U.S.I.
JOURNAL

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(Established : 1870)

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APRIL-JUNE 2012

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11. Prospectus : Available from Course Section and on Website.

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1.	**Life Membership wef 01/01/2012**		
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FORTHCOMING EVENTS AT USI*

Date	Time	Events	Subjects and Speakers
26 July 2012 **Thursday**	1100-1330	**USI – AMITY Joint Panel Discussion at AMITY Campus Sector-125 NOIDA**	**Problem of Naxalism in India- Ground Realities and Strategic Challenges towards Conflict Resolution** **Chair** : Lt Gen KM Seth, PVSM, AVSM (Retd), Former Governor of Tripura and Chhattisgarh **Panelists :** Lt Gen VK Ahluwalia, PVSM, AVSM**, YSM, VSM (Retd) Shri EN Rammohan, IPS (Retd) Shri Prakash Mishra, IPS Ms Shoma Choudhry
08 Aug 2012 **Wednesday**	1100	Talk	**Special Forces of India** Lt Gen PC Katoch, PVSM, UYSM, AVSM, SC (Retd) **Chair :** Lt Gen HS Lidder, PVSM, UYSM, YSM, VSM (Retd)
22 Aug 2012 **Wednesday**	1100	Talk	**The Maoist Insurgency** Gp Capt AK Agarwal
05 Sep 2012 **Wednesday**	1100	**16th Colonel Pyara Lal Memorial Lecture 2012**	**Indigenisation in Defence Industry - Current Status and Future Prospects** Shri MV Kotwal, Larsen and Toubro Ltd **Chair:** Col SP Wahi (Retd), Former Chairman ONGC
19 Sep 2012 **Wednesday**	1100	Talk	**India's Energy Security** Lt Col Vivek Dhall
26 Sep 2012 **Wednesday**	1100	Talk	**Enhancing Efficiency in the Organistaion by TA-isation** Lt Col Harish Katoch
01-02 Nov 2012 **Thursday & Friday**	0930-1700	**USI National Security Seminar 2012**	**Trade, Commerce and Security Challenges in the Asia Pacific Region**

* Please see the USI Website for any changes : www.usiofindia.org

OBITUARIES

With a deep sense of grief we inform you about the passing away of the following Life Members of USI :-

(a)   Major General WS Bakshi (Retd), Raj Rif expired on 10 October 2011. He was a Life Member since 1997.

(b)   Colonel BK Sabnis (Retd), Raj Rif, expired on 09 March 2012. He was a Life Member since 1957.

(c)   Lieutenant General ML Thapan, PVSM (Retd), Jat Regiment, passed away on 14 April 2012. He was a Life Member since 1946.

(d)   Brigadier Surendra Kaushik, VrC, Deccan Horse, expired on 22 April 2012. He was a Life Member since 1997.

(e)   Lieutenant General SL Menezes, PVSM, SC (Retd), Grenadiers, expired on 11 May 2012. He was a Life Member since 1979.

(f)   Brigadier HPS Bains (Retd), AOC, expired on 22 May 2012. He was a Life Member since 1999.

(g)   Colonel Rajesh Dua (Retd), AOC expired on 30 May 2012. He was a Life Member since 1997.

(h)   Brigadier Melville Deœeouza (Retd), Regiment of Artillery, passed away on 17 Jun 2012. He was a Life Member since 1997.

(j)   Major General SM Hasnain, PVSM (Retd), Garhwal Rifles, expired on 22 June 2012. He was a Life Member since 1988.

Errata

Please refer to page 14 in USI Journal, Vol CXLII, Jan – Mar 2012, No 587.

In the 6th line under sub paragraph (a) Untangling Sino-Pak Nexus :-

For - 'Karakoram Pass'.

Read : 'Karakoram Highway'.

Error is regretted.   **Editor**

Editorial

The Tenth Major General Samir Sinha Memorial Lecture on the subject *'Indian Armed Forces and the Changing Strategic Environment'* was delivered at USI by Shri MJ Akbar on 21 February 2012 and a text of the same is being carried as the lead article. Shri Akbar started his talk by mentioning the 'fog of war' and emphasising the relationship of military history not with our lifetimes but with the unending timeline. He concluded his talk with an analytical survey of India's strategic environment, i.e. the extended neighbourhood and the dynamics of India-Pakistan-China relationship. The lecture takes you into a realm where one has not been before. To capture the mood of the moment – I may add that he was heard with rapt attention and the talk was followed by a most stimulating discussion.

'Leadership Below Officer Level in the Indian Armed Forces' was the subject for the USI Gold Medal Essay Competition 2011 in Group B. The prize winning essay by Captain Balamurugan R Subbu is the next article in this issue of the journal. Captain Subbu has argued for a new JCO/NCO cadre by direct recruitment in order to reduce the age profile of junior leaders.

The new American strategy for the 21st Century has been much in the news lately. I suppose that is the way the superpowers signal to their foes and allies their strategic direction. As India moves into the league of global players, it is time that India too articulates its strategic vision. In the next article, Lieutenant General PC Katoch, PVSM, UYSM, AVSM, SC (Retd) analyses the Indian situation and suggests a road map for *'Evolving a Military Strategy'* for India which would not only serve to signal to the others but also contribute to its own 'Comprehensive National Power'. Continuing in the same vein, Lieutenant General Chandra Shekhar, PVSM, AVSM (Retd) in the very next article *'Procurement Strategy and Modernisation of Defence Forces'* examines this vital aspect which is at the heart of building India's military capability to face the emerging challenges to its security. Needless to say, a sound strategy supported by a strong military is the best insurance that India can have to keep the inimical forces at bay and ensure uninterrupted social and economic progress.

In the next article *'Myanmar – Winds of Change and Opportunity'*, Lieutenant Colonel Shailender Arya looks at recent political developments in Myanmar, its relevance to India's 'Look East Policy' and makes certain recommendations. He argues for a much closer relationship with Myanmar which would be to the advantage of both the nations, as well as the region. It is a relationship that is in the making and must be nurtured carefully.

The next three articles are related to some of the most critical developments in technology. Colonel Kulbhushan Bhardwaj examines the *'Requirements of Geospatial Intelligence for Tactical Networked Systems'* and Wing Commander RK Singh looks at *'India's Options in Space'*; both of these are important components of net centric warfare. Lieutenant Colonel Sushil Pradhan's article *'Robotics in Warfare'* explores yet another new field, i.e. the military applications of robotics in the future battlefield environment. In addition, he also examines the ethical and moral issues in fielding such technologies.

Piracy continues to haunt the merchant marine and has engaged the attention of navies the world over. In the next article *'Effects, Consequences and Remedial Action Against Somali Piracy'*, Commander Indrajit Roy (Retd) who is now sailing with the Merchant Navy shares his hands on experience of this menace. Keeping in view India's peninsular shape and its central position in the Indian Ocean, the author highlights the special responsibility on the part of India and the need to exercise effective control on its maritime environment.

Chinese efforts at building dams in Tibet and diversion of waters continue to exercise the minds of defence analysts. Colonel PK Vasudeva (Retd) in his article *'Chinese Dams in Tibet and Diversion of Brahmputra : Implications for India'* has made yet another attempt to examine this issue in a detailed manner. As the saying goes – there can't be any smoke without a fire, I think there is a good reason for India to be concerned and watch the developments on the plateau rather closely. There can be no better substitute to bilateral engagement on water issues to allay the fears of lower riparian states. That is what diplomacy should seek to achieve while keeping its eyes and ears open!

The Jaipur Literature Festival which has become an annual feature in the month of January each year is by now well known. Military has never been represented at the festival. USI not only sponsored a delegation but also held a session titled *'Indian Military History : The Missing Links'* which was held on 24 January 2012 at the Durbar Hall. The session drew a lot of attention, not only from the Service community but also from a large number of young people from schools and colleges who attended the session. A brief report on the festival and the session on 'military history' by Major General VK Singh (Retd), one of the discussants, is being carried in this journal.

The last article *'Cyber Security : Situation and Challenges'* is the text of a paper presented by Lieutenant General Davinder Kumar, PVSM, VSM & Bar (Retd) who represented USI at an International Symposium held at the China Institute for International Strategic Studies in Beijing on 28-29 May 2012. The paper provides a deep insight into the complexities of cyber warfare at international level and its challenges for the future.

I take great pleasure in informing the readers that copies of the flying log books of Marshal of the Indian Air Force Arjan Singh, DFC, have been obtained for preservation in the USI CAFHR archives. The Marshal of the Air Force has conveyed his best wishes for good health, happiness and satisfaction in life, to all members of the USI of India, which are heartily reciprocated to him through the pages of this Journal on behalf of all members of the Institution.

PROCESSING OF MEMBERSHIP
APPLICATIONS RECEIVED BY POST

Officers desirous of membership must obtain prescribed form from USI. Requests for membership will not be entertained on plain paper, letters or mere chits often sent by officers as many required details are missed out. Applications have to be accompanied by serving certificate; retired officers should attach any defence photo identity proof.

On Strategy

"The various kinds of dangers are : that which is of external origin and of internal abetment; that which is of internal origin and of external abetment; that which is of external origin and of external abetment; and that which is of internal origin and of internal abetment"..................."Of these four kinds of danger, internal danger should first be got rid of; for it has been already stated that internal troubles, like the fear from a lurking snake, are more serious than external troubles".

(Kautilya's Arthashastra, Book IX, Chapter V,
Translated by R Shamasastry)

On Leadership

"A 'yes man' is a dangerous man. He may do anything but he can never make a leader because he will be used by his superiors, disliked by his colleagues and despised by his subordinates".

– Field Marshal Sam Manekshaw

"The greatest leader in the world could never win a campaign unless he understood the men he had to lead"

– General Omar Nelson Bradley

"A leader is a dealer in hope" **– Napoleon Bonaparte**

Indian Armed Forces and the Changing Strategic Environment*

Shri MJ Akbar**

Introduction

Thank you very much for according me the privilege of delivering the General Sinha Memorial Lecture and for the pleasure of being in front of such an august audience. I am already feeling mildly intimidated at the thought of treading on a subject which has been dealt with by you throughout your professional lives. I don't think I can claim that I would end today's session with much more clarity on the subject. But, I will stress that I recognise, while there are many kinds of fogs, the worst and the most mysterious of them all is the 'fog of war'. It does many things. The fog of war blurs geography. You can start a war at point one, and before you know it, it has developed tentacles and absorbed spaces which you never imagined at the start. But more important – I think this is the relevant starting point of our discussion and interaction today. The fog of war blurs time. That is something that we are not totally conscious of. One of the great mistakes all of us make, when we think of history, is to confuse military history with our lifetimes. When history is written, we will be lucky to get a page or two which deal with the 60 or 70 years that we become a part of the rational discourse of the unending line called the timeline.

A Historical Perspective

I would like to begin with two salient points. In exactly two years from now, we will witness (I don't know if I can use the word 'celebrate' or 'commemorate') the Hundredth year of the most significant fact of the last century. In 1914, the First World War began. Technically, India was out of both the World Wars. That is as fatuous a lie as I have ever heard. The Indian Army was involved in playing a critical part in both World Wars. In fact, the

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first major confrontation of the Ottomans and the British was at Kut in which the Indian Army played an extremely significant part. I often say, in the last century we have witnessed four World Wars. Why are we discussing the subject today? We are discussing this subject today because 'The War' that began in 1914 has not ended in many senses. The Second World War ended, with the defeat of Hitler. The Third World War ended, with the fall of the Soviet Union. But the Fourth World War has segued back into the First, in ways that we have not been able to fully comprehend.

I was speaking at Halifax last year, where Canada hosts an annual conclave on strategic issues. The US Defence Secretary Leon Panetta opened the conference; I was scheduled to speak in the final session, but a common thread ran through the conference, contemporary wars. I had a basic question to ask of American and NATO fellow delegates: Why did America, which has been involved in all four world wars, win the first three but seems to be floundering in the fourth? There are many answers but the principal answer, in my view, is that, in the first three wars America had the correct strategic partners, principally Britain and Free France.

America and its allies fought the First World War against German militarism, the Second against Fascism; the Third, against Communism. In all three, America's strategic partnerships were held together at the core by a shared ideology and commitment. In fact, Britain was fighting before America entered the War. Even in the Cold War, the term 'Iron Curtain' was given by Churchill.

In the Fourth World War, America seems to have lost its way because - and I am sure the analogy will not be lost - instead of Winston Churchill and Charles De Gaulle as strategic partners, America has the Vichy government of Marshal Pétain as its principal strategic partner in the crucial and central battlefield of this conflict. And who is this Vichy government? Pakistan, since its strategic policy is controlled by generals who are ambivalent. *Pakistan is not the strategic partner that America needs.* The analogy can be better understood with a parallel: if Marshal Pétain had been the ally, every detail of Normandy and D-Day would have been passed on to Berlin.

So, why does it surprise Washington to find that the enemy in Afghanistan is waiting for NATO, while NATO goes in circles searching for it. The equivalent of Britain in the South Asian

battlefield is India. India has been fighting the war against terrorism long before America took to the field.

A strategic partnership is not created by the search for 'common friends' – friendship is an emotional, not strategic, equation. It is built on the unemotional reality of common enemies. Roosevelt, Churchill and Stalin could begin the Second World War as separate powers, come together at the decisive moment, and then go their separate ways after the war was over.

The most important event in the recent history of USA-India relations is not the nuclear deal; nor are dinners at the White House of more than symbolic interest. The most important thing that has happened is the trial of Dennis Headley, among the most wanted terrorists in India, in a court in Chicago. America is not in the business of being generous to either friend or foe – certainly the Pentagon isn't. America has put Headley on trial not because Headley is India's enemy; but because, Headley is also America's enemy. America and India have found *an enemy in common',* and this is the basis of a strategic relationship.

What are India's present objectives? Without understanding Indian objectives, we cannot understand the objectives of the Indian Armed Forces. The Indian Armed Forces, unlike in Pakistan, are not a law unto themselves. They are not the final decision makers on matters of war and peace, but they are at the heart of India's national purpose.

Over the years, India's understanding of its strategic role has changed. The first phase was from 1947, when we won our freedom from the British, to 1962, when we were humiliated in the war against China. 1947 was epochal, because India was the first nation to reverse the 300-year tide of European colonization. Britain created an international empire after it became a major force in India with victory in the battles of Plassey (1757) and Buxar (1765). The latter was the more significant, and I cannot quite comprehend why its victor, Major Munro, is not given at least as much credit as Clive. Maybe Clive succeeded in winning the battle for space in history books because he was corrupt enough to buy a place in the House of Lords.

After 1765, the power of Indian wealth and human resource, as much the steel of the Sepoy Army, helped the British to conquer a substantial portion of India. No one travels many months on

ship or horseback, to conquer a poor country. The investment required in war must be worth the returns. Nobody was interested in the dead deserts of the Ottoman empire until oil was discovered. The reason why, through the 17th and 18th centuries, every major European power had an outpost on the banks of the River Hooghly, that decants the Ganga into the Bay of Bengal, is because India was one of the richest countries in the world. In the millennium that preceded the rise of Britain, India was an economic and political superpower: when Clive reached the capital of Bengal, Murshidabad, after Plassey, he observed that it was richer than London – which of course it was at that time.

In 1750, when these statistics began to be collected, India produced roughly 24 per cent of world's manufacturing output – China, about 31 per cent. That means half of the goods in the world were produced between these two nations. Britain's share was less than 2 per cent. By 1947, Britain's share was 24 per cent and India's less than 2 per cent. I may add, in parenthesis, there is no point blaming the British. We were colonised because we were weak, not because Britain was strong. Conversely, Britain never gave India Independence; India took it.

So, our strategic thinking, inevitably, emerged out of the experience of the struggle against the British; and the unique moral and intellectual qualities of our leaders, Mahatma Gandhi before Independence and Jawaharlal Nehru after it. I was in Bihar recently, and recalled that we seem to have forgotten that in a few years the centenary of the beginning of our freedom movement will come: Gandhi stepped into Champaran in 1917. As a nation, Champaran seems to have disappeared from our collective memory. Is it because Champaran was a struggle for the poor, rather than a movement launched by the middle class or the rich? If it had been, would we have been celebrating it with a row of drums that started in Delhi and ended in Kerala?

In 1947, however, we emerged out of a 'triumph of idealism' as has rarely been witnessed in history. Who could have believed that a nation could liberate itself from the seemingly invincible grip of the British Empire? When Gandhi began his struggle conventional wisdom was reflected by a remark made by Lord Sinha (a respected Member of Viceroy's Council) who said, that he could not understand what Gandhi was all about since the

British were destined to rule India for 400 years. Gandhi converted that 400 to 40 years.

Jawaharlal Nehru understood that freedom might have been won, but Independence had to be preserved. He refused to enter either war camp during the Cold War, theorizing that since the age of colonization was unwinding, wars would also become increasingly irrelevant. Instead of searching for enemies, he began to search for an alliance of equals and friends. Rational nations would have rational interests, which could always be sorted out through a rational discussion.

Even a war with Pakistan, started by Pakistan through irregular forces which would later segue into terrorist bands, did not prevent the sense of complacency which dominated India's defence policy through the 1950s. The successor institution of the British Indian Army, once at par with the Japanese military might at its apex, was weakened by partition, and debilitated by neglect.

There is an excellent analogy for those who live in Delhi. There are two forts in Delhi which are still an important part of the scenery in the heart of the capital: the Old Fort (*Purana Qila*) built by Humayun at the beginning of the Mughal Empire, and the Red Fort, built by Shah Jehan. The first has thick walls designed for defence. The Red Fort was built in 1660's, after 150 years of total peace and security; it is famously the only fort in the world which was designed to keep its doors open. Mughals became victims of an illusion that an empire could be preserved without a strategic vision against an external threat. In exactly 50 years, a Persian called Nadir Shah taught the Mughals the meaning of complacency when he ransacked Delhi for three days in 1739 and rode away with the Peacock Throne and the riches of the treasury. The Empire which was once considered impregnable, became a laughing stock. The Mughals used to laugh at the Ottomans because the Ottoman GDP was one quarter of the Mughal GDP. In a sense, 1962 was the psychological equivalent of 1739. But unlike the Mughal dynasty, which never recovered from 1739, the modern Indian nation found the inner resources to stabilize itself, and revive. I wonder: had 1962 not happened, would our Army have been prepared for Pakistan's invasion of 1965? While the consequences of 1962 were injurious to our 'sense of ourselves' and 'self confidence'; defeat in 1965 would have damaged the nation far far more.

The Present Day Reality

The North West has reappeared on Delhi's strategic horizon, first in the form of a threat from Pakistan towards Kashmir, and now in the equally virulent shape of terrorists, many of them financially sponsored and trained by the Pakistan Army. This has merged into the larger Fourth World War against terrorism, with this important fact: that the land between Amritsar and Herat, with arcs moving north and northwest, has become the central battlefield of this world war. This is enlarging slowly into the dangerous arc between the Nile and the Ganges, as conflicts overlap into one another. This war will have two great problems – both of which armies are not used to. One side is fighting in uniform and, therefore, is living by rules, and is being held accountable by them. The other side has none, except perhaps the 'rule of barbarism'. Nations, across the divisions of faith, ideology and even the irregularities of national interest, are beginning to understand that terrorism is a demon that will destroy its benefactors as easily as its opponents.

India has been forming a ring of strategic partnerships, including with Afghanistan to the west and Vietnam in the east; there is what might be called an implicit strategic relationship with Japan and growing cooperation with the Pentagon. The Indian State as well as the Indian Armed Forces have developed a political and military strength which is the bulwark of their confidence. This strength has given India the confidence to become a 'status quoist' power. What is a status quoist power? We are essentially content with the status quo along our borders; both in government thinking and public we have moved away from border claims and are willing to solve disputes on the basis of existing possessions. No one wants Pakistan-Occupied-Kashmir anymore. Equally, we will not surrender an inch of what we hold.

I keep telling my friends in Pakistan that it is time to bury the canard that we want to repossess the country. It is a bit embarrassing, but the truth is that no one in the world in his right mind would want to conquer Pakistan; it has become ungovernable space. The solution to Kashmir has been staring at us in the face for 65 years: turn the Cease Fire Line into the International Border and get on with the rest of life. I tell my Pakistani friends: Over six and a half decades, six and a half inches of land has not changed

hands. You can fight for another six and a half decades and six and a half inches again will not change hands. Because, while we have accepted in our minds that we will accept the status quo, we are equally determined, that not a single inch of territory that we possess today shall be lost.

The Indian Army is a 'defensive army' and that gives it unique strength. That gives it the kind of moral strength which we saw at Kargil. It is the strength which an 'occupying army' can never have. The Army is trained for the defence of the Nation; not for offence against any other country. Such moral force brings clarity and conviction. This is why India could recover Kargil, because it was fighting for 'its land' – it was not fighting for Muzaffarabad.

The Extended Neighbourhood

Most wars do not revolve around a single theme. The original purpose may be a starting point, but quickly expands and accepts within its circumference a number of supplementary purposes. The dynamics of conflation takes us inevitably to a question: what is happening in the Arab world? *'The Shade of Swords: Jihad and the Conflict between Islam and Christianity'* was mentioned in the list of my books. It first appeared in 2002, and argued that large parts of the Arab world were 10-15 years away from their French revolution. The map of the present Arab world was drawn largely after 1919 by colonial powers, mainly Britain and France. It is based not on what the Arabs wanted; but what the British wanted; or, far worse, what the British wanted the Arabs to want. The Arab world shifted from occupation to colonisation to neo-colonisation.

What is neocolonialism? It is a grant of independence as long as you do not exercise it. Neocolonialism was perfected by the British in India, in the Princely States. The Maharajahs and Nawabs who ruled in Princely India surrendered their strategic options in return for preservation of family rule over guaranteed territory; that was the equation developed in Queen Victoria's proclamation after 1857. The British protected a family's interests; a family protected British interests.

The apotheosis of this model is in Saudi Arabia; where a ruling family went to the extent of renaming a country after itself, and Arabia became 'Saudi'. There is no similar instance in geopolitics. I am a Muslim and proud to be one. Arabia is important

to me because it is a land of the Prophet. But no one ever suggested that it be called Mohammadia Arabia.

Some of the reasons offered for the perpetuation of family autocracies is no different from that offered by the Bourbons during the French Revolution: 'after me is the deluge'. Thank you! I am tempted to welcome the deluge. The wealth of nations has been usurped by families supported by a military infrastructure that is given its share of the loot. There is a point beyond which the young will not accept such reservation of power; they want the rights of equality and democracy.

One evident problem of change, where it has happened, is that successor regimes are turning out to be less than wholesome in the eyes of the liberal elite. While researching 'The Shades of Sword' I was travelling from Cairo to Alexandria. It was a Friday afternoon. I could hear the Khutba which had begun in mosques along the highway. I told my driver to stop as he might be wanting to pray. I went along with him to the mosque. I could not understand a word of what the Imam was saying, but, what I could hear all the time was anger; and the code word for the expression of anger was 'Israel'. The mosque was the one place, even more than the university, which kept the notion of a post-Mubarak future alive. During the dictatorships, while much of the liberal elite had been co-opted into the administration, it was the mosque which became the repository of mass sentiment. It is inevitable that the first rewards of change should go to those who had represented change at the grassroots, but, as we are already seeing in Egypt and Tunisia, this change will slowly learn to become inclusive.

Dictatorships which abolished the space for opposition parties, forgot a basic law: when you remove institutional opposition the people become the opposition. There are many sub-currents and undercurrents that flow between the Nile and the Ganges. If we want to better understand this, we have to look at the strategic map of undivided India. You know it better than anyone else, that when you look at the map of undivided India, the subcontinent's natural neighbour is Iran, and the Arab world begins a whiff of sea away from Gwadar in Baluchistan.

I was in Jerusalem in January, to interview Shimon Peres, and spent a day with the Israeli Foreign Office. The big question there was of course Iran, and India's relations with Iran. My response,

in sum, was: why would we abandon Iran when Pakistan blocks our land access to Afghanistan and Central Asia, and NATO does nothing about it. India is not going to serve America's or Israel's interests at the cost of India's interest. This is axiomatic. It doesn't require Shakespeare, Einstein or Sun Tsu to come and explain that.

India, Pakistan and China

The last theme of this presentation: What is the nature of India-Pakistan relationship? When we talk of our changing strategic environment, much of it is related, in practical terms, to Pakistan and China.

It is difficult to comprehend, even for those in the vicinity, how colossal a barrier the Himalayas are. India and China are only technical neighbours; but through a variety of circumstances, we have become competitors. In my view, the Chinese do not aspire to "defeat" India, but they do want to keep it under control, and limit its ability to nationalize and internationalize the Tibet issue. The military edge is part of a larger game, a threat that will materialize only if India drops its guard, but not much more than that.

We must not forget that China's biggest problem is internal instability. *The Economist* reports that there are over a hundred thousand insurrections each year in China, statistics which are now being admitted by Beijing. The first strategic objective of the Chinese Communist Party is survival of the Party – not of the nation. Number two, how to stave off 'the fires and the winds of democracy'? That is their greatest fear. Their real worry about India is not about what the Indian Army may do or may not do, or what our missiles may do, but what Indian democracy could achieve. Because if democracy succeeds in India, the excuses run out in China. The Chinese government is far more afraid of its own people than of Indians. So, I think vis-à-vis India, the idea that Deng prescribed – 'peace and tranquility on the border' will sustain. However, it would be a very foolish Indian Army which thought that peace and tranquility were guaranteed just because the Chinese had put their signature to a few agreed words. Nor will peace be a necessary concomitant to trade. It will be guaranteed by the commitment that the Indian Army makes to defend and protect that peace. Vigil is the price of both liberty and peace.

More dangerous is the fact that China has developed a very astute nuclear policy, in which it has outsourced the nuclear confrontation with India to Pakistan.

I tried to make one point in Jerusalem. They think of the Pakistani nuclear bomb as India-centric; and Iran's potential as Israel-centric. In geographical terms, Pakistan's missiles are not all that much further away than Iran's. The history of Pakistan's nuclear bomb is interesting: It was financed and created as an Islamic bomb. Of course that terminology is absurd; Islam does not need a bomb, or indeed Pakistan, for its security. Nor is this weapon at the potential service of a Muslim country like Indonesia. It was conceived as a Pak-Arab weapon.

What really is the problem between India and Pakistan? It is not a problem over land. If it was merely over land, the Kashmir issue would have been settled. The confrontation is an ideological one, between an exclusive faith-theocracy and a secular democracy.

Diplomats are trained to deal in 'nation to nation' relationships. It is very rare indeed when neighbours do not have problems. When Delhi deals with Nepal which is Hindu, Bangladesh which is Muslim, Sri Lanka which is Buddhist; what happens? You begin ten points on the agenda; three points you agree upon, three points you disagree about, four points you relegate to the next generation; then retire for a drink and return to your capitals and life goes on.

The dispute over Kashmir with Pakistan, that holds up progress elsewhere, is a conundrum: Pakistan demands Kashmir because it is Muslim, and India cannot abandon Kashmir merely because it is Muslim.

What is the difference between Indians and Pakistanis? This is a key question in my book *Tinderbox: The Past and Future of Pakistan.*

There is no difference between an Indian and Pakistani. So, after six and a half decades, why is one nation travelling towards a positive horizon and the other showing every sign of collapse? Indian Muslims created Pakistan to ensure their security; why has it become a country where more Muslims are being killed - by fellow Muslims - every day than in any other country? The

reason is that the idea of India is stronger than an Indian and the idea of Pakistan is weaker than the Pakistani. If an idea is proved by the logic of history to be sustainable, it will take a nation forward. What is the idea of India? The idea of India, is essentially modern. This was a true genius of our 'Founding Fathers' that they created a Constitution which sought 'modernity' as its ideological template.

Now 'modern' is an easy word to use, but what do you mean by it? I have four basic fundamental non-negotiable pillars that define modernity. One: democracy, with adult franchise. By the way, we should not fool ourselves that the British gave us democracy. The elections of 1946, in which the Muslim League captured approximately 95 per cent of the Muslim seats became the basis for the creation of Pakistan; only 11 per cent of India was allowed to vote. If the poor had been allowed to vote, I don't think the vote would have gone the way it did. The developed world, particularly British Tories, laughed in 1947 at the thought that democracy could succeed in India. No one is laughing now.

Two: modernity includes freedom and equality of faith. Our definition of secularism is not Voltaire's definition of secularism – which is separation of Church and State. We mean co-existence of all faiths as equals before the state. In that sense, China may be a successful state but it is not a modern state.

Three: you cannot be a modern state without gender equality. When Nehru was asked what was his greatest achievement, he did not say, freedom of India. He understood that freedom of India was a national enterprise. He said it was the passage of the Hindu Code Bill; which ensured equality for Hindu women. He was then asked why he had not extended the same favour to Muslim women, and he did not have an answer, except a weak one, saying that the 'time was not right'.

Four: economic equity. Contesting two elections for the Lok Sabha taught me more about poverty than my career as a journalist or as an author of nine books. It is only when you go to a constituency like Kishenganj; that you really come to know what a national humiliation poverty is. There is nothing called economic equality – but unless the poor feel that they are a part of the rising narrative of India, we have not become a modern nation. Our freedom movement began with the promise to end poverty, when

Gandhi went to Champaran in 1917. Gandhi understood that freedom has no meaning without freedom from hunger. Poverty remains our weakness, but I think that in the next ten years, we as a nation will address this curse precisely because we are a democracy.

What is the idea of Pakistan? Basically, that religion is sufficient as the basis for nationalism. The idea was the subject of much debate during the seminal 1930s and 1940s. Maulana Azad of the Congress and Maulana Madani of the Jamiat-e-Ulema-e Hind led the debate against the idea. While there were many subtleties in the debate, Azad made a clarifying observation: Islam is a brotherhood, not a nationhood; Islam is an eternal and divine concept, not a political idea that divides people. There has rarely been political unity among Muslims; Sunnis and Shias divided during the time of the first four Calilphs. If Islam was sufficient as a glue for nationalism, why would there be over twenty Arab states? They have not only religion; but culture and language also in common.

Pakistan rationale shifted from a security zone for Muslims, to a fortress for Islam. If it had been a question of sanctuary for Muslims, there could have been a negotiated Constitutional settlement. But there was no way that the Constitution of India or United India could guarantee a space which would be a fortress of a faith.

I have argued in *Tinderbox* that there is no place in the world where Osama bin Laden could have been living, except in Pakistan. Even Saudi Arabia would have apprehended him and handed him over to justice. You know the motto of the Indian Armed Forces – *'Service Before Self'*; What is the motto of the Pakistan Armed Forces? It is *'Jihad fi Sabilillah'* – Jihad in the name of Allah. It is not the Jihad in the name of Pakistan.

The idea of Pakistan has turned it into a Jelly State, to use a term from *Tinderbox*. The jelly state is a state which will neither be stable, because it will always quiver, nor will it melt away and disappear like butter. Pakistan is not going to collapse. And, because it has both fundamentalism as well as nuclear power, it will be a toxic jelly state.

Thank you.

Leadership Below Officer Level in the Indian Armed Forces*

Captain Balamurugan R Subbu**

"Leadership is a complex phenomenon, leaders are both born and made, but mostly made."

