand, the Defence spending has grown relatively lower at 142 per cent,[31] suggesting that allocation for other sectors have increased at a faster pace. Over the last 5 years Defence spending as a percentage of total Central Government expenditure has been reduced from the peak of 15.9 per cent during 2005-06 to the low of 13.0 per cent during 2007-08 (RE) (see Table-2).[32]

The faster growth of both central government and total 'General Government' expenditure compared to Defence expenditure suggests that despite increased level of Defence spending, the government has been able to spend more on the non-Defence sectors. In relative terms and from the point of view of resource allocation, the decreasing share of Defence shows that the allocation for it is easily provided (affordable) over the years.

Table-2
Central Government Expenditure and Defence Expenditure
2004-05 to 2008-09

Year	Central Govt. Exp (Rs. in crore)	Def. Exp (Rs. in crore)	Defence Exp as % of Cen. Govt. Exp
2004-05	497682	75855.92	15.2
2005-06	506123	80548.98	15.9
2006-07	583387	85509.61	14.7
2007-08 (RE)	709373	92500	13.0
2008-09 (BE)	750884	105600	14.1

RE: Revised Estimate; BE: Budget Estimate.
Sources: Ministry of Finance, Budget at a Glance (relevant years) for Central Government Expenditure; and Government of India, Ministry of Defence, Defence Services Estimates (relevant years) for Defence Expenditures.

Major Heads of Government Expenditure and Defence Expenditure

The major heads of government expenditure can broadly be classified into Developmental expenditure and non-Developmental expenditure.[33] During the 10-year period since 1997-98, the annual average growth of Developmental expenditure of both the 'General Government' and Central Government has been more than on the non-Developmental heads. Among the 10 largest heads[34] of the general Government expenditure, Defence has recorded the lowest annual growth rate after Administrative Services.[35] For the same major heads of the Central Government expenditure, Defence, though, has exceeded the overall growth of non-Developmental expenditure, yet compared to the major heads under Developmental expenditure, it has recorded the lowest growth rate after that of Power, and Irrigation & Flood Control (see Table-3).

Table-3
Major Heads of Government of Expenditure, 1997-98 to 2006-07

Heads of Expenditure	General Government	Central Government
	Average Annual Growth (%)	Average Annual Growth (%)
Developmental Expenditure	12.5	13.7
Non-Developmental Expenditure	11.5	9.3
Interest Payments*	12.3	8.1
Social & Community Services**	11.5	12.6
Defence Services*	10.4	10.4
Agriculture & Allied Services**	10.9	13.6
Power, Irrigation & Flood Control**	13.5	7.5
Pension & other Retirement Benefits*	13.2	10.3
Administrative Services*	10.2	10.4
Transport & Communications**	17.1	19.5
General Economic Services**	22.9	54.21
Food Subsidy*	15.9	16.0

**: Developmental Expenditure; *: Non-Developmental Expenditure.
Source: Extrapolated from Government of India, Ministry of Finance, Department of Economic Affairs, Economic Division, Indian Public Finance Statistics: 2006-07.

The relatively faster growth of major heads of Developmental expenditure compared to that of Defence expenditure during the past decade shows that the growth of the latter has not hindered the government's priority in terms of higher percentage allocation on major developmental goals. In other words, Defence, from the resource allocation point of view, has remained within the affordable limit, in the sense that it has not hampered the growth prospects of the economy.

Financing Defence Expenditure

Financing of government expenditure, including Defence expenditure, constitutes an important aspect of public finance, considering the role of various sources of government earnings and their impact on the economy. Over the last 10 years (1997-98 to 2006-07), the government's total revenue earning has increased by nearly 216 per cent and, as a result, its share in the total government expenditure has increased from 68 per cent to nearly 75 per cent.[36] The increase in revenue earning, which is mainly on account of increases in both tax and non-tax revenue, has helped the government in reducing the fiscal deficit and lessen the debt burden on the

Table-4
Share of Defence in Government's Revenue Earnings and External Debt Outstanding

Year	Def. as % of Govt's Revenue Earnings	Share of Defence Debt in India's External Debt
1997-98	13.81	7.6
1998-99	14.66	5.8
1999-00	14.52	4.4
2000-01	14.30	4.1
2001-02	14.46	3.3
2002-03	13.34	2.7
2003-04	12.25	2.4
2004-05	13.08	2.1
2005-06	11.66	1.6
2006-07	11.02	1.4

Sources: Indian Public Finance Statistics; India's External Debt: A Status Report; and Defence Services Estimates

economy. While the tax and non-tax revenue have increased by 228 per cent and 172 per cent, the debt burden and fiscal deficits, measured by their percentage share in GDP, have decreased from 24 per cent to 16 per cent and from 4.81 per cent to 3.61 per cent, respectively.[37] From the Defence point of view, the increase in the revenue earnings has lessened its percentage dependence on the latter, from 13.81 per cent to nearly 11 per cent. Besides, the surge in revenue earnings, which has reduced government's dependence on the debt financing, has also reduced the share of the Defence debt[38] on India's "external outstanding debt" (see Table-4). In other words, in last 10 years, the financing of the Defence spending has become relatively easier on account of the government's increasing earnings.

