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JOURNAL

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PRINCIPAL CONTENTS

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R-99**	"Strategic Year Book 2019" Edited by Lt Gen PK Singh, PVSM, AVSM (Retd), Maj Gen BK Sharma, AVSM, SM & Bar (Retd) and Dr Roshan Khanijo	1850	2019
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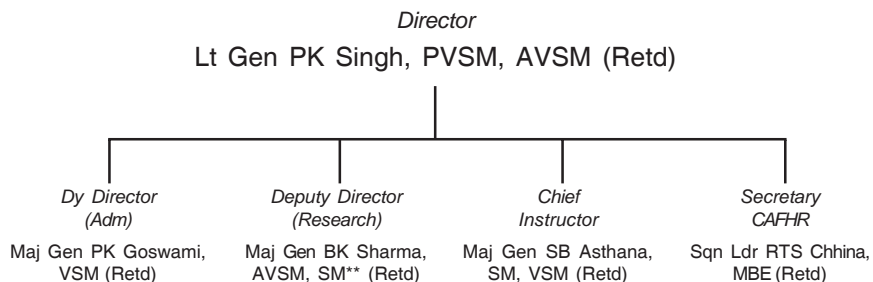
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Editor

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(c) Part B	2nd Week of Dec 2018. Registration Open for 2019	Jun 2019	Rs 3000/-	Rs 1000/- each for MH & CA Rs 800/- for Tac Rs 600/- each for Adm & ML
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> [1] Michael Baxandall, *Painting and Experience in Fifteenth-Century Italy : A Primer in the Social History of Pictorial Style,* (Oxford University Press, London, 1988), p. 45.

> [2] Lina Bolzoni and Pietro Corsi, *The Culture Memory,* (Bologna : Societa editrice il Mulino, 1992), p. 45.

2.   Use of *Ibid., op. cit.,* and *loc. cit.*

> *Ibid.* refers to the immediate preceding reference; *op. cit.* refers to the prior reference by the same author and *loc. cit.* is used instead of *op. cit.* when reference is made to a work previously cited and to the same page in that work. For example :-

> [4] R Poirer, *Learning Physics,* (Academic, New York, 1993), p.4.

> [5] *Ibid.,* p. 9.

> [6] T Eliot, *Astrophysics,* (Springer, Berlin, 1989), p. 141.

> [7] R Millan, *Art of Latin Grammar,* (Academic, New York, 1997), p.23.

> [8] Eliot, *op. cit.,* p.148.

> [9] Eliot, *loc. cit.*

3.   Where websites have been used to access information, the complete web address of the website should be cited, followed by the date the website was accessed by the author. For example :-

> http://www.fordham.edu/halsall/mod/1497degama.html. Accessed on 06 January 2016.

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During Jan-Mar 2019, 225 Officers registered for Course Membership.

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January-March 2019

NOTE

The views expressed in the Journal are the opinions of the contributors and the Editor, and are not necessarily official views or those of the USI Council.

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Editorial

The article titled "US-China Trade War: From Cooperation to Containment" authored by Dr Sanjaya Baru is the lead article in the current issue of the USI Journal. The USA emerged as a global super power after World War II. Consequent to the break up of the Soviet Union in 1991, the USA has been the sole superpower globally. She will do, whatever it takes, to retain that status and prolong it for as long as possible. In the meantime, China has emerged as a powerful country and has started asserting itself. China is hopeful of replacing the US by 2050 or so as number one superpower globally. The US too has realised it. The author has brought out that the USA served notice on China that it adopt measures aimed at reducing trade surplus, it had long enjoyed vis-à-vis the USA. In September 2018, President Trump widened the amount of US tariffs by imposing 10 per cent tariff on US $ 200 billion worth of goods from China. US-China contention and trade war has started and is likely to continue for sometime. It should be construed as an effort towards "geo-economic containment" of China's economic growth.