- General George S. Patton Jr.[1]

Introduction

The above quote reveals complexity of the leadership phenomenon. It is a phenomenon which comprises various personality traits like bearing, courage, decisiveness, endurance and initiative etc. Modern psychology claims that different personality traits are responsible for various types of leadership. These traits cannot be analysed in isolation. Blending them leads to an overall leadership style. A widely accepted definition of leadership describes it as 'an act of conducting, guiding and persuading'. It has been recognised that for one man to obey another with some enthusiasm, there ought to be something in common. Any individual from a group can become a leader subject to a chance given to him. It is a proven fact that these traits always form part of the overall personality of an individual. These inherent traits in a person can always be improved upon and brought out by regular training.[2]

Till recently, in the Indian Armed Forces it was a moot point that we do not have able leadership below officer level. During the period from 2000 to 2010, when induction into the officer cadre was short by 20 per cent, this weak link in our junior military leadership was identified clearly. Today, when the Armed Forces are facing shortage of young officers, do we have sufficient leaders below officer level? With the severe shortage of young officers – in units/ sub units, can we continue to employ young officers to perform all minor tasks? Why can we not employ Non

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Commissioned Officers (NCOs) and Junior Commissioned Officers (JCOs) instead, to perform these routine tasks confidently? To find an answer to this question, we need to carry out a systemic introspection. The quality of leadership below officer level is very crucial for the Armed Forces. The burden of work on young officers can be reduced by employing JCOs / NCOs for routine duties; which would relieve them for employment in more complex tasks. This essay explores the answers to the above questions.

Role of Senior NCOs and JCOs. The British Indian Army was led by British officers to uphold loyalty to the British Crown. But, the personnel below officer rank (PBOR), the natives of India, were separated from the British officers by language, socio-economic status, local customs and life style. To bridge this gap the British Army felt the need of having junior leaders of similar background as the natives. They were entrusted with some additional authority to command and control a group of soldiers during operations and peace time. In 1929-30, they were given the status of 'below officer rank', but above the natives. The authority and powers of these junior leaders were not laid down in any manuals / documents. British officers in command (in field) were privileged to employ these junior leaders according to the situation.

After 1947, the Indian Army retained the same colonial concept. It is true that the existing system is time proven and won laurels in the past operations. But, the system has failed to adjust with the changing environment. What are the factors that have led to this situation? Do our JCOs and NCOs have the ability to take decisions in dire situations? Do we impart adequate training to them to carry additional responsibilities, distinctly apart from the tasks given to them in the colonial days? Do we impart training during induction period to enhance their utility commensurate with their ability and potential? The answers to these questions would mostly be 'No'. Apart from these factors the system has some inherent weaknesses.

Weaknesses. Inherited perception and thinking led to notable neglect in upgrading the standard of leadership training of PBOR. This weakness needed more attention, especially after Kargil War. Following weaknesses have inhibited the growth of leadership

qualities in PBOR :-

(a) Age factor of JCOs.

(b) Levels of education and intelligence.

(c) Limited exposure to various situations in initial years of training and service.

(d) Aiming for personal benefits from higher authorities.

(e) Introducing regionalism, nepotism and favouritism.

(f) *'Chalta hai'* and *'Sahab se pucho'* attitude i.e. avoiding excellence and responsibility.

(g) Fear of being looked down upon among colleagues and losing face.

Organisational factors which have contributed to these weaknesses are discussed in the succeeding paragraphs.

Intake Standard. Since Independence enrolment of the Other Ranks (OR) in the Armed Forces are based on recruitment rallies and drives. No test to evaluate the qualities of character and leadership of a recruit is conducted. Later, on becoming a NCO / JCO, the organisation expects him to display leadership qualities to meet varying situations; whereas, throughout his career these aspects are ignored. Then it becomes a herculean task to train the individual to imbibe the required qualities to reach the expected standard.

Leadership Training in Service. This is an important facet of military training. Leadership training should start *ab-initio* from the recruit training stage and it should continue to be upgraded at various stages in an OR's career. Unfortunately, this aspect has been given very little attention and importance.

Reluctance in Taking Decisions. To keep their own tail clear, the PBOR always follow the principle of getting back to the immediate senior, whenever in doubt. They are unwilling to take minor decisions; and whenever they do, later they do not accept responsibility for the same. This aspect got highlighted very clearly while examining the incident, when in 2008, a JCO failed to save his ambulance from a mob in Jammu & Kashmir.

Personal Factors. As per Freud's Theory in Psychology, every individual has some personality traits which control his behaviour

in day to day life. If an individual's character and integrity are questioned, as a matter of rule, then he cannot become a successful leader among his subordinates. The recent developments in society have produced varying effects on the character of an individual. These trends have not spared the Armed Forces as well. The Armed Forces have not modified the system to check and balance the effects of these social trends, and the responsibility to keep his image and integrity untarnished, is left to the individual.

Centralisation of Responsibility. As no mistakes are accepted by the higher echelons, various authorities at the middle level do not take any chances. Even for petty jobs an officer is detailed; although the same could be easily done by a NCO / JCO. It leads to lowering of morale of both the officers and the men. A leader below officer level is not even allowed functional independence to carry out his task. To reach the stage of combat decision-making in war; a section/platoon commander (which essentially implies a NCO/JCO) has to learn to take decisions during peace time soldiering. Due to dilution of authority and over-centralisation of responsibility, JCOs / NCOs get into the habit of looking over their shoulders all the time.

Curbing Initiative. Initiative is the essence of a leader's character. This quality, amongst other important factors, helps him to come out with innovative ideas. There is a growing tendency in the officer cadre to curb the initiative of NCOs / JCOs. The NCOs and JCOs need to be groomed in a planned and progressive manner by decentralisation of responsibility.

Rigid Frame of Mind. It is said that to get an old idea out is more difficult than to introduce a new idea. The present higher echelon officers (because during their younger days the strength of officers was sufficient) believe that no OR can be a good leader. Some of them believe that only officers should be employed to accomplish all tasks. This thinking has led to neglect of the idea of imparting leadership training to NCOs and JCOs.

Remedial Measures

Reorientation of Leadership Training. Today, employment of Armed Forces is not limited to conventional war situations only. Their commitment in internal peacekeeping, counterinsurgency and

low intensity conflicts etc. has grown over a period of time. Due to shortage of young officers and unsatisfactory state of leadership standard amongst NCOs and JCOs, it would be difficult for the Armed Force to perform their enhanced tasks/role with required efficiency. Since officers would not be available to take decisions everywhere, NCOs and JCOs have to be trained to take vital decisions at lower levels of leadership. To meet this requirement leadership training for junior leaders below officer level needs modification and reorientation by initiating following measures:–

(a) **Recruitment Procedure.** Evaluation of a large number of recruits for assessing leadership qualities is a difficult task. The present recruitment procedure should include a simple psychological test to identify key leadership traits. Result of this test, in the Record of Service, would later help in selection of right individuals for nurturing leadership qualities during their service career.

(b) **Induction Level Training.** Result of psychological test should be used as a base during initial training at the basic training establishments. Firstly, a discreet check on character and leadership traits should be maintained during this phase of their training. Thereafter, the parent units should take on the responsibility of guiding individual soldiers to attain their full leadership potential.

(c) **NCO Level Training.** During the initial stage of training in the units, periodical review of leadership traits should be conducted. These reviews should highlight the positive and negative character traits clearly. At the end of about 10 years service, a formal training capsule on leadership training should be conducted to select NCOs for training at regimental centres. They should also be tested at various levels of responsibility like detachment, section and platoon. These evaluations could help in ascertaining the level of responsibility that can be given to individuals. Suitable candidates should be subjected to section / platoon level tactical exercises. Successful NCOs should be screened to assess their eligibility for promotion to the JCO rank.

(d) **JCO Level Training.** When a NCO becomes a JCO, he generally experiences a period of stagnancy in his career. At

this stage, he is neither part of a working party nor is he a working party commander. Therefore, in day to day functioning he needs to be given more responsibility, as this will give him confidence to shoulder bigger responsibilities, both, in peace time duties and as a leader during operations. On becoming a JCO, he needs training capsules on leadership so that he keeps abreast with the newly commissioned officers. Officers with adequate maturity and experience should guide the JCOs to become better leaders.

Role of Senior NCO / JCO

"No man is a leader until his appointment is ratified in the minds and hearts of his men".

– DAG Hammarksjold

The responsibilities of a NCO and JCO should be defined in doctrines / pamphlets of the Armed Forces. These should be followed in letter and spirit at unit / sub unit level. The employability of a NCO/JCO, to take on the duties / responsibilities of a young officer, should be increased. This would encourage him to take decisions more confidently. Any person who fails to meet these responsibilities should be identified, and counselled to show improvement in a given time frame, failing which he should be wasted out to maintain functional efficiency of the organisation.

Knowledge and Exposure. In modern society, anyone who selects Armed Forces as a career is well informed and educated. As he moves ahead in service and gets promoted as a NCO / JCO, he tends to ignore the importance of knowledge to develop his leadership qualities. Competence comes with knowledge because experience alone does not make a man to grow to his full potential. A NCO / JCO should be given adequate opportunities to improve knowledge relevant to his service and trade. He should be encouraged to keep abreast with the younger generation by being open to new ideas. This would enhance his ability and confidence to work with subordinates. Even as a young jawan he should be exposed to take right decisions in complex situations, as part of a detachment to carry out important tasks. This methodology will pave the way for developing his leadership qualities.

Appraisal System. The appraisal system for NCO / JCO in vogue needs revision to meet future requirements. New features should

be included to evaluate his character, professional acumen, level of initiative, willingness to take responsibility and other desired attributes. The officer cadre should ensure that the new appraisal system is fair and judicious.

Role of Young Officers. When a young officer joins the unit from the academy his interaction with men starts through NCOs and JCOs. They help him to understand the men who will follow his command in peace and war. He should establish a positive rapport with them and take care not to hurt their emotions through immature conduct on his part. Young officers should understand that the NCOs and JCOs have spent most part of their lives in the Armed Forces and are a reservoir of inherited military wisdom. He should, therefore, endeavour to help them to become good leaders by entrusting them with more responsibility. Officers critical appraisal should be directed to reinforce the confidence of a NCO / JCO. Middle level leadership in the Armed Forces should give adequate freedom to NCOs/ JCOs to perform their duties confidently.

Comparison with Other Armies

In modern armies the concept of having competent NCOs has survived; but the concept of JCO has met with moderate success. The systems being followed in some foreign armies are enumerated below :-

(a) **The US Armed Forces.** Comparing the United States (US) Army with Indian Armed Forces would be an inaccurate hypothesis. In the US Army the role of NCOs in combat is vital. As a young NCO, he is given responsibility equal to, if not more, than our JCOs. [3] The NCO would be assessed for this on various occasions (to reach this level in his unit /sub unit). His position is quite well defined in the organisation, alongwith his role, responsibilities and duties.[4] The JCO like appointments in the US Armed forces are more at the formation and administrative level. The percentage of such appointments are very low in comparison to the Indian Armed Forces.

(b) **Armed Forces of NATO Nations.** Being a forerunner to the Indian Armed Forces, most of the North Atlantic Treaty Organisation (NATO) nations are still following the concept of

JCO rank. Functioning and grooming aspects of their leaders below officer levels are very concisely explained in their tactical / operational doctrines.[5] Studying these concepts indicate where we have failed in our Armed Forces.

(c) **Singapore Armed Forces (SAF).** SAF may be smaller in size; but, there are some aspects which we need to learn from them for betterment of our Armed Forces. In SAF the concept of JCO is given very less weightage. Induction of NCOs in SAF starts with a 'Reasoning and Psychological Test' at the age of 17 to 19 years. After selection they attend three years Graduation Programme in Defence Institutes. These NCOs, being backbone of SAF, become 'Specialists' or 'Subject Matter Experts' (SME) on completion of studies.[6] These SMEs are young in age with high potential and are able to carry out all kind of tasks during operations and peace time. After 10 years of physical service SMEs are promoted to the rank of Warrant Officers (WOs) who are equivalent to our JCOs. On becoming WOs, they are mostly employed in administrative duties; unlike the Indian Armed Forces where a JCO is expected to lead a platoon in battle. This system in SAF ensures that an NCO is competent, intelligent and young to lead a platoon during operations.

Recommendations

The modern warfare is characterised by small detachment actions in specific tactical situations. In the prevalent system in the Indian Armed Forces, where the average age of JCOs is 38-40 yrs, they would not be able to cope with the physical requirements of modern warfare. To that extent, existing system needs to be amalgamated with a new system. The salient features of the proposed new cadre are as under :-

(a) **Age Profile.** Age profile of NCO/ JCO needs to be reduced to meet the basic requirements of modern warfare. With the reduction in age profile an NCO /JCO will be high in receptivity and more confident in taking additional responsibility to lead a detachment in peace and war.

(b) **Formation of a New Cadre.** Apart from the present JCO / NCO cadre, an additional stream of direct JCO / NCO

cadre needs to be formed. Basic structure of the New Cadre would be as follows:-

Age Profile   **Present System**   **Proposed New Cadre**

(Service in years)

Age Profile	Present System	Proposed New Cadre
18 Yrs	OR(10 / 10 + 2)	
		NCO equivalent (10 +2 / 10+2+3)
20 Yrs	12-18 years	
25 Yrs		10 years
30 Yrs	NCO Equivalent	JCO equivalent
35 Yrs		
40 Yrs	8-12 years	10 years
41 Yrs <		
	JCO - Equivalent	
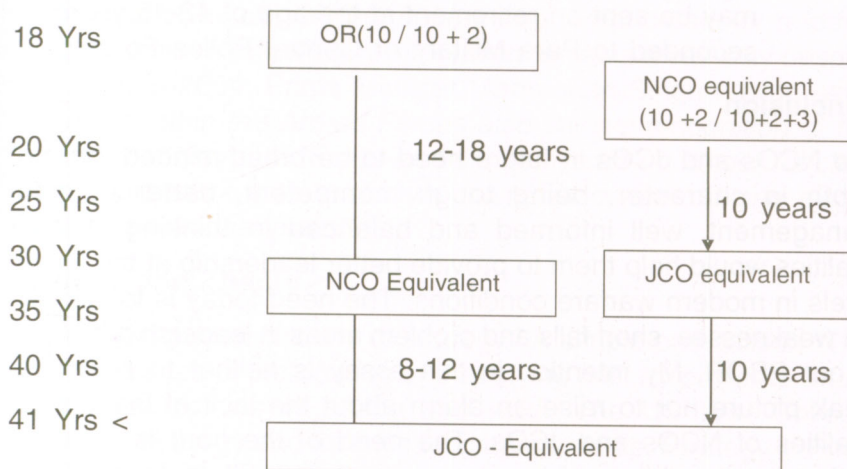
(c) **Features of the Proposed New Cadre.**

(i)   Educational qualification for the New Cadre would be 10 + 2 with preferably Diploma in Arts / Commerce / Technical field (specialisation).

(ii)   Psychological test to be conducted during recruitment.

(iii)   Grooming and on the job training be given for six months at unit / sub unit level.

(iv) Younger age profile increases the employability in various conditions for an NCO. He is more flexible and receptive during initial military training.

(v)   On completion of 10 years of physical service NCOs should be given an option to either go out of service or to get promoted to JCO rank (through selection).

(vi) Younger JCOs (30 to 32 yrs) would be more capable than the existing JCOs. As a JCO with a

younger age profile, the individual would be available to the organisation for more than 10 years.

(vii) The present ratio of JCOs in the Indian Armed Forces may be reduced. Their employability should be more in administrative than operational roles in the units.

(viii) After 15 years of physical service as a JCO, he may be sent on retirement at the age of 42-45 years or seconded to Para Military or Central Police Forces.

Conclusion

The NCOs and JCOs in future need to be broad-minded: having depth in character, being tough, competent, better in man management, well informed and balanced in thinking. These qualities would help them to provide better leadership at the lower levels in modern warfare conditions. The need today is to identify the weaknesses, short falls and problem areas in leadership training of our PBOR. My intention in this essay is neither to project a bleak picture nor to raise an alarm about the lack of leadership qualities of NCOs and JCOs. The need of the hour is to have professional soldiers; who are competent, willing to take on responsibility and do not have *'followers'* attitude of *"sahab se pucho"*. There is a definite need for reforming the system; else it may lead to failures during the hours of crises and need. This weak link has the possibility of remaining unnoticed during peace time but would get highlighted during operations. Such changes are not possible in a short time frame of one or two years. A clear plan and road map should be prepared so that we have combat ready Armed Forces, befitting our aspirations to be a great power.

Endnotes

1. Dr Rakesh Khurana of Harvard Business School as quoted in his research work 'Handbook of Leadership Theory and Practice'.
2. ibid.
3. "Field Manual - Army Regulation", www.usmilitary.about.com. Accessed on 10 August 2011.
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Evolving Military Strategy

Lieutenant General PC Katoch, PVSM, UYSM, AVSM, SC (Retd)

Introduction

Post Independence, India still does not have a National Security Strategy (NSS). Resultantly, not only has the growth and modernization of our military suffered but defence sector reforms are given short shrift. Military integration remains a casualty despite way back in 2004, Prime Minister Manmohan Singh having said, *"Reforms within the Armed Forces also involve recognition of the fact that our Navy, Air Force and the Army can no longer function in compartments with exclusive chains of command and single service operational plans".*[1]

Strategy and Theory

There are many definitions of strategy.[2] A simple one calls it, *"The art and science of distributing and applying military power to attain national objectives in peace and war".*[3] The US War College describes strategy and its critical components as: Strategy = Ends (objective or goals) + Ways (courses of action to achieve chosen goals) + Means (resources to enable courses of action). Strategic theory relates to past experiences and lessons learnt. Clausewitz had said, *"Theory exists so that one need not start afresh each time sorting out material and ploughing through it, but will find it ready to hand and in good order".* If we don't study lessons of previous wars, campaigns, and apply them to strategy, then we are likely to make the same mistakes over and over again. We failed to learn importance of navy and use of naval infantry from the Chola Empire (9th to 13th Century) and did not pay attention to our Navy in initial years post Independence. We have suffered externally sponsored terrorism for decades but have not developed requisite deterrence. Strategic theory also facilitates the recognition of own limitations. Our Parliament passed a resolution in 1994 that Kashmir is integral to India. Accession of Kashmir implies that we

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should integrate the seven regions of Kashmir Valley, Jammu, Ladakh, POK, Gilgit-Baltistan and Northern Areas of Pakistan, Shaksgam Valley and Aksai Chin. Strategic theory can tell us how this can or cannot be done and question whether we have developed required military capability.

Factors Affecting Military Strategy

Factors affecting military strategy include national interests, war duration, geography, technology, enemy war potential, influence and restrictions of domestic politics and international political factors (political configuration, strategic intentions and balance of power). International and domestic politics determine military strategy. Chinese consider geostrategic relationships, geographic elements (position, size, natural resources), human geographic elements, geo-economic relations, conflicting state interests, religious sects, alliances, strategic studies of war from various aspects and stages. National Interest is both a starting point and destination of Chinese Science of Strategy encompassing laws of war and its conduct, and laws of evolution of strategic thought.

Strategic Culture

Strategy depends on combination of military and diplomatic instruments a state brings to bear against security needs. Strategic culture refers to a nation's traditions, values, attitudes, patterns of behaviour, habits, symbols, achievements, ways of adapting to environment and solving problems related to the threat and use of force. Strategic culture can be viewed through military choices, policy or politico dynamic that is operative in India since Independence. It is an interdependent matrix incorporating all elements relevant to the nation's strategic necessity. Since political leadership largely determines national strategy, political culture is a major influence on strategic culture; a set of attitudes and sentiments that give order and meaning to political process and which provide underlying assumption and rules that govern the political system, encompassing theoretical ideas and operating norms.

Military Strategy Over The Years

The period 1947-1962 saw fighting in J&K, Hyderabad, liberation of Goa, Chinese annexation of Tibet and the 1962 Sino-Indian war. Our strategy was reactive, less in Hyderabad and Goa. Ironically, India went to UN after self imposed ceasefire in 1948

when Pakistanis were routed and retreating. More significantly, Vallabhbhai Patel's advice on China and Army's caution on Aksai Chin were disregarded. Vallbhbhai Patel's 7 November 1950 letter to Nehru which had warning of Chinese irredentism is highly revealing in this regard.[4] The 1962 directive to an ill prepared and ill equipped Army to throw the Chinese out was ill advised, besides air power was not used to support ground operations. The operation stank of political unilateralism, lack of strategic thinking, planning and vision. Period 1963-1970 witnessed some equipping and reorganization of the military, however, there was no institutionalized defence planning. During 1965 Indo-Pakistan war, for the first time large forces were employed by commanders; but we surrendered the strategic advantage of capturing the Hajipir Pass, which would have reduced future infiltration routes of Pakistani terrorists.

The 1971 Indo-Pak war which culminated in the birth of Bangladesh witnessed good military strategy on the part of India and tri-Service employment of forces. The politico-military connect was courtesy personal equation of Sam Manekshaw with Indira Gandhi. The aftermath again displayed lack of strategic thinking – despite 92,000 prisoners of war we did not solve the J&K issue with Pakistan and did not even straighten the Siliguri Corridor. During 1972-1990 in Pokhran 1 (1974), we were 10 years behind China and should have completed testing but we chose to halt and lag behind China to-date. Subsequently, we beat Pakistan in occupying the Saltoro Ridge in Siachen area and witnessed Army deployment in J&K and Punjab, plus re-engagement with China.

Then came IPKF deployment in Sri Lanka and operations in Maldives. The LTTE and political hierarchy of Sri Lanka were completely misread. General Sundarji had an equation with Rajiv Gandhi but the politico-military connect per se was still not institutionalized. Moreover, R&AW kept on working at cross purposes with the IPKF.

1991 and beyond witnessed terror upgrade in J&K, Pokhran 2 (1998), IC-814 hijack, Kargil conflict (1999), 9/11 and Global War on Terrorism (GWOT), attack on Indian Parliament, Mumbai and other terror attacks. Our strategy for internal security, particularly in respect of Maoist insurgency, remains flawed with little political content – termed by analysts "political unilateralism" with socio-political-economic nature of the problem unrecognized - reliance on security forces without effort to improve governance.

Fundamental Vulnerabilities

Our strategic policy paralysis stems from the post Independence legacy of disdain and distrust of military. Our fundamental vulnerabilities in chalking out an effective military strategy have been marginalization of military in India's defence policy making, inability to use military as an instrument of policy making, lack of institutional capacity to give defence policy a long-term strategic orientation and adhoc approach to defence acquisitions. War making and peace keeping are definitive features of any nation state but war making capacity has been systematically factored out of our foreign policy and national security matrix, eroding credibility. Culture of long-term strategic thinking has failed to evolve for lack of meaningful institutions that can effectively leverage national resources in furtherance of clearly defined political goals. India's emergence as a power is a matter of national potential that cannot be based on economic factors alone. We appear to be out of sync with rapidly changing global environment; status quo as opposed to conceptualizing at strategic level. Bureaucratic inertia prevents implementing recommendations of various committee reports. On national security issues, state institutions do not work because the government in power may not want them to work. The onus falls on bureaucracy that is not organized to think strategically, prefers isolation and uninterested in wider knowledge base.

During the Kargil conflict General Ved Prakash Malik, then Army Chief had said, "We will fight with what we have".[5] Pentagon's South Asia Defence and Strategic Year Book 2010 states, "India's policy paralysis was exemplified as in New Delhi after the Mumbai terror attacks when Indians to their horror found that due to blatant politicization of military acquisitions India no longer enjoyed conventional superiority vis-à-vis Pakistan, throwing Indian military posture in complete disarray and resulting in loss of credibility." [6] More recently, former Army Chief General VK Singh's leaked letter to the Prime Minister spoke volumes on military neglect. As to integration of the Armed Forces, General S Padmanabhan, former COAS had stated, "There is no escaping the military logic of creating suitably constituted Integrated Theatre Commands and Functional Commands for the Armed Forces as a whole." General Malik, says, "It is not my case that the Service Chiefs do not cooperate in war. Were they not to do so, it would be churlish. But in war, cooperative synergies are simply not good enough." The

Kargil conflict showed serious shortages in intelligence, inter-service and civil-military coordination, equipping etc. Little has been done to remedy fundamental weaknesses in national security set up despite Kargil Review Committee recommendations. Same problems were encountered during Mumbai terror attacks.

The security sector remains inadequately organized, equipped, funded, trained and integrated. The NSC must be able to anticipate national security threats, coordinate management of national security and engender new bold ideas. We have no National Security Strategy document for the last 65 years. No CDS has been appointed and HQ IDS is not integrated with MoD. Joint military operations are adhoc – no Integrated Theatre Commands. There is no national concept to optimize Special Forces for deterrence against non-conventional threats. Post Kargil, the message conveyed by India was that we do not have capacity to impose quick and effective retribution. Similarly, post Operation *Parakaram* message conveyed was that we are unprepared to inflict surgical strikes on terrorist camps in POK / Pakistan. While Pakistan has acquired new technologies / weapons under GWOT, we have shown little progress particularly on the indigenisation front. Army's "Cold Start Doctrine" has never been discussed at the Government level. The Army has also been talking of a two and a half front policy but the Government has never discussed it. Our defence R&D and PSUs remain un-focused and minimal private industry participation in defence sector is permitted. Debate on defence policy tends to not go beyond increasing big ticket military acquisitions without long term strategic review and without an overall defence strategy.

Threats

Besides a collusive China-Pakistan conventional threat, both are already targeting India asymmetrically including through terrorism or supporting (arming, funding, training) homegrown insurgencies. China provides tacit support to Pakistan's anti-India *jihadi* policy and has positioned PLA in guise of development workers in countries surrounding us. The coming generation of Chinese, likely to assume power in Beijing five years hence, is assessed to be much more aggressive and assertive. PLA is likely to consolidate power, increasing chances of forays across unsettled borders. Pakistan shows no signs of dismantling the anti-India terrorist

infrastructure and post US/NATO thin-out from Afghanistan. Rapidly increasing radicalization of Pakistan indicates dark times. India must also manage social change with a burgeoning population. Threats that India will face are: accelerated asymmetric war; terrorism and insurgencies; heightened China-Pak threat; conventional war in nuclear backdrop; conventional and asymmetric war overlap; and finally, a half front war internally – mishandling of which can actually make it the 'third front'.

Evolving Military Strategy

A National Military Strategy (NMS) should flow out from the National Security Strategy. The NSS (yet to be defined in our case) should logically articulate objectives, courses of action and means to achieve the objectives. The NMS is essentially a subset within the broader NSS ensuring that the military elements of national power are available to contribute to the NSS in peace and war and reviewed periodically as influenced by political and economic decisions. The NMS should define objectives, military strategic concepts and resources. India is a developing nation whose burgeoning population is likely to overtake China's by year 2030. Therefore, the central theme for most part of the 21st Century will continue to be economic modernization. Our NMS should therefore focus on:-

(a) **Objectives**. Safeguard India's sovereignty and territorial integrity; protect national interests in furtherance of national objectives; dissuade adversaries waging conflict - use deterrence / coercion; decisively repel aggression in any form; modernizing the military to ensure India's development and growth as a global player.

(b) **Courses of Action**. Optimize use of military as an instrument of national power; build military asymmetries in own favour; strategic partnerships with countries facing common threats; deny enemy controlling own fault lines; control enemy fault lines.

(c) **Resources**. Our military modernization should cater for five dimensional conflict (aerospace, land, sea, cyber and electromagnetic) with information dominance and information assurance, catering to all forms of combat (space combat, cyberspace combat, radiation combat, robotic combat, nano-

technology combat), creating fully NCW capable forces integrated with other components of national power, equipped with mix of hard kill and soft kill options including Directed Energy Weapons (DEWs), Precision Guided Missiles (PGMs), Anti-Satellite (ASATs), layered strategic air and theatre missile defence, long range expeditionary strategic forces and ability to exploit and dominate space, cyber space and electromagnetic domains.

Sun Tzu had said, *"The essence of warfare is creating ambiguity in the perceptions of the enemy."* While militarily catering for a "two and a half front", as a nation we should ensure the following:-

(a) Avoid a situation where we have to fight two external adversaries simultaneously.

(b) Create deterrence against non-conventional threats to our security and asymmetric wars.

(c) Manage internal social change adroitly, thus ensuring that the military does not have to look over its shoulder when fighting externally.

Indian military desperately needs a Revolution in Military Affairs (RMA) to address our voids, including in terms of policy formulation. Lack of politico-military inertia requires redoubled efforts to help build political will. Public awareness is required to mould national opinion and decision making. The requirement is actually for an act of Parliament to usher in RMA. There is urgent need to appoint a CDS and make the CDS / Chairman COSC permanent member of CCS and NSC besides, having permanent military staff in National Security Advisory Board (NSAB) and National Security Council Secretariat (NSCS) which should include serving military officers. HQ IDS should be merged with MoD and interfaced with MEA-MHA. Integrated Theatre and Integrated Functional Commands are required including an Integrated Special Forces Command and Integrated Cyber Command. Presently, the military does not even have common data structure, symbology and interoperable protocols. True 'system of systems' approach has yet to come. We need to accelerate integrated Command, Control, Communications, Computers, Intelligence, Information, Surveillance and Reconnaisance (C4I2SR) system, integrated communications,

network enabled platforms and exploit technologies like steerable beam, wide band / software defined radios, network security, common GIS, data fusion & analysis, dynamic bandwidth management etc. Indigenization must include critical hardware, software, telecom equipment and chip production. The leadership, both civil and military, must adapt to the changing nature of war.

Conclusion

Lack of a NSS and NMS have inhibited the rise of India, creating an environment that encourages adversaries to act askance. Continuation of such lackadaisical approach will adversely affect both our security and economy. The Naresh Chandra Committee has reinforced some of the recommendations of the Kargil Review Committee. It is high time that India accords priority to build its own comprehensive national power which should include optimizing the military potential.

Endnotes

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Procurement Strategy and Modernisation of Defence Forces

Lieutenant General Chandra Shekhar, PVSM, AVSM (Retd)*

Introduction

The aim of defence procurements (like all procurements) is to obtain for the armed forces, weapon systems and defence equipment, of the right quality, in right time, at right price. Right quality of equipment is necessary to respond effectively in war against our potential foes, to combat internal threats and to deter war. The quality of the defence equipment should be superior or at least comparable to those with our adversaries. Right time implies 'timeliness' of the weapon system at the frontline, as the procurement process whether through direct purchase or indigenous production takes time. It involves identification, acquisition, induction, training and the logistics support before deployment in the field. In case the procurement is not timely, we would again be faced with Kargil like situation where our tactical options were restricted due to lack of critical equipment.

There is little doubt that we need a streamlined procurement system, an efficient production base supported by frontline Research and Development (R&D) capability, if we have to be militarily strong to deter threats to the security of the Country. This paper examines the essentials of the procurement strategy, reviews the major reforms carried out, analyses the efforts towards self-reliance and technology induction, discusses the budgetary support, and finally suggests a few recommendations for a future strategy.

Review of Current Procurement Strategy.[1] The fact that India's defence needs are largely met by imports and only 30 per cent of our total defence requirements are provided by indigenous industry suggests that our defence procurement strategy needs a re-look. Whereas countries like China, South Korea, Brazil and Israel have become arms exporters, we remain one of the biggest arms

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importers, despite similar take-off time. Although we have developed a large defence infrastructure by establishment of 40 Ordnance factories, 9 Defence Public Sector Units (DPSUs), and 51 Defence Research and Development Organisation (DRDO) laboratories, there has been obvious imbalance in the expectations and actual performance. The main cause for this has been our over-reliance on direct purchases, setting-up licence production facilities and lack of investment in technology development, besides faulty procurement policies being pursued by officials who are not trained or equipped to manage the contracts.