Conclusion

All the economic parameters examined in the article show that the allocations for Defence over the years have remained affordable, though, in some cases, in a relative sense. From the point of view of Defence requirements, the decreasing percentage shortfalls (between Defence projections and allocations to Defence) over the past five years indicate that the Government could increasingly afford the requirements projected by the Defence establishment. As far as the objectives of budgetary balance and fiscal stability are concerned, the Defence expenditure has largely remained within acceptable limits set by various Finance Commissions and the Task Force on FRBM and therefore, could not be blamed for the budgetary or fiscal imbalances, if any, in the economy. While the robust growth of the GDP and the consequent rise of Government revenues have significantly enhanced the country's spending ability, the decreasing share of Defence in these resources indicates that the burden of Defence has reduced significantly. In terms of resource allocation and its priorities, the growth of Defence spending has not caused retardation in growth of spending in other sectors of the economy, especially in the developmental sectors. idsa

Notes

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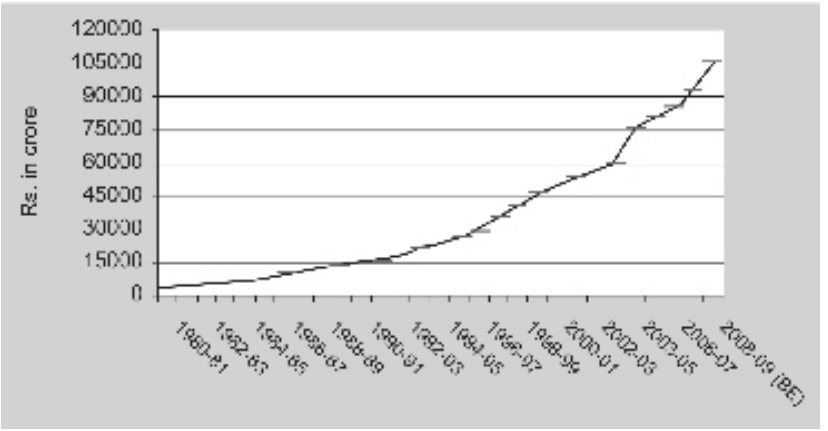
2 According to SIPRI, US, UK, France, Japan and India rank 1st, 2nd, 3rd, 5th and 10th in the list of countries with highest military expenditure in 2006. See SIPRI Yearbook 2007: Armaments, Disarmament and International Security, (Oxford: Oxford University Press, 2007), p. 270.
3 Japan's military expenditure as percentage of GDP has remained constant at 0.9-1.0 per cent over the last 15 years, though a 1.0per cent of GDP resulted in $42 billion in current prices in 2006. See SIPRI Yearbook 2007: Armaments, Disarmament and International Security, Ibid, p. 313.
4 The continuous increase in military expenditure by the US since 2001 has led to increase in government debt and deficit financing. The Congressional Budget Office estimates total government debt over $5 trillion and federal budget deficit at 1.5 per cent of GDP in 2008. See Congressional Budget Office, The Budget and Economic Outlook: Fiscal Years 2008 to 2018, January 2008, at http://www.cbo.gov/ftpdocs/89xx/doc8917/01-23-2008_BudgetOutlook.pdf
5 Defence allocation in India, presented in the form of Defence Services Estimates, is broadly divided into two components, i.e., Revenue expenditure and Capital expenditure, and includes expenses of the Armed Forces, Defence Research and Development and Ordnance Factories. Revenue expenditure includes expenditure on Pay & Allowances, Revenue Stores (like Ordnance stores, supplies by Ordnance Factories, Rations, Petrol, Oil & Lubricants, Spares, etc), Revenue Works (maintenance of buildings, water and electricity charges, rents and taxes, etc) and other miscellaneous expenditures. The Capital expenditure includes expenditures on Land, Construction Works, Married Accommodation Projects and Capital Acquisitions (Aircraft & Aero Engines, Heavy and Medium Vehicles, Other Equipments, Naval Fleet, Naval Dockyards/ Projects, etc).
6 Henceforth India's defence spending/expenditure and its components are expressed in current prices unless stated otherwise.
7 Defence allocation for 2008-09 is Budget Estimate (BE). See Government of India, Defence Services Estimates, 1970-71 and 2008-09.
8 Defence spending in constant (1999-2000) prices is calculated by taking GDP deflator.
9 For the Commission's report, see "Report of the Eleventh Finance Commission (for 2000-2005)", June 2000.
10 Ibid, p. 41.
11Ibid.
12 The Commission had assumed, among others, GDP to grow by 63 per cent from 2000-01 to 2004-05. The actual growth of GDP during this period is 49 per cent, representing a 22 per cent reduction in Commission's estimates. The corresponding shortfall in Defence is 33 per cent.
13 Report of Eleventh Finance Commission, n. 9.
14 The growth rates of Revenue expenditure and Capital expenditure between 200-01 and 2004-05 are estimated on the basis of their respective figures as provided in Defence services Estimates (relevant years), n. 7.