The article titled "Prospects for the Quad in the Indo Pacific" authored by Shri Asoke Kumar Mukerji, IFS (Retd) is very perceptive with focus on evolving international relations. Prospects for the Quadrilateral Security Dialogue (Quad) amongst Australia, India, Japan and the United States have been the focus of increased attention following the identification of an Indo-Pacific strategic framework, which has been endorsed by the four countries. The centrality of ASEAN in the Indo-Pacific has been emphasised by the Quad. To take the dialogue forward, the Quad needs to urgently converge existing divergences regarding their individual definitions of the Indo-Pacific. Equal participation of all four Quad countries in maritime security cooperation is crucial for a Free and Open Indo-Pacific region. Three issues which require priority attention for realising the full potential of the Quad are the identification of a common framework of international law to uphold a "rules-based order"; implementing connectivity projects with a view to integrating the hinterland of land-locked states of Asia and Africa into the Indo-Pacific region; and integrating the

security of all the major sea lanes of communication in the broad Indo-Pacific region into the Quad's strategic footprint. Although Quad members have said, the framework is not in opposition to China, it is being viewed by some as a counter balance to Beijing's rising influence in the Indo-Pacific. This will require upholding the principle of international cooperation, so that the Quad can contribute constructively to securing an inclusive Indo-Pacific at a time of increased great power rivalry.

The next article "Changing Spectrum of Warfare Seen in the Lens of *Time and Space*" by Lieutenant General SP Kochhar, AVSM**, SM, VSM (Retd) has assumed great importance during the current Information Age warfare. Time and Space are constant factors of war. These factors take variable values depending upon the nature of warfare and operational scenario. Over the last couple of decades availability of Time has got compressed and Space has widened. During the Industrial Age; emphasis was on use of kinetic weapons, leading to long drawn warfare. In information warfare, shift is towards Network Centric Warfare (NCW), use of Precision Guided Munitions (PGM), drones and Unarmed Aerial Vehicles (UAVs). Information highways and networks, in most cases, are getting intertwined with different outcomes. During proxy war being faced by India; both non-contact anonymity strikes and visible limited spectrum kinetic strikes are encountered. The coming era will increasingly require national level coordinated effort in waging non-contact warfare. In all these scenarios, the Time and Space factors will play a vital role.

Artificial Intelligence (AI) has assumed great importance in conduct of military operations. Lieutenant General RS Panwar, AVSM, SM, VSM (Retd), in article titled "Artificial Intelligence in Military Operations: Technology and Ethics Indian Perspective", focuses on the changing nature of warfare in the 21st Century driven by advances in AI technology and Robotics. These are being incorporated into various products and are likely to manifest themselves in defence systems and may usher in a new Revolution in Military Affairs (RMA). Adaption of AI based systems is expected to yield tremendous benefits in the coming years.

There is an inescapable necessity to keep abreast with developments in this field.

West Asia has been on the boil for quite sometime and, by all indications, an end to its troubles is not in sight. In the article titled "Turmoil in West Asia: Challenges and Opportunities for India", Shri Talmiz Ahmad, IFS (Retd) takes a macro view of the events and has focused on roots of the problem being Shia-Sunni differences. According to the author; Saudi Arabia feels that Iran is fermenting trouble in Lebanon, Syria, Iraq and Yemen. For Saudi Arabia, Iran's expanding influence in these countries is a "Shia Crescent". Saudi Arabia has responded by confronting Iran in Syria and Yemen. The US has deep hostility for Iran and is supporting Israel – Saudi Arabia alliance against Iran in Syria and is pursuing for regime change in Iran. The author has opined that prospects of direct military conflict between Saudi Arabia and Iran are there. India enjoys goodwill with major countries in West Asia. According to the author, India should try to shape a peace process for regional security and cooperation in West Asia.

Current issue of the Journal has 13 articles in all. Abstract has been given at the beginning of each article. These make very interesting reading.

Review of the following books has been published in this Journal :-

(a) *Analysis of India's Ability to Fight a 2-front War.*
Reviewed by Brigadier DS Sarao (Retd).

(b) *Global Geo-Strategic and Politico-Military Perspectives Through Millennia Past Vol. 1 and 2.*
Reviewed by Professor Sanjiv Nandan Prasad.

(c) *Neighbourhood Initiatives of the Modi Government : Challenges and Road Ahead.*
Reviewed by Maj Gen Ashok Joshi, VSM (Retd).