We have also not been able to adapt the technologies by reverse engineering or adopt the joint production route being followed by some of the countries such as – China, Israel, South Africa, and Brazil. These countries maintain linkages with the leading arms producing countries for assured investments and technology transfer, so that arms exporters have long-term stake and incentive for successful transfer of technology and production facility. The Chinese were able to develop upgrades from the old Soviet designs for their F-7 aircrafts and T-60 tanks. The DRDO and DPSUs, although, have to their credit few world-class weapon systems i.e. Integrated Missiles Systems, EW systems and the recent Brahmos cruise missiles, there have been serious cost and time overruns in the case of Main Battle Tank (MBT) Arjun, Weapon Locating Radar (WLR), Nag, Advance Jet Trainer (AJT) and Pinaka Multi Barrel Rocket Launcher (MBRL) to name a few. We need to examine the reasons for this gap between the expectations and the performance in our procurement strategy.

The procurement strategy flows out from the National Security Strategy and is the function of the higher defence management organisation. It is a collaborative effort between the Raksha Mantri (RM), the National Security Adviser (NSA), the Armed Forces, the DRDO, Defence Production Agencies, Defence Secretary and the Defence Finance. Success lies in the professional management and 'synergy" between all the stake holders. In our procurement apparatus, there is lack of continuity as handling of high tech contracts is left to ad-hoc assembled teams, who are not experts in contract management. In the UK, there is a Procurement Executive with the Defence Minister, who has Integrated Project teams consisting of experts from various disciplines, for each procurement project, who are entrusted the tasks of development,

production, induction into the Service, maintenance and upgradation of the equipment, till it is phased-out.

In our system there is lack of accountability, diffused responsibility and lack of trust on the officials, besides over-centralisation with the Ministry. Role of arms agents, the intermediaries and the Media in the arms deals is inevitable. Exposure of corruption and scandals if revealed, should invite strict action against the guilty; rather than scuttling of the deal by blacklisting of the firms and delaying the entire procurement process indefinitely, as has happened in the import of 155mm medium Artillery guns and aviation helicopters. The other considerations of joint ventures, technology transfers, and long term partnerships' including exports of surplus production capacity should be built-in, while drawing the contracts. I recall the case of Infantry Combat Vehicle BMP factory at Medak, in 1999, where the installed capacity was not being utilised as the indigenous demands were inadequate, but the BMPs could not be exported as the export clause was not built-in, in the contract deal. We need to, therefore, examine our new procurement structure and the entire procurement process which was adopted in 2001 after the Kargil Committee Report and further updated in 2005, and revised more recently in 2011. Do we have an integrated policy planning staff consisting of professional experts in our system like the one in the UK or France? The answer is a big NO, as we seem to be happy with the status quo and obtain whatever is on offer, often saddled with items which are redundant and accept liberal scales of spares of little use.

Planning Parameters of Procurement Strategy The essential parameters and the ground realities must be factored in while formulating the procurement strategy. These are explained in the succeeding paragraphs.

Security environment is constantly changing and a wider range of tasks have to be performed warranting acquisition and deployment of new technology more quickly. Procurement process, approvals, trials and the contract finalisation are cumbersome and slow, causing long delays. It lacks accountability as well as an integrated approach and is not focussed on speedy procurement.

The sources of assured military supplies have dwindled and alternate sources have to be identified by strategic partnership or through indigenous capability. R&D effort and investments in critical

technology need greater focus. Instead of acquiring the futuristic technology we generally purchase weapon systems with the current technology, which become obsolete and have to be phased out too soon. Self-reliance effort needs to be enhanced significantly by private sector participation and modernisation of the DPSUs.

Technology denial regimes have become operative, necessitating transfer of technology (TOT) by direct purchase or joint ventures and development of indigenous technology. Over optimistic claims by the DRDO, often lead to inordinate delays, i.e. American Weapon Locating Radar (WLR) selected in 1990-91 was finally bought in 2005-6 after failed enterprise of the DRDO, affecting the operational capability, during the Kargil conflict in 1999 adversely. The need for entering into strategic partnerships for technology induction is obvious. The DRDO needs to work more closely with the Defence Forces and DPSUs to develop or obtain relevant technology.

Financial powers are highly centralised with the Ministry. There is insufficient delegation to the users i.e. Armed forces, DRDO, DPSUs, DRDO, and the Atomic Energy Commission (AEC), to develop, innovate or procure even the low technology products. While some liberalisation and delegation has taken place in case of revenue expenditure, capital purchases are stringently controlled by the Ministry of Defence (MoD). It is in the purchase of capital equipment (aircraft, ships, tanks, guns and weapon systems) that the real problem arises and needs detailed examination. Capital purchases up to 100 crores should be delegated to the users leaving only the bigger projects with the Ministry. This will enable the Services to procure urgent items and avoid situations where critical shortages, such as tank ammunition or night vision devices do not persist as was revealed recently and debated in the media and in the Parliament.

Management of High Tech Contracts. Most high tech contracts are high value items like aircraft, ships, tanks and have to meet stringent specifications and performance guarantee, besides providing long term life cycle spares back up. It is important that contracts are drawn out with care, stating performance parameters, installation details, TOT incentives for the seller, utilisation of excess capacity and the maintenance support. All this requires expertise, technical, financial and managerial competence,

evaluation and monitoring, by a team of professionals. In our procurement structure, we have an ad-hoc team entrusted with this responsibility without any permanency, continuity and accountability, and post contract monitoring.

Optimum Utilisation of Funds and Resources. All sub-systems need not be produced exclusively for the defence sector, where possible they should be for dual use, and purchased Commercial Off-The-Shelf (COTS) products. A family concept of weapons and equipment should be evolved rather than import from diverse sources. Milan, Konkurs, Malutka, anti-tank missiles of the same generation were imported from different countries and had to be phased out together without any possibility of upgrades. Similarly, wasteful deals were concluded in purchase of drones i.e. pilot less aircraft of same design at different prices by the three Services due to lack of coordination at the Ministry. It is cheaper to outsource spares and ancillaries to the private sector rather than manufacture the entire range of products in the Ordnance Factories. The DRDO should concentrate on the critical technologies rather than spread its wings too wide and fritter away its resources in low tech activities. While the money allocation for the Services has always been substantially less than their legitimate needs, there is a paradox of huge surrender of funds due to slow decision making.

Major Policy Reforms.[2] The new Industrial policy of 1991 enabled Indian private industry to grow and participate in defence production. The Kargil Committee Report on 26 Feb 2001 highlighted the requirement of reforms in higher defence management and thereafter, Government also implemented a few institutional changes. In May 2001, private sector was permitted to fully participate in the defence industry with 26 per cent Foreign Direct Investment (FDI). Integrated Defence Staff (IDS) was created for direct interaction between the MoD and the Defence Forces, however, the envisaged integration of the Service HQs with the MOD and the appointment of the CDS essential as the coordinator, and for resolving inter-service priorities has not so far been implemented. A new acquisition set-up was created in Oct 2001, to make the procurements more efficient, timely and transparent. A revised Defence Procurement Procedure (DPP-2002) was introduced from 30 Dec 2002, which was updated again in June 2003 and July 2005, to make it more efficient, transparent, expeditious and competitive. DPP has again been revised twice, but the effective implementation of the policies formulated has

been lacking because of the officials in the MoD and other functionaries.

New Procurement Structure

A new high level council named Defence Acquisition Cell (DAC) with Defence Minister as its chairman, the three Service Chiefs, Defence Secretary, Secretary (DP&S), Secretary (DR&D) and Secretary Defence Finance, as members was constituted. The planning process for defence procurements are under the overall guidance of this cell. HQ IDS, in consultation with the Service HQ formulates the 15 years Long Term Integrated Perspective Plan and 5 years Services Capital Acquisition Plan, for approval of the DAC. However, the absence of the CDS in this structure, limits integration to mere compilation of the Services plans, as HQ IDS do not have the authority to alter the priority laid by the Service HQ. Implementation of the DACs decisions on procurement are undertaken by the Defence Procurement Board (DPB), Defence Production Board and Defence R&D Board respectively. The DAC is not able to meet regularly and depends on the IDS and the DPB for their inputs rather than giving them strategic directions and long term perspective.

The DAC met recently twice within a month when faced with criticism, but what about the follow-up action, thereafter, in the absence of a dedicated body? The acquisition wing lacks the resources or the authority to monitor the induction of equipments. The DPB handles all the 'buy' and 'buy & make' decisions, as also monitors all activities related to capital acquisitions of the three Services based on the five years acquisition plans approved by DAC. The procedure for identification and approvals of the weapon systems to be inducted being slow, results in creating a bottleneck in the processing exercise. There is a case to make separate procurement boards for each service for speedier processing of the procurements.

Acquisition Wing. A Special Secretary has been appointed for all matters concerning capital acquisitions. It has four Divisions namely; Land, Maritime, Air Force and a Systems division. Each division has an acquisition manager, a joint secretary level officer, and technical manager, a service officer of two star rank. Finance Adviser (acquisition) advises Special Secretary on all finance matters.

Highlights of the DPP-2005.[3] As per the DPP-2005, upto 30 per cent direct offsets purchase, for procurement values of over 300 crores, from the Indian defence industry has been made mandatory for the overseas defence firms making the sale. Joint Services Qualitative Requirements (JSQR) are to be formulated for the equipment common to the three Services to avoid duplication. The QRs by the Services are to be made more realistic and broad based to facilitate indigenous development and avoid single vendor situations. Open tendering has been allowed for items bought through COTS. An integrity pact clause for capital acquisitions costing more than 100 crores has been introduced to ensure fair play and for refraining to engage a broker or an arms agent which apparently has made little success. Importantly, CCS is authorised to override lowest bid criteria on strategic considerations to meet operational needs. However, it is impractical to refer such cases to the CCS easily.

Kelkar Committee on Self- Reliance in Defence Preparedness[4]

In 2004, Kelkar Committee was set-up to recommend changes in the acquisition process and for enabling a greater participation by the private sector in defence production for self-reliance in defence preparedness. The first part of the report submitted in April 2005, focuses on the review of, defence procurement procedure and on integration of the users, MoD, and the industry for enhancing indigenous production, pursuing offsets policy to bring in technology and investment, exploring synergies between the private and public sectors, and promoting exports. Majority of recommendations have been accepted for implementation by the Ministry.

Second part of the report was submitted to the Ministry in Nov 2005, wherein the committee has recommended that there should be greater freedom to the PSUs and the Ordnance Factories (OFs) to form joint ventures and consortiums. This has not happened fully as an environment of faith and mutual trust has to be created by all the players and greater devolution of authority made to the production agencies, with focus on performance and accountability. DGOF and the DPSUs should also be permitted to export surplus capacity.

Technology Induction

An impetus needs to be given to the DRDO and the industry to

develop futuristic and core technologies by a collaborative approach with infusion of funds, incentives, and on risk sharing basis, followed up with joint production. The academic institutions and the private industry engaged in defence oriented technology should be provided incentives and financial support. An approach on the lines of Defence Advanced Research Projects Agency (DARPA) of the USA is recommended to be followed. Technology Development Groups (TDG) consisting of best brains from the DRDO, academic institutions, Defence Services and the Private industry should be formed to develop identified high tech system till its induction in the concerned service. Each TDG should be made to concentrate on one discipline and the concerned wing of the Defence Forces should fully identify with the TDG and encourage induction of the indigenous product by according preference over an imported system. The integrated approach adopted by the Indian Navy in the design, fabrication, trials, construction of naval warships and their subsequent upgradations, is a fine example of synergy and partnership between the Navy, the dockyards and the DRDO. Restructuring and joint partnership model has made HAL a leading aircraft facility in the country for MIG, JAGUAR, the Cheetah and the ALH, but the locations of ancillary factories at Korapet, Amethi and at Lucknow on political considerations makes little sense. We need to create hubs for ancillaries close to the main factory rather than distribute them all over to satisfy political demands.

Budgetary Support

The future direction and pace of defence modernisation would largely be dictated by the availability of funds.[5] Presently the budget is at a very modest level of 2.1 per cent of the GDP and planned at 1.9 per cent of the projected GDP ($39 billions) for 2012-13, as against over $100 billion being spent by China. The revenue budget for housekeeping needs takes away nearly 60 per cent or more of it, the remainder amount for capital procurements has to be shared between fixed repayment liabilities of already contracted weapon systems and the modernisation demands of new acquisitions. The cost of the recently concluded 126 Multi Role Combat Aircraft for the IAF is likely to be over $ 20 billion, and the 145 Howitzer Guns for the Army $ 650 million. Even this allocation is not fully spent due to slow decision making process or lack of accountability in decision making thus eroding our combat

preparedness. During the current year a sum of Rs 3065 crore, being the unspent amount from the capital funds, was surrendered by the MoD. This has to be seen in view of increased defence budgets of China and Pakistan (4.5 per cent and 3.5 per cent respectively). Enhanced funds have to be provided regularly as the weapon systems are highly expensive and procurements cannot be made in quick time, once the hostilities commence. To deter both China and Pakistan, and to maintain readiness to meet contingencies all the time, over a wide spectrum and a large geographical area of operations on the land, sea and air space, the defence budget needs to be increased to 3 per cent of the GDP.

The Way Ahead

Improving the Procurement Process and Capability. Modern wars are fought on the technological superiority of the Armed Forces. Their capability to defend the borders and provide safety and security to the Country depends to a large extent on timely provisioning of arms and equipment to them. The serious deficiencies in surveillance equipment and other weapon systems were evident during Kargil War and later in 2008 Mumbai terrorist attack. The objective of a good procurement strategy should be to deliver quality equipment faster, better and cheaper. Some of the steps for creating a dynamic procurement system are summarised in the succeeding paragraphs.

Procedural changes and restructuring by themselves will not achieve the results, unless the decision making time is speeded and there is greater coordination between the Service HQ, the MoD, DRDO and the procurement agencies. The MoD remains the key player in the procurement process and tends to shirk accountability, as the responsibility is shared by too many agencies. Contrastingly, the Peace Establishment (PE) in the UK has officers from the three Services, the technocrats and civilian officers to work in close coordination to plan and execute the entire procurement process .We need to create an integrated procurement agency, consisting of Defence Forces, scientists, management experts and the administrators to plan – defence policy, budget and weapon projects, and have a CDS, reporting directly to the RM. The existing IDS neither have the requisite authority, expertise nor the structure to plan long term perspective. What matters

finally is the will to reform and change. The new procurement structure still operates in the old environment.

In any set-up, the enforcing authority is the political leadership, otherwise the inter-Service representatives and the civilian administrators would project only their respective viewpoints. The political leadership needs to display the will to enforce with firmness the provisions of DPP 2005 and the other recommendations of the various studies. Restructuring of DRDO, DGOF and DPSUs to integrate technology development and product manufacturing under one management is long overdue, besides modernising their functions. These institutions lack professional management and must become efficient, accountable and competitive.

Technology is the basic requirement for development of high tech weapon systems. This requires joint collaboration with strategic partners to induct state of the art technology and need for encouraging exports for sustaining investments, besides larger allocation of funds for the indigenous R&D.

Development of long term partnership with defence industry is essential for self-reliance. Partnership is a two way activity built on 'trust' and the users have to accommodate the aspirations of the industry for profits, just as the industry has to meet the stringent QRs of the Defence Forces in the manufacture of weapon systems. However, partnership must be viewed much beyond procurements and profits in a larger perspective, as a shared vision and a goal to create a self-reliant defence industrial base for the Country. Defence procurement involves maintaining a judicious balance, in selecting the best equipment, at the lowest quoted prices (L1), while promoting indigenous product and ensuring modernisation of the Armed Forces to counter threats to national security.

End Notes

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Myanmar – Winds of Change and Opportunity

Lieutenant Colonel Shailender Arya*

Introduction

The winds of change are finally blowing in Myanmar, formerly Burma, a country ruled by the military junta from 1962 onwards. The changes began in 2011 when a reformist and quasi-civilian government led by President Thein Sein took office ending the five decades authoritarian military rule. While the new government aims to end its isolation and secure investment from foreign governments, this latest *democracy-in-making* is being embraced by the US and wooed by China and India. The international community, always eager in search of rogue regimes behaving well, is flocking to Myanmar to convey their approval. A string of western politicians including the US Secretary of State Hillary Clinton and British Prime Minister David Cameron have recently travelled to Myanmar. In April 2012, UN Secretary-General Ban Ki Moon made his first-ever visit to Myanmar to encourage its Government to carry out more democratic reforms and sign peace deals with ethnic rebel groups. The trip of the UN Secretary General coincided with a visit by EU foreign policy chief Catherine Ashton to open a "new chapter" of relations as European firms seek a share of Myanmar's vast untapped natural reserves.

The USA, mindful of China's growing economic, military and political presence in Myanmar, has shifted its hard-line stance. During Hillary Clinton's visit in December 2011, several initiatives were announced including removal of some curbs on foreign aid and the possibility of full diplomatic relations. The US did not have an overnight change of heart. The US interest in Myanmar should be seen in the backdrop of America reinserting itself as a key player in Asia-Pacific, becoming a counterweight to a rising and assertive China, and rallying Asian countries under the banner of

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the Stars and Stripes.[1] Myanmar will host the next meeting of ASEAN heads and the East Asia Summit in 2014 when it assumes the presidency of the body. These changes in Myanmar present unique challenges as well as opportunities for India and have the potential to transform the economic and social life of India's East and Northeast.

India's Road to Mandalay

Policy Swings

The relations with Myanmar date back to the third century BC, when Buddhism reached Myanmar from India. By the late 1920s, as the Burmese economy grew, there was an influx of labour as well as entrepreneurs from India, turning Rangoon into an 'Indian city'. However, about 400,000 Indians were compelled to leave in 1964 following the ultra-nationalist army regime coming to power in 1962. Over the years, the vacuum created by the Indians was filled by the Chinese, who rode on the military junta embracing China, post the 1988 events. Our policies did nothing to prevent it. Immediately after the 1988 pro-democracy uprising, India sympathised with the opposition, with the then PM Rajiv Gandhi coming out in open support of the movement. Incidentally, he was also the last Indian PM to visit Myanmar in 1987. Consequently, New Delhi implemented policies that gave shelter to Myanmar refugees and allowed dissidents to operate freely from Indian territory.

In 1993, India began to re-evaluate that strategy out of concern that its policies had achieved little except to push Myanmar closer to Beijing. The result was a shift in policy aimed at patching up relations with Myanmar's ruling generals.[2] Myanmar reciprocated by improving bilateral relations to lessen its over-dependence on China. In 1995, a joint operation known as *Operation Golden Bird,* aimed at flushing out United Liberation Front of Assam (ULFA), National Socialist Council of Nagaland (NSCN) and Manipuri insurgents in camps along the border with Mizoram, ended abruptly after 44 days when Myanmar withdrew its troops as New Delhi presented the Jawaharlal Nehru Award for International Understanding to Suu Kyi while the operation was still underway. In 2008, India suspended military aid, mainly 75/24 howitzers, 105 mm guns, T-55 tanks and BN-2 'Defender' Islander maritime

surveillance aircraft[3] to Myanmar over the issue of human rights abuses by the ruling junta, although it preserved extensive commercial ties which provided the regime with much needed revenue.[4] In the last few years, India has again renewed its ties with the junta and rolled-out the red-carpet, whenever the Generals came to New Delhi. Myanmar played along as it hoped that competition between the two Asian rivals will earn it a better deal for resources such as gas and access to the Indian Ocean from its shores, for which China had so far paid bottom-dollar.[5]

Look East Policy

The 'Look East' policy of India, launched in 1991, was a timely policy shift aimed at expanding Indian trade, investment and influence to the East. This policy signified the Indian hope for the idea of an Asian century but the policy was actually developed to focus on relations with its Asian neighbours after the demise of the Soviet Union. Myanmar is critical to this policy which, by the way, the US wants to become 'Act East' policy, to counter China. Myanmar is now a different country and a natural bridge between India and ASEAN – with which India hopes to achieve a bilateral trade target of US $ 70 billion by end 2012.

Myanmar is India's land link to Thailand, Laos and other South East Asian countries like Vietnam which has already given India the right to use its southern port of Nha Trang, against the wishes of the Chinese. Myanmar is thus vital from the angle of trade, transport, energy and security. However, beyond the usual rhetoric, the 'Look East' policy is yet to take a concrete shape. In 2010, the Indian government took ambassadors of ASEAN countries on a road trip from Imphal to Moreh on the Myanmar border to showcase the emerging Indian land bridge to Southeast Asia. The trip was high on talks of possibilities but the lack of physical infrastructure and the deplorable condition of the road shadowed the event. India needs to address its Northeast, unless the trucks crossing into Manipur from ASEAN countries are met with indefinite blockades which regularly plague the state or with one or the other insurgent groups collecting "taxes" on the roads.

Assistance and Trade

India's main interests in Myanmar are: to establish a land link to markets and trading partners in Southeast Asia, ensuring that

Northeastern insurgents are deprived of sanctuaries and supply lines through Myanmar and minimising the Chinese influence in our immediate neighbourhood. Further, India is concerned about Pakistan's long standing military ties with Myanmar to whom it had supplied several shiploads of ordnance and military hardware like 106 mm M-40 recoilless rifles over the past decade. India's rapidly expanding economy needs energy which demands more import of oil and gas from Myanmar. The trade between India and Myanmar is booming. Bilateral trade more than doubled between 2005 and 2010, expanding from US $ 557 million to US $ 1.2 billion. Myanmar ships mainly agricultural goods and natural resources, while India exports chiefly machinery, industrial equipment, pharmaceuticals and consumer goods.

In October 2011, New Delhi announced it was lending US $ 500 million to Myanmar to help develop projects including irrigation works. India has plans to build a 1,200 megawatt hydroelectric power station on the Chindwin River. The 160 km India-Myanmar Friendship road in Myanmar from Tamu to Kalemyo to Kalewa was completed by Border Roads Organisation in 2001. It linked Moreh in Manipur to Central Myanmar and onwards to Mandalay. Another important road project, first mooted during Narasimha Rao's government, is the Mekong-Ganga project, a road highway plan intended to connect India with five countries on the banks of the Mekong River - Cambodia, Laos, Thailand and Vietnam, apart from Myanmar.[6] The project is still in planning stage. In 2008, India had agreed to finance and carry out the US $ 110 million project to develop Myanmar's Sittwe port in western Rakhine state. The project remained in planning stage and only recently the Essar Group began work on the port and dredging the Kaladan River. By 2013, Essar will make the 225 km of Kaladan River from Sittwe to Setpyitpyin navigable. This shall enable India to ship goods from Kolkata to Sittwe, a sea distance of only 539 km,[7] where they can then travel up-river into Myanmar or to Northeastern states of India, thus improving connectivity between mainland India and the Northeast.

Rebel Sanctuaries

The states of Mizoram, Manipur, Nagaland and Arunachal Pradesh share a 1,643 km porous, unfenced and thinly guarded border with Myanmar. Consequently, almost all rebel groups of the Northeast

maintain sanctuaries in remote areas on the Myanmar side of the border. Many parts of North and Northwest Myanmar bordering India are not quite in control of Naypyidaw (the new Capital City) and are at best loosely administered. The policy of Myanmar towards Indian insurgent groups has been mixed. At times, the insurgent outfits were actively supported by Myanmar as a counter to India's support for pro-democracy activists in Myanmar, but as such Myanmar has never had an inimical attitude towards India in terms of supporting insurgent groups despite Chin, Mizo and Kachin ethnic groups being spread on both sides of the border.

In 1980, it was a 'splinter group', led by Thuingaleng Muivah, Isak Chisi Swu and SS Khaplang, which opposed the 1975 Shillong Accord, and launched the dreaded NSCN from its bases inside Myanmar. Similarly, from 1988 onwards, the ULFA started sending its cadres for advanced "military training" at the hands of the Kachin Independence Army (KIA), a rebel group in Myanmar.[8] Soon the Manipuri insurgent groups like People Liberation Army (PLA) and United National Liberation Front (UNLF) and other smaller ethnic-based groups of Kukis and Zomis had set up camps in Sagaing Division as well as in Kachin and Chin States. Despite this large number of armed insurgents on its western border, the Myanmar Army (MA) has paid lesser attention to this area compared to its eastern and northern borders with Thailand and China with the only exception being the NSCN (K) faction in Sagaing whom MA has attacked as recently as November 2009. This, however, reflects the general view that the NSCN's aim of a *'Greater Nagalim'* (including large areas of Myanmar) is a direct threat to Myanmar's national integrity.[9]

All these rebel groups obtain weapons from various clandestine sources on the Sino-Myanmar border. Some of these weapons originate in China's Yunnan province while others are made in secret gun factories in areas in Northeastern Myanmar. Myanmar is the corridor to Yunnan where a low-profile Chinese organisation known as 'Five Tigers' organises arms deal with state run Chinese companies like Norinco. Another known source is the United Wa State Army which has acted as a broker for Chinese-produced arms as well as selling weapons from their own arms factory near Panghsang on the China border.[10] India's lack of influence with China means, strategic engagement with Naypyidaw is its only pressure point in putting a stop to the arms trafficking.

In September 2011, the MA launched military action against insurgent camps in Sagaing province, before the visit of the new President Sein to India. New Delhi has often mooted the idea of a joint military operation against the anti-India insurgents who are increasingly using Myanmar as a base after Bhutan and later Bangladesh had cracked down on them.[11]

Chinese Interests

Trade and Ties

Sino-Myanmar ties have seen few ups and downs. Anti-Chinese riots erupted in the 1960s and for years afterwards China supported communist guerrillas in the Northern hills. But after the US imposed sanctions on the country, following a military crackdown on student-led democracy protests in 1988, the Chinese, with their belief *'The helmsman must ride with the waves'* stepped into Myanmar. Soon Myanmar slipped deep into China's embrace. China today accounts for two-thirds of investment in Myanmar and almost half of its bilateral trade. Most of the markets in Mandalay and Yangon are lined with Chinese-made clothes, appliances and cosmetics while Myanmar itself has become a transit point for goods produced in southern China to markets in South Asia. Since an agreement in 1988, Myanmar acts as a trading outlet to the Indian Ocean for the Chinese landlocked inland provinces of Yunnan and Sichuan with railheads of Myitkyina and Lashio in Northeastern Myanmar and the Irrawaddy River as the main routes. In 2010, trade between Myanmar and China amounted to US $ 3 billion, with some analysts putting the figure as high as US $ 4 billion. Chinese money is financing new ports, highways and dams across the resource-rich country of 50 million people. Those projects underpin more than US $ 14 billion of pledged Chinese investment for 2011-12, making China by far the biggest investor in Myanmar.[12]

However, cracks have started to appear in the Sino-Myanmar ties and today Myanmar is no longer seen as a client state of China. Thousands of illegal Chinese immigrants have moved across the border over the past ten years and taken over local businesses in Northern Myanmar, causing friction with the local population. In fact, most of the Chinese forays into Myanmar have often been exploitative – no local jobs have been created, the jade mines of Kachin Hills have been denuded while many endangered

species of Myanmar find their way to China as exotic food and ingredients for Chinese medicines. According to Srinath Raghavan, a Senior Fellow at the New Delhi based Centre for Policy Research; Myanmar's generals are worried that China's focus on resources is not creating employment. In September 2011, President Sein shocked Beijing by shelving a US $ 3.6 billion dam project, notwithstanding the hefty cancellation fee of US $ 42.5 million, which would have supplied almost no domestic electricity (sending most of it to China) and had displaced thousands of people.

Malacca Dilemma

China imports most of its oil and gas from Central Asia and the Middle East and had indicated that it intended to build a pipeline through Myanmar to avoid the potentially volatile Strait of Malacca. For this purpose, and to import natural gas from the offshore Shwe fields in the sea south of Myanmar, China and Myanmar signed an agreement in March 2009 to build a natural gas pipeline extending across Myanmar to China's Yunnan province.[13] The pipeline commences from the Rakhine coast and the construction is in full swing. This not only eliminates 5000 km of sea travel through the clogged Malacca Strait but Chinese-built ports enable Beijing to have two-ocean strategy – with access to both the South China Sea and the Indian Ocean. This will partly resolve, what President Hu Jintao in 2003 called *'The Malacca Dilemma',* referring to China's dependence on the Straits of Malacca as its primary energy transit route. The Dragon is apparently winning the infrastructure race. Indian companies, mainly Essar and ONGC Videsh, have a 30 per cent stake in two gas blocks in the offshore Shwe fields, but in 2007 Myanmar chose to sell the gas produced there to China. Therefore, the Indian companies prospecting for gas will have to use this pipeline to sell gas to China because plans to build a similar India-Myanmar pipeline have so far not materialised. The Chinese are also involved in the building of a Special Tax-free Export Zone around the port of Yangon. There are also reports that a highway linking Bangladesh, Myanmar and China is being planned by the Chinese for enhancing cooperation among the eastern countries.

Chinese Security Calculus

The Chinese Strategists see Myanmar occupying the same place in the Chinese calculus of deterrence *vis-à-vis* India in South–

Southeast Asia that Pakistan does in South-Southwest Asia.[14] Accordingly, Myanmar has now become a major recipient of Chinese military hardware and a springboard for projecting Chinese military power in the region. By late 1991, Chinese military advisers had arrived in Myanmar, making them the first foreign military personnel to be stationed there since the 1950s. China soon supplied the much needed military hardware - Type 6911 medium battle tanks, HN-5 surface-to-air missiles, Chengdu F-7M Air Guard jet fighters, A-5M Ground-Attack aircraft, SAC Y-81 transport aircrafts and Hainan-class patrol boats. China and Myanmar have pledged to share intelligence of potential use to both countries. This is of particular concern to India as China has upgraded many of Myanmar's naval facilities, with possibly Chinese intelligence personnel manning them or providing 'technical support'. These facilities include four electronic listening posts along the Bay of Bengal and in the Andaman Sea: Man-aung, Hainggyi, Zadetkyi Island and the strategically important Coco Islands which is just 30 km north of India's Andaman Islands. There is also a Chinese-built radar station on Saganthit Island near Mergui in south-eastern Myanmar.[15]

Emerging Opportunities

Whenever India shall look East, the first country is Myanmar. In the days to come, it seems probable that Suu Kyi may work within the military-ordained system with an aim to ultimately democratise it while the junta-backed civilian government will back away from China. This would create multiple trading opportunities and an immense potential for closer ties with India. Already, Yangon's roughly 170 hotels are filled with potential investors, foreign government delegations and tourists. The country is seeking to privatise its railroads and is continuing a programme to sell state-owned real estate. The Government is likely to issue licenses for car showrooms and allow the import of newer models.[16] These cars could be made in Gurgaon or Chennai, if not Guwahati. India could also set up a Special Economic Zone (SEZ) at Sittwe where there is already a presence. This SEZ shall provide an avenue for utilisation of the gas from the exploration blocks of ONGC Videsh and Essar. The power for the industries in the SEZ could be supplied from the two hydropower projects that India is involved in Tamanthi and Shwezaye.[17]

While possibilities are immense, lethargy can be costly. China is already in the process of creating extensive dual-use transport and economic connectivity infrastructure in Myanmar. India needs to counter this by a string of non-exploitative investments while engaging the Myanmar government not to grant any projects to the Chinese firms or citizens in the area West of Irrawaddy River – the Indian 'red line'. Similarly, India may enhance its defence cooperation with Myanmar and insist on MA evicting Indian insurgents from its soil. The loss of sanctuaries in Northwestern Myanmar would be profound considering that the insurgent groups have already lost safe havens in Bhutan and Bangladesh. Though India is widely regarded as an emerging power; but for India to be taken seriously, an essential prerequisite is that it should command influence and respect in our neighbourhood. While India cannot do much in respect of inducing changes in the hardened policy orientations of China or Pakistan, Myanmar presents emerging opportunities.