15 For the Commission's report, see "Report of the Twelfth Finance Commission (2005-10)", November, 2004.
16 Ibid, p.100.
17 Revenue expenditure includes Actuals for 2005-06 and 2006-07, and Revised Estimate for 2007-08.
18 Rather, the growth of Capital expenditure was left to be taken care of by the Commission's estimated growth of Central Government Capital expenditure as a percentage of forecast GDP. The Central Government Capital expenditure as a percentage of GDP was estimated by the Commission to grow at 7.6 per cent per year from 2005-06 to 2009-10. It is to be noted that the Defence Capital Budgets during the last two Commissions' periods were increased by 21.4 per cent (11th Commission) and 9.9 per cent (10th Commission) per year, respectively. In such a case, it is difficult to understand why the Commission linked growth of Capital budget with a new benchmark.
19 For GDP figures of these years, see Government of India, Central Statistical Organisation, National Accounts, at http://mospi.nic.in/press_release_7feb08.pdf, p.5
20 Capital expenditure includes Actuals for 2005-06 and 2006-07 and Revised Estimate for 2007-08.
21 For the FRBM Act and Associated Rules, and the Task Force Report, see Government of India, Ministry of Finance, Report of the Task Force on Implementation of the Fiscal Responsibility and Budget Management Act, 2003, July 2004.
22 Ibid, p.137.
23 Ibid. p. 160.
24 The GDP in current prices during the period from 2004-05 to 2008-09 grew at an annual average of 13.1 per cent. See National Accounts, n. 19. During the above period Defence accounted for 2.0 per cent of GDP.
25 See Defence Services Estimates (relevant years), n. 7.
26 Amiya Kumar Ghosh, India's Defence Budget and Expenditure Management in a Wider Context, (New Delhi: Lancer Publishers, 1996), p.167.
27 India's Defence allocation stands at 1.99 per cent of the expected GDP of the Fiscal Year 2008-09.
28 For Pakistan, see The SIPRI Military Expenditure Database, at http://first.sipri.org/non_first/milex.php; for China, see CIA, The World Factbook, at https://www.cia.gov/library/publications/the-world-factbook/geos/ch.html
29 General government includes both Central Government and State Governments together.
30 Estimated from Government of India, Ministry of Finance, Department of Economic Affairs, Economic Division, Indian Public Finance Statistics 2006-2007, June 2007.
31 Estimated from Defence Services Estimates (relevant years), n. 7.
32 Government of India, Ministry of Finance, Budget Division, Budget at a Glance 2007-08.
33 Developmental Expenditure is incurred on account of Railways, Post & Telecommunications, Social & Community Services, General Economic Services, Agriculture & Allied Services, Industry & Minerals, Power, Irrigation & Flood control, Transport & Communications, and Public Works, etc. Non-Developmental Expenditure is incurred on account of Defence Services, Border Roads, Interest Payments, Fiscal Services, Administrative Services, Organs of State, Pension & other Retirement Benefits, Relief on account of Natural Calamities, Technical & Economic Cooperation with other Countries, Compensation & Assignment to Local Bodies, Food Subsidy, Social Security & Welfare, etc.
34 The 10 largest heads of expenditure are calculated on the basis of 2006-07(BE) allocations on different heads, as provides in Indian Public Finance Statistics 2006-07, n. 28.
35 Administrative Services include Police, External affairs and others.
36 Estimated from Indian Public Finance Statistics 2006-07, n. 30, p.3.
37 Ibid, p. 4 and 42; For India's debt burden, see Government of India, Ministry of Finance, Department of Economic Affairs, India's External Debt: A Status Report, August 2007, pp. 39-41.
38 Defence debt here includes export credit for Defence purchase and Rupee denominated debt owed to Russia and payable through exports.

Annexure-I
India's Defence Spending, 1980-81 to 2008-09



Note: Actuals for upto 2006-07; Revised Estimate (RE) for 2007-08; and Budget Estimate (BE) for 2008-09
Source: *Defence Services Estimates,* 1980-81 to 2008-09.