(d) *An Insight : The Iconic Battle of Saragarhi.: Echoes of the Frontier.*
Reviewed by Maj Gen Ian Cardozo, AVSM, SM (Retd).

(e) *The Indian Army in the First World War.*
Reviewed by Maj Gen Ian Cardozo, AVSM, SM (Retd).

(f) *Pentagon Year Book 2019 : South Asia Defence and Strategic Perspective 2019.*
Reviewed by Maj Gen Rajiv Narayanan, AVSM, VSM (Retd).

(g) *India-Uzbekistan Partnership in Regional Peace and Stability : Challenges and Prospects.*
Reviewed by Maj Gen Ashok Joshi, VSM (Retd).

Major General YK Gera (Retd)

US-China Trade War: From Cooperation to Containment

Dr Sanjaya Baru@

Abstract

The escalation of tariffs by the United States (US) on imports from China has launched what has been called a "trade war". While economists generally do not approve of such actions and view them as zero sum games, the US-China tiff should be viewed as part of a political response, externally to China's growing assertiveness and internally to domestic criticism of China, by an increasingly depressed US working class that supports President Donald Trump. While President Trump initiated the action, there is bipartisan support in the US to actions that would limit China's rising power. The US action should be viewed as part of a "geo-economic containment" of China's economic growth. The US hopes a growth slowdown would hurt China economically and its present leadership politically.

Introduction

United States President Donald Trump was voted to office by

an increasingly disgruntled American middle and working class, mostly white Anglo-Saxons, worried about jobs and their economic and social marginalisation. Arguing that the United States had been cheated by its opponents, mainly China, and taken for granted by its allies, like the European Union, Japan and South Korea, President Trump promised to replace the regime of "free trade" that the US had advocated for close to half a century and replace it with a regime of "fair trade" wherein the US would get its due. This grievance-based politics won Mr Trump the presidency.

He then took two steps: first, he demanded of US allies that they share the fiscal burden of defending the free world; and, second, he served notice on China that it adopt measures aimed at reducing the trade surplus it had long enjoyed vis-à-vis the US. President Trump also warned Mexico and Canada that he would renegotiate the North American Free Trade Agreement so that it addresses US concerns and he alerted 'friendly' countries like India to the possibility that the campaign for 'fair trade' would also touch them.

The Trade War

President Trump has moved on all fronts but the most important move has been the launching of the so-called "trade war" against China. In September 2018, President Trump widened the ambit of US tariffs, imposing a 10 per cent tariff on US$ 200 billion worth of goods. This compared close to US$ 50 billion of Chinese imports that attracted tariffs till that time. Since then, President Trump has been blowing hot and cold, sending out mixed signals on how far he is willing to go.

Even as President Trump has said that he is unlikely to meet China's President Xi Jinping anytime soon to arrive at an understanding on their on-going 'trade war', senior officials from both sides continue to meet to see if differences between the two countries can be resolved without a further escalation of tensions. A failure to secure a new understanding would mean that the US could increase the tariffs it imposed in September 2018 from 10 per cent to 25 per cent.

While Chinese officials continue to say that a compromise deal is possible, US officials remain adamant that a final resolution of differences is unlikely any time soon. President Trump would perhaps like to keep the 'free trade vs fair trade' rhetoric alive and kicking right through the coming election campaign for a second term. Any deal struck too soon could invite Democratic party criticism that Mr Trump has sold out to US business interests.

While many economists in both countries, and around the world, focus on the economic downside of tariff escalation by the US, the fact is that the so-called trade war is as much about economics as it is about politics and, indeed, geo-politics. An

assertive President Trump not only appeals to voters back home but is also enabling President Xi to become assertive at home as his dominance over party, government and the armed forces have come in for some criticism at home. However, China runs the risk that an ensuing growth slowdown could create domestic unrest. To insulate himself against this possibility, President Xi has turned to communism and the communist party, ratcheting up ideological rhetoric and acting against elite corruption.