Conclusion

India has a unique opportunity in Myanmar. India has long seen merit in engaging rather than proscribing Myanmar and, therefore, the Indian gestures towards Myanmar have been met more than half-way by Myanmar. When the deadly tropical cyclone Nargis hit Myanmar in mid-2008, the US packed its first relief convoy with Marines which promptly made Myanmar turn down the offer. In contrast, the Indian medical teams, even though drawn from the military, were allowed to venture deep into the country and requested to extend their stay. Today, both the crucial players – the generals in civilian clothes and Suu Kyi who went to school and college in India – look towards India for something more than counterbalancing China. Therefore, India needs to embrace the changing Myanmar and engage the various stake-holders, besides initiating Myanmar in the folds of SAARC. The US $ 110 million Sittwe Port and transport hub which India is building on Myanmar's West coast is still unfinished while China has finalised plans to build a much larger deep-water port at Kyauk Phyu just a few miles away. While we cannot build it overnight, for a beginning, the pot-holes on the road to Moreh can be filled.

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Requirements of Geospatial Intelligence for Tactical Networked Systems

Colonel Kulbhushan Bhardwaj*

Introduction

During the First Gulf War in 1991, the world watched with abated breath the dawn of a new era of warfare. The impact of Revolution in Military Affairs (RMA), along with the emergence of smart Information & Communication Technologies (ICT), took war fighting into a new domain. This new era of warfare has been christened as the Network Centric Warfare (NCW). This term was not in use when the First Gulf War happened, but was coined later to showcase the dawn of a new era in warfare.

Today, militaries the world over are in various stages of development or implementation of various 'networked systems'. These 'networks' will fight the wars of the future, as is being propagated by the protagonists of NCW. The Indian Army (IA) too has taken up this tectonic shift from the platform centric method of war fighting to war fighting in the NCW domain. Since the Geographic Information Systems (GIS) will form the backbone of all networked systems, Geospatial Intelligence (GeoInt) will assume great importance for waging and winning wars in the NCW domain.

A Typical TNS Architecture

In the NCW domain, networks are the building blocks of any army's network centric war fighting capability. These networks include a gamut of stakeholders on the battlefield – from the individual soldier to the strategic/national level decision makers. In any networked army, all the components of the Tactical Networked System (TNS) will interact with each other for waging wars in the NCW domain. The components of any TNS will vary from nation to nation and

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will be tailor-made to serve the military doctrine of that nation. As I see it, every TNS will have the following main components:-

(a) **Network Security Layer.** The data being used in the network will be classified, as it will pertain to the operational matters. Hence, there is a requirement of having a security layer wrapped around the network to cater for the security aspects of the TNS. This layer will incorporate various cryptographic technologies to ensure the security of flow of information.

(b) **Combat Components' Sub-Networks.** Each combat component of the army (like infantry, artillery, armour, etc) will have a network of its own, which will be a sub-network of the overall TNS. These sub-networks will mesh together at various hierarchical levels – from a fighting unit to a divisional or corps headquarters.

(c) **Logistics' Sub-Network.** Logistics form the bedrock of sustenance for any military operation. To meet the logistic needs of the army in war, there will be a logistics sub-network catering for operational logistics. The data in this sub-network will aid the decision makers in planning the logistics in support of the operations.

(d) **Decision Support System (DSS).** In order to aid the decision makers at various hierarchical levels to optimally perform their role in a NCW environment, it is imperative to have a DSS. This DSS will incorporate various decision support aids like soft computing techniques, algorithmic iterations, mathematical functions, etc to constitute the decision making cycle of the user.

(e) **GIS.** The GIS will be the core of all the other sub-systems. As all military planning is done on maps, in the NCW domain, all military planning will be done on digital maps aka GIS. Therefore, GIS will be the essential ingredient of any TNS. Ergo, the data granules comprising the GIS will assume critical importance. These data granules will comprise the GeoInt.

(f) **Control Hub.** This hub will be the control centre of the TNS. All the communications and data flows will pass through

(logically, not physically) this hub. The decision makers of the TNS will work through this hub. Ergo, this part of the network will become crucial to military operations. Other networks of the nation may be connected to the TNS through this Control Hub.

The TNS will therefore encompass all the components of the army. The virtual world of NCW will, therefore, be a mirror image of the physical world. The only difference being that the, 'combat power' – of the army in the NCW dimension will be an exponential factor of the information flowing through its veins. Therefore, information - and hence axiomatically GeoInt – will become the critical factor for success in battle. After having seen a typical TNS, let us now understand GeoInt.

Meaning of GeoInt

GeoInt has been defined as "the exploitation and analysis of imagery and geospatial information to describe, assess and visually depict physical features and geographically referenced activities on Earth".[1] GeoInt can also create a Common Operational Picture (COP) of a specific area by effectively using multiple and advanced sensors, multiple types of data and information (including operations, planning, logistics, etc), as well as multiple intelligence disciplines to present a comprehensive visual depiction.[2] GeoInt also includes information on weather, order of battle, intelligence reports and other forms of intelligence.[3] The term has been used widely throughout the world interchangeably with the term Geographic Information (GeoInfo) without any major change in its import.

Importance of GeoInt in TNS

In any military operation, credible and actionable real time information is a vital ingredient of planning. The same holds true in NCW also. And since the GIS forms the heart of any TNS, therefore a good GIS will result in a good system and vice versa. GeoInt, being the atomic granule of GIS, thus assumes critical importance. Any GIS of any TNS will have Geoint at its core. The quality of the data in the core – GeoInt - will determine the efficacy of any geographical intelligence. In TNS, all the plans will invoke the GIS on a regular basis. There will be linkages in the Data Base (DB) between textual data and GIS data. Data will be traded as per the queries/operations performed by the user. The quality

of the GeoInt will, therefore, have a great bearing on operational planning. GeoInt will help the user in the following:-

(a) Unmasking the enemy's intentions.

(b) Formulation of sound responses by own forces.

(c) Fructification of sensor-to-shooter concept.

(d) Provision of decision support to commanders at all levels.

(e) Maintenance of DB of enemy terrain and to decipher any changes in his operational plans.

(f) Sharing of real time information with other national agencies in times of natural disasters.

Requirements of GeoInt for TNS

There are a number of features available in any commercial GIS today. Apart from these inherent features – like buffering, network analysis, geo-referencing, 3D fly through, etc - in order to ensure a high quality operational planning and to meet the users' aspirations, the GeoInt and GIS will need to have the features as given in the succeeding paras.

Large DB For Various Operational Exigencies. In order to fight a victorious and short duration war using networks, any TNS should have a large DB of the orbats, doctrinal templates, satellite imageries and Unmanned Aerial Vehicles (UAV) clippings of the geographical regions of the adversaries, to ensure the availability of requisite data for operational planning. In the case of IA, as it is getting involved more and more in operations that are likely to fall in the realm of Fourth Generation Warfare (4GW), with ongoing insurgencies in Kashmir, Northeast India and the rise of Naxalism, the involvement of IA in more and more of these kinds of operations is only likely to increase. Therefore, it is imperative that a major portion of the GIS DB of TNS of the IA should have adequate DB for fighting such wars (i.e. it should have DB for internal geographical areas as well). Again, in the present geopolitical situation, operations of the IA are likely to be restricted to the sub continent only. However, in the near future, operations with allies or under the aegis of the UN cannot be ruled out. Hence, adequate geographical data about areas where such operations are likely, must be gathered. This will transform the DB into "Knowledge Bank".

Met and Almanac Data. The TNS will be used to arrive at operational plans and, will therefore, need to have a DB of met and almanac data of the envisaged areas of operations. This DB will indicate mundane but critically important questions like the moon phase on a particular date at a particular place, wind patterns in a given area, onset of spring and neap tides on shores, chances of rainfall/storms during a particular time period, et al. This data will need to be regularly updated. This data will be utilised for selecting the time of attack, areas of nuclear fallout based on wind patterns, and other such military decisions/analyses.

Accurate and Authentic Dynamic Data. Dynamic data is the data which is fed by the users and is regularly updated by them. This data is the basic user data present in the GIS, the onus of which is on the users. The dynamic data has to be accurately fed into the DB, first initially and then as and when the changes occur, to keep it updated. This DB has, therefore, to be updated on a regular basis, by the users. Inaccuracies will lead to faulty planning and resultant avoidable setbacks on the battlefields. In order to ensure fruitful data updation in the DB, suitable software algorithms have to be used to ensure that the user gets what he wants for his operational planning.

Multi Sensor Data Fusion (MSDF). As the TNS of any nation gets enlarged in its scope, in due course of time, there will be a plethora of sensors/agents who will be giving such information. These sensors will be in the form of electro optical sensors, acoustic sensors or visual or electronic line of sight sensors. Therefore, there is a need to have suitable algorithms for fusion of data from multiple sensors. This fused intelligence will then be displayed on the GIS to ensure better decision making by commanders and staff. MSDF, therefore, assumes critical importance in any TNS.

Preclude Information Overload. With a plethora of electro optical reconnaissance and surveillance devices mushrooming on the battlefield, all future wars will have more transparency in real time. These sensors will send their feed to their respective owners. However, it will also lead to information overload at various hierarchical levels of the TNS. GIS of the TNS should, therefore, have adequate in-built flexibility to sift through mountains of information to provide real time decision support to the commanders at various levels. This implies having strong algorithms with apt human interfaces in the overall workflow of the GIS.

Incorporation of Doctrinal Templates. If the TNS is designed to handle intelligence problems, then the system should have suitable Intelligence Preparation of Battlefield (IPB) modules in-built. Therefore, there is a requirement to have doctrinal templates of the enemy/insurgents being stored in the DB of the system. This will enable better decision support to commanders at various levels. Again, the regular updation of these templates based on the enemy's changing thinking and dispositions assumes vital importance.

Enhanced Data Mining Techniques. There is a need to incorporate enhanced data mining techniques to analyse apparently inconsequential activities of the enemy in an area and then throw up a possible pattern in its doctrinal or operational thinking. This will enable the users to identify the relationship between any changes in the enemy's deployment patterns in the exercises and actual operational concepts of the enemy and modify own operational plans accordingly. Presently, in many a GIS, this facet is neglected. But this facet is of immense importance during peace time for operational planning. A strong data mining algorithm is, therefore, obligatory in any TNS.

Data Reuse and Preservation. As the volume of data being generated will increase due to prolonged usage over a period of time, there will be a need to preserve this data and reuse it intelligently at a later stage. Therefore, there is a dire need for data reuse and preservation. With the data being acquired so quickly, there is a tendency to ignore or postpone the creation of metadata or indexing of the source material.[4] Therefore, the GeoInt being used in the TNS should have adequate algorithmic checks incorporated to ensure cataloguing, indexing, preservation and reuse of data.

Interoperability. To meet the specific demands of the various components of any army – combat and logistics – it becomes imperative that different platforms are used for respective sub-networks. As these sub-networks get meshed together in the TNS and have to communicate with each other, interoperability of data assumes critical importance. This interoperability is of three types:-

(a) **Semantic Interoperability.** This will ensure that when the one user queries "list all the jungles in the area X" and the other user queries "list all the forests in the area X", the

system throws up the same answer. As the scope of the networks is enlarged with other players becoming stakeholders in the network, this will assume vital significance.

(b) **Structural Interoperability.** This will imply uniformity in the metadata (like coordinate system, resolution, etc) and the schemas involved. Suitable programming techniques should be adopted to solve the problem of structural interoperability. Various software solutions already exist in the market to incorporate this capability.

(c) **Syntactic Interoperability.** This deals with the file formats, data formats etc. If two subsystems store the same data with different syntax, then there will be a problem when they try to exchange that information. There is thus a need for the development of specific GeoInt ontologies and standards. Open Geospatial Consortium (OGC) standards are a step in this direction.

Change Detection Module. This is complementary to the temporal queries being performed by the system. As various sensors will gather data about an area over a period of time, it becomes imperative to have change detection software being incorporated in the GIS to ensure that subtle changes in terrain features (natural or man-made) – if missed out by humans – are detected by the software. A powerful change detection software incorporated as the integral part of the GIS module will have exponential payoffs in the DSS of any TNS.

Common Symbology. In order to depict the same data on the GIS, there is a requirement of having a common symbology platform for different types of users. In the absence of a common symbology, exchange of marked overlays between disparate systems or within the different sub-networks will be problematic and will hamper smooth operations.

Automate Routine Cognitive Tasks. A lot of routine tasks that presently require human interface should be automated by the GIS of the TNS. These will include, say, selection of helipad sites, selection of suitable radar and gun deployment areas, etc. Most of these problems are based on the terrain features and a given set of parameters. Hence, a powerful GIS will have adequate tools to ensure automation of such routine cognitive tasks. These then

should be bundled together in a module of the GIS for better user-interface.

Dynamic Maps. Presently, only digital maps are being incorporated in the GIS. However, there is a need to depict spatial and visual data through animated symbology and cartographic designs. This assumes importance in the light of the fact that many clients will have variable connectivity, dictating the amount of information that can be efficiently delivered and visualised. Hence, the need for middleware that performs optimised filtering of GeoInt for content delivery, based on the end user's connectivity and visualisation environment[5] – from any hierarchical formation headquarters (say a corps HQ) to a battalion – becomes imperative.

Scalability + Zoom. Ideally, the scale and clarity of the map should remain the same when the user zooms closer, with the point of zoom staying in focus. This would entail a large amount of metadata and attributes being captured and is thus a highly painstaking, but imperative, work. Current systems, however, merge the two features and therefore, when the user zooms closer to the point of focus, the view scale also changes.

Predictive Interaction. Presently, the GIS opens the same type of GIS map for all the users. However, there is a need to incorporate interactive models to include implicit predictive interaction based on a user's past activities over a period of time[6]. This will ensure that, for e.g., a map of scale say 1:50,000 is opened (as a default by the system) for the artillery user; of scale 1:10,000 for infantry user operating in urban terrain; of scale 1:250,000 at corps level; and so on.

Miscellaneous Issues

Apart from the integral requirements of the GIS of the TNS as discussed above, there are a plethora of other issues which if addressed suitably by the appropriate policy making or designing authorities will go a long way in ironing out the wrinkles of the GIS enabled environments of any army including IA. These are highlighted as under:-

(a) **OGC Compliance.** The GIS being selected by various sub-networks of the TNS should be OGC compliant to ease interoperability issues at a later stage.

(b) **Standardised Attribute Tables.** The attribute tables being used should be standardised to a common format to ensure seamless integration of various networks.

(c) **Metadata Repository.** A metadata repository needs to be created to store the metadata of the data being used in the sub-networks. This will enable authentic data updation on a regular basis. Again, in the case of India, National Spatial Data Infrastructure (NSDI) Metadata Standard should be complied with for creation, formatting and storage of all metadata of the GIS being used in the TNS.

(d) **Conform To Policies.** The softwares, data and maps being used should conform to various policies – like map policy, GIS policy, etc - being laid down by the Government and/or the IA.

Questions GeoInt aka GIS Will Answer

We see that the requirements may appear as all encompassing today and all may not be available in the systems of today. However, with emerging technologies and evolution of TNS, it is better for us to crystal gaze in the near future to cover the silhouettes of the TNS, say five years hence. For a military user, the GIS could answer many questions and aid in decision support. Some of these questions are as under :-

(a) What are the details of the terrain in my area of operations?

(b) Based on the movement of troops and convoys during adversary's mobilisation practices, exercises, etc has his doctrine undergone any major changes?

(c) What are the road and railway routes available for mobilisation? What are the choke points en route and the detours available?

(d) Where are the likely helipads, gun areas, dropping zones?

(e) What is the moon phase on a specific day?

(f) Where are the mobility corridors and avenues of approach in the area of operations?

(g) What is the dead ground or blind areas for my guns and radars?

(h)   What is the line of sight from place X to place Y?

(j)   What are the villages and towns with a specified set of parameters?

(k)   Where are the defiles and forested areas along a route / in an area?

Conclusion

In order to win the future wars, in the backdrop of NCW, GeoInt (and thence GIS) becomes an important ingredient of combat power. Hence, identification of the correct requirements of GIS today will enable a better TNS for any army tomorrow, thereby leading to a quick victory in a 'virtual' war. It is, therefore, morally obligatory for any military user to fulfill the requirements of GIS to obtain optimum benefits from the TNS. Once these are identified and thereafter, implemented in the TNS, victory in the NCW domain will have inched closer.

As various networks are mushrooming in the IA as well, it is an operational imperative to have apt designs of the varied GIS enmeshing with the correct GeoInt data, to ensure that we have battle winning systems in our inventory, a few years from now.

Endnotes

1.   Geospatial Intelligence Basic Doctrine, Publication 1-0, published by National Geospatial-Intelligence Agency (NGA), September 2006, page 5.

2.   Ibid, page 5.

3.   "Priorities for GEOINT Research at the National Geospatial Agency", published by National Geospatial Agency (NGA), February 2009, downloaded in PDF format from http://www.nap.edu/catalog/11601.html, accessed 03 June 2009, page 10.

4.   Ibid, page 49.

5.   Ibid, page 41.

6.   Ibid, page 45.

India's Option in Space : Militarisation, Weaponisation or Weapons Free Space

Wing Commander RK Singh*

Introduction

Asia is the continent where the "Balance of Power" is shifting in 21st century, slowly but steadily. The era of Mackinder's Heartland Theory,[1] which ensconced "The Geographical Pivot of History" is over, as is evident from the economic meltdown in Europe. The economic recession hit the world in general and Europe in particular, but the two emerging Asian powers, i.e., China and India continue to defy recession and infact, have been registering economic growth. This has resulted in a major shift in the world politics, wherein the Asian powers are being engaged in world politics purely on the strength of their economic power. This has marked a major shift in geo-politics, leading to creation of a New World Order, based on the economic power. China has indeed emerged as a new power centre in the new Economic Order, closely followed by India. The GDP of both these countries is on the rise, and thus the resultant consolidation of Military Power through Economic Power. Thereafter, it is natural for both these Asian countries to project their power (economic, technical and military) to further consolidate the Balance of Power in the New World Order.

The technological prowess of both these Asian powers has manifested remarkably in the area of space technologies, which have been the central pivot around which the economies of these two Asian powers have registered remarkable growth in the 21st century, despite economic recession worldwide. Be it usage of cell phones, internet, navigation (land , sea and air), telemedicine, disaster management, ATM machines, distant education, met forecasts, and many more such technology driven services, all are so heavily dependent upon satellite based technologies. Hence, there is a renewed commitment for both India and China to continuously explore new ways to exploit space technologies.

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Indian Exploits of Space

From modest beginning of firing of rockets from Thumba Equatorial Rocket Launching Station in 1963 in Thiruananthpuram, for collection of meteorological data to launching of indigenous RISAT-I on 26 Apr 2012, India has come a long way in satellite manufacturing and rocket launching. Today, India boasts of successful launch vehicles like PSLV for LEO and MEO satellites and very soon GSLV-III for GEO satellites. The success and reliability coupled with lowest launch cost in the world market has put India in the most sought after position for commercial launch of satellites. Be it the US, the most advanced space faring nation or the third tier space operating nations like Israel, South Korea and others, there is a huge market for satellite launch. India, with its successful launch capability and a proven track record of PSLV has started reaping the benefits of space commerce in the satellite launch segment.

Today India stands in league with most advance space faring nations of the world like the US, Russia and China. It is a matter of pride for the country that today its launch capability finds trust in international market and countries are lining up to avail the satellite launch facilities. As regards satellites, India boasts of having the best and the largest number of remote sensing satellites in orbit. Besides, the country has done wonders in the communication, weather and navigational satellites. The second decade of the 21 st century also saw the advent of spy satellite in form of RISAT – I on an Indian rocket PSLV- C19. But for the international sanctions, India would have been in the forefront of space exploitation at par with the US, Russia and China.

Moving ahead with élan, India launched a road map for space activities and finalised a blue print in the form of Vision 2020 for space. This document has outlined many ambitious space projects for ISRO, which when achieved will put India into the elite group of space faring nations. This will also enable India to utilise space in the best possible way for not only trade and commerce, but also for strategic and tactical planning.

Military Leaning of Indian Space Programme

"Operation Desert Storm" for the first time saw extensive use of space based assets by the US forces to launch a blitzkrieg against

Iraqi forces and win a short and swift war, with bare minimum loss of life. Because of extensive use of space based assets during this operation by the US forces, this war has also been described as the "First Space War".[2]

Attributing much of the success in Kosovo success to the U.S.- led coalition's use of space-based assets, Sqn Ldr KK Nair, an IAF officer who specialises in space studies writes:

"While Kargil was characterized by lack of information in all aspects ranging from intelligence on enemy locations to targeting information, weather inputs, etc., Kosovo was characterized by a surfeit of space-based military information for the coalition forces which paved the way for nuanced application of military power and consequently decisive success in battle".[3]

Learning from the experiences of Kargil War and appreciating the exploits of space technology by the US and NATO forces in Iraq/Kosovo, the Indian scientific community and the defence establishment embarked upon a path to consolidate the existing space technologies in line with the US and European nations and have started incorporating the same towards fine tuning their tactical and strategic plans. The Indian space programme which was dedicated all these years for social and development causes saw a new utilisation for armed forces. This beginning of satellite usage by Indian Armed Forces towards military application is the starting point of the military leanings of Indian Space Programme.

The launch of RISAT satellites was a step in the military exploitation of space technology. IBN Live reported on Apr 20, 2009, after the launch of RISAT-2 "The Indian Space Research Organisation successfully launched a revolutionary spy satellite that will help security agencies monitor the hundreds of mountain valleys that connect India with Pakistan and terrorist hideouts in Afghanistan further north. RISAT will enable India to keep a watch on terror camps, military installations across boundaries, missile sites and similar targets of strategic/tactical interests. But unlike previous remote sensing satellites, RISAT is the first with synthetic aperture radar (SAR), which gives it a day-night, all-weather snooping capability". [4] Though, RISAT-2 was designed by the Israeli Aerospace Industries, RISAT-I (with perceived military role) having 24X7 all-weather capability was launched on 26 Apr 2012

with totally indigenous effort. Thus, India proved its technological prowess in space technology with the launch of its indigenous RISAT – I satellite atop PSLV - C19 launcher. Mr N Gopal Raj stated in "The Hindu" after the launch "The RISAT-1's radar will be able to see through clouds and work in darkness, conditions that hamper optical satellites." [5] Infact Indian news channel aptly highlighted the RISAT- I as "RISAT-1 has day and night viewing capacity and will not be blinded by cloud cover. It will orbit the earth 14 times a day. It gives India the ability of continuous surveillance."[6]

Thus it is visibly clear that India is slowly and steadily moving ahead towards militarisation of space. Few of the planned military exploits of Indian space assets are as follows

(a) **Dedicated Naval Communication Satellite** for secure and dedicated communication network for Indian Navy, which is planned to be launched in 2012-13" [7] This dedicated communication satellites for Indian Navy will be providing real time data from multiple sites. This project entails inter-connection of weapons on board all its warships. In the first phase, 20 warships have been selected and work has already begun. [8] This is aimed at achieving awareness of the maritime domain and network-centric operations.

(b) **GAGAN (GPS Aided Geo Augumented Navigation**). An indigenous navigation constellation is being developed for navigational use by Airport Authority of India (AAI) for safe operation of aircrafts in the Indian region (the Indian sub-continent and the Indian Ocean) and Air Surveillance / Air Defence control over Indian skies. This will be a part of the Satellite-Based Communications, Navigation and Surveillance (CNS)/Air Traffic Management (ATM).

(c) **All Weather ISR Capability through RISAT-I and RISAT-2** To assist Armed Forces in assessing battle field scenario and operational planning. This will bring our Armed Forces closer to net centric warfare.

(d) **Dedicated Encrypted Communication.** A facility for secure defence communication.

(e) **Weather Forecast for Tactical Missions** To provide real time satellite imageries for planning operations, which can be readily made available to the operators in the field.

Fear of Sino - Indian Competition in Space and Possible Confrontation

According to Zhang Jianheng, deputy general manager of the China Aerospace Science and Technology Corp (CASC), "China launched 19 satellites, an orbiter Tiangong-1 and Shenzhou-8 spacecraft with 19 Long March rockets last year, a record high for China's space programme in launch numbers." China has surpassed the US, which completed 18 launches in 2011, to become the world's number 2 in terms of launch numbers following Russia's 36 launches. He further, added " in 2012, China has planned 30 satellite launches with 21 rockets." [9]

Compared to China, the Indian space programme is no where close, hence there is no Indian competition to the Chinese achievements in space. With China having tested ASAT weapons and also having achieved the distinction of manned space flight and spacewalk followed with launching of its dedicated spaceship "Tiangong-I " and unmanned docking of same with Shenzhou-8 spacecraft, India by no means is a match to Chinese space capabilities.

However, there is a competition between India and China in the field of commercial launch of satellites. Both the countries have fairly successful launch vehicles. The Chinese Long March and Indian PSLV are the workhorses for commercial launch of satellites. Since the launch cost offered by them is much cheaper for the other space faring nations, there is a competition building up between the two in order to consolidate the commercial launch market, which is a very lucrative business and of late is turning to be a potent tool for diplomacy directed towards the space "have not's". However, this is not likely to conflagrate into a space confrontation between the two Asian neighbours operating in space.

Indian Vulnerabilities

The geographical location of India and the region's geo-politics necessitates the Indian establishment to analyse the existing threat perception in the realm of space and accordingly device ways and means necessary to negate the threat and ensure the fulfilment of national objectives. Restricting the scope of threat in this paper to space assets only, it will be prudent to club the Indian vulnerabilities in two basic categories

(a) Against Chinese ASAT Threat

(b) Against missile attack emanating from China or Pakistan

Against Chinese ASAT

Amidst hundreds of space activities going on relentlessly, one specific incident on 11 Jan 2007 in space, which took the world by surprise, was the shooting down of an ageing defunct weather satellite. This was China's first successful direct ascent anti-satellite (ASAT) weapons test, launching a ballistic missile armed with a Kinetic Kill Energy vehicle to destroy the one of its own defunct Fengyun-1C weather satellite at about 530 miles up in low earth orbit (LEO) in space. This unannounced testing of an ASAT was of specific relevance to the Indian space community and the defence establishment, as the Indian satellites, which have become the mainstay of economic resurgence, were never so vulnerable to the Chinese ASAT.

This one incident was a game changer in the strategic planning of India. It compelled a new philosophy in Indian thinking about management of space assets. The incident compelled the Indian space scientist and strategists to prepare for

(a) The security of defenceless satellites which are so vulnerable in their orbits.

(b) Evolve ways and means to safeguard the satellites in orbit.

(c) Develop an Indian ASAT in response to the Chinese ASAT threat.

The palpable fear of competition and confrontation with China compels the Indian policy makers to rethink about their space programme meant only for peaceful and social causes for the civilian populace of the Country. Instead, the available space based technologies are being incorporated towards militarisation of Indian Space Programme and to certain extent towards weaponisation as well. Now that the Chinese have already carried out the ASAT test, the Indian response to it should be a natural choice, especially when the Country is getting more and more dependent on satellites for the economic development. If India needs to secure its space assets from Chinese threat, the Indian ASAT programme is the only option to create a deterrent for Chinese, in the form of a

counter weapon. Though this is likely to push India and China to a possible "Space Race" towards weaponisation, but that is almost inevitable.

Against Missile Attack from China or Pakistan

The present political and existing strategic challenges have forced India to prepare against "two pronged threat", both from Pakistan in West to China in the East. Both these countries pose a threat to Indian security by having placed a plethora of missiles already aimed at various strategic assets in India. It needs to be analysed that the time factor in respect of missile attack from Pakistan or China could be 3 to 10 minutes for SRBMs to IRBMs. This means that there would be very little time to detect such launches, track the missile in its trajectory and extrapolate the intended target, pass the inputs to the "anti-missile battery system" and the targeted population; and finally the launch of ABM and take missile raid precautions. Such capabilities can be provided by incorporating satellite based technologies. The development of limited BMD system by DRDO is a step in the right direction for comprehensive missile defence of India's strategic assets.

Indian officials have indicated that they want to deploy a working missile defense system by 2012. DRDO Director General V K Saraswat commenting on the Indian BMD stated that "the only part that remains to be developed is the interceptor missile." [10] As per Mr Saraswat, there are two phases to India's intended ballistic missile program: the first phase is planned to intercept target missiles with ranges of upto 2,000 kilometers via "exo-atmospheric, endo-atmospheric and high-altitude interceptions," while in the second phase, India will strive to be able to intercept target missiles with ranges of upto 5,000 kilometers, which potentially could give India the ability to intercept intercontinental ballistic missiles." [11]

Options for India

In the emerging scenario India cannot afford to escape from developing a credible ASAT capability, keeping in view the large fleet of satellites it operates and the belligerent Chinese approach towards India, especially after the ASAT test. Thus to defend its space assets, India has to take two essential steps

(a) Militarisation of Space.

(b) Weaponisation of Space.

Since both the above activities, militarisation and weaponisation , are technology driven, they require extensive R&D and a long time span for incorporating the same in formulating requisite mechanisms towards safety of Indian space assets. It has to be both, defensive and offensive in nature, thereby according not only protection to our space assets, but also the means to also launch counter offensive operations, if challenged. Only when such a capability is achieved, can India claim its place amongst the space faring nations, with credible and formidable offensive and defensive capabilities to defend its space assets and can thus be instrumental in fostering stability in the region.

Once the efforts towards militarisation and weaponisation are accomplished, which is inevitable, the two Asian space players will have no choice but to start the only available option of negotiations for "weapon free space". However, this move of weapon free space will not be an easy way out in the complex space cobweb woven by different players based on their national strategies. The UN intervention will therefore be inevitable and necessary to manage "weapon free space" for lasting peace on earth. Hence, there is an urgent need for the UN to intervene at this nascent stage of weaponisation of space, so that enormous resources which are likely to be spent towards R&D, can be saved and utilised for developmental activities.

Recommendations

Keeping in view the existing geo-political scenario and the emerging situation across the Asian continent, India therefore needs to undertake the following :-

(a) Militarisation of space for effective C4ISR, which will strengthen, not only the defence preparedness of the country but will also assist in operational planning.

(b) Safeguards for space assets by developing requisite defensive counter space technologies.

(c) Weaponisation of space for offensive space operations to deter adversaries from initiating attack against own space assets.

(d) Dialogue with the UN and other nations to ensure strong lobbying for early formulation of an appropriate treaty for a new regime of "Weapon Free Space".

Endnotes

1. Sir Halford John Mackinder was a British geographer who wrote a paper in 1904 called "The Geographical Pivot of History." Mackinder's paper suggested that the control of Eastern Europe was vital to control of the world. He formulated his hypothesis as:

   Who rules East Europe commands the Heartland
   Who rules the Heartland commands the World-Island
   Who rules the World-Island commands the world

2. Sqn Ldr KK Nair in "Space: The Frontiers of modern Defence" p 18.

3. ibid p 17.