Annexure-II
Matrix of GDP-Defence Spending, 2009-10 to 2018-19

	Projected GDP (Rs. in crore)		Defence Spending as % of GDP				Projected Defence Spending (Rs. in crore)	
1	2	3	4 (=8/2*100)	5 (=8/3*100)	6 (=9/2*100)	7 (=9/3*100)	8	9
FY	11% growth	14% growth					10% growth	8% growth
2009-10	5887185	6046298	1.97	1.92	1.94	1.89	116160	114048
2010-11	6534775	6892779	1.96	1.85	1.88	1.79	127776	123172
2011-12	7253600	7857769	1.94	1.79	1.83	1.69	140554	133026
2012-13	8051496	8957856	1.92	1.73	1.78	1.60	154609	143668
2013-14	8937161	10211956	1.90	1.67	1.74	1.52	170070	155161
2014-15	9920249	11641630	1.89	1.61	1.69	1.44	187077	167574
2015-16	11011476	13271458	1.87	1.55	1.64	1.36	205785	180980
2016-17	12222738	15129462	1.85	1.50	1.60	1.29	226363	195458
2017-18	13567239	17247587	1.84	1.44	1.56	1.22	248999	211095
2018-19	15059636	19662249	1.82	1.39	1.51	1.16	273899	227982

Note:
(a). The projected GDP growth is based on annual average growth rate of GDP, in current prices, of 11% and 14% in the last 10 year and 5 year, respectively. Data up to 2004-05 are Actual and for 2005-06, 2006-07 and 2007-08 are Quick Estimate (QE), Advance Estimate (AE) and Budget Estimate (BE), respectively.
(b). The projected growth of Defence spending is based on its annual average growth rates, in current prices, of 10% and 8% in the last 10 year and 5 year, respectively. Data up to 2006-07 are Actual, and for 2007-08 and 2008-09 are Revised Estimate (RE) and Budget Estimate (BE), respectively.
Source: Handbook of Statistics on Indian Economy, National Accounts and Budget at a Glance for GDP data; Defence Services Estimates for Defence data.

Signs of the Emerging Third Leg: Strengthening India's Triad

*Thomas Mathew**

Nuclear weapons are seen as the ultimate guarantors of nations' security. During the cold war, peace between the two super powers, for instance, was tenuously guaranteed by the fear that conflicts could escalate into a nuclear conflagration. Consequently the nuclear weapon states which had assiduously built their stockpiles, worked with an equal sense of urgency to obviate the use of these very weapons. They did so by paradoxically working to guarantee their usability.

The magnitude of destruction that nuclear weapons can wreak is seen as negating any advantages, technological or numerical, that conventional forces could bestow. Nuclear weapons are perceived as 'levellers' and hence are coveted by weaker nations. The acquisition of nuclear weapons by the US during the Second World War had therefore the inevitable effect of spawning similar desire in many nations faced with threats to their security. This made the proliferation of nuclear weapons inevitable. The nuclear quest of nations was further fuelled by the mechanisms engineered by the Nuclear Five to perpetuate an unprincipled and discriminatory nuclear world order where only they could be the owners of nuclear weapons.

India's Nuclear Quest

India is a reluctant nuclear power. India's quest for nuclear weapons gained purpose and direction after its humiliation by China in the 1962 war. Its insecurity was further heightened when China exploded two nuclear devices in 1964. But after some hesitation India broke its nuclear silence in 1974 in Pokhran. Since then it has been engaged in the effort to build a nuclear weapon capability to give it credible deterrence. This

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led India to conduct five nuclear tests in May 1998, motivated in part by its traditional enemy Pakistan's covert nuclear programme.

Today India is a de facto nuclear weapon state after it resolved its internal moral conflict and shed its self-imposed reluctance to safeguard its security in a world striving to perpetuate "nuclear apartheid". India, like Israel, has not, however, declared its nuclear weapon stockpile. The conservative estimate is that India has around 50 nuclear weapons and 520 kilograms of weapon grade plutonium (at the end of 2005) to produce more than double of what it already has.[1]

India's No First Use and the Nuclear Triad

In 1999, India announced its draft nuclear doctrine enunciating a No First Use (NFU) policy and its resolve for a "credible minimum deterrence". The policy of NFU was meant to convey India's abhorrence of the use of the power of the atom for destructive purposes. It was equally revealing of India's reluctance to cross the nuclear Rubicon. The 1999 policy was expanded in 2003 to encompass the use of nuclear weapons to deter and use against any attack involving WMD, including chemical or biological weapons.

Minimum credible deterrence capability would, however, require India to possess the critical capabilities to ensure the survivability of its nuclear weapons even after a first strike against it. NFU therefore casts a responsibility on the nation to achieve a second strike capability.

A second strike capability can only be imparted by a Triad: the three classical nuclear legs comprising of the land, air and sea components. The land and air legs of the Triad are the weakest two while the sea leg, which primarily depends on Submarine Launched Ballistic Missiles (SLBMs), is the strongest in view of the difficulties associated with their destruction in a conflict. For a nation that has limited land and air launched nuclear weapons, comparatively rudimentary delivery systems and a declared NFU policy, the strengthening of this leg is of paramount importance.

The Agni and the Prithvi missiles are the land leg of India's Triad. Their deterrent value is, however, circumscribed by their limited range. Consequently, at present India does not have and based missiles with the range to reach all of China. Land based missiles are also easier to locate in an age of sophisticated satellite technology and could be vulnerable to a surprise attack. The constantly reducing Circular Error Probable (CEP) of missiles has increased their lethality and in a pre-emptive strike could destroy land based assets. Road/rail mobile systems and underground silos have decreased their vulnerability to some extent by making it difficult to locate them. Yet, they are not the most dependable of deterrents. India's land leg has, however, been augmented by the successful testing of Agni-III in 2007 showcasing the nation's capability to soon cover almost the whole of China.