If China is at the receiving end of President Trump's trade war, it has no one else but itself to blame. Growing global, especially Asian, concern about Chinese geopolitical 'assertiveness' offered the US the opportunity to hit at China through geo-economic action. Ending the phase of 'peaceful rise', President Xi launched a new phase of not just pursuing a "China Dream", but doing so with "All Under Heaven" (*Tianxia*) – that is as a Great Power with global responsibilities and reach. Not only did this new assertiveness, evidenced in many actions and decisions including the Chinese stance on maritime freedoms in South China Sea and the funding of the Belt and Road Initiative (BRI), worry China's Asian neighbours but finally woke US leadership to the challenge of economic and geopolitical competition across the globe from China.

Even before President Trump assumed office, the US had taken several steps to respond to China's growing global influence and interests. As the strategic policy analyst Ashley Tellis observed, "Sustained economic growth rates have made China the most likely competitor capable of dominating at least the Asian segment of the Eurasian space. As China's growing power spawns expanded interests, these are likely to scrape against existing security order, whose guarantees are founded upon American primacy".[1]

It is fairly clear that even while Chinese diplomats talk about the need for cooperation between US and China, President Trump is seeking the geo-economic containment of China. How far he is willing to go to get China to address a range of US concerns will depend both on domestic politics and China's response. The fact is that both countries no longer view the present stand-off as merely a 'trade war'. It is an economic engagement in a larger

battle for global primacy. Indeed, this US view is not just a partisan view of President Trump and his supporters but enjoys bipartisan support. In viewing trade as an arena of geopolitics and seeking China's geo-economic containment, US policymakers across party lines are echoing fairly entrenched views within the US strategic community. Moreover, global isolationism and what economists have dubbed "reciprocitarianism" – a policy of give and take – have deep roots in American political psyche, predating the post-War globalism of American elite.

It may be recalled that from the era of mercantilism onwards, international trade has always been an arena of geopolitics. In his prescient deposition before the United States Congressional Commission on "National Security Considerations Affecting Trade Policy", made way back in 1971, Nobel prize economist Thomas C Schelling said, "Trade policy can be civilized or disorderly, US trade policies can antagonize governments, generate resentment in populations, hurt economies, influence the tenure of governments, even provoke hostilities…. Aside from war and preparations for war, and occasionally aside from migration, trade is the most important relationship that most countries have with each other. Broadly defined to include investment, shipping, tourism, and the management of enterprises trade is what most of international relations are about. For that reason trade policy is national security policy".[2]

In a thoughtful monograph entitled *The Rise of China vs The Logic of Strategy,* Edward Luttwak observed that the only way the US could deal with a rising China would be through its geo-economic containment, applying "the logic of strategy in the grammar of commerce", by restricting Chinese exports into (US) markets, denying raw materials to China insofar as possible, and stopping whatever technology transfers China would still need for the future".[3] Luttwak suggested that US policy goal ought to be to slow down China's economic growth so as to ensure adverse domestic economic and political consequences that would exert pressure on China's leadership to act more in accordance with western interests.

While China's economic growth rate has indeed come down, from the highs of double digit and 8 per cent plus rates to anywhere between 4 per cent and 6 per cent per annum, it is unlikely that the Chinese communist party under its present leadership will change course. China sees itself as an emergent superpower. It also believes the West's influence globally is on the decline. Hence, whatever the medium to short term understanding that the US and Chinese trade officials may arrive at in dealing with US tariff escalation, the rivalry between the two 'superpowers' is likely to persist.

Implications for India

President Trump has not taken his eye off India in his campaign for 'fair trade'. The threat of withdrawing the Generalised System of Preferences (GSP) is being held against India. US has already withdrawn up to US$ 70 billion worth of GSP benefits to India. It has threatened to widen the ambit. The US is also demanding fair trade provisions in a range of areas including medical devices, e-commerce and intellectual property rights protection. If enforced, these would hurt Indian business interests.

However, the US-China spat has opened up some new opportunities for India in its trade relations with China. India's exports to China have reportedly increased by about 25 per cent during the period June-November 2018, and were estimated to be US$ 8.46 billion, compared to US$ 6.37 billion in June-November 2017. According to the Federation of Indian Export Organisations, the commodities that have exhibited high growth during this period include petroleum products, chemicals, cotton yarn, plastic raw material and marine products. On the other hand, China's growth slowdown would hurt Indian exports in the medium term.