4. News report by CNN-IBN on Apr 20,2009 : India Launches Spy Satellite RISAT-2

5. Mr N Gopal Raj in "The Hindu" on Apr 25, 2012 one day before the launch of RISAT-I

6. Pallava Bagla wrote in NDTV internet edition on April 26, 2012 23:11 IST "ISRO successfully launches 'spy satellite' RISAT-1".

7. The Times of India on Apr 30, 2012 "Dedicated satellites for Navy, IAF to be launched soon: Antony".

8. Asian Defence in its website http://theasiandefence.blogspot.in/2009/10/satellite-to-connect-indian-navy.html "Satellite to Connect Indian Navy Warships".

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10. "Missile Defense System Phase 1 to be Ready by 2011-2012: DRDO," by Vivek Raghuvanshi, "India Strives To Field Missile Defense by 2012," Defense News, March 30, 2009.

11. "'India senior to China in missile programme'," Press Trust of India, Feb. 11, 2010.

Robotics in Warfare

Lieutenant Colonel Sushil Pradhan*

Introduction

One of the most profound changes in modern warfare is the astonishingly rapid rise in the use of robots on the battlefield. Robots can easily and safely perform tasks that would otherwise endanger human lives, and do so faster and more efficiently than is possible with conventional methods. Military missions can be incredibly boring as well as physically taxing, and robots are proving attractive for roles that fill what are called the three D's (Dull, Dirty, or Dangerous). For example, using the same mine detection equipment as a human, today's robots can do the same task in about a fifth the time and with greater accuracy. They provide extended stand-off and reduced risk of exposure. Military planners have to figure out not only how to use these machines in the wars of today, but also how they should plan for battlefields in the near future that may well be largely robotic. This paper explores the military application of robotics in future battlefield scenarios.

Why Battlefield Robots?

Militaries around the world are offloading their hazardous and exhausting tasks to robots. Humans lose effectiveness after ten to twelve hours. They simply wear down physically and psychologically from doing the same task that long. Unmanned systems, in contrast, do not need sleep, food or recreation. Certain battlefield tasks require incredibly high concentration, which is difficult for humans to sustain for long periods of time. Robots need to take breaks only for recharging or refuelling, and the repetitive nature of complex, dangerous activities does not affect their efficiency or efficacy. Robotic systems can also operate in environments contaminated by biological, chemical or radiological weapons, where a human would have to wear a bulky suit and protective gear. They can sustain extremes of operating situations,

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like high 'G' turns that can render aircraft pilots inoperative. Unmanned systems can fly faster and turn harder. This is equally true at sea, and not just in underwater operations, where humans have to worry about small matters like breathing or suffering ruptured organs from water pressure. For example, small robotic boats have already operated in 'sea-state six', which is when the ocean is so rough that waves are eighteen feet high or more, and human sailors would suffer serious physical injury from all the tossing about.

Working at digital speed is another unmanned advantage that is crucial in risky situations. As the Observe-Orient-Decide-Act (OODA) loop gets shorter, there may not be any time in it for humans. For example, humans can only react to incoming mortar rounds by taking cover at the last second, whereas 'R2-D2', the Counter Rocket Artillery and Mortar (CRAM) system deployed in Iraq by the US, could detect and shoot them down before they arrived at the target. Robots also offer quicker learning curves. Robots can be networked via a wire or remotely, which means they have sharable intelligence. A critical difference between battlefield robots and humans is the fact that robots have no psychological needs, no emotional dilemmas and cannot be subverted.

Two crucial factors continue to enhance the appeal for military robots. Firstly, technology has finally matured to the point where reasonably affordable robots can actually do something useful. Secondly, the global security situation has changed for the worse in terms of the variety, sophistication, and lethality of the various threats; thereby presenting the conventional military's answer to the 'suicide bomber'.[1] Thus, while there are varied and multifarious reasons for militaries to adopt robotic systems, it boils down to the realisation that *we can do more with machines on the battlefield than we can do without them.*

Understanding Military Robotics

Robots are man-made devices capable of sensing, comprehending, and interacting with their environment. They achieve the functionality of an artificial organism due to their three pronged structure. They are composed of 'sensors' that monitor the environment and detect changes in it, 'processors' or 'artificial intelligence' that decides how to respond, and 'effectors' that act upon the environment in

a manner that reflects the decisions. They need not necessarily be mobile, but this is often a crucial requirement for battlefield robots. More often than not, the armed forces are exploiting the technology of unmanned vehicles, whereas static robots are more widespread in industrial or other applications. *'Unmanned systems'* is the terminology commonly used to describe military robots.

The relative independence of a robot is a feature of 'autonomy'. Autonomy is measured on a sliding scale from direct human operation (remote-control) at the low end to what is known as 'adaptive' at the high end. A machine is adaptive when it can learn; it can update or change what it should search out, even evolving to gather information in new ways.

With the rise of more sophisticated sensors that better see the world, faster computers that can process information more quickly, and most important, GPS that can give a robot its location and destination instantaneously, higher levels of autonomy are becoming more attainable, as well as cheaper to build into robots. But each level of autonomy means more independence. It is a potential good in moving the human away from danger, but also raises the stakes of the robot's decisions.

Applications of Robotics in Warfare

Militaries are fielding robotic systems in rapidly increasing numbers across all domains: air, ground, and maritime. Robots provide diverse capabilities across the range of military operations: environmental sensing and battle-space awareness; chemical, biological, radiological, and nuclear (CBRN) detection; counter-improvised explosive device capabilities; port security; precision targeting; and precision strike. Furthermore, the capabilities provided by these unmanned systems continue to expand.

Unmanned Aircraft Systems. Unmanned aircraft systems (UAS) or Unmanned Aerial Vehicles (UAVs) have experienced explosive growth in recent history and have proved to be an invaluable force multiplier. UAS can provide both a persistent and highly capable intelligence, surveillance, and reconnaissance (ISR) platform to troops requiring a look "beyond the next hill" in the field or "around the next block" in congested urban environments and, if necessary, also assist troops in contact or perform strike missions against high value opportunity targets. UAS are playing a greater role in

strike missions for time-critical targeting. One of the most familiar UAV is the Predator. At 27 feet in length, it can spend up to 24 hours in the air, at heights up to 26,000 feet. Predators were originally designed for reconnaissance and surveillance, but are now armed with laser-guided Hellfire missiles. In addition to its deployments in Iraq and Afghanistan, the Predator, along with its larger, more heavily armed sibling, the Reaper, has been used with increasing frequency to attack suspected terrorists in Pakistan by way of cross-border strikes.

Medium-sized drones such as the Shadow can circle at heights above 1,500 feet, to monitor suspicious activity. 44-foot-long jet-powered Global Hawks zoom across much larger landscapes at 60,000 feet, monitoring electronic signals and capturing reams of detailed imagery for intelligence teams to sift through. Each Global Hawk can stay in the air as long as 35 hours. The smaller class UAVs have proven their worth at tactical level, giving short-term line of sight ISR capability to units and also extending the reach of perimeter defence. Small UAVs such as the Raven, which is just over three feet long, or the even smaller Wasp (which carries a camera the size of a peanut) are launched by individual soldiers and fly just above the rooftops, transmitting video images of what is down the street or on the other side of the hill. These smaller, less expensive UAVs have become an integral and essential tool for ground forces and have proliferated throughout the operational environment.

Unmanned Ground Vehicles. Unmanned ground vehicles (UGVs), while not as prolific or at the investment level of UAS, nonetheless have proven their ability to contribute to combat operations. Since operations in Iraq and Afghanistan began, more than 8,000 UGVs have been procured and deployed. They are most effective in defeating IED systems, explosive detection, area/route clearance and Explosive Ordinance Disposal (EOD). They are also used for beach, CBRN and target reconnaissance; and increasingly for logistic support and resupply. About the size of a lawn mower, the PackBot is an EOD robot that mounts cameras and sensors, as well as a nimble arm with four joints. Another widely used EOD version is the TALON, but it has also been remodelled into a "killer app," the Special Weapons Observation Reconnaissance Detection System, or SWORDS. The new design allows users to mount different weapons on the robot including an M-16 rifle, a

machine gun, and a grenade or rocket launcher and easily swap them out.

A new robo-soldier is the MARCBOT (Multi-Function Agile Remote-Controlled Robot). One of the smallest but most commonly used robots in Iraq, the MARCBOT looks like a toy truck with a video camera mounted on a tiny, antenna-like mast. This miniscule robot is used to scout for enemies and to search under cars for hidden explosives, and has been rigged with Claymore directional mines. A different version is called the REDOWL (Robotic Enhanced Detection Outpost with Lasers), which uses lasers and sound detection equipment to find any sniper who dares to shoot at the robot or accompanying troops, and then instantly targets them with an infrared laser beam. The MAARS (Modular Advanced Armed Robotic System) carries a more powerful machine gun, 40mm grenade launchers, and, for nonlethal settings, a green laser 'dazzler', tear gas, and a loudspeaker to warn any insurgents that resistance is futile. There are various programs to convert existing manned vehicles into UGVs.

Not all ground robots will take on combat roles. An early entry into the "medbot" field is the Bloodhound. Whenever a soldier is hurt, an alert will go out and the robot will find the wounded soldier on its own. Then the robot's human controller, who might be located anywhere in the world, can check out the casualty via the video link and treat him using the robot's onboard medical payload. REV, the Robotic Evacuation Vehicle (a robot version of an ambulance), carries REX, the Robotic Extraction Vehicle, a tiny stretcher bearer that zips out to drag soldiers into the safety of the ambulance.

A Multifunction Utility/Logistics and Equipment Vehicle (MULE) which is likely to be a pack-animal type quadruped[2] that will do everything from carrying equipment and supplies to mounting its own weapons, such as a machine gun or rockets. Already in service as the BigDog[3], it is 3 feet long, stands 2.5 feet tall, and weighs 110 kg, about the size of a small mule. It is capable of traversing difficult terrain, running at 6 km/h, carrying 150 kg, and climbing a 35 degree incline. Designed to serve as a robotic pack mule to accompany soldiers in terrain too rough for conventional vehicles, BigDog uses four legs for movement instead of wheels or treads, allowing it to move across surfaces that would defeat wheels.

Unmanned Maritime Vehicles. Unmanned maritime vehicles (UMVs) present new opportunities to augment naval forces. Unmanned surface vehicles (USV) have been used at sea in ISR missions and for fleet familiarisation. USVs, along with UUVs, will have an important role in the conduct of Mine Counter-Measures (MCM) as they are particularly well suited for the 'dirty - dull - dangerous' tasks that MCM entails. They provide persistence, which permits significant mine hunting and sweeping coverage at lower cost by multiplying the effectiveness of supporting or dedicated platforms. Additionally, they provide the potential for supporting an MCM capability on platforms not traditionally assigned a mine warfare mission.

Small unmanned undersea vehicles (UUVs) were considered the main workhorses of the mine clearing effort during Operation Iraqi Freedom in 2003 and were used in support of Hurricane Katrina recovery operations in 2005. In addition to Anti-Submarine Warfare (ASW) and hydrographical survey, they can assist in maritime security by way of port surveillance, ISR, electronic warfare and support to Special Operations. Robotic planes and helicopters have been designed to take off from surface ships or launch underwater from submarines. A submarine launching a UAV that can fly in and out of the water (like the Cormorant) extends the mother-ship's reach farther, even ashore.

Military Robotics Developments in India

Realising the potential of robotic technology for military purposes, India is actively pursuing the development of robots through its Defence Research and Development Organisation (DRDO) and select public sector enterprises. Centre for Artificial Intelligence and Robotics (CAIR) was established in Oct 1986.[4] Its research focus was initially in the areas of Artificial Intelligence (AI), Robotics, and Control systems. In 2000, R & D groups working in the areas of Command Control Communication and Intelligence (C3I) systems, Communication and Networking, and Communication Secrecy in Electronics and Radar Development Establishment (LRDE) were merged with CAIR.

Since the last few decades, DRDO, Hindustan Aeronautics Limited (HAL) and Aeronautical Development Agency (ADA) are involved in the development of a range of UAVs/UCA.[5] 'Lakshya',

the indigenously-developed pilotless target aircraft was inducted into the IAF in 2005. DRDO is also involved in developing the know-how for a swept wing, stealth design and composite construction technical demonstrator that will demonstrate the technical feasibility, military utility and operational value for a networked system of high performance weaponised UCAVs.[6] DRDO's Research and Development Establishment (Engineers) in Pune, has developed a Remotely Operated Vehicle (ROV) called 'Daksh', manufactured by a consortium of firms and in use with the army. 'Daksh' is an electrically powered and remotely controlled robot used for locating, handling and destroying hazardous objects safely. It is a battery-operated robot on wheels and its primary role is to recover bombs. It locates bombs with an X-Ray machine, picks them up with a gripper-arm and defuses them with a jet of water. It has a shotgun, which can break open locked doors, and it can scan cars for explosives. 'Daksh' can also climb staircases, negotiate steep slopes, navigate narrow corridors and tow vehicles.

DRDO is experimenting with robot mules to carry arms and equipment in difficult terrain and high altitude.[7] Autonomous underwater vehicles capable of carrying out multiple tasks are also being developed. A UGV for nuclear biological and chemical (NBC) surveillance operations is under development at VRDE, Ahmednagar, and will be ready for trials in a year.[8] 'Netra' UAV is being developed for surveillance and recognisance operations for counter-terrorist operations in urban as well as jungle terrain. 'Netra' is set to enter into the production phase following successful user and field trials, including those in high-altitude. R&DE (Engineers) is also developing a gun-mounted robot (light machine gun and grenade launcher), which can be deployed in anti-terrorist situations. While DRDO has mixed results in designing and prototyping, it falters in converting the technology into production. Collaboration with PSUs, academic institutions (like IITs) and private sector firms is the solution if we want to develop military unmanned systems seriously.

Ethical and Moral Issues

Despite all the enthusiasm in military circles for the next generation of unmanned vehicles, ships, and planes, there is one question that people are generally reluctant to talk about. What happens to the human role in war as we arm ever more intelligent, more

capable, and more autonomous robots? The point is not that the machines are taking over, but that what it means to have humans 'in the loop' of decision making in war is being redefined, with the authority and autonomy of machines expanding. The reality is that the human location 'in the loop' is already becoming that of a supervisor who serves in a fail-safe capacity in the event of a system malfunction. The expansion of robotic intelligence and autonomy raises profound questions of what roles are appropriate to outsource to machines.

Whether it's watching wars from afar or sending robots instead of humans into battle, robotics offers the lure of riskless warfare. Moving soldiers out of harm's way may save lives, but the growing use of robots also raises deep political, legal and ethical questions about the fundamental nature of warfare and whether these technologies could inadvertently make wars easier to start.

Can robots be programmed to act ethically in war? Researchers are attempting to develop rules of engagement for battlefield robots to ensure that their use of lethal force follows the rules of ethics (or trying to create an artificial conscience).[9] Stress does not affect a robot's judgement the way it affects a soldier's, so theoretically a set of rules can ensure that humans are not unethically killed in the battlefield. Even if ethics can be neatly encoded in software, ISR data can be deceptive, while conditions and situations can change. Will the use of robots lead to wars breaking out more easily? Technologies such as unmanned systems can be seductive, feeding overconfidence that can lead nations into wars for which they aren't ready. The expansion of robotic intelligence and autonomy raises profound questions of what roles are appropriate to outsource to machines. These decisions must be made based not only on how effective the robots may be in battle but also on what this shift in responsibility would mean for their human commanders and the broad political, ethical and legal responsibility for their conduct.

Conclusion

Robots are a critical component of 21st century warfare. Already, unmanned systems are replacing human pilots and soldiers in some roles, and in the future they will take over many more. Battlefield reports the world over highlight the value of unmanned

systems in the modern combat environment, especially their inherent features like persistence, versatility, and reduced risk to human life. The benefits of removing human soldiers from harm's way are obvious. Can war be fought by lots of well-behaved machines, making it 'safer for humans'?

In the near future, military robots will include semi-autonomous and autonomous systems that rely exclusively on sensors and computer technology, not human operators, to complete missions. Today's PackBots, Predators, and Ravens are relatively primitive machines. The coming generation of "war-bots" will be immensely more sophisticated, and their development raises troubling new questions about how and when we wage war. The exponentially increasing use of robotics on the modern battlefield challenges our current understanding of technology and war.

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Effects, Consequences and Remedial Action against Somali Piracy

Commander Indrajit Roy (Retd)*

Introduction

Piracy has always been a menace ever since ships sailed the seas with commercial goods. In the days of the sailing ships, the pirates took hostages and cargo just as they do now and caused as much strife to the crew, ship owners and cargo interest. Now, with the scale of commercial shipping and trade being much larger and global, the effects of piracy emanating from Somalia is causing disruption of the cargo supply chain which can be quite debilitating, especially for the crude and oil trade which gets a large chunk of its supply from the Middle East. Added to this is the effect of hostage taking. Huge pressure is brought to bear on governments concerned when the crew is taken hostage, instigating them to take action, like when MT *Stolt Valour* was taken hostage in 2008,[1] the media, which reflects the mood of the people, held the Indian Government responsible for not protecting its seamen, and rightly demanded action. The Indian Navy then dispatched a few warships to the area, which sank a mother ship, and the naval presence has been there ever since.

The other aspect of this menace is the effect it can have on the environment of the area. Imagine, if a loaded VLCC (Very Large Crude Carrier) which typically carries 1.2 million barrels of crude valued at US$ 120 million at today's price is attacked with RPGs, it catches fire and a few cargo tanks explode as a result. The oil spill and consequent effects would be catastrophic and effectively write off the marine flora and fauna in the concerned sea on an unprecedented scale. So, piracy has to be tackled for a variety of reasons which impact the economic, social, political, military and environmental concerns for the littoral countries directly; but, it also has a global impact. It also raises a host of other

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issues which are directly linked with this menace, such as the legalities of anti-piracy countermeasures and legal jurisdiction which is quite nebulous and prone to multiple interpretations, as has been recently highlighted by the MT *Enrica Lexie*[2] episode off Kochi.

Aim

This article gives a broad overview and examines the causes and effects of piracy, the methods employed by the pirates, the actions that have been taken and how effective these have been. Also, how piracy is a direct threat to India, our responsibilities and how effective we have been in dealing with it and also to suggest ways of improving our response.

Start of Somali Piracy

Over the last 50 years this country has never been able to stabilise itself to any form of stable government and consequent economic progress. It has been in a perpetual state of Civil War, is more-or-less a failed state, especially in Puntland and Somalia (as Southern Somalia is referred to). Northern Somalia (called Somaliland) is better governed and has a decent growth rate.[3] Most of the pirate gangs operate from Puntland and Somalia. During this period of Civil War, saturation fishing off Somalia was rampant by European and other countries depriving the local fishermen of their meagre livelihood.[4] Also, European countries started dumping toxic and nuclear wastes into these waters resulting in hundreds of leaking barrels being washed up ashore during the Tsunami in 2005.[5] This in turn has caused radiation sickness amongst the coastal population. What started off as local fishermen trying to chase away the foreign trawlers from their waters has now metamorphosed into a formidable piracy operation, sometimes with the connivance of their own Coast Guard.

The present situation and piracy from Somalia is a relatively new phenomenon which started around 2005 and has now become a global menace. In 2011, there were 275 piracy attacks with a total of 45 hijackings, about 802 crew members held hostage of which eight were killed, presently 30 ships and 277 seamen are still waiting to be released.[6] It is interesting to note that most of the

crew are from Philippines, India, China, Indonesia and East European countries which elicit a sort of lukewarm response from the multinational naval forces as opposed to a direct intervention when crew from a developed country is involved. The response by the US forces when MV *Mearsk Alabama,* (US Flag) container ship was taken hostage in 2009 is illustrative.[7] Lately, various international bodies have become vocal about Somali piracy due to media glare but what really started to have effect was when international trade was getting directly affected. Now international bodies like Baltic and International Maritime Organisation (BIMCO), International Association of Independent Tanker Owners (INTERTANKO), International Maritime Bureau (IMB), International Maritime Organisation (IMO), International Chamber of Commerce have been putting pressure on governments, the UN and NATO.

Methods of Attack

The modus operandi of these pirates can be clubbed into two distinct methods of attacking ships. This depends on the distance away from Somalia. Close to the Somali coast, smaller fishing boats operate as pirates. They normally operate as a group of 3-5 small fibre-glass fishing boats (called skiffs) with high power outboard engines giving them a speed of up to 25-30 kts. What seem to be innocent fishing boats going about their legitimate business, suddenly pick up speed and converge on a target ship. They normally operate in sheltered waters of the Gulf of Aden and the Red Sea. The straits between the two (Bab-el Mandep Straits) form a very convenient choke point for such piracy operations. Once they converge on a ship, their whole aim would be to board the vessel and take the crew and ship as hostage. But boarding a moving vessel on the high seas is not easy, as they have to approach the target ship from the quarter, come alongside and scamper up to the ship using portable aluminum ladders. So, they try and board smaller vessels with a low freeboard, or force the vessel to stop by firing on the vessel with AK 47s or RPGs whilst chasing her. The danger, when the pirates start firing RPGs, is that the vessel may catch fire or injure exposed personnel. Lately, such attacks in the Red Sea have reduced considerably due to the deployment of a large number of naval assets, and use of a convoy system with naval escorts in the Gulf of Aden has mitigated this danger here to a large extent.

When further away from the Somali coast, these small skiffs cannot be used as they do not have the range or the sea keeping qualities for ocean operations, so they have been using other hijacked ships as 'mother' vessels in which they carry 2-4 skiffs. These mother ships have been marauding the Arabian Sea as far as Lakshwadeep Islands and close to the Indian coast to the west, up to the Gulf of Oman in the north and near Sychelles / Madagascar in the south. They normally lie in wait in the busy shipping routes which transit the area. Once they detect the presence of a ship, by radar, Automatic Identification System (AIS) warning or even prior information from their organisation in Somalia, and are sufficiently close to them, the skiffs are lowered and then their attack method remains the same. In this wide expanse of the seas it's not possible to have adequate naval forces available to react to an attack as it was possible near Somalia coast. The response here is accordingly different.

Response to Piracy

Dealing with piracy has to be both, tactical and strategic. The tactical aspects deal with the actual piracy attack; how to avoid it or deter the pirates and what to do when taken hostage? Measures taken by ships are basically passive means of defence; like rigging razor wires around the vessel, maintaining a high pressure water jet spray to make it difficult for the pirates to board the vessel, reducing the access points into the vessel accommodation area, and manoeuvring the vessel at maximum speed. The establishment of an impregnable citadel inside the ship where the crew can be safe, maintain radio contact with the security forces and stay securely for a week or so, has also been quite effective. The idea being that the ship's crew still has control of the vessel and the pirates cannot dictate terms or force the crew to take any action. In such a situation the ship is usually stopped and allowed to drift. This gives the security forces sufficient time to respond and retake the ship. Normally, the pirates have been known to simply disembark from the vessel when they cannot take control of the vessel after a few hours on board. Most ship owners have now placed armed guards on board. These guards embark during the dangerous phase of their voyage. But, this raises a host of other legal issues as weapons are not allowed on board merchant ships by many countries and if weapons are known to be on board, the

vessel is 'arrested' by the port state and heavily fined. Also, some major trading companies like Shell did not allow it till recently.

When far away from the coast the pirates can only move in a mother ship whose location can be monitored and the area around this vessel avoided. Besides, the operation of this mother ship and the method of dealing with the hijacked vessel with adequate command and control requires a sophisticated organisation. The number of such mother vessels and sufficiently trained pirates are few as most of them are fishermen, including some who have never been to sea. So, if a few of these mother vessels are captured / sunk then their ability to find replacements for the ship or trained personnel is limited and would severely reduce their high sea piracy venture. Because of the distance away from Somalia the mother vessel or the hijacked vessel can easily be tracked by aircraft and set free or the mother ship sunk or captured by naval forces when they get there. During last year the Indian Navy captured and set free three hijacked vessels used as mother ships.

Besides this, NATO and other affected countries have established a convoy system in the Gulf of Aden which is the most critical part of the voyage. Indian warships (INS *Tabar* and INS *Mysore*[8] were among the first to enforce this convoy system as far back as 2008 soon after the MT *Stolt Valour* incident. The military response to pirate attacks has even brought about a rare show of unity by countries that are either openly hostile to each other, or at least wary of cooperation, military or otherwise. Presently there are about 26 countries naval vessels operating in the area under a loose tactical command of Combined Task Force 150 (CTF150) whose mission is Operation *Enduring Freedom,* Combined Task Force 151 (CTF151), EU naval task force operating under Operation *Atlanta* and independent operations done by some countries like India, China, and Japan etc. Most of them maintain a liaison cell with the Combined Maritime Forces, Headquartered at Bahrain.[9] More on the military aspects later.

The geographic area where the Somali pirates now forage is considerable as shown in the diagram:

Somalian Piracy
Threat Map (2005-2010)
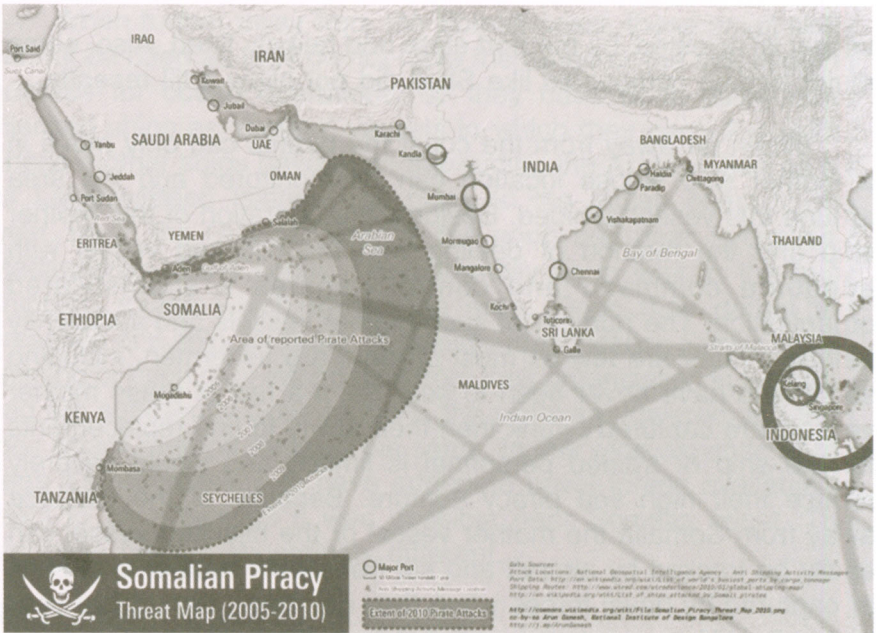
'Dots' – Denotes the reports of piracy/alleged piracy sighting/attacks as promulgated by IMB.

(Source: http://commons.wikimedia.org/wiki/File:Somalian. Piracy_Threat. Map.2010.prg cc.by.sa Arun Ganesh. National Institute of Design, Bangalore http://j.mp/ArunGanesh)

Legal Aspects

An effective strategy would be one which plays on the weak points of the pirates' operations, like capturing the mother ship where ever they are found. But this is fraught with legal hassles. Whereas it may be easy to enforce some jurisdiction within national EEZ, open sea operations are a legal quagmire and are against the basic tenants of freedom of international waters and the right of innocent passage for the merchant ships as given in United Nations Convention on the Law of the Sea (UNCLOS). Besides this, any armed action against a mother vessel encroaches on the sovereignty of that vessel which is a hijacked vessel and in one instance the flag country of that vessel protested and held the country which took action responsible. It can become a messy diplomatic incident and the enforcing country should have the will (political and national) to follow through their military action. The best way is to react to a piracy attack and follow through with the

seizure and capture of the pirates to be then tried according to UN guidelines (which are still evolving to deal with this menace).

Effect of Piracy on India

How does this piracy in our backwaters affect India? It has a direct impact on India because of our geographical location and the area in which this piracy is prevalent. Fundamentally, the evolving Indian economy which is slated to multiply, is particularly vulnerable to any disruption of her seaborne trade. Presently the total trade is pegged at USD 700 billion (est. 2011)[10] of which about 60-65 per cent would be by sea. By conservative estimate about 60 per cent of this would be at risk due Somali piracy as the ships with cargo to or from India, operate for some time in the Arabian Sea. This is further compounded by the movement of strategic material which would severely and directly impact the country, like disruption of crude and gas imports. Besides the obvious effects, imagine if an Indian Flag VLCC was hijacked. The media and the public outcry would be deafening and would question the efficacy of the whole maritime structure in the country. As always, the psychological effect on the nation is out of all proportions to the actual damage that is done. An interesting offshoot of piracy could be copycat attacks on ships and Indian marine installations by countries or groups interested in causing harm to the Indian State. The overall economic cost due to Somali piracy has been pegged at 7-12 billion dollars by the IMO. For India it would be a pretty high portion of this figure and so all affected parties will continue to bleed till this is eradicated.

Naval Response

There is thus, a dire need to build-up robust countermeasures to guard the nation's interests. It cannot be left to the Navy only to deal with this. It has to be a tiered defence system where each agency has a clearly defined role and jurisdiction. All agencies would have to play their part, and this would be only as good as its weakest link. With the capturing of a few mother ships by the Indian Navy within the Indian Exclusive Economic Zone (EEZ) the pirates have been avoiding coming close to the Indian coast thus creating a safe haven for relatively safe passage for ships going to and from the Persian Gulf to the Far East. But this is a sporadic result, albeit, one which has had the desired effect.

One of the fundamental responsibilities of any Navy is to provide a safe environment for its trade and commerce to flourish. The naval force levels have been structured accordingly and this is the litmus test of whether the Navy can enforce its sea denial capability against such a threat. But actually instituting an effective sea denial capability and to effectively monitor such the ocean area is far more difficult in peace time and is compounded by the core inefficiencies of the responsible agencies.

It is quite instructive to see the way Australia and Japan keep a very strict surveillance over their vast EEZ with a much smaller force. In Australia, the Australian Maritime Safety Authority (AMSA), Coast Guard and the Navy operate in a seamless organisation for safety and to protect their EEZ. In doing so, they effectively maintain a strict watch about the type and identity of all ships and is done very simply. All vessels which are due to enter Australian EEZ are voluntarily required to make a report (AUSREP) to their Authorities and thereafter the vessel is monitored automatically in real time using the polling facility of Sat-C which all ships are equipped for ocean passages as part of their GMDSS (Global Maritime Distress and Safety System) equipment. These reports are frequently checked and verified by actual sighting by a naval or coast guard aircraft. Japan also has a similar system called JASREP and maintain a similar watchful eye on shipping. Perhaps, they are more diligent and their Coast Guard more active. It is also possible that they get inputs from satellite sensors which are correlated with the radar and reported positions of ships. All of this is possible in our context too.

India also has such a reporting system – Indian Ship Position and Information Reporting System (INSPIRES) and Indian SAR reporting (INDSAR). If these reports are made, as they should be, all merchant ships in the area can be tracked and warned about any dangers including any piracy threats as they transit the High Risk Areas. This is all a part of the Navigation Area (Navarea) Co-ordinator's duty as laid down by IMO. As a first step this system of reporting and tracking requires to be made functional and that can only be done if it is effective and responsive. A little hardware investment for radar coverage along the coast and the Andaman and Lakshwadeep Islands, and more importantly, the management of this information in a cohesive manner for proper dissemination

and timely action needs to be implemented. The glaring lapse of so many layers of surveillance got highlighted when MT *Pavit*,[11] a disabled ship, simply drifted right across the north Arabian Sea to the Indian coast in August 2011.