Jaguars, MiGs and Sukhoi aircraft at present constitute the air leg of the Triad. But aircraft are vulnerable when deep penetration of enemy airspace has to be achieved. Sophisticated anti-aircraft weapons and interceptors have made it more difficult to reach targets deep inside a nation's territory. The distances that aircraft have to fly to reach their pre-determined targets further undermine their effectiveness in an actual conflict and to that extent weaken their deterrent value. Therefore, though Sukhoi Su 30 MKIs have a range to reach most of China, and their range and effectiveness could be enhanced when used in conjunction with IL-78 aerial refuelling tankers, there is no assurance that they would be able to survive the anti-aircraft defences of an enemy.

Ironically India is the weakest in the sea leg of the Triad, which is the most reliable of all the three legs. India's capability in this area is very limited. It only has the ship launched nuclear missiles developed under the Dhanush programme. This missile, which is a modified version of the Prithvi-II, has a limited range of 250 km and this has impaired its deterrent value.

Submarine Launched Ballistic Missiles as the Guarantor

In consonance with India's policy of NFU, it maintains a "recessed" nuclear weapon capability. This implies that India's nuclear weapons are

not stored in a ready state. Nuclear war heads and their delivery systems are not married or mated. Therefore, land and air systems have to transit through a definite period to achieve a state of readiness. In a surveillance intensive environment their vulnerability increases manifold.

On the other hand, SLBMs are the most reliable of the nuclear Triad because of the survivability of the platforms that carries them. The vast expanse of the oceans makes detection of submarines very difficult, giving these underwater platforms a distinct edge in survivability. If the vessels do not break radio silence, the chances of detecting them are further reduced.

The endurance of nuclear submarines is another significant advantage that the sea leg of the Triad has. Today, nuclear submarines are capable of travelling at least 640,000 km (400,000 mi) without refuelling. Theoretically the endurance of a submarine is only limited by the endurance of its crew. These vessels can lurk in ocean depths for months and within striking range of the adversary, creating a virtually indestructible arm of deterrence.

The survivability and endurance of the submarines, therefore, make it virtually impossible for a foe to completely take out the retaliatory capability of a nation that has SLBMs. For the reason of its perceived invulnerability, all the Nuclear Five have emphasised the importance of developing and improving their nuclear submarine fleet and sought to preserve them in the various arms limitation talks.

Even before the advent of nuclear powered submarines, the importance of SLBMs was underlined. In the 1950s, both superpowers used diesel-electric submarines to carry SLBMs. But during this era, submarines had to surface to fire missiles, thus increasing their vulnerability. Since they also lacked nuclear propulsion, they had to surface within a couple of days to recharge their batteries. Despite these shortcomings, US vessels carried cruise missiles called Regulus, while Soviet Vessels carried SS-N-3 Shaddock cruise missiles and short range-SLBMs called SS-N-4 Sark.

In 1959, the US launched USS Nautilus, the world's first nuclear submarine. Since then, the major navies of the world have embarked on projects to develop similar capability and today the Nuclear Five have a total of 142 nuclear submarines (US-71, Russia-39, UK-13, China-9 (one new type under trial) and France-10).[2] The submarine fleets, particularly of the US and USSR/Russia, have become stealthier and more potent and are the most important arms of their triad.

Submarines are becoming increasingly silent, further enhancing their role in ensuring nuclear deterrence. Submarine designers are even toying with "metamaterials" that would prevent electromagnetic waves from being reflected back by engulfing the vessels in flows to create invisible platforms. Soon, "acoustic cloaking" could become a reality. It is in this context that India's quest for building indigenous nuclear submarines should be seen. Especially for India, with has a NFU policy, a credible submarine fleet capable of carrying SLBMs is a sine qua non for the success of its deterrence.

Third Leg of India's Triad

The submarine based leg of the Triad is the most difficult of the three to achieve and far more complex than the land and air legs. India has been endeavouring to build this leg of the nuclear Triad since the mid-1980s.[3] It had leased a nuclear powered attack submarine from Russia of the Charlie-I class (Project 670M) between 1988 and 1991. Rechristened as INS Chakra, the submarine had Indian crew and Russian specialists. It gave India valuable experience in operating the complex platform that nuclear submarines are.

Given the critical importance that SLBMs, that give a nation a virtually guaranteed nuclear retaliatory capability, India launched Project Sagarika. Though it was planned for completion in 2005, it had faced certain technical problems. India overcame them and in February 2008 successfully launched its first SLBM (K-15), from a submerged pontoon, marking the beginning of the nation's attainment of an altogether new capability.