India has a strategic stake in the revival of multilateralism in trade and global adherence to trading rules monitored by the World Trade Organisation (WTO). This is not going to be easy with the US adopting an anti-WTO stance and China pushing for regional free trade in Asia. The recent thaw in China-Japan relations could hurt India with Japanese investors returning to a more friendly China and Japan and China jointly putting in place

the Regional Comprehensive Economic Partnership (RCEP) agreement with which India still has some reservations.

In short, the global trading environment is not going to be helpful for India even if the geopolitics of US-China competition may offer India some additional space for policy manoeuvre.

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Prospects for the Quad in the Indo-Pacific

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Abstract

Prospects for the Quadrilateral Security Dialogue (Quad) amongst Australia, India, Japan and the United States have been the focus of increased attention following the identification of an Indo-Pacific strategic framework, which has been endorsed by the four countries. The centrality of ASEAN in the Indo-Pacific has been emphasised by the Quad. To take the dialogue forward, the Quad needs to urgently converge existing divergences regarding their individual definitions of the Indo-Pacific. Equal participation of all four Quad countries in maritime security cooperation is crucial for a Free and Open Indo-Pacific region. Three issues which require priority attention for realising the full potential of the Quad are the identification of a common framework of international law to uphold a "rules-based order"; implementing connectivity projects with a view to integrating the hinterland of land-locked states of Asia and Africa into the Indo-Pacific region; and integrating the security of all the major sea lanes of communication in the broad Indo-Pacific region into the Quad's strategic footprint. This will require upholding the principle of international cooperation, so that the Quad can contribute constructively to securing an inclusive Indo-Pacific at a time of increased great power rivalry.

Introduction

During the past year, the prospects for the Quad have been the focus of increased strategic analyses. These prospects may be seen in terms of three broad areas: the wider strategic policy context, cooperation in the maritime security context, and the ability of the Quad in ensuring a Free and Open Indo-Pacific.

Background

Japan's Prime Minister Shino Abe is widely credited with the naming of the four countries – Australia, India, Japan and the United States– as a quadrilateral grouping in 2007. Speaking before the Parliament of India on 22 August that year, Prime Minister Abe placed his proposal within the framework of the "confluence of the two seas", joining the Indian and the Pacific Oceans. It is significant to note that the primary driver of Japan in advocating this framework continues to be the implementation of the "strategic global partnership" between India and Japan. The four principles underpinning this partnership are, in the words of the Japanese Prime Minister, "freedom, democracy, and the respect for basic human rights as well as strategic interests".

Japan sees its strategic global partnership with India as "pivotal" for creating an "Arc of Freedom and Prosperity" along the "outer rim of the Eurasian continent". This would enable a "broader Asia" to emerge, which would encompass the Pacific, where Japan feels partnership with the United States and Australia would be integrated into its ambit. The four countries of the Quad would be committed to an open and transparent network which "will allow people, goods, capital, and knowledge to flow freely".[1]

Prospects in the Strategic Policy Context

Between August 2007 and November 2017, the prospect for a common strategic framework for the Quad was beset with ambiguities. This was a consequence of attempting to integrate the strategic views of Australia, India and the United States into

the Japanese vision. The first divergence in strategic approaches came from Australia. On 05 February 2008, Stephen Smith, Australia's Foreign Minister, addressing a press conference with the visiting Foreign Minister of China, stated that Australia preferred to continue with a tri-lateral strategic dialogue between Australia, Japan and the United States, emphasising that "our alliance with the United States continues to form the fundamental bedrock of our defence, security and strategic arrangements". He added that "Australia would not be proposing" to join any stragegic dialogue between Japan, the United States and Australia which included India.[2]

The United States, while aware of Japan's initiative on the Indo-Pacific and the role of the Quad in it, hedged between its commitment to the Asia-Pacific, which was anchored in the Asia Pacific Economic Cooperation (APEC) context since 1989, and its looming conflict of strategic interests with China (which had been a part of APEC since 1991). Both Australia and Japan were an integral part of the APEC. The United States kept China out of the proposed Trans-Pacific Partnership (TPP), which was signed in April 2016, but repudiated by the Trump Administration of the United States on 23 January 2017. The decision by the other TPP countries, including Australia and Japan, to go ahead with the agreement without the United States created strategic space for the Trump Administration for endorsing the Indo-Pacific framework[3], and refocus on the Quad. India was not included in either the APEC or the TPP.