In a peace time environment it is relatively easy to track and identify merchant shipping and deep sea fishing or other miscellaneous craft by use of GPS, LRIT(Long Range Identification and Tracking), AIS (Automated Identification System), polling on satellite communication channels and a plethora of information available in real time from the internet. Once the enforcement agencies enforce their writ, at least within the EEZ, the numbers of errant vessels would reduce considerably and, less effort and resources would be required to single out likely threats. This is the case in the sea areas around advanced countries. The modalities for doing so is a different topic in itself.

Positive Effects of Sea Area Management

Keeping our EEZ under strict surveillance and ensuring a safe haven for commercial navigation has many positive effects. For one, it ensures that our resources are not commercially exploited at the Nation's expense and making them available for our benefit. Marine pollution would be curtailed considerably. Presently, our waters are probably the most polluted sea waters in the world. If a hijacked foreign ship is released by the use of naval forces it gives a huge fillip to our mutual diplomatic relationships. Recent release of a Chinese flag vessel[12] near Lakshwadeep elicited a very positive response from their side. In another case the release of a Japanese cargo vessel (*MV Alondra Rainbow rescued in 1999*)[13] off the Indian coast changed their perceptions about our Navy and since then there has been a significant improvement in naval rapport and diplomatic relations. In strategic terms, it shows to all concerned a demonstratable capability of the Nation to police its own waters and the will to take required action. It is no use to expound theories of a blue water navy if the home waters are not effectively guarded.

Effects of Piracy in Somalia and the Shipping Industry

Somali piracy has now become a source of easy money and has raised their standard of living to a subsistence level. This has now become their main industry with a flourishing trade to supply the

material for piracy. According to information compiled by the IMB, piracy income due to ransom was USD 58 million in 2009 and about USD 238 million in 2010.[14] Added to this is the loss of trade, finances for the littoral countries and the cost of maintaining a massive naval presence by more than 26 countries. If added, it would certainly be more than USD 10 billion annually. This has now become so profitable in Somalia, that the funding of piracy is now structured in a stock exchange, with investors buying and selling shares for upcoming attacks! The value chain for this would probably run from the banks used to generate funds for ransom payment, to insurance companies, cargo interests and ship owners. None of them would actually lose money due to their ships being hijacked. In a very simplistic manner, it is translated to the increase in cost charged for carriage of goods. In fact they gain. As usual, it is the pawns (the crew on board ships and the pirates themselves) which suffer and bear the brunt and consequences when hijacked. The International Transport Federation (ITF) which is the mother trade union for all seafarers has threatened to stop manning ships which ply in these waters unless adequate protection is ensured to safeguard the crews. This would severely affect shipping worldwide. It may be very naïve to suggest, that instead of the massive expenditure and loss of revenue being incurred by all due to piracy, if a sizable portion of it was given to Somalia it might eradicate the basic cause of this problem. But then nothing is actually so simple in real life!

Conclusion

The consequences of piracy in this area are already quite palpable worldwide as they are affecting trade and becoming a very urgent issue when hostages are taken or killed. The clamour for action then reaches a crescendo but not much can be done about it except, to try and alleviate the immediate hostage issue by naval action or paying the ransom money as soon as possible. Various world bodies are seized of this problem and grappling with various issues to solve it in the short and long term. From the Indian Naval perspective a far greater effort requires to be made, to keep our backyard free for trade and ensure the security of the maritime assets and coastline.

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Chinese Dams in Tibet and Diversion of Brahmputra : Implications for India

Colonel PK Vasudeva, PhD (Retd)*

Introduction

Future wars are likely to be more over water and not fuel, due to ecological reasons. In recent times, the world has witnessed a major surge in regional unrests caused primarily by the shortage of water. Tension builds up between two or more countries when an effort is made by any upper riparian country to control the waterways of trans boundary rivers. Factors like population surge, industrialization and other development activities compel a country to control waterways. When such activities begin to affect the livelihood, ecology and growth of the lower riparian countries, they become a source of dispute. Already, growing tension is being witnessed in South Asia due to unilateral decision of China to construct dams and river diversion projects in Tibet partly driven by internal economic compulsions and partly by the desire to acquire a dominant position.

Arunachal Waters

There have been talks between India and China on various facets like maritime and strategic defence dialogue, border issues etc to smoothen out the rough spots. Yarlung Tsangpo (Brahmaputra), the highest river in the world, is a watercourse that originates at Tamlung Tso Lake in western Tibet, southeast of Mount Kailash and Lake Manasarovar. It later forms Tibet Valley and Yarlung Tsangpo Grand Canyon, before entering India North of Tuting in Arunachal (Figure1). However, there is evidence and concern on receding water level in the river near Pasighat town and that it almost dried up. Tako Dabi, political adviser to Arunachal Pradesh Chief Minister Nabam Tuki, expressed apprehension that it could either be due to diversion of the course of the river or an artificial blockade as a result of dam building activity of China over Brahmaputra river. Water level in the Siang, as noted on 09 June

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2000, suddenly rose by 30 metres and inundated almost the entire township causing widespread destruction to property besides claiming seven lives following the collapse of a hydropower dam in Tibet, according to Dabi. Video footage from the scene shows the Siang, which is several kilometres wide at Pasighat, said Dabi — reduced to flowing in several narrow channels in the large sandy riverbed.[1]

Tibet-Nepal Waters

The Tibetan plateau happens to be the largest water reservoir in the world. All the 10 major river systems of Asia including the Indus, Sutlej, Brahmaputra, Irrawaddy, Salween and Mekong originate in the Tibetan plateau. It constitutes the lifeline of the world's nearly two billion (29 per cent) people living in South Asia; from Afghanistan to the Ganga-Meghna-Brahmaputra basin, and in Southeast Asia.[2] Any diversion of waters from Nepalese rivers originating in Tibet would directly affect the flow of water of the Ganga, the soul of the people living in the Indian subcontinent including in Nepal. The holy river Ganga desperately needs fresh water from its tributaries. Nepal alone accounts for 46 per cent of the flow in the Ganga and its contribution grows to 71 per cent during the lean season.[3]

Figure 1 : Tsangpo – Brahmaputra River from Tibet –
Siang (Arunachal) – Dibrugarh (Assam)

Source: http://isikkim.com/wp-content/uploads/2012/03/chinamap.gif

Chinese Game Plan for the Development of Tibet and Its Repercussions

In an important meeting held at Beijing in January 2010, China's plans to achieve rapid development and lasting stability in Tibet Autonomous Region (TAR) in a bid to ensure China's development as a whole could be sensed. Chinese President Hu Jintao and other senior leaders attending the Fifth meeting on the work of Tibet, from 18-20 January 2010 agreed that more efforts must be made to improve living standards of the people in Tibet, as well as strengthen the ethnic unity and stability. He attached great importance to the work of Tibet, saying "it was a pressing task in carrying out the Scientific Outlook on Development, building a well-off society in an all-round way, establishing a national ecological protective screen and realizing sustainable development". Senior leaders also meted out plans to develop Tibetan-inhabited areas in Sichuan, Yunnan, Gansu and Qinghai during the meeting.[4] The building of dams and diversion projects in Tibet by China is a matter of grave concern for the lower riparian states. When the Chinese Foreign Ministry spokesperson Hong Lei was asked about this issue on 19 April 2011, he said that China would not do anything that would harm the interests of the lower riparian states including India.

It was Prime Minister, Manmohan Singh, who raised India's concerns about this project when he met Chinese President, Hu Jintao last year. He also raised the issue when he met Chinese Premier, Wen Jiabao in Thailand and during Wen's visit to India in November 2010; but there was no positive response. However, China has assured India that it will not begin work on any diversion project without first notifying New Delhi through the joint working group mechanism the two countries have set up to discuss water-sharing issues.[5]

In view of the crucial meeting and after staking claims over Arunachal Pradesh in India; reports now claim that China has started constructing a huge dam on its side of the Tsangpo River (Brahmaputra) in Tibet. Despite repeated promises and denials, China has already built a barrage on the Sutlej River. Since November 2010, it has started construction work for damming / diversion of the Tsangpo (Brahmaputra) in Tibet. The detailed planning for the Tsangpo project was approved by the State Council

in 2006 and has the support of Chen Chuanyu, its main architect, and Hu Jintao. Apart from the diversion project on the Brahmaputra River, China also plans to construct fifteen dams along the Lancang (Mekong) River. In addition, China plans to tap the waters of most of the big rivers flowing from the Tibetan plateau.

There are reports that, China's state owned electric power companies have already contracted with the TAR Government for the development of hydropower in different rivers of Tibet. China is also working towards developing road connectivity with Nepal and other South Asian countries. It not only wants to develop hydropower, partly to reduce the development gap between its eastern and western provinces, but to also sell the electricity generated to neighbours as well and thus promote cross-border integration of economies. The energy produced in Tibet might also be used to tap the region's rich mineral reserves including uranium, borax, lithium, copper, zinc and iron.[6]

Not just this, the dam is being constructed at a place called Namcha Barwa on the eastern plateau of Tibet. It is at this point in Tibet that China is reportedly building the world's largest dam, with 26 turbines, expected to generate 40 million kwh of hydroelectricity. There is sufficient evidence to suggest that the Zangmu hydroelectrical project was inaugurated on 16 March 2009 and the first concrete was poured on 02 April 2009. A consortium of five top Chinese power companies is overseeing the 1.138 bn Yuan project. Offering their support to the project, some Chinese engineers have reportedly suggested that the dam could provide cheap electricity for India, Nepal and Bangladesh, and that the dam could facilitate flood control in the Brahmaputra-Ganges basin. However, it is also believed that the diverted waters from the river would irrigate the northwestern part of China's Gobi desert in Xinjiang and Gansu, up to 650 kms away, and recharge the dying Yellow River, which now runs dry for much of the year.

In its presentation to the Committee of Secretaries (CoS) formed to assess Chinese plans regarding possible diversion of the Brahmaputra's water, the National Remote Sensing Agency (NRSA) presented evidence of "houses, construction/excavation and movement of trucks" in and around a 3-4 km range at the site. Accordingly, the CoS, headed by former Cabinet Secretary KM Chandrasekhar, decided that the issue was too significant to be

handled by the expert-level mechanism on floodwater data sharing. Instead, it decided that it would be better to tackle the issue at the political level through the Ministry of External Affairs.[7]

Authentic Confirmation of Dams

For the first time in May 2011, the State Council (the Chinese Cabinet) acknowledged the serious problems faced by the mega Three Gorges Dam.

A statement on government's website affirmed: "At the same time the Three Gorges project provides huge comprehensive benefits, urgent problems must be resolved regarding the smooth relocation of residents, ecological protection and geological disaster prevention."[8] The statement came at the end of a meeting chaired by Premier Wen Jiabao: "Problems emerged at various stages of project planning and construction but could not be solved immediately, and some arose because of increased demands brought on by economic and social development", it explained.

The last time India officially heard about the diversion of the Brahmaputra was in November 2006 when President Hu Jintao was to visit India. China had decided to assuage the legitimate worries of the Indian government.

At that time, Chinese Foreign Ministry spokesman Liu Jianchao also confirmed: "The Chinese government has no plans to build a dam on the Yarlung Tsangpo River (Brahmaputra) to divert water to the Yellow River." Though, the Indian NRSA confirmed that construction was on at the Zangmu site on the Chinese side of the Brahmaputra River, prompting the Government to take up the matter with China at a "political" level.[9]

Reports on Seismic Tibetan Plateau Warns Disastrous Ecological Results

In the post Fukushima era, it is logical to expect that Chinese government would have honestly studied the geology around these mega projects. These 'irreversible' issues should also trigger fresh researches into the most seismic region on the planet: the Tibetan plateau. Hope, officials planning the construction of myriads of dams on the Tibetan rivers have taken into account the seismic conditions before starting the constructions? Adverse effects cannot be solved once dams are built.

Qin Hui, a professor in the School of Humanities and Social Sciences of Tsinghua University declared: "We have to take the international response into consideration. It is undoubted that the lower reaches of Yarlung Tsangpo River are within India's Assam Province, where it is a lifeline for local agriculture and backbone of the economy, just as it is further downstream in Bangladesh." Qin added, "It is so obvious that the proposed damming project will have a cascading effect leading to a natural disaster in the lower foreign reaches of the Brahmaputra, Salween and Mekong rivers."

Liu Changming, a hydrologist at the Chinese Academy of Sciences who has advised the Government on these proposals, confirmed that a team of water experts from the Chinese Academy of Engineers, an advisory group of prominent scientists had concluded that "the proposal to tap the Brahmaputra River would be far too expensive, technologically unfeasible and ...too controversial". He nevertheless admitted, "There may be some retired officials that support the plan, but they're not the experts advising the government."[10]

Now, **Professor Wang Guangqian** of the Chinese Academy of Sciences seems to say that China has no choice but to do it. Wang Guangqian speaks of a newly proposed route, "Brahmaputra waters are expected to be rerouted to Xinjiang along the Qinghai-Tibet Railway and the Hexi Corridor – part of the Northern Silk Road located in Gansu Province. Wang admitted "We thought this would be a plan 50 years later," adding that presently Chinese experts and governmental officials are still studying the feasibility and possible impacts of distinct proposals.[11]

It is an established fact that Tibetan ecology is delicate and it cannot absorb the damming, river water diversion projects, mining and transportation, industrial and other related activities. Such activities would lead to receding glaciers in Tibet and in the Himalayas. Unfortunately, some of these activities might invite eco-disaster resulting in meltdown of Himalayan glaciers, further resulting in the drying of rivers. Any distortion in the ecology of Tibet and its delicate river system is likely to affect the global environment.

Implications of Diversion of Rivers and Construction of Dams

Perhaps, China well understands what George Ginsburg wrote, "it could dominate the Himalayan piedmont by virtue of holding Tibet, and by doing so, it could even threaten the Indian subcontinent, and thereby further threaten the entire South-east Asia and so to say all of Asia". This is one of the reasons why China has not signed any bilateral treaty in regard to the utilization of water resources with any of its neighbours, and has not signed the 1997 UN Convention on the Law of the Non-Navigational Uses of International Waterways.

Two important factors merit reflection in this context. First, hydropower lobbies have a financial interest in 'concretising' the project as soon as possible. In 2011, an article in The Financial Times said that "China's Three Gorges Project Corporation has proposed a $ 15 billion hydropower scheme to Pakistan to dam the Indus river valley at several points, in a project aimed at controlling floods and tackling electricity shortages."[12] Dams, whether in Pakistan or Tibet, mean big business and the large Chinese corporations will continue to lobby hard to get the projects through.

Second crucial factor is the cost-benefit perspective. Chinese spokesman said, "If the price of transferring water is cheaper than conservation or getting water from the sea, China will go ahead."

Indian Concerns of Brahmaputra's Receding Waters

River Brahmaputra is very important for both India and Bangladesh. The Brahmaputra River Basin in India is most generously gifted with a fabulous water wealth that accounts for nearly 30 per cent of the total water resources and about 40 per cent of the total hydropower potential of the Country.

.However, the Chinese government had in 2006 categorically dismissed claims that Beijing had plans to divert the Brahmaputra River that flows from Tibet into India. China's Minister for Water Resources, Wang Shucheng, then said the proposal was "unnecessary, unfeasible and unscientific," and had no Government backing. Wang's comments appeared to be part of an official effort to quell Indian fears that China had designs on the river water. However, this would also ensure that lower riparian countries like India and Bangladesh would be at China's mercy during the dry spell and for protection from floods during the rainy season.

Several organisations in Assam and Arunachal Pradesh have aired grave concern over the reported move by China to construct a dam on the main channel of Brahmaputra in the upper reaches of Tibet, to generate electricity. This move is bound to jeopardise the flow of the Brahmaputra, the lifeline of the Assam valley. Experts have raised fears that the construction of the dam may trigger devastating floods in Assam during the rainy season and dry up the river in winter.

Conclusion

When it makes its calculations, Beijing will however have to take into account the cost of a serious conflict with India. The price of water may then become exorbitant. And Beijing should look again into the disastrous performance of the Three Gorges Dam before taking a hurried decision.

The dependability of the Chinese on such issues is doubtful and hence India and Bangladesh must jointly take up this issue with the Chinese Government in order to safeguard the interest of their countries before it is too late. If the results of the negotiations are not fruitful, which is more likely to happen, the issue must be raised at the UN Security Council as the lives of millions of people from India and Bangladesh will be endangered once the dam is completed.

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The Jaipur Literature Festival – A Report*

Major General VK Singh (Retd)**

The Seventh DSC Jaipur Literature Festival (JLF) was held at Jaipur from 20th to 24th January 2012. The five day festival has now become one of the largest such events in the world, earning epithets such as the Indian Woodstock and the *Maha Kumbh* of literature. Now in its seventh year, the JLF is held each year during the month of January, in the Durbar Hall and gardens of the Diggi Palace in the city centre. The 2012 event was truly an extravaganza of art, literature and culture, attracting over 75,000 visitors and over five thousand media stories on Google News.

For the first time ever, the military was represented at the JLF through a United Service Institution of India (USI) initiative. A session on military history was held from 1000-1100 hours on 24th January at the Durbar Hall. In the session titled '*Indian Military History: The Missing Links'*, the discussants were Major General VK Singh (Retd), a member of the USI; Shri Chandrashekhar Dasgupta, IFS (Retd), a member of the USI Council; Squadron Leader RTS Chhina (Retd), Secretary and Editor, CAFHR, USI; and Major Anit Mukherjee (Retd), a member of USI. The session was moderated by Manoj Joshi, the current comment editor of Mail Today. As would be obvious, USI was well represented. In fact, the entire credit for getting a slot in the JLF should go to the Director, USI and his team.

Many of us were sceptical about the interest and response that a mundane subject like Military History would elicit from the audience. Due to bitter cold, the first session usually has very thin crowd. Entry to the JLF has always been free and unrestricted. This year, due to perceived terror threats to Salman Rushdie, who was expected to attend, the organisers had introduced the system of issuing an ID card to every visitor. This naturally took a lot of time, and led to long queues. As a result, very few could get an

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*The participation by the team was sponsored by USI of India.

Major General VK Singh (Retd) was commissioned in the Corps of Signals on 27 Jun 1965. His last appointment in the Army was Chief Signal Officer, HQ Western Command. He also served in the Cabinet Secretariat as Joint Secretary from Nov 2000 to Jun 2004.

entry before the beginning of the first session at 10 AM. One can imagine our surprise when we found that the Durbar Hall had been filled up even before the session started. Most of the visitors were not retired army officers, but young people, from schools and colleges.

It is not intended to give details of the points made by the discussants. The theme was the current policy on declassification of military records and its impact on Indian Military History after Independence. Because of the refusal of the Government to make public the Henderson Brooks Report that examined the reasons for the 1962 debacle, all war records of subsequent operations have also not been declassified. As a result, there are no official histories of the 1962, 1965 and 1971 wars. Of course, there are accounts written by officers who have taken part in these operations, but these are not based on authentic records such as war diaries, after action reports, etc. Hence they cannot be termed official histories. As is well known, Military History is an essential ingredient of the training of young officers. Due to a virtual drought in this field, after 1961, officers in training institutions such as the Indian Military Academy, Defence Services Staff College and the War Colleges are still studying World War II campaigns.

The History Division of the Ministry of Defence, which is responsible for production of official military histories, has already written the official histories of 1962, 1965 and 1971 wars. These are available on the website of Bharat Rakshak.com. As Manoj Joshi interjected during the discussion, he was himself instrumental in first putting them on the website of the Times of India. In a way, they have already been published. The history of the 1965 war has also been published in 2011 by Natraj Publishers, Dehradun. This is a reproduction of the India-Pakistan War of 1965, produced by the History Division in 1992, which quotes extensively from war diaries held by it. This was made possible by a declassification board held in 2005, which 'downgraded' the war diaries of 1965 which were intended to be used for publication of the book. Similar boards have been held in respect of 1962 and 1971 wars, and one can expect a similar history to be published soon. Surprisingly, although produced by the Ministry of Defence, this is not an "official" history. Lieutenant General Satish Nambiar (Retd), has gone on record to state that when he was the DGMO, they had cleared the official histories of 1962, 1965 and 1971 for publication without any caveats. These recommendations have either been 'misplaced' or

gathering dust in some dingy basement in South Block. Meanwhile, the 'official' history still has to see the light of the day.

Shortly after we returned from the JLF, there was another interesting development. In October-December 2011 issue of the USI Journal, an account of the 1962 war has been published based on material obtained from Chinese sources. The article clearly brings out that the Chinese had made a deep study of the battle of Chosin Reservoir during the Korean War of 1950-53, in which they were pitted against the US Army in conditions similar to what they had to face in 1962. As a result they avoided the mistakes they had made earlier and gave a better account in 1962. By denying Indian officers the opportunity to study our past campaigns, the Government is inadvertently ensuring that our performance in future wars with China and Pakistan would not be at optimum levels. One hopes that someone in the Ministry of Defence and Army Headquarters realises what grave damage we are doing to our present and future generations of soldiers, sailors and airmen. A conflict with China in the same areas, where we fought in 1962, is not unlikely in the near future. No one will tell them the mistakes made by their forbearers 50 years ago. Neither will they know the tactics of the enemy that gave them a free run to the Assam plains in 1962. Should we send our men to fight and die with blindfolds on their eyes?

The pitfalls of keeping the war records classified even after fifty years was brought out by each of the four speakers. It was also reinforced by several veterans in the audience, as well as some young people. In fact, one young lady floored us by asking why we were all talking only of the impact of the non-availability of records for research and training etc. As a citizen, she wanted to know how and why our soldiers fought and died during the many wars India had fought. A video recording of each session can be seen or downloaded from the Archives Section of the website www.jaipurliteraturefestival.org. Those who wish to see the session on Military History should go to the 'Archives for 2012', and look for the session from 10 AM to 11 AM in the Durbar Hall on 24th January (Day 5).

A brief note on the JLF and some vignettes would not be out of place. The festival is an initiative of the Jaipur Virasat Foundation founded by Faith Singh nee Hardy, an English/Irish Christian brought up in the UK, who married Tony Singh, a cousin of the

Maharaja, and settled down in Jaipur more than 40 years ago. Looking for a means of livelihood they founded Anokhi in 1970, which has become a global brand for traditional Rajasthani textiles. In 2002, she established the Jaipur Virasat Foundation to promote values of sustainable development, social inclusiveness, and cultural conservation in its local context. They also started the Jaipur Heritage International Festival, a two-week annual event that exhibits Rajasthani crafts, arts and folk traditions. The First Jaipur Literature Festival or JLF was held in 2006 as a segment of the Jaipur Heritage International Festival. By 2008, it had developed into a free-standing festival of literature standing on its own feet. The festival directors are the writers Namita Gokhale and William Dalrymple. The event is managed by Teamwork Productions, headed by Sanjoy Roy, the producer and managing director, and Sheuli Sethi, the executive producer.

The inaugural 2006 festival had 18 writers including Hari Kunzru, William Dalrymple, Shobha De and Namita Gokhale and about 100 visitors, some of which "appeared to be tourists who had simply got lost," according to Dalrymple. In 2007 the festival grew in size and featured Salman Rushdie, Kiran Desai, Suketu Mehta and Shashi Deshpande. In 2008 the festival continued to expand with about 2,500 attendees and several well known authors and speakers, such as Ian McEwan, Donna Tartt, John Berendt, Paul Zacharia, Miranda Seymour and Nayantara Sahgal among others. The evenings were enlivened by music and dance performances by Paban Das Baul, Susheela Raman, Karsh Kale and Anoushka Shankar. Since then, the festival has gone from strength to strength, and hosts a veritable 'who's who' of the literary world, including Nobel laureates and famous media personalities.

The 2012 festival ran into a controversy even before it began. Among the prominent speakers announced in advance were the talk show host Oprah Winfrey and author Salman Rushdie. A section of the Muslim community asked the organisers to cancel the invitation to Rushdie, which they declined. The local authorities in Jaipur announced that they had received intelligence reports that Rushdie might be assassinated if he came to the festival. In view of this, Rushdie cancelled his complete tour of India citing possible threats to his life as the primary reason. He later announced that he had found that the police may have exaggerated the

potential danger, leading to conjectures that this had been done due to political reasons, in view of the Assembly elections to be held in UP after a month. Several writers such as Ruchir Joshi, Jeet Thayil, Hari Kunzru and Amitava Kumar protested by reading out from Rushdie's controversial book *The Satanic Verses,* which is banned in India. In order to avoid aggravating the situation further, the organisers asked the concerned authors to leave. A proposed video link session between Rushdie and the Jaipur Literature Festival also had to be cancelled under Government pressure and protests at the festival site by local leaders of the Muslim community.

As mentioned earlier, entry to the JLF is free. Over the years, the format of the festival has been standardised. Five sessions are conducted simultaneously at venues such as *Durbar Hall, Mughal Tent, Baithak, Front Lawns* and *Samvad* within the Diggi Palace and its grounds. Each session lasts about an hour, including interaction with the audience. There is a gap of 15 minutes between sessions, to enable attendees to move between venues, and an hour's break for lunch from 1.30 to 2.30. The first session starts at 10 AM and the last ends at 7.30 PM. This is followed by a stage performance of about an hour and a half, followed by dinner. In true democratic style, there are no reserved seats, even for VIPs. Often, the hall or tent overflows, and people have to sit on the ground in the aisle or on the sides. Of course, there are many innovative ways to reserve a seat, if one has the time and resources.

The logistics for the festival were mind boggling. To handle the 200 plus authors and several hundred delegates, there was a large team of volunteers, who were stationed at the airport, railway stations, hotels and the main venue. These were mostly students from local colleges, who were keen as mustard and did everything on a run. After talking to a couple of young men in our hotel I found that the entire English Literature class of St Xavier's College had been given a week off, and drafted for this chore. Their duties were changed after a day or two, so that they got a chance to attend some sessions and meet a few authors and celebrities. Among the visitors, the largest number were school and college students, many from cities as far away as Ahmedabad, Mumbai and Kolkata. Their enthusiasm was infectious − armed with autograph books, cameras and voice recorders, they waylaid every author and speaker as soon as a session got over. Some even

spent their pocket money buying books and stood in line outside the signing tent after every session, to get them autographed by their favourite author. Looking at them, one could never imagine that this is the TV generation, hooked to I phones, Facebook and Twitter, with little time for the written word.

According to best-selling novelist Chetan Bhagat, the JLF has given India far better PR worldwide than another similar initiative of the Government – the Commonwealth Games. What is striking is the difference between the JLF's budget – Rs 5 crore, raised through private sponsorship – and that of the Games which cost Rs. 70,000 crore almost entirely funded by the State. Even after spending so much money, most of the Games news was related to the scam or the shoddiness of the work. Bhagat lists six reasons for the success of the JLF phenomenon, which the Government would do well to emulate while organising similar mega events. First, every festival had a few world renowned authors, which gave the event enormous credibility. Second, the JLF's range of sessions made it relevant for a wide variety of audiences, making them connect to the festival. Third, Jaipur is a beautiful city, with warm and hospitable residents, enhancing the experience of the visitor, who hankers to come back. Fourth, was the humility in the organisers' approach. The JLF manages to be classy without being snooty. School children arriving in droves in trains stayed overnight on railway platforms to attend the festival. Fifth, the festival had more than enough media friendly content, including informal chats with authors and visitors, all making for good stories. Sixth, the execution was flawless, with almost no hiccups. Sessions always start and end on time, no mean achievement in India. I attended the talk show between Barkha Dutt and Oprah Winfrey. The crowd was so huge that the gates had to be closed to prevent the ones already inside from getting crushed. Anywhere else there would have been a stampede, but the JLF managed to get it over, without any mishap. Concluding his piece in the Times of India of Saturday, January 28, 2012, Bhagat wrote;

"As a writer, and as an Indian citizen, I feel immensely proud about this celebration of books. Those who say India is all about Bollywood and Cricket should pay a visit to the JLF. Silly controversies come and go. Let us rejoice that India, once known as the land of scholars and knowledge, still has the best literary festival in the world."

Cyber Security: Situation and Challenges*

Lieutenant General Davinder Kumar, PVSM, VSM and Bar (Retd)**

Introduction

Information and Communication Technology (ICT) has ushered in globalization and with it a new security paradigm as well as a different way to conduct business. Its near instant reach and multiple connectivity, through powerful and responsive networks and systems, have not only made physical borders irrelevant, but have penetrated every aspect of human life. Its all pervasive nature and vast application range have relegated *Physical Security* by a number of steps on the security ladder. *Economic Security, Energy Security, Food Security, Water Security* and *Information Security* have achieved greater importance due to this globalization and the resultant interdependence as also the desire of all nations to give a better standard of life to its citizens.

The relative importance of these security layers can change depending on the nation's development index, priorities and perceptions. However, the criticality of Information Security has to be appreciated in the light of the fact that this is a common thread across all the security layers and hence, most critical. This is also more relevant as nations march from the agrarian/industrial era to the information/digital era.

Situation

Unfortunately, this common thread has also resulted in certain vulnerabilities in the digital domain as the dependency on networks and systems in general and internet in particular is growing exponentially. These vulnerabilities in cyberspace present a serious security challenge. According to a Norton study in 2011, 'threats

to cyberspace have increased diametrically in the past year affecting 431 million adult victims globally – or 14 adult victims per second and more than one million cyber crime victims per day.'

Cyberspace includes all networks and systems: telecommunications (mobile, cellular, wireless data services etc); process control systems like Integrated Control System (ICS); Programmable Logic Control (PLC); Supervisory Control and Data Acquisition (SCADA); data/contents in storage, transmission and processing; social networking in the digital world; Internet Protocol Television (IPTV) and the people who operate these. *Cyberspace is a **Global Common**.* It is man made and ever expanding. It is also a national asset. Here lies the biggest challenge, namely: what are the rules of sharing and demarcation of cyberspace?

ICT enables a host of business and government services to the citizens of a country. The Critical Information Infrastructure (CII) depends on it for its functioning, monitoring, maintenance and efficiency. In developed and some developing nations, ICT (cyberspace) has become the lifeline of critical infrastructure like energy, telecommunications, banking, stock exchanges, health services etc. Cyberspace has also become a critical area of Defence as also non-state players since it is an ideal resource for asymmetric warfare, the warfare of the 21st century. In cyberspace, a few state or non-state players can cause havoc through interference without the fear of attribution. Cyberspace is thus an ideal theatre of war supporting asymmetric warfare. It is due to this that today nearly 120 nations in the world are trying to develop technologies and capabilities to keep cyberspace safe as also have the ability to interfere with the cyberspace of the adversary. Here lies another challenge of defining Cyber War or Cyber Attack and the corresponding response expected.

Social Networking Platforms – a phenomenon that has gripped the entire world – have enabled people to come together across national boundaries and change the way they interact socially. It has become a medium for exchange of culture, values and governance. Its expanse, scale and easy reach have made it an ideal platform for Perception Management (an important part of information warfare) wherein a very large number of people can be mobilized for a cause as seen by recent international and national events *(Arab Spring, Jasmine, Wall Street Uprising, Anna*

Hazare's movement and so on). Currently, **Face Book** has 800 million users, which are expected to rise to one billion by August 2012. Tweets on **Twitter** grew from 500 K in 2007 to more than 4 billion in the Q1 of 2010, to over one billion tweets every week this year with a community of 225 million. *Here lies another challenge of the needs of national security vis a vis the individual's right of freedom of expression and privacy.*

There is an urgent need to secure cyberspace to ensure national security, proper governance and economic activities. We need to address the following:-

(a) What are the impediments to securing cyberspace?