The missile, with a range of about 1000 kilometres and a capacity to carry a payload of 500 kilograms, was launched from a fixed underwater launcher simulating a submarine. Dr. Prahlada, Chief Controller, DRDO, in a written reply to the author revealed that this was the first complete system test of the missile. Subsystem tests of the missile were conducted over the last one year. The success of the sub-system tests and the first "complete system" test is a milestone in the attainment of the SLBM capability.

India could not conduct the tests from a submarine as the nation does not at present have any submarine from which the firing could have been undertaken. According to sources in the public domain, India has only 16 submarines, 4 of which are of German origin and the remaining are from the former Soviet Union. These are old vessels which cannot be modified to fire these missiles.

The K-15 is planned to be fitted on the super secret Advanced Technology Vehicle (ATV). The ATV is being developed as a joint project of the Navy, DRDO and the Department of Atomic Energy (DAE) which designed its nuclear core, reportedly with a little help from Russia. (Incidentally, the ATV hull is of similar design as that of the *INS Chakra*.) Reportedly, the DRDO may need another test to "ratify" the K-15 missile systems and the parameters which would form the main armament of the ATVs.

The successful testing of the the K-15, is a milestone in India's effort to fill the gap existing in the nation's nuclear deterrence. But it would have to be matched with the development of indigenous submarine building capability which India is yet to fully develop. India frittered away the opportunity when it failed to take advantage of the programme approved in 1980 for the indigenous development of submarine building capability. Under the project, India had envisaged the acquisition of four HDW Type 1500 submarines of German origin. Two submarines were to be built at HDW and the other two at MDL. There was also an option to build two more submarines at MDL with higher indigenous content.

After importing two submarines and building as many at MDL, the option of building the 3rd and 4th vessels was abandoned. It led to the virtual

shutting down of the facility after the delivery of the second submarine constructed by MDL in 1994. Consequently, from 1994 to 2006, the submarine building facilities at MDL remained largely idle.

With the termination of the project, the naval designers who were trained in submarine construction at ILK Lubeck in Germany could also not put their skills to any practical use. The building of two submarines at MDL had resulted in the development of expertise especially in hull fabrication, specialised welding techniques and adopting normatives for the first time in the country. With the early closure of the HDW project, the nation could not exploit fully the expertise that was painstakingly developed.

It has been demonstrated by some nations that the technology developed for conventional and nuclear submarines can significantly complement each other. The experience of the nations which have exploited such complementarities in technology evidently did not evidently receive enough attention among the defence planners in India. The submarine building programmes of Russia, France and China (the only three nations[4] that design and produce both conventional and nuclear submarines) should have ideally spawned a change in India's planning and strategy. Though little is known about Chinese submarine design, as far as Russia and France are concerned it has been widely acknowledged that most of the equipment (except propulsion) and sensors are common on conventional as well as nuclear submarines.

If India had continued with the submarine building programme under the HDW project, the nation would today have had a far more advanced indigenous submarine building capability and Indian companies would have been able to obtain "threshold technologies" on which submarines are built. Further, had India pursued the planned indigenous submarine building capability, efforts could have been focused on the integration of the BARC developed nuclear propulsion system on indigenously built submarines. Therefore the premature closure of the HDW project has negatively impacted the development of the third leg of India's nuclear Triad.

The limited range of K-15 missiles substantially impairs its deterrent value. To be an effective deterrent against China, for instance, the ATVswould have to be deployed very close to its borders. Missiles with just around 1000 kilometre range also have an inherent limitation in that they can only be used against one city or counterforce assets in one small defined area. The limited range of the missiles can also adversely affect the deterrent value of the payload capability of submarines. If these missiles are to constitute an effective deterrent, their limited range should be offset by deploying more number of nuclear platforms.

Though the successful test of the K-15 is an indication that India would soon launch its first ATV, symbolising the near completion of an effort that dates back more than two decades (since 1986), the attainment of the third leg of deterrence would have to wait for some more time. To attain a credible sea based deterrent capability, besides missiles of requisite range, India should have at least five to six nuclear submarines to have two to three of them at sea at any given time. Even if the hope that the first ATV would be ready for sea trials next year, and the complete integration of the missile and deployment of the vessel could be achieved in a span of three years is not belied, it would take a decade or more before India can build an adequate fleet of operational nuclear submarines with SLBMs. To some extent this deficiency can be offset if India is able to produce SLBMs of the range of 3000 kilometres or more. According to the present indication, it may take close to five years to accomplish this. But, India may have to accelerate its nuclear submarine programme and perhaps start another project to have adequate number of platforms to carry the sea launched Intermediate Range Ballistic Missiles (IRBMs) that India would not take long to produce.

There is, therefore, a compelling need for India to strengthen its submarine building capability. Most critically, the strategy should focus on achieving self-reliance in this sensitive area. Presently, India's conventional and nuclear submarine building programmes are separate and is devoid of any meaningful synergistic relation between them. The separation has resulted in duplication of efforts, wastage of resources and ineffective utilisation of scarce technical assets available in the area and, wheels are being reinvented. It also precludes indigenous industries from undertaking series production of equipment.