The strategic framework of the "Indo-Pacific" in the context of the previous engagement of three of the Quad members (Australia, Japan and the United States) in consolidating an Asia-Pacific security structure throws up the question of what is meant by the "Indo-Pacific"? This is perhaps the most challenging issue when looking at the prospects of the Quad in the Indo-Pacific.

In October 2017, the definition of the Indo-Pacific given by the United States was contained in a highly publicised speech by the then US Secretary of State Rex Tillerson before his first official visit to India. He forecast that the "Indo-Pacific, including the entire Indian Ocean, the Western Pacific and the nations that surround them, will be the most consequential part of the globe in the 21st

century".[4] Inexplicably, this broad definition of the scope of the Indo-Pacific was reduced by the National Security Strategy of the United States, published by the White House in December 2017. According to this document, the Indo-Pacific "stretches from the west coast of India to the western shores of the United States".[5]

Australia's White Paper on Foreign Policy of 2017 termed the Indo-Pacific as the "region ranging from the eastern Indian Ocean to the Pacific Ocean connected by Southeast Asia, including India, North Asia and the United States".[6] The "Eastern Indian Ocean" is defined by the Food and Agricultural Organisation (FAO) to extend from the Bay of Bengal to the western coast of Australia.[7]

Japan's definition in Prime Minister Shinzo Abe's 2007 speech to India's Parliament was followed up in 2017 by Japan "envisioning" the two continents of Asia and Africa and the two oceans, viz. the Pacific and Indian oceans, "as an overarching, comprehensive concept" connected through "a free and open Indo-Pacific".[8]

Speaking at the prestigious Shangri-La Dialogue in Singapore on 01 June 2018, India's Prime Minister Narendra Modi defined the Indo-Pacific as stretching "from the shores of Africa to that of the Americas",[9] which incorporated the entire Indian and Pacific oceans.

If the Quad is seen to be operating within the strategic framework of the Indo-Pacific, then the current narrow definition of the Indo-Pacific region by the United States and Australia undercuts the broad approach articulated by Japan and India. This makes the prospects for strategic cooperation between the Quad uncertain, unless there is convergence between all four countries on the strategic framework of the Indo-Pacific.

Prospects for Maritime Security Cooperation

The ambiguity regarding the strategic scope of the Indo-Pacific is compounded by the divergences between the four Quad countries about their maritime military cooperation. Although not outlined in Japanese Prime Minister Abe's proposal in 2007, the role of the four navies of Australia, India, Japan and the United States in

cooperating with each other in the Indo-Pacific has become a means for gauging progress on this aspect of the Quad's impact.

The Malabar naval exercise was initiated in 1992 as a bilateral framework for the Indian and United States navies to coordinate marine interdiction efforts to keep open sea lanes of communication. Ships of all four Quad countries participated in the Malabar Naval Exercises for the first time in September 2007, when the exercises were held off the Japanese island of Okinawa. Following the Australian decision in 2008 not to participate in any strategic dialogue involving the Quad, Australian naval vessels have not participated in the Malabar exercises held subsequently. The issue of Australia's participation in these exercises is unresolved till date.

On the other hand, Japan became a formal part of the Malabar exercises from 2015, following agreement between India and the United States to invite Japan into their bilateral naval exercise structure. Japan participated in the exercise held in the Bay of Bengal in October 2015, in the maritime waters of the Philippines in June 2016, in the Bay of Bengal in July 2017, and in United States maritime waters off Guam in 2018.

An important operational issue for effective maritime security cooperation among the navies of the Quad is the fact that while three of the navies operate within a military alliance framework (Australia-United States[10], Japan-United States[11]), India is not part of any military alliance. This brings up the question of decision-making by the Quad as a group. It is more than likely that decisions between the three military alliance partners (Australia, Japan and United States) would be aligned, leaving India to safeguard her interests in an unequal framework of decision-making.