(b) How can those impediments be overcome?

(c) What are the vulnerabilities and the associated threats to the National Information Infrastructure?

(d) How do we address the vulnerabilities linked to those threats in a timely, reliable and sustainable manner?

(e) How do we have a system in place which monitors the vulnerabilities and negates the associated threats in a dynamic and proactive manner?

No single individual, organization or a nation can find the answers to these issues and the continuously evolving problems of Cyber Security. A concerted and collaborative effort is needed both at the national and international levels to manage the situation and provide solutions. We need a concurrent 'Top Down' and 'Bottom Up' approach which should cater for a nation's security concerns in an acceptable international regime. This is a tall order as no nation will be willing to share its vulnerabilities and strengths. One hopes that continued discussion and awareness would foster more transparency and trust to appreciate each others' concerns and address the same in a more pragmatic manner.

Define, Identify and Recognize the Threat

Over the last decade, the world's understanding of cyber security has irrevocably shifted. Where once cyber crimes were seen as the domain of mischief making, basement dwelling loners, cyber attacks have now been recognized as the complex, pervasive threat that they really are.

As the secretive cyber world continues to mature, the internet has become the scene of a covert international battleground, the likes of which has never been seen before. On the new digital frontline, the boundaries between the military, civilians and the corporate worlds have blurred as governments, companies and individuals ranging from politically inspired "hacvtivists" to black market freelancers vie for the upper hand to pursue their agendas. Cyber incursions are no longer designed only to shut down websites and steal digital data; they are now capable of affecting real, physical infrastructure – an ominous precursor for the future.

Cyber Security is a generic term which has a number of constituents like: *Cyber Attack, Cyber Espionage, Cyber Terrorism, Cyber War, Cyber Forensics, Cyber Soldier, Cyber Mercenary* and so on. It has varied players vis Individual Player (Hacker), Hactivisits (Loosely organized group of hackers), *cyber criminals, cyber terrorists, non-state actors and the state.* The targets could again be individuals, organizations or the nation state. There is an urgent need to clearly define these terminologies which are the standard definitions acceptable internationally. Such an action will facilitate clear identification of threats and the corresponding responses including the associated Legal and Regulatory Framework.

Cyber Security Challenges. These are :-

(a) Coordination and cooperation between different stake holders both at the national and international levels.

(b) Reluctance to report cyber incidences. Hence, increased risk due to their invisibility and silence.

(c) Lack of awareness and respect for security. Security has to be seen as integral to governance and not a technical activity. Security has to be 'built in' and not 'bolted on'.

(d) Protection of a nation's CII is a major challenge since a bulk of it is privately owned. Yet, security and safety is seen as a Government responsibility with attendant reluctance on the part of private sector to invest.

(e) **ICT Global Supply Chain.** This is a major security concern both at the national and global levels. Given the increased dependence on global ICT products, especially in

critical sectors and the growing realization of cyber risks, countries are doubting the integrity of these products fearing that adversaries may introduce malicious codes/functions to do surreptitious surveillance, disrupt services or at worst paralyze a nation by eroding the functionality of its Critical Information Infrastructure (CII). Alleviating such doubts and fears to continue benefiting from global ICT supply chain, is one of the biggest challenges faced by the world in cyber security domain.

(f) **Poor Awareness and Education.** Another important challenge requiring special effort is to improve awareness and education about cyber security threats and need to follow best practices across different levels – from school children to housewives to government officials and management and corporate world. (It has been said that 80 per cent of the threats can be negated through following best practices). Adding to the problem is the non serious and reactive approach towards security as ingrained by a nation's culture. Many cyber threats can be mitigated if individuals are aware and vigilant.

(g) **Physical Provenance.** (The history of ownership of an object especially when documented or authenticated; like traceability in aerospace) of ICT components particularly in the process control systems.

(h) Absence of International and National Doctrines for Cyber Security and the associated Cyber security policies. The objects of such a doctrine should be :-

(i) To devise ways of eliminating threats and not just to identify defensive measures.

(ii) To clearly specify role, responsibilities and accountability regarding security of ICT components from producers to customers.

(iii) To codify normative behaviour in cyberspace and should identify cyber attacks and abuses as crimes or national security issues.

(iv) To include both policy and technical issues.

(v)   To clearly state the response that a particular cyber incident would get.

(j)   Understanding and addressing human behaviour is essential to building genuine security culture. It is a major challenge. There are also the related issues of the availability of requisite skill sets as also the equation between the collective right to security and the privacy of individuals.

(k)   A dedicated organization for cyber security with single point responsibility and accountability.

(l)   Cyber security standards need to be laid down in order to neutralise potential threats.

Weaponisation of Cyberspace. ICT has made asymmetric warfare more potent. There is a premium in attacking first due to the very speed of the attack. Besides, offence is a much cheaper option as the attacker has to exploit one vulnerability while the defender must monitor and protect the entire network/system. Today over 120 nations are developing offensive cyber capabilities. The challenge is to stop or regulate this through generating trust and confidence.

The Imperatives

Cyber Security is a global problem that has to be addressed globally through collaboration and co-operation by all countries. No government can fight cyber crime or secure its cyberspace in isolation. Cyber security is not a technical problem which can be solved; it is a risk to be managed by combination of defensive measures, astute analysis, information warfare and traditional diplomacy. It will always remain a work in progress as the threat is varied and dynamic. Fully secure cyberspace is a utopia!

There is an urgent need to have internationally acceptable legal norms regarding territorial jurisdiction, sovereign responsibility and use of force, investigation and prosecution of cyber crimes; data preservation and so on for dealing with cyber crimes. Globally acceptable norms for dealing with cyber incidents and transnational efforts for effective information sharing will help in securing the cyberspace.

Protection of CII will remain top national priority. Development of industry standards and sharing of best practices will better

equip organizations to respond to evolving and perennial threats. People, organizations and governments should be forthcoming to share cyber incidents. Emphasis also needs to be given to develop secure products, services and processes. A liability clause in the supply chain as in aerospace and nuclear fields will enhance the confidence of the industry.

Security must be prioritized as an embedded and integral function in every development. An impetus needs to be given for creating awareness and development of necessary skills. Cyberspace cannot remain safe unless its users are aware, vigilant and have the necessary skill sets to recognize and respond to cyber incidents.

Conclusion

In this Information Age, cyberspace is critical to meet the requirements of an individual, organization, nation and the world. We need to ensure that cyber security requirements or initiatives of any entity should not hamper the growth and availability of the cyberspace. We need to create awareness amongst the users about cyber security and ensure availability of requisite skill sets. While the security of the National Information Infrastructure would remain the top priority of any nation, there is an urgent requirement of international co-operation and collaboration for a legal and policy framework; defining terms like cyber crime, cyber attack and so on; laying down rules for sovereignty and jurisdiction in cyberspace. We need to ensure that cyberspace - the biggest Global Common – remains a driver of economic prosperity of nations and a platform where people from all nations can safely interact and exchange goods and services. Four Common Themes which emerge for ensuring cyber security are:-

(a) A coordinated and collaborative approach is needed.

(b) Metrics (Standards for measurement by which efficiency, progress, or quality of a plan, process or product can be assessed) for security are enablers and must be developed.

(c) An effective legal and policy framework for cyber security must be created.

(d) The human dimension of security must be addressed.

Letters to the Editor

I

1962 – Battle of Se-La and Bomdi-La

Dear Editor,

Reference your article *'1962-Battle of Se-La and Bomdi-La'* in Oct-Dec 2011 Issue of USI Journal.

Reading the article is a professional pleasure; for the opponent's clinical execution, innovative conception of the plan and accurate reading of the Indian leadership's mind. On these aspects we seem to have misread, erred and faltered so very badly, both politically, and, even more, militarily.

In retrospect, I hope, the military leadership, at least, does not err and falter this time, should it ever come, and keep the following aspects under thorough professional examination :-

(a) Thorough preparation through infrastructure development and mental determination; asserting this necessity strongly.

(b) Consideration of strong artillery and air as well as air defence support in view of our lines of communication being vulnerable to interdiction; and Chinese airlift capability being restricted because of the take off height of the Tibetan plateau.

(c) Preparation of the local population to resist, harass and for intelligence gathering / passage. Can the equivalent of Ladakh Scouts be contemplated in the Kameng, Lohit areas? The role of SSB, SFF etc?

(d) Use of armoured forces across the border.

(e) Building and employing counter-offensive capability, a vital part of effective defence.

(f) Critical assessment of Chinese capabilities as displayed in 1962 : –

   (i) The forces covered 200 km in 10 days in November-early winter, and withdrew before the passes closed.

(ii)   Outflanking troops carried 30 kg in addition to their weapons and ammunition; being self contained for 10 days; operating in mountains in early winter over 14-16000 ft.

(iii)   Their arrangements for river crossing – Tawang Chu, Kameng R, Rupa etc.

(iv)   Their engineer effort for road construction.

Yours sincerely,
Lieutenant General SC Sardeshpande (Retd)

Dear Editor,

This is with reference to the Article *'1962-Battle of Se-La and Bomdi-La: A View from the Other Side of the Hill'* by Major General PJS Sandhu (Retd) that appeared in the Oct-Dec 2011 issue of the USI Journal.

While complimenting the author for his thought provoking piece of writing, I would like to make certain comments which are given in the succeeding paragraphs.

I was a subaltern during the 1962 War and was present at Tawang, Nuranong (ahead of Se-La) and Bomdi-La in successive stages. It is obvious that I would then not have known anything about the higher direction of war, an acute sense of observation notwithstanding. But thirty five years later, under the auspices of General Palit's Trust for Military Studies, I wrote a book titled *'When Generals Failed'*. I interviewed over 50 officers and local inhabitants (eye witnesses to the happenings) and visited and revisited the scenes of ambushes, battles and rather non-battles as in most cases our troops had scooted before the actual attacks by the Chinese.

I had also included extracts from *'The Snows of the Himalayas: The True History of China India War'* by Sun Xia and Chen Zhi Bin. Both the participants had served in the PLA in the 1960s where they had heard accounts of the 1962 War from the senior field commanders and travelled over China to interview other participants including Divisional Commander Zhang Pengrian who had led the Main Attack.

However, since these accounts including the thought provoking inputs in Major General Sandhu's article have emanated

from a totalitarian Communist country where everything is ruthlessly censored, nothing can be taken at its face value. One has to make allowances for propaganda, rhetoric and twisting of facts. The view from the other side of the hill needs to be reconciled with our side as well.

At Se-La and Dirang it was pure and simple abdication from battle and at Bomdi-La there was just one company of 1 Sikh LI when the Chinese attacked with a Regiment (equivalent to a brigade of ours) with 1 Madras on a limb and isolated.

It is interesting to note that the Chinese in their various accounts have omitted the following battles where the Indians fought most bravely.

(a) Defensive battle by 1 Sikh supported by 7 Bengal Mountain battery on 23 Oct 1962 where the forward company commanded by the Hockey Olympian Major Hari Pal Kaushik beat back repeated attacks by the Chinese allowing the Battalion as also the adhoc Brigade at Tawang to make a clean break and withdraw east of Tawang Chu to Nuranong and Se-La.

(b) The most heroic performance by 4 Garhwal supported by 2 Derajat Mountain Battery (FF) as covering troops at Nuranong when they beat back all attacks on 17 Nov 1962. The battalion was most unwisely withdrawn by the GOC who had lost his nerve; thereby opening the main gate to the Se-La defences and consequently the rout ensued.

(c) The Artillery bombardment of the Chinese caught in the open at Thembang on 18 Nov 1962 where nearly a hundred Chinese were killed including the Commander of this special force.

(d) The heroic attack put in by Lieutenant Colonel SK Avasthy and hundred odd assorted officers and men at Lyugla Lumpa on 21 Nov 1962 where all of them were killed but not before taking toll of equal number of the Chinese.

As regards the action involving 3 JAK Rifles, I happened to be at Rupa Track Junction when the Commander 48 Brigade asked Lieutenant Colonel Gurdial Singh the CO of the Battalion which had just withdrawn from Bomdi-La where they were to have put in

a pre-dawn counter attack which was called off (most likely because of no artillery support and non-arrival of 6/8 GR), to now occupy a lay back position on the adjacent feature. The CO promptly left with his Reconnaissance Group while his Dogra troops were waiting north of the road when within minutes the Chinese came rushing down from Bomdi-La side. There was a sharp hand to hand fighting and there were casualties on both sides but the Chinese being in larger numbers managed to capture the CO and many of his troops. Now Gurdial was a hardened war veteran and it is not surprising that his troops instead of running away put up a ferocious fight. It was never a case of the clash of the opposing vanguards as alluded to in the article. Incidentally Gurdial lost his son Major Devinder Pannu in 1971 at Chamb and was awarded the Vir Chakra posthumously. Bravery runs in the family.

The comparison with the Battle of Chosin Reservoir is very apt and it clearly illustrates Mao's Maxims of War; of multipronged attacks, infiltration, encirclement and envelopment and finally hot pursuit by disregarding caution when the enemy forces are in a state of disarray.

My major aim of writing this letter is to remind ourselves during this Fiftieth anniversary of this unfortunate war, of the valour and sacrifices of the known and also mostly those unknown officers and men who gave their lives for the Nation. They deserve our solemn homage. One wonders if it occurred to them as they breathed their last that they had been let down by the brass hats. This to my mind is the main Lesson of the 1962 War in Kameng Sector and we don't need to go searching for any other alibis in Henderson Brooks Report.

Yours sincerely,

Brigadier DK Khullar, AVSM (Retd)

Dear Editor,

Kindly accept my compliments on your well-researched article on the 1962 Battle of Se-La and Bomdi-La. The article gives a fresh and interesting perspective from the Chinese side and addresses the questions and circumstances on the fall of Se-La – otherwise a highly defensible and tactically sound position. While everybody expected Se-La to be attacked (and still be held), the

significant ingress to Dhirang and Bomdi-La through Poshing-La and other routes was not expected, precisely because we did not study Chinese tactics and the previous battles like that of Chosin Reservoir, as you have aptly pointed out. We unfailingly persist with our habit.

As regards the reasons for the war, essentially the Chinese brought 'Decades of Peace' with this war, if nothing else. A brief but compelling account on the Chinese political and ideological side of the war has also been given by Henry Kissinger in his latest book *'On China'*.

Yours Sincerely

Lieutenant Colonel Shailender Arya

II

Asia's Water Crisis and the New Security Risks

Dear Editor,

In the article titled *'Asia's Water Crisis and the New Security Risks'* (USI Journal, Jan-March, 2012), Dr Brahma Chellaney has brought out the higher risks of water conflicts in Asia due to China's water policies aimed at advancing its interests without caring for the interests of its neighbours. Being the upper riparian, China has never believed in having water sharing agreements for mutual and sustainable benefits with its neighbours. Due to this attitude of China, the building of institutionalised cooperation in Asia to harness the transboundary rivers for optimum development and utilisation would be difficult.

China has every right to build dams in its territory and we cannot dispute their right to do so. But what we have to worry about is the impact of these dams on our projects and related activities since the UN Convention (1997) on international water courses is still to be ratified and the international water laws are weak to ensure the rights of downstream riparians on such rivers. Presently, except for a joint declaration made by the two countries in 2006 for exchanging hydrological data, there are no subsisting agreements between India and China on water related issues. Just sharing such information is not adequate to address our concerns.

As of now, Indian authorities do not appear to be much concerned about our neighbour's activities in upper Brahmaputra (Yarlung Tsangpo), and in the Tibetan parts of the Sutlej and Indus sub basins. According to them, Chinese authorities have assured India that the projects proposed by them would not affect the river flows downstream.

Are we to remain satisfied with such assurances knowing fully well that if China diverts the lean flows of the rivers, our hydro projects would have to be shut down and if they release heavy flows from their reservoirs during monsoon season, our areas downstream would be devastated?

The impact of Chinese reservoir operations in the Mekong basin on co-basin states like Thailand is relevant here. The indiscriminate reservoir operations and spillway gate openings releasing large flood flows affected their agricultural activities and inundated many areas causing heavy damages. Even the protests made by the Mekong River Commission were ignored by China. India too had suffered heavy losses in the recent past due to unprecedented floods from the Sutlej and from the Yarlung Tsangpo submerging our many areas.

As stressed by the author, it is therefore necessary for India to strategically plan and manage our water resources in view of Chinese reluctance to enter into water sharing agreements. We can protect our interests by constructing storages in these rivers to absorb river flow fluctuations when caused by Chinese reservoir operations. We should not allow another Mekong to repeat here.

Yours sincerely,

MS Menon
Former Chief Engineer, Central Water Commission

III

Nuclear Weapons Free Zone in the Middle East: A Significant Step Towards an Eventual Nuclear Weapons Free World

Dear Editor,

Colonel GG Pamidi in his article on a nuclear free world in the Jan-Mar 2012 issue of USI Journal has omitted discussing one very pertinent factor - the philosophy behind weaponisation. A

fundamental point is, why did the N5 weaponise? France, Russia, and China were ravaged by the Axis powers during World War II. England was spared a land invasion but had to withstand a fierce air attack. USA was lucky in that its mainland was unaffected due to external lines of communication and only outstations like Pearl Harbour suffered. The N5 realised that conventional forces were inadequate to prevent a determined land invasion by an aggressor. Therefore, they took an oath after the war that never again in their history would they permit a repeat of this humiliation and decided to develop the "mother of all weapon systems" that would act as an ideal deterrent against an invader's intention. Thus was born the weapon of mass destruction.

This contention was proved beyond doubt during the American attack on Iraq in 2003. Just before the attack, then US Defence Secretary Donald Rumsfeld stated at an open press conference that he was going in for a simultaneous two-pronged invasion on two members of what George Bush had termed "axis of evil" namely Iraq and North Korea, and he would deal with the third one Iran, later. Saddam Hussein did not take this threat seriously despite having been thrashed once before, resulting in his not only losing his country but his own life as well.

By contrast, North Korea's President of that time, the late Kim Jong IL too immediately announced openly that the day American troops crossed the 38th Parallel, he would retaliate with a nuclear strike on South Korea. Rumsfeld did a prompt volte face and offered to talk instead! Iran is fast on the way to having a nuclear arsenal and *Inshallah,* would stop the expected West's attack in its tracks.

No nuclear weapon holding nation that has studied military history will ever make the blunder of de-weaponising else it would land itself in the same boat as India in 1962. Hence all this talk about nuclear disarmament should not be taken seriously. The N5, unfortunately, do not want any other country to have WMD thus giving it a distinct advantage in "doing an Iraq" elsewhere.

A misconception needs to be clarified - who was responsible for Hiroshima and Nagasaki? Was it the Allies - as is generally trumpeted - or the Tokyo High Command? If Japan had surrendered

soon after Germany did in May 1945, it would have been spared the atom bomb. But Emperor Hirohito and Field Marshal Terauchi continued with the war for another three months, ignoring the Allies' suggestion to surrender. Their intemperate defiance led to Japan's horrific punishment. Japan's biggest drawback in its national psyche is its excessive ego, an ego that made it feel that it was superior to any one else in war and this feeling caused its politico-military harakiri.

Yours sincerely,

Lieutenant Colonel JK Dutt (Retd)

Comprehensive National Power : A Model for India*

Major General PJS Sandhu (Retd)**

The book is the result of a research project undertaken by the USI and is the first one of its kind in India. Historically, national power has been considered synonymous with military power. This would explain to a great extent the superpower status of the erstwhile Soviet Union and its unexpected disintegration. Since then the perception of national power has undergone a change.

The Study has defined Comprehensive National Power (CNP) as the aggregate power (comprising of hard, soft and smart power constituents) of a state and its ability to use its national capacity in the achievement of its national objectives. It is to the credit of the Chinese who during the early 1980s coined the phrase and developed the idea of measurement and quantification of CNP.

The book starts with an overview of CNP and after a broad discussion on conceptualising CNP, Methodologies and Thought Processes goes on to analyse various determinants of CNP, with special reference to India. In the chapter dealing with Methodology of the Study, a detailed discussion has been done of the Chinese and Western studies that have been undertaken in the recent past. Here the Study also lists the possible reasons which may prevent India from achieving its true potential.

The next few chapters deal with various elements of CNP with special reference to India; namely the economic determinants, science and technology, foreign policy, the role of the military and most importantly various bottlenecks which India could face such as: issues of governance, administrative and police reforms, internal security, caste system, urbanization and so on. It is a kind of reality check for India's growth story.

Major General PJS Sandhu (Retd) was commissioned into 8th Light Cavalry in June 1966 and was later transferred to 47 Armoured Regiment. He retired as the Chief of Staff of a Strike Corps in July 2003. Presently, he is serving as Deputy Director & Editor at USI since May 2007.

The Study has gone into great depths to analyse the role of military power in the determination of CNP. According to a Chinese study, *"military power is not only an explicit function of CNP but is also a tangible expression of the will to power."* The Study has adopted a unique method to evaluate the role of military's contribution to CNP. Known as the 'Carver Delphi Method' it involved eliciting the views of 150 middle level and senior Indian and foreign military officers alongwith other scholars on what they considered to be the determinants of military capability. The relative standings of nine countries including India with regard to military capability, based on this method, are given in a Table on Page 231 of the book. India ranks fourth, behind the USA, Russia and China.

The high point of the book is the last but one chapter on 'Proposed Model for India and Interpreting the Results of the CNP Quantitative Model' which is also on a CD enclosed with the book. Based on multiple-variable analysis the study proceeds to quantify various building blocks to determine the CNP which is a relative concept. It is dependent upon a range of matrix among a selected peer group of countries. The Study has assessed each state on 88 variables spread across six master determinants. In the final analysis, India ranks sixth in the peer group of nine states. The last chapter deals with 'India's Road Ahead to Great Power Status'. It is a kind of road map for India to achieve its rightful place in the comity of nations. The Study also establishes very clearly the intricate relationship of CNP with grand strategy and vice versa.

The book is a seminal work which would propel analysts and scholars to undertake further studies on this vital aspect of nation building. If one was to critically examine the adequacy of determinants of CNP, one may be tempted to add 'National Morale' to the list of determinants. It is an intangible and not easy to quantify or fit into an equation; yet it is a vital aspect of a nation's 'will to power'. It is a challenge for future researchers on CNP to crank this into their equations.

Having read the book from cover to cover, let me also say that right in the beginning the book takes you to a kind of 'intellectual high' and maintains you there right upto the end. The Study has also identified weaknesses and inadequacies that must be addressed, if India is to become a great power for which it has all the ingredients.

The Search for Netaji: New Findings*

Shri SK Datta, IPS (Retd)**

The most enduring controversy is the mystery surrounding Netaji's alleged death in a plane crash in August 1945 in Formosa. This has remained a controversy as many believe that Netaji escaped to Manchuria to reach out to the Russians.

Dr Purabi Roy's book deals with this highly sensitive question from the view of a researcher. She has compiled all the available documents made public by archives of different states, mainly Germany, the UK and Russia. Many of these discoveries were due to her own efforts. We can call them as "New Findings."

The Shah Nawaz Committee in 1956 and the Khosla Commission in 1974 held the view that Netaji died in the plane crash as alleged. The Mukherjee Commission in 2005 came to the conclusion that Netaji did not die in the plane crash. The Government of India did not agree with the report of the Mukherjee Commission without giving reasons for rejection.

Will the Netaji mystery be unveiled in future? The author rightly believes that it would depend on "the strong will, resolute determination and sincere initiative on the parts of the governments of the people of both India and Russia."

The reasons for holding such a view can be explained in terms of hundreds and thousands of documents that have come to light, especially after disintegration of the Soviet Union. Much is hidden in the archives of the Russian Federation. In August 1946, in the midst of a strong belief that Netaji had managed to escape to Russia, Nehru reportedly requested V Sayadiyants, a Soviet agent living in Bombay, to deliver his letter personally to Stalin. That letter is yet to surface from the hidden chambers of the

Russian archives. The contents of the letter would remain a matter of interest for historians.

Netaji's pro-Russian views for liberation of India from the British Raj was evident before the outbreak of World War II. He could forsee the Cold War situation after the end of World War II. He also forsaw clearly the defeat of Japan; and much before that, he attempted to reach out to the Russian leadership. All these have been brilliantly brought out by Dr Purabi Roy. The British Intelligence reported to Russian Intelligence during the War that Subhas was a British agent just to prevent Subhas Chandra Bose from reaching Russia. This was the work of the Dirty Tricks department of the British Intelligence. These comments are mine and not of Dr Roy.

Dr Roy has brought out all the available material without interpreting any of them. She has been able to compile all the documents for future researchers to work on Netaji and Indo-USSR relations.

Only after the collapse of the Communist rule in Russia, the Russian scholars started to work on 'Netaji, India's Independence Struggle'. The most important person who could have assisted the Mukherjee Commission was A Kolesnikov, a former Army officer of the Soviet Union. He had told some Forward Block leaders that Netaji's Provisional Government of Free India got recognition from the USSR, Subhas Bose had reached Russia at the end of World War II and he had seen a file where Bose was the subject discussed between Stalin, Molotov, Vischenkit and Malik. When the Mukherjee Commission reached Moscow, he remained "untraceable". He had reportedly got a job in the foreign office and posted abroad. Here is an example of Government of India's lack of interest to persuade the Government of Russian Federation to produce this witness.

The book is a store house of information for all the future researchers to unfold the truth behind Netaji mystery.

Short Reviews of Recent Books

Emerging Asian Nuclear Environment: Implications for India.
*Edited by Arvind Gupta and KD Kapur, Foreword by Anil Kakodkar
(New Delhi, Lancer's Books in association with Indian Pugwash
Society, 2012), pp.. 432, Price Rs.895/-, ISBN-9788170951247.*

The book provides a comprehensive analysis of the diverse nuclear
challenges and issues that Asia is currently facing. The book has
been laid out in eleven chapters. Seven eminent scholars, namely,
Dr Arvind Gupta, Professor KD Kapur, Dr Ch. Viyanna Sastry,
Samuel C Rajiv, Dr Salvin Paul, PK Sundram and Kapil Dhanraj
Patil have analysed the complex subject in a systematic manner.

While there are many books dealing with each aspect
separately, there are very few that have attempted to tackle such
a vast subject in a single book. The various aspects covered are;
evolution of the nuclear non proliferation regime; transition from
non-proliferation to counter proliferation; the new global nuclear
agenda; Pakistan's role in the emerging Asian nuclear order; China's
nuclear and missile programme with a focus on China's proliferation
record and China-Pakistan nuclear focus; Japan's nuclear option
and the East Asian politics; North Korea's nuclear and missile
programme, and its impact on the future of Japan's nuclear policies;
Iran's alleged pursuit of nuclear weapons; nuclear terrorism and
nuclear security; nuclear energy renaissance; and India's nuclear
programme, particularly the bilateral nuclear cooperation
agreements with various countries after the NSG waiver.

While it is essentially historical, the scholars have analysed
these events from an Indian perspective and have expressed their
opinions in a clear and easy to comprehend manner. The salient
aspects that stand out are the masterly coverage of the intricacies
of the diverse nuclear challenges and the manner in which they
influence India's security such as Pakistan's nuclear proliferation
record, nuclear terrorism, nuclear security and the role of China in
these new equations.

The contents of the book would interest a wide ranging
audience; particularly the diplomatic community and the policy
makers.

Colonel GG Pamidi

Conflict in Jammu & Kashmir: Impact On Polity, Society And Economy. *Edited by VR Raghavan; (Published by Centre for Security Analysis Chennai, India) pp..288 Rs 850, ISBN : 978-93-81411-21-6*

The book under review contains a number of papers on various facets of conflict in J&K. These papers were presented in a conference organised by the Centre for Security Analysis (CSA). The book is professionally edited. The editor claims that "over the years the original causes have invariably become less silent as the insurgency evolved. Its consequences have become causes for continuing conflict." These causes have become drivers of the conflict.

The authors have covered the historical background of the conflict to include the events leading to accession of the State to India, formulation and status of Article 370, agitation in Jammu for full accession and consequent provocation to the people in Kashmir to look for alternatives and genesis of the present conflict and its consequences. Circumstances leading to induction of Pakistani and Afghan terrorists in the valley and consequent marginalisation of local militants and alienation of the Kasmiri people have been discussed and it has been concluded that Pakistan's strategy of bleeding India through thousand cuts has failed.

It has been recalled that, in 2008 ,the valley had erupted over a 'fiction sold by separatists, media and main stream parties that the land allotted to Shri Amar Nath Shrine Board was aimed at constructing settlements for Hindus to undermine the Muslim majority character of Kashmir'. "Neither was the land allotted nor were the concrete construction to be undertaken". Similarly, Hindu communal elements sold a 'counter fiction'. The resultant violence, communal flares ups, economical blockade and 'Muzafarabad Chalo' calls have left a deep scar on the minds of the people.

Finally, the authors have also identified a few positives of the conflict. According to them the conflict has helped in 'mainstreaming of the people of the State. Many Kashmiri Muslims send their children outside the valley for the purpose of education and career building. Kashmiri Muslims were traditionally reluctant to move out of the Valley. The forced migration turned out to be a blessing in disguise for them. They found better avenues and opportunities for

their skills. Majority of them have carved out a place for themselves outside Kashmir.

The authors have been reluctant to highlight the role played by the huge amount of unaccounted for money which has poured in Kashmir from all sorts of sources. As a matter of fact this money has turned the conflict into an industry. This is a major consequence that has become the driver of the conflict.

Brigadier Virendra Saxena (Retd)

Thirty Years on the North - West Frontier: Recollections of a Frontiersman. *By Leslie Mallam (Karachi: Oxford University Press, 2011), pp..247, Rs 895.00, ISBN: 9780199063031.*

Colonel Mallam's book gives the reader an understanding of life on the North-West Frontier between the World Wars and the partition of the Indian sub-continent. The narrative however is basically a memoir of Colonel Mallam's life before, during and after his service on the North West Frontier.

The book basically gives an account of the authors experiences in dealing with the tribes who inhabit the areas of the North-West Frontier of what is now Pakistan. It however also brings into focus the fact that no. government before Pakistan's independence or thereafter has had the foresight to integrate these tribes into the framework of the State. As a consequence, successive governments in Pakistan have failed to forsee the dangers of allowing these tribes to remain outside the pale of its laws and not fully within its administrative control.

Colonel Mallam does tell us of his efforts, as a political officer, to convince his superiors to start the process of integration but that his endeavours were cut short in 1947 when the British left the sub-continent.

The book relates to a past that is far from the present situation in the region but concludes that unless education, social and political development of the tribes takes place, the tensions between tribal areas and the Government of Pakistan will continue.

Major General Ian Cardozo, AVSM, SM (Retd)

Global Justice: Critical Perspectives. *Edited by Sebastiano Maffettone & Aakash Singh Rathore (New Delhi: Routledge, 2012), pp .. 208, Rs 595, ISBN 9780415535052.*

Sebastiano Maffettone and Akash Singh Rathore, the two Editors have brought out this volume of thought provoking essays by eminent thinkers on the subject of global justice. While the global justice debate has been ongoing for some forty years, this volume aspires to contribute to the debate in two ways. In Part-I, it seeks to introduce the major issues reflected in the works of John Rawls from 1950 to 1993. These publications include – A Theory of Justice, The Law of Peoples & Political Liberalism. In Part II, book makes a critical observation by exposing international 'participation deficit' and 'parochialism'.