To achieve self-reliance in submarine equipment, India should harness the opportunity afforded by both programmes (conventional and nuclear) and bring them under one single authority to achieve commonality in equipment etc. Such a strategy, besides helping in design and indigenous production capabilities would also attract more private players into the arena motivated by the benefits of economies of scale in the production of equipment. The suggested overarching organisation should be entrusted with the responsibility to oversee all types of submarine building programmes. Such a body would encourage the exploitation of complementary technologies, appropriating the knowledge/capability and commonality in equipment where possible for the overall development of indigenous submarine building capability—both conventional and nuclear.

Lease of Akula-II

The Stockholm International Peace Research Institute (SIPRI) has reported that India is possibly leasing two Akula-II class attack nuclear submarines from Russia and placed orders for them in 2005.[5] SIPRI has further speculated that the submarines could possibly be armed with Indian nuclear weapons. *India Today* a leading national journal also reported that India is leasing an Akula-II class submarine from Russia.[6] These reports achieved added credibility when Admiral Sureesh Mehta, Chief of Naval Staff of India, stated in December 2007 that the Indian navy is "shopping for the Russian SSN Akula Class nuclear submarine".[7] The induction of this highly sophisticated platform would give Indian naval personnel, the Indian Naval Chief said, training on "how to operate nuclear reactor and platform and other systems".

Speculation is, however, rife over the actual use India would put this sophisticated submarine to. While some defence analysts refer to India's desire to better the operational skill of its naval personnel, it has also been reported that the platform would come with nuclear missiles.[8] Akula-IIs that are currently in the service of the Russian Navy carry the N-21 cruise missiles which have a range of more than 2500 kilometres. That India would also get the nuclear missiles along with the submarine appears to be mere speculation and not based on any evidence. Notwithstanding

the close India-Russia defence ties, it would be unrealistic to assume that Russia would run afoul the Missile Technology Control Regime (MTCR).[9]

The *India Today* story on the Akula-II also speculated that the vessel would be armed with indigenous nuclear-tipped cruise missiles with a range of over 1000 km but has not indicated who would do the reported integration. Some defence observers have also speculated that India would be able to fit its indigenous K-15 SLBMs on the platform. This also does not appear to be feasible as it would require modification of the platform, which India may not at present be capable of undertaking. Though, theoretically, such an exercise could be undertaken, it is doubtful if India has the technological capability to pull this off. The missile itself has to be perfected and is yet to be test fired from the ATV. Even after it has been successfully launched from the ATV, it is doubtful if such a project would add substansial value to India's deterrence.

It has also been reported that in 2006 India contracted for 28 Novator 3M-14 E Klub-S land attack submarine launched cruise missiles with a range of around 300 kilometers.[10] The other question is whether India would have the capability of modifying the conventional warhead of the 3M-14E to carry nuclear warheads. Though theoretically possible, it would be a daunting challenge for Indian defence scientists to practically achieve. In any case, Indian strategic planners are likely to question whether it is prudent to tie down the costly Akula-II for necessary modifications to test the viability of changing the warhead of the 3M-14E without commensurate benefits.

Akula-II as the Protector?

While Indian scientists work on developing missiles with range that can reach its adversaries, the Akula submarine could be deployed to contribute to India's nuclear Triad in yet another manner. Submarines are considered to be the most effective killers of their own kind and the Akula-II platforms (with a submerged displacement of 12390 tons)[11] are well equipped to perform this role. Using passive sonar that depends on the sound source of the target itself, submarines are the best submarine

killers. They are the more advanced version of the original Akula-I and the improved Akula. Even the Russian Navy has only two Akula-IIs while it has eight of the earlier Akula-Is.

The Akula class vessels are considered quite lethal in the performance of this role and have been rated as one of the most silent platforms ever to be produced. The Akula-IIs have incorporated several changes over its predecessors, notably to reduce their noise levels. Their length has particularly increased to incorporate this feature.[12] These submarines operate at very large depths (500 meters), significantly enhancing their capability to operate undetected. The greater the depth, the more difficult it is to pick up acoustic and electromagnetic signals of submarines. Greater depths enhance the effectiveness and lethality of these platforms manifold as is exemplified in the goal of every submarine builder to give their vessels the capability to ''Run deep, Run Silent''.

Besides the N-21 cruise missiles, Akula-IIs have eight torpedo tubes and six external tubes that can fire the SS-N-15 Starfish and SS-N-16 Stallion anti-ship missiles. In the absence of longrange cruise missiles that are unlikely to be sold by Russia to India, it could also use SS-N-27 Club (Klub) missiles which are anti-ship projectiles that India has purchased for use in the 9 Sindhughosh (Kilo class of Former Soviet Union) class of submarines. SIPRI Yearbook (2006) has also reported that India has already inducted the 3M-54E and 3M-54E1, which are anti-ship cruise missiles.