A second issue is inter-operability of the navies of the Quad. As an Indian analyst has perceptively noted:

> "The employment of hi-tech equipment in these exercises not only helps show-case superior technology, whose efficacy is keenly watched, but also leads to subsequent procurement deals thereby further boosting inter-operability and integration. The Poseidon

Eight India (P8I) long range maritime patrol aircraft procured by India from the US is a pertinent example in this regard."[12]

For the Indian Navy, inter-operability in the Indo-Pacific also involves the sensitive interface between Indian naval equipment and technologies sourced from countries which are currently antagonistic (such as the United States and Russia). In turn, this is linked with the wider issue of sales of defence equipment and technology, and, in India's case, the impact of such sales on India's ambitious domestic manufacturing priority under the "Make in India" policy.

In terms of the future prospects for the Quad on maritime security issues, it appears that actual cooperation will take more time to implement. This was the conclusion drawn by Admiral Phil Davidson, the Commander-in-Chief of the US Indo-Pacific Command, after listening to the views at the panel of naval chiefs representing Australia, India, Japan and the United States at the 2019 Raisina Dialogue held in January 2019 in New Delhi.[13]

Prospects for the Quad in a Free and Open Indo-Pacific

The third broad area when looking at the prospects of the Quad is the impact of their strategic and maritime cooperation in meeting the core national interests of each of the four countries in a "Free and Open Indo-Pacific". All four countries have different threat perceptions in the Indo-Pacific. This includes their approach to upholding the freedom of navigation along the sea and air routes of communication, and the increasingly critical issue of connectivity, in the Indo-Pacific. It also impacts on their prioritisation of jointly countering challenges identified by them like terrorism, proliferation and cyber issues. Beyond these specific issues is the larger interplay between the political and economic interests of Quad members and other countries in the Indo-Pacific.

If between 2007 and 2017 meetings of Quad officials were limited, since 2017 senior officials of the Quad have already met three times. Their first meeting was at Manila on the margins of the ASEAN Summit on 12 November 2017, followed by the second at Singapore on the margins of the ASEAN Summit on 07

June 2018, and the third at Singapore on 15 November 2018 on the margins of the East Asia Summit. These meetings have been useful in identifying the prospects for cooperation among the Quad in creating a Free and Open Indo-Pacific.

As democracies, all four countries have emphasised the common values that bring them together. After the June 2018 meeting, the United States[14], Japan[15] and Australia[16] reported that the issues discussed included connectivity; good governance; countering terrorism and proliferation; humanitarian assistance for disaster relief; and promoting a rules-based order in the Indo-Pacific. All participants upheld the ASEAN-centrality of the Indo-Pacific architecture. India, in addition, emphasised the vision for the Indo-Pacific given in Prime Minister Narendra Modi's statement at the Shangri La Dialogue on 1 June 2018.[17]

Three issues will be important for the prospects of the Quad in this context: a common international legal framework for Quad actions, connectivity proposals in the western Indo-Pacific, and applying its principles equally to all the major sea lanes of communication in the wider Indo-Pacific region.

Rules-based order

The Quad has said it will implement its vision of a Free and Open Indo-Pacific on a "rules-based" legal framework to secure freedom of navigation in the sea lanes of communication in the Indo-Pacific. For Australia[18], India and Japan, which have ratified the United Nations Convention on the Law of the Sea (UNCLOS), this means the application of UNCLOS as international law to secure a Free and Open Indo-Pacific. However, in the case of the United States, which has not ratified UNCLOS, the reference in the joint statements issued after Quad meetings to upholding a "rules-based" order and "the peaceful resolution of disputes" brings up the question of which international rules and laws will be applied by the United States in a Free and Open Indo-Pacific to ensure freedom of navigation?

A related issue at least for India and Japan is the potential use of United Nations Security Council (UNSC) resolutions as

applicable law in the Indo-Pacific by the United States. One of the primary reasons for both India and Japan seeking early reform of the UNSC is to become equal participants in decision-making by the Security Council, which is currently dominated by the five permanent members including the United States. Therefore, attempts to use the Quad to enforce UNSC resolutions will need to be accompanied by implementing the long-overdue structural and procedural reforms of the UNSC.