A catalyst for global justice debate was Peter Singer's path breaking paper – 'Famine, Affluence and Morality'. Singer was consumed by the famine in East Pakistan or as he puts it East Bengal / Bengal and hence questioned the moral obligation of helping the distressed. It may be mentioned that it was due to poor international understanding in 1971 of millions of refugees pouring in its territory from East Pakistan that forced a war upon India.

Nagel on the other hand points out that while morality may stretch beyond borders, global justice would require global basic infrastructures otherwise it is a chimera. Thomas Pogge circumvents the arguments of Nagel and radicalizes Singer's demands. Pogge argues that the present system of international relations is rigged and the beneficiaries are the developed nations at the expense of the global poor, who for example are- obliged to accept the normative authority of - World Trade Organization, International Monetary Fund and the World Bank. Amartya Sen breaks away from John Rawls with specific references to institutionalism and talks about *nyaya, niti & matsyanyaya.* Neera Chandhoke examines the notion of redistribution at global level. Rathore suggests that the global justice debate is not merely parochial (mainly Anglo- American) but out of touch with realities. Finally, Maffettone presents the liberal political theory of John Rawls that functions inclusively towards- post colonial concerns. Colloquially speaking, it may be said that the book is literally food for thought where erudite thinkers speak at length about the viability and morality of the haves helping out the have-nots.

Major General Ashok Joshi, VSM (Retd)

Jihad on Two Fronts: South Asia's Unfolding Drama. *By Dilip Hiro (Harper Collins Publishers India, 2011), pp..443, Rs 699, ISBN 9789350291696.*

Beginning quaintly from a visit to Sufi shrines of Nizamuddin Auliya in Delhi, Dilip Hiro sets out to cover in rather ambitious vein the ideological linkages of Sufism in India with that in Pakistan, spreading westward to Central Asia, its impact on the Rishi order in Kashmir and its present day relevance in withstanding the onslaught of orthodox Salafi Wahabi Islam, especially in Pakistan.

The author argues in this book that interrelated jihadist movements in Afghanistan and Pakistan pose a serious threat to the Pakistani state and have even infected India, through the ideological contamination and penetration of outfits like the Indian Mujahideen. Using the strategem of eye-catching sub-headings Hiro narrates the history of recent developments in the region, reiterating mostly what is conventional wisdom on how the Soviet invasion of Afghanistan was utilised by the Pakistani dictator, Zia ul Haq to project Pakistan's credentials as a frontline state, how the Taliban were spawned by the ISI, how ISI grew from strength to strength, using a new breed of non-state actors to foment terrorism in an already disaffected Kashmir. In between, in what seems a somewhat discordant interlude, Hiro suddenly switches to the travails of Indian muslims against Hindu revivalism, touching on the communal violence in India, especially the Gujarat riots and even the Babri mosque demolition.

Important developments of the era are enumerated though sometimes failing to establish logical co-relation between events. Hiro wants to let his readers know that he has kept abreast of the latest sensational incidents like the Mehran Naval base intrusion by islamic terrorists and the killing of journalist Saleem Shehzad. The intention seems to be to somehow connect all that happened, especially after the trauma of 9/11 till the rise of the Tehrik e Taliban (TTP). In the process, he offers opinions on matters of geo-strategic import pertaining to policies of major powers active in the region- viz the USA and China which do not necessarily follow from the sequence of narration.

While written in a racy style, the book does not add substantially to existing knowledge on the subject. However, it

does provoke analysts in the strategic community to ponder on the likely portends which may confront the region as the US/ISAF withdrawal looms.

Shri R Banerji

Afghanistan Revisited: The Brahmana Hindu Shahis of Afghanistan and the Punjab (c. 840-1026 CE). By RT Mohan, (New Delhi, General Mohyal Sabha Foundation,2012), pp.. 207, Price Rs. 300/-, ISBN N.A.

As the name suggests, the book traces the history of the Hindu Shahi dynasties of North West India and Afghanistan over a crucial period of two centuries during the medieval era. This was the period that saw the rise and spread of the monotheistic doctrine of Islam throughout Central Asia and the Hindu Kush into South Asia. The author traces the history and ethnicity of the last important Hindu kingdoms that held sway in Afghanistan and undivided Punjab till they were ultimately decimated by the invasions of Mahmud of Ghazni.

The book is significant in shedding light on an epoch of Indian history obscured by the successive writings of successive Islamic and colonial historians who, for reasons of their own, tended to deliberately gloss over the events that preceded the political ascendancy of Islam in South Asia.

The author describes the times of the Hindu-Shahis and covers, chapter-wise, the various rulers who made up the dynasties. There are four appendices and an epilogue. These discuss various important inscriptions and coins, while the epilogue focuses on the ethnicity of the Hindu-Shahis and links them to the Mohyal Brahmin clans of North India. The Mohyals, long known as the fighting Brahmins, have a long and proud history of military service, more in consonance with the Kshatriyas rather than the Brahmanical varna. The seven principal exogamous families are: Datta, Vaid, Bali, Chhibber, Mohan, Bamwal or Bhimwal, and Lawa. One of the most astounding pieces of ancient Mohyal folklore is their association with the armies of the Holy Prophet of Islam in Seventh Century Arabia, where they are said to have fought under the banner of Amir Mukhtar and helped avenge the death of the Prophet's grandson, Imam Hussain, by razing the fort of Kufa in 686 CE.

Although the author of this work is not an academician he

has put together a tome worthy of high academic merit and the author does a commendable job in applying a universal style format throughout. The book is an important addition to the historiography of medieval India and will be a useful resource for serious scholars of medieval Indian history.

Squadron Leader Rana TS Chhina (Retd)

Russia and Tajikistan : Political and Security Relationship. *By Dr Mohammad Monir Alam (New Delhi, Lancer's Books, 2011), pp..261, Price Rs.595/-, ISBN-9788170951216.*

Given the global shift of focus towards the Central Asian Republics ever since the collapse of the Soviet Union and more so after 9/ 11and the events thereafter, Dr Monir Alam's book on the political and security relationship between Russia and Tajikistan comes as useful reading for a better understanding of the complexities and the challenges that the Commonwealth of Independent States (CIS) face with particular reference to Tajikistan.

To the credit of the author he has wisely chosen geography as the opening chapter of his book. Often analysts lose sight of the vital significance of geography in shaping the destiny of the peoples of a region. The chapters that follow are logical and well organized. The author traces comprehensively the history of the relationship between Russia and Tajikistan right from the middle ages up to the emergence of the Soviet Union. The Soviet Union era has then been subjected to a separate analysis. The subsequent chapters dwell on the period of turmoil and instability after the collapse of the Soviet Union. The civil war that followed in Tajikistan has been analyzed with a fair degree of clarity by the author. The role of Russia in restoring some stability in the country and the Moscow Peace Accord have been covered by the author in considerable detail. The final chapters look at the Taliban phenomenon and how that impacts Tajikistan, and the contours of the strategic equation with Russia.

Since the Book was first published in 2011 the author could have made the book more topical and contemporary by commenting on the affairs of the country from 2002 to 2010. This is a void. Equally the Book could have benefited from better editing. Altogether a useful reference book for scholars studying the Region

Lieutenant General Vinay Shankar, PVSM,AVSM,VSM (Retd)

Additions to the USI Library for the Quarter – Ending June 2012

(The books reviewed in Jan - Mar 2012 issue have been added to the Library during this quarter but not shown in this list)

Air Warfare

Combat Support Operations : AWACS in Air Warfare / Centre For Air Power Studies, New Delhi by ABS Chaudhry. New Delhi, Knowledge World, 2012. 189p., Rs.680, ISBN 9789381904039

Afghanistan

Afghanistan : How the West Lost Its Way by Tim Bird and Alex Marshall. New Delhi, Orient BlackSwan, 2012. 303p., Rs.565, ISBN 9788125044901

Fighting For Afghanistan : A Rogue Historian At War by Sean M Maloney. Annapolis Naval Institute, Press, 2011. 326p., £ 32.50, ISBN 9781591145097

Lone Survivor : The Eyewitness Account of Operation Redwing and the Lost Heroes of SEAL Team 10 by Marcus Luttrell. New York Little Brown, 2007. 390p., $ 24.90. ISBN 9780316067591

The Making of Modern Afghanistan by BD Hopkins. Hampshire, Palgrave Macmillan, 2012. 259p., £ 18.99, ISBN 9780230302372

Asia

Asian Rivalries : Conflict Escalation and Limitations on Two-level Games. Edited by Sumit Ganguly and William R Thompson. Stanford, Stanford University Press, 2011. 259p., $ 24.95, ISBN 9780804775960

Astronautics

The Militarisation of Space / Centre for Air Power Studies, New Delhi by Kaza Lalitendra. New Delhi, Knowledge World, 1987. 324p., Rs.680, ISBN 9789380502076

Biography / Memoirs

Jinnah : The Founder of Pakistan. Edited by Saleem Qureshi. Karachi, Oxford University Press, 2011. 176p., Rs.550, ISBN 9780199061730

Lucknow Boy : A Memoir by Vinod Mehta. New Delhi, Viking (Penguin Group), 2011. 325p., Rs.499, ISBN 9780670085293

China

China in 2020 : A New Type of Superpower by Hu Angang. New Delhi, HarperCollins Publishers, 2011. 213p., Rs.399, ISBN 9789350291993

Mao's Great Famine : The History of China's Most Devastating Catastrophe, 1958-62 by Frank Dikotter. London, Bloomsbury, 2010. 420p., Rs.399, ISBN 9781408810033

No Enemies, No Hatred: Selected Essays and Poems by Liu Xiaobo. Cambridge, Belknap Press of Harvard University Press, 2012. 366p., $ 29.95, ISBN 9780674061477

Citizenship

Citizenship and the Flow of Ideas in the Era of Globalization : Structure, Agency and Power. Edited by Subrata K Mitra. New Delhi, Samskriti, 2012. 370p., Rs.795, ISBN 9788187374725

Defence

Asian Defence Review 2011 / Centre for Air Power Studies, New Delhi. Edited by Jasjit Singh. New Delhi, Knowledge World, 2011. 232p., Rs.620, ISBN 9789381904008

Military Adaptation in War : With Fear of Change by Williamson Murray. New York, Cambridge University Press, 2011. 342p., $ 35, ISBN 9781107006591

Economic Development

China or Japan : Which Will Lead Asia? by Claude Meyer. London, Hurst and Company, 2010. 195p., £ 25, ISBN 9781849041720

The Third Industrial Revolution : How Lateral Power is Transforming Energy, the Economy, and the World by Jeremy Rifkin. New York, Palgrave Macmillan, 2011. 291p., $ 27, ISBN 9780230115217

Poor Economics : A Racial Rethinking of the Way to Fight Global Poverty by Abhijit V Banerjee and Esther Duflo. Noida, Random House Publishers India Pvt Ltd., 2011. 303p., Rs.499, ISBN 9788184001815

Economic Crisis

Trade Territory and Technology : Economic Crisis in the Global Economy by Shrinivas Tripathi. New Delhi, New Century Publications, 2012. 223p., Rs.635, ISBN 9788177082999

Geopolitics

Geopolitics : A Guide to the Issues by Bert Chapman. California, Praeger (ABC-CLIO,LLC), 2011. 261p., £ 34.99, ISBN 9780313385797

Global Warming - Preventions

Global Warming Gridlock : Creating More Effective Strategies for Prompting the Planet by David G Victor. Cambridge, Cambridge University Press, 2011. 358p., £ 25, ISBN 9780521865012

History – India

Borders and Conflict in South Asia : The Radcliffe Boundary Commission and the Partition of Punjab by Lucy P Chester. Manchester Manchester University Press, 2012. 222p., £ 60, ISBN 9780719078996

International Relations

China's Nightmare, America's Dream : India as the Next Global Power

by William H Avery. New Delhi , Amaryllis (Manjul Publishing House Pvt Ltd), 2012. 244p., Rs.595, ISBN 9789381506073

India - Russia Relations / Centre for Air Power Studies, New Delhi and Institute for Far Eastern Studies, Moscow. *Edited by Jasjit Singh. New Delhi, Knowledge World, 2012. 108p., Rs.495, ISBN 9789381904053*

Russia - India - China : Evolution of Geo-Political Strategic Trends. *Edited by Nivedita Das Kundu. New Delhi , Academic Foundation, 2010. 123p., Rs. 595, ISBN 9788171887828*

Information Warfare

Cybercrime : Criminal Threats from Cyberspace *by Susan W Brenner. New Delhi , Pentagon Press, 2012. 281p., Rs.995, ISBN 9788182746145*

Network - Centric Warfare : How we Think, See and Fight in the Information Age / Centre for Air Power Studies, New Delhi *by Sanjay Poduval. New Delhi, Knowledge World, 2012. 241p., Rs.720, ISBN 9789380502588*

Islam

Shiism : A Religion of Protest *by Hamid Dabashi. Cambridge, Belknap Press of Harvard University Press, 2011. 413p., Rs.1527, ISBN 9780674049451*

Intervention – International Law

Can Intervention Work *by Rory Stewart and Gerald Knaus. New York, W W Norton, 2011. 236p., $ 23.95, ISBN NA*

International Security

Critical Theory in International Relations and Security Studies : Interview and Reflections. *Edited by Shannon Brincat, Laura Lima and Joao Nunes. London, Routledge (Taylor and Francis Group), 2012. 225p., £ 25.99, ISBN 9780415601580*

Jammu and Kashmir

The Inside Story of Jammu and Kashmir State *by SP Bakshi. New Delhi, Knowledge World, 2012. 188p., Rs.595, ISBN 9789381904046*

Leadership

Global Crises and the Crisis of Global Leadership. *Edited by Stephen Gil. Cambridge, Cambridge University Press, 2012.*

Invincibility, Challenges and Leadership *by KV Krishna Rao. New Delhi, Orient BlackSwan, 2010. 438p., Rs.895, ISBN 9788125041870*

Monuments

Delhi : Red Fort to Raisina. *Edited by JP Losty. New Delhi, Roli Books, 2012. 248p., Rs.2975, ISBN 9788174368614*

Time Great Places of History. *Edited by Kelly Knauer. New York, Time Books, 2011. 154p., $ 29.95, ISBN 9781603201964*

NATO

NATO : A Guide to the Issues by Brian J Collins. California, Praeger (ABC-CLIO,LLC), 2011. 178p., £ 24.95, ISBN 9780313354915

Naxalism

More than Maoism : Politics, Policies and Insurgencies in South Asia. Edited by Robin Jeffrey, Ronojoy Sen and Pratima Singh. Delhi, Manmohan, 2012. 470p., Rs.1250, ISBN 9788173049330

Nuclear Power

A Perpetual Menace : Nuclear Weapons and International Order by William Walker. London, Routledge (Taylor and Francis Group), 2012. 239p., £ 25.99

Nuclear Power : In the Wake of Fukushima / Centre for Air Power Studies, New Delhi. Edited by Manpreet Sethi. New Delhi, Knowledge World, 2012. 132p., Rs.495, ISBN 9789381904022

Pakistan

Islam and Society in Pakistan : Anthropological Perspectives. Edited by Magnus Marsden. Karachi , Oxford University Press, 2010. 462p., Rs.995, ISBN 9780195479577

Pakistan Army : Modernisation, Arms Procurement and Capacity Building by Shah Alam. New Delhi, Vij Books, 2012. 102p., Rs. 495, ISBN 9789381411209

Terrorism

The Police in War : Fighting Insurgency, Terrorism, and Violent Crime by David H Bayley and Robert M Perito. New Delhi, Viva Books, 2012. 195p., Rs.995, ISBN 9788130915258

The Politics of Counterterrorism in India : Strategic Intelligence and National Security in South Asia by Prem Mahadevan. London, I B Tauris, 2012. 297p., £ 59.95

Taking Liberties : The War on Terror and the Erosion of American Democracy by Susan N Herman. New York, Oxford University Press, 2011. 276p., Rs. 595, ISBN 9780199782543

Taliban : The Power of Militant Islam in Afghanistan and Beyond by Ahmed Rashid. London, I B Tauris, 2010. 319p., Rs.395, ISBN 9781848854468

Tibet

Tibet : A History by Sam Van Schaik. New Delhi Amaryllis (Manjul Publishing House Pvt Ltd), 2012. 411p., Rs.695, ISBN 789381506035

Tibet : Writings on History and Politics by Parshotam Mehra. New Delhi, Oxford University Press, 2012. 382p., Rs. 795, ISBN 9780198068624

United States

The US Military : A Basic Introduction by Judith Hicks Stiehm. London, Routledge (Taylor and Francis Group), 2012. 128p., £ 22.99, ISBN 9780415782159

War/ Warfare

Armies, Wars and Their Food by Vijaya D Rao. New Delhi, Foundation Books Pvt. Ltd., 2012. 534p., Rs.995, ISBN 9788175969186

Competing Voices from World War II in Europe. Edited by Harold J Goldberg. California, Greenwood (ABC-CLIO, LLC), 2010. 319p., £44.95, ISBN 781846450334

The 1967 Arab - Israeli War : Origins and Consequences. Edited by Roger Louis and Avi Shlaim. New York, Cambridge University Press, 2012. 325p., $ 29.99, ISBN 9780521174794

The Arabs and the Holocaust : The Arab - Israeli War of Narratives by Gilbert Achcar. London, Saqi Books, 2010. 358p., £ 25, ISBN 9780863566394

Unarmed into Battle : Story of Air Observation 1794- 1986 / Centre for Land Warfare Studies, New Delhi by Atma Singh. New Delhi, Knowledge World, 2012. 140p., Rs.395, ISBN 9789380502861

War Without Garlands : Operation Barbarossa 1941-1942 by Robert Kershaw. Dehra Dun, Natraj Publishers, 2012. 626p., Rs.795, ISBN 9788181581747

World Development

World Development : An Essential Text by Barry Baker. Oxford, New Internationalist Publications Ltd.,2011. 256p., £ 15.99, ISBN 9781906523961

Library Catalogue is available on USI Website

LATEST PUBLICATIONS of USI

	Price	Year
• Comprehensive National Power : A Model for India (Available from Vij Books)	Rs 995	2012
• The Invisible Wall of China Dr Mohit Nayal (Available from Vij Books)	Rs 1150	2012

New Life Members

The following officers joined the Institution as Life Members during the period 01 Apr – 30 Jun 2011 :-

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2.	LM/70087	Lt Karan Kapur	Arty
3.	LM/70088	Lt Anshuman Gairola	6/8 GR
4.	LM/70089	Lt Dushyant	Arty
5.	LM/70090	Lt Anurag Singh Chauhan	Arty
6.	LM/70091	Lt Col Rajeev Sandhir (Retd)	1/11 GR
7.	LM/70092	Capt Ankush Rana	Arty
8.	LM/70093	Lt Puneet Hooda	20 Punjab
9.	LM/70094	Lt Kunal Singh	Arty
10.	LM/70095	Capt Vimal Kumar Nair V	2 Kumaon
11.	LM/70096	Capt Sagar Padmakar Joshi	Int
12.	LM/70097	Capt Harpreet Singh	Arty
13.	LM/70098	Capt Prashant Singh	Engrs
14.	LM/70099	Capt Vijay Tomar	11 Garh Rif
15.	LM/70100	Capt Tanuj Deepak Rao Mandlik	11 Garh Rif
16.	LM/70101	Maj D Pavan Rao	Arty
17.	LM/70102	Brig Manoj Kumar Unni	AMC
18.	LM/70103	Capt Anirudh Dhankhar	13 Garh Rif
19.	LM/70104	Lt Aditya Rana	11 MLA
20.	LM/70105	Maj Vinay Pratap Singh Pathania	5/11 GR
21.	LM/70106	Capt Manish Thapa	EME
22.	LM/70107	Lt Ajmal Singh	15 Raj Rif
23.	LM/70108	Lt Cdr Mahesh V Birajdar	Sumarines
24.	LM/70109	Maj Pavan Kumar Tripathi	Engrs
25.	LM/70110	Wg Cdr Ashok Kumar Randev (Retd)	F (P)
26.	LM/70111	Capt G Raja	5 Madras
27.	LM/70112	Capt Deepesh Chandra Pant	Sigs
28.	LM/70113	Lt Col Peeyush Sethi	Sigs
29.	LM/70114	Maj Shrikrishna Bharat Kelkar	Engrs
30.	LM/70115	Lt Kartikeya Manral	8 Kumaon
31.	LM/70116	Lt Abhinav Iyer	8 Kumaon
32.	LM/70117	Col Satish Alreja, VSM (Retd)	Sigs
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34.	LM/70119	Lt Abhishek Vishwanathan	5 Sikh
35.	LM/70120	Capt Upesh Kumar	15 Raj Rif
36.	LM/70121	Capt Deepak Raj (Retd)	Arty
37.	LM/70122	Col Tejinder Pal Singh Kandra (Retd)	Arty
38.	LM/70123	Lt Randeep Singh Randhawa	3/5 GR
39.	LM/70124	Capt Dushyant Singh Jasrotia	19 Guards
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42.	LM/70127	Capt Sayan Mitra	Engrs
43.	LM/70128	Col Rajiv Mohan Gupta	AMC

44.	LM/70129	Col Tathagata Chatterjee	AMC
45.	LM/70130	Maj Rajeshwar Singh Kushwana	Arty
46.	LM/70131	Maj Varun Kumar	Engrs
47.	LM/70132	Lt Ashok Suhag	15 Guards
48.	LM/70133	Lt Bhaskar Bhatt	2 Garh Rif
49.	LM/70134	Capt Abhimanyu Kumar Shah	Arty
50.	LM/70135	Lt Sinam Puranachandra	11 Para
51.	LM/70136	Maj TB Chhetri	9 GR
52.	LM/70137	Lt Arnab Anand Sanyal	Arty
53.	LM/70138	Lt Manoj Kumar Panwar	Arty
54.	LM/70139	Maj Kamlesh Singh Rathore	Arty
55.	LM/70140	Lt Ankit Sihag	EME
56.	LM/70141	Capt Anand Jha	Arty
57.	LM/70142	Lt Col Vikram Advani (Retd)	18 Cav
58.	LM/70143	Lt Aman Kumar Malik	Sigs
59.	LM/70144	Lt Deepanshu Nagar	AOC
60.	LM/70145	Lt Cdr Sonal Saxena	E/AE
61.	LM/70146	Lt Sandeep Singh Bhamra	9 Grenadiers
62.	LM/70147	Capt Rahul Gova	Engrs
63.	LM/70148	Maj Gurneet Singh Dhillon	EME
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65.	LM/70150	Brig Satish Kumar Bahl, VSM (Retd)	9 JAK LI
66.	LM/70151	Lt Savio Henriques	2 Lancers
67.	LM/70152	Col Rajesh Singh Adhikari	4 Guards
68.	LM/70153	Brig R Swaroop Nautiyal	Arty
69.	LM/70154	Maj Sonu K Sidharthan	Arty
70.	LM/70155	Lt Rohit Kumar	Arty
71.	LM/70156	Capt Tejas S Akhade	Sigs
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77.	LM/70162	Lt Sameer Pratap Singh	4/8 GR
78.	LM/70163	Cdr N Rajesh Kumar	Engrs
79.	LM/70164	Col Tarlochan Singh (Retd)	Sigs
80.	LM/70165	Col Dhiran Oswald Sen (Retd)	Sigs
81.	LM/70166	Rear Adm Abhay Raghunath Karve	Exec
82.	LM/70167	Lt Gen Gautam Ravindranath, SM,VSM	AMC
83.	LM/70168	Lt Prakhar Dhagat	9 JAK LI
84.	LM/70169	Capt Rohit Kumar Tiwari	EME
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86.	LM/70171	Capt Achyutanand Choudhary (Retd)	EME
87.	LM/70172	Capt Praveen Singh Ranawat	AOC
88.	LM/70173	Maj SV Vivek	Army Avn
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90.	LM/70175	Lt Shree Ram Bhamu	7 Dogra

91.	LM/70176	Maj Atin Chadha	14 Rajput
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94.	LM/70179	Capt Rajan Singh	EME
95.	LM/70180	Wg Cdr Avdhesh Kumar Dubey	Int
96.	LM/70181	Air Mshl Kishan Kumar Nohwar	F (P)
97.	LM/70182	Brig Santosh Kumar Sharma (Retd)	Engrs
98.	LM/70183	Capt Dennis	EME
99.	LM/70184	Cmde Balvinder Singh Parhar, NM	Naval Avn
100.	LM/70185	Brig Akhil Kumar Nagpal, VSM	AMC
101.	LM/70186	Shri Vijai Shankar Mathur (Retd)	IPS
102.	LM/70187	Lt Col Sougoto Das (Retd)	1 Guards
103.	LM/70188	Maj Akshay Chakravarty	Engrs
104.	LM/70189	Cdr Shailesh Jain (Retd)	Exec
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113.	LM/70198	Maj Vishwas Kumar Mishra	2/9 GR
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117.	LM/70202	Capt Awadh Gunjan	11 Bihar
118.	LM/70203	Maj Sanjay Kumar	Engrs
119.	LM/70204	Capt Shree Prasad Thapa	Arty
120.	LM/70205	Capt Rajiv Ashok, IN	Exec
121.	LM/70206	Capt Varun Mediratta	Sigs
122.	LM/70207	Col Kailash Chandra Tiwari (Retd)	Engrs
123.	LM/70208	Lt J Vijaya Kumar	15 Raj Rif
124.	LM/70209	Lt Devwrat Kamboj	56 Armd Regt
125.	LM/70210	Cmde KP Ramachandran, VSM (Retd)	Exec
126.	LM/70211	Col S Murugesan	Assam Regt
127.	LM/70212	Capt Kapse Sameer Ashokarao	Arty
128.	LM/70213	Capt Yogesh Chhabra (Retd)	26 MLI
129.	LM/70214	Maj Anand Kumar	Engrs
130.	LM/70215	Shri JS Deepak	IAS
131.	LM/70216	Col Rajiv Chauhan	AOC
132.	LM/70217	Lt Raut Tushar Ashok	14 Dogra
133.	LM/70218	Col Rakesh Passi (Retd)	72 Armd Regt

Ordinary Members

During the period 01 Apr – 30 Jun 2012, 141 Ordinary Members renewed their membership and 408 registered as new members.

USI Centre for Armed Forces Historical Research (CAFHR) Archives

The Centre for Armed Forces Historical Research was established under the aegis of the United Service Institution of India (USI) at the request of the three Service Headquarters, the purpose being to encourage objective study and research into various aspects of the history of the Indian Armed Forces.

It needs no elaboration that prospective scholars rely on old records, documents, photographs and interaction with veterans of the various operations undertaken by the Indian Armed Forces in order to pursue their projects. To assist them in their effort and in furtherance of a long term aim of making the Centre a repository of archival material on the subject, members are requested to make available to this Centre any documents (including training pamphlets/notes), papers, tapes, photographs, diaries, medals, memorabilia or any other material that could contribute to its activities.

All bestowals/endowments will be properly catalogued, cross-referenced and preserved for posterity as an original contribution to our Nation's military heritage.

Material may be sent to the Secretary CAFHR. For any clarifications please contact 011-26147474 or send a mail to cafhr@usiofindia.org

ARTICLES FOR USI JOURNAL

1. Members are welcome to forward original articles pertaining to national security and defence matters for publication in the USI Journal. **Articles should preferably not exceed 2,500 words.** These should be forwarded in double space on A-4 size paper, along with a CD/DVD as a Word document. The articles should be sent to the Editor, United Service Institution of India, Rao Tula Ram Marg, Post Bag No. 8, Vasant Vihar PO, New Delhi-110057. Alternatively, articles may be sent through e-mail on dde@usiofindia.org. The author should render a certificate that the article has neither been published in print or online, nor has it been offered to any other agency for publication. The Editor reserves the right to make alterations.

2. It is mandatory that the author furnishes complete details of the book/journal referred to in the article as end notes. This should include full name of the writer of article/book referred to, title of book/article, journal in which published (in case of articles); issue details, and page numbers. Besides end notes, if the author so desires, a bibliography may also be included, though not mandatory.

3. Abbreviations if any, should be used in their expanded form the first time and indicated in brackets.

4. The full name and address of the author along with a brief Curriculum Vitae should be given. Serving officers should enclose *'no objection certificate'* signed by their immediate superior for publication of their articles.

5. The author will receive a copy of the issue of the Journal in which his/her article appears along with three offprints. A suitable honorarium will also be paid after the article is published.

GUIDELINES FOR BOOK REVIEWERS

Definition

"A book reviewer occupies a position of special responsibility and trust. He is to summarise, set in context, describe strengths and point out weaknesses. As a surrogate for us all, he assumes a heavy obligation which it is in his duty to discharge with reason and consistency".

Admiral HG Rickover.

Guidelines

A book review is a critical evaluation of a work or a book to help the reader by your assessment. For a reader to be guided by your evaluation, it must be objective. A few guidelines are given below :-

(a)   Is the information factually correct ?

(b)   Criticism is not a review.

(c)   Is the book going to be an addition to the existing knowledge on the subject ?

(d)   Present the reader what the book contains.

(e)   Author's previous writing experience and performance; has he done better this time or otherwise.

(f)   Some quotes from the book can be given to illustrate the point.

These should be limited and the whole paragraph should not be lifted.

(g)   How is the presentation ? What impact does it make ?

(h)   What does the book say ? (the main theme). How does it say it ?

(j)   Price – is it reasonable or high ?

(k)   The length of the review should be kept within 300 words.

(l)   *Complete details of the book (s)* reviewed to be given at the top of the review *in the order specified below.* It may be noted that the *order specified should be followed by a coma or colon as specified here :-*

(i)   Title and subtitle of the book (first letters capitals).

(ii)   Author's name(s) (if it is an edited version then it should be clearly mentioned as - Edited by...).

(iii)   Place of Publication : Name of Publisher, Year (all in brackets), pages (to be written as pp.), Price (to be specified as Rs or $ etc. only, without writing the world 'Price'), ISBN

Example - **State Building in Europe : The Revitalisation of Western European Integration.** *Edited by Volken Bornschier (Cambridge UK : Cambridge University Press, 2000) pp..326, £ 15.95 (if it is a round figure/ it should be £ 15.00)/ ISBN 0-521-781035.*

RESEARCH PROJECTS

Members interested in undertaking research projects under the aegis of the Centre for Strategic Studies and Simulation (USI-CS3), may submit research proposals. In case of serving personnel, the proposals should be routed through the concerned Service Headquarters; retired personnel may send these directly to the Director, for consideration by 31 December each year. At present, five chairs have been instituted for one year projects, namely Field Marshal KM Cariappa Chair, Admiral RD Katari Chair, Air Marshal Subroto Mukherjee Chair, Prof DS Kothari DRDO Chair and Ministry of External Affairs Chair. Final approval of projects will be the prerogative of the Board of Management. Copies of the Rules for Award of Fellowship Grants and Conduct of Research are available on the USI website.

REQUIREMENT OF INSTRUCTORS

United Service Institution of India (USI) requires instructors for the conduct of correspondence courses for promotion and competitive examinations and for preparation of study material for the same. In addition, USI also conducts contact programmes for Defence Services Staff College aspirants during the period Jul – Aug. Officers who wish to be Instructors for any of these prgrammes may please contact Brigadier MS Chowdhury, VSM (Retd), Chief Instructor, USI.

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