With the impressive attack capabilities of Akula II, it can spearhead an attack force creating protective screens and also work as mine layers. Therefore, the Akula India is reportedly leasing could at least be used in conjunction with the ATV which could be the carrier of India's SLBMs, with a dived speed of 35 knots,[13] they can outrun any submarine that the Chinese Navy has at present and contribute in some way to the fledgling third leg of India's Triad.

Conclusion

The successful test firing of the K-15 missile is a significant milestone in India's development of a credible nuclear deterrent. Though it is not

yet operational, it can be expected to go into full service in three years or so. The limited range of the missile would, however, require the ATV to be deployed close to Chinese waters for it to constitute an effective deterrent against China. India is also reported to be working on a longer range SLBM. The deployment of such a missile would reportedly take close to five years. But once this is accomplished, India would have moved one step closer to achieving a credible Triad – something very critical for a nation that has a declared NFU and "recessed" nuclear weapons. But India would also have to revisit its indigenous submarine building programmes to produce the platforms that can carry the missiles to achieve credible deterrence.

Notes

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3 According to some sources, however, India's quest for a nuclear submarine began in 1971. See Goromitz, Mark (1996), "Indian Strategic Nuclear S/M Project", accessed on 25 April 2008,URL: www.org/nuke/guide/india/sub/SS/Part 01-html
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9 MTCR prohibits inter alia the transfer of missiles of range of 300 kilometres or more, accessed on 26 April 2008, URL: www.fas.org/nuke/control/mtcr/text/mtcr_handbbokguide-annex.pdf
10 The International Institute for Strategic Studies, op cit, p. 329
11 World Navies Today: Russian submarines, accessed on 26 April 2008, URL: http://www.hazegray.org/worldnav/russia/submar.htm
12 Jane's Information Group Limited (2008), Jane's Fighting Ships, 2007-08, United Kingdom, p. 632.
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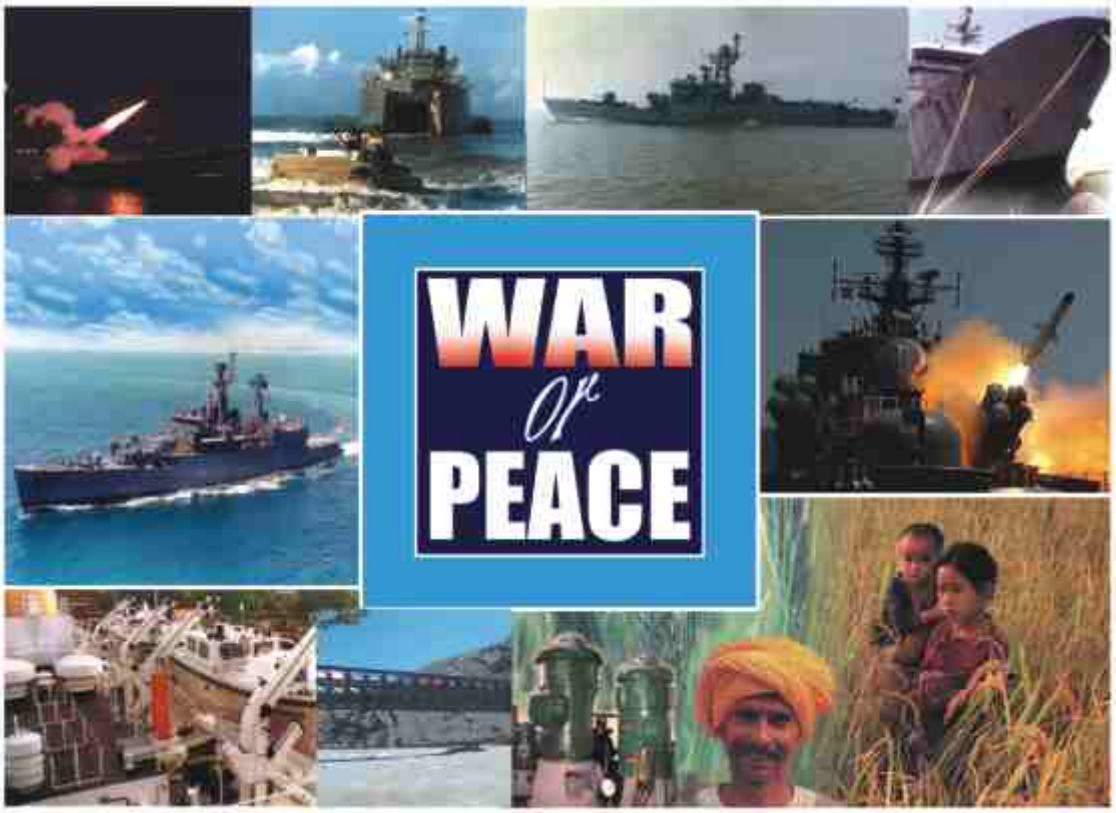

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