Connectivity

A second area where the Quad requires to integrate the priorities of member countries is on connectivity proposals in the Indo-Pacific. In a transparent reference to China's Belt and Road Initiative (BRI), the United States has elaborated that discussions included connectivity "consistent with international law and standards, based on prudent financing".[19] After the November 2018 meeting, Australia stated that the meeting supported "broad economic development that harnesses the region's full potential and fosters connectivity and affirmed the importance of development of infrastructure based on principles of transparency and openness, meeting genuine need, avoiding unsustainable debt burdens and adherence to high standards."[20]

However, so far there has been no public reference by the Quad to connectivity proposals by its own members. This includes the ambitious Asia-Africa Growth Corridor proposed by Japan and endorsed by India in the western Indo-Pacific, which can be an alternative to the BRI in the region. Speaking at the Sixth Tokyo International Conference on African Development (TICAD) held in Nairobi on 27 August 2016, Prime Minister Abe said "Japan bears the responsibility of fostering the confluence of the Pacific and Indian Oceans and of Asia and Africa into a place that values freedom, the rule of law, and the market economy, free from force or coercion, and making it prosperous."[21]

Similarly, the Quad has not publicly referred to significant connectivity projects like India's Chabahar project in the western Indo-Pacific, which will integrate a large area of land-locked Asia, including Afghanistan and Central Asia, into the Indo-Pacific. The

Chabahar project has until now been exempted from unilateral sanctions by the United States.[22] Like the Asia-Africa Growth Corridor project, the Chabahar project is also not aligned with the BRI.

Sea Lanes of Communication

A third area relates to applying the principle of freedom of navigation equally to all the major strategic sea lanes of communication in the Indo-Pacific. This would require expanding the focus of Quad discussions to all three major choke-points in the Indo-Pacific – the straits of Malacca, the straits of Hormuz and the straits of Bab al-Mandeb, which have a direct impact on the economic prosperity of Quad members.

The import of crude oil and petroleum products from the Middle East plays a significant role in the Australian economy, with "Asian refineries on which Australia depend(s) for at least 64 per cent of its imports of petroleum products, [sourcing] around 79 per cent of their refinery feedstock from the Middle East."[23] Japan imports 85 per cent of its crude oil and 20 per cent of its liquified natural gas from the Middle East. India imports 53 per cent of her crude oil and 62 per cent for her liquified natural gas from the Gulf alone. Both Japan and India use the Red Sea "sea lanes of communication" for their international trade.[24] The strategic importance of these choke-points of communication has been emphasised within the United States as well.[25]

In the wider perspective, the Quad would also need to factor in its approach towards alternative connectivity routes linking Europe to Asia through Russia and Iran, such as the International North-South Transport Corridor (INSTC), which would offer an alternative to the east-west alignment of China's BRI.

Conclusion

The prospects for the Quad in the immediate future would depend on its ability to focus its discussions and activity on these three priorities within a common definition of the strategic framework of the Indo-Pacific. There has been reference to issues like countering terrorism and proliferation after meetings of Quad officials. Both these issues are currently listed on the agenda of the UNSC. The capacity of the Quad to become active in

implementing UNSC decisions on these issues will depend on the outcome of overcoming the gridlock in negotiations on UNSC reform in the UN General Assembly, led by China. As far as the recent reference to "cyber issues" in Quad discussions is concerned,[26] the situation in cyberspace will be influenced as much by the activities of trans-national private sector entities as by governments. The Quad may need to take the lead in creating an effective framework for international multi-stakeholder cooperation in the cyber domain, starting with the Indo-Pacific, to have any impact.

Prospects for the impact of the Quad in the Indo-Pacific will also depend on relations between the individual countries of the Quad and China and Russia. While the focus on China has been publicly commented upon,[27] the on-going polemics between the United States and Russia as a Eurasian power have not been reflected yet in Quad discussions of the issues discussed relating to maritime security in the Indian and Pacific oceans. Nor has there been any reference to Russia in the rule of law framework discussions of UNSC decisions on the Indo-Pacific, in which maritime security issues such as combating piracy off the coast of Somalia[28] were addressed. In the expanding framework of major power confrontation in the Indo-Pacific, these issues will have a direct impact on the prospects of the Quad.

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Changing Spectrum of Warfare Seen in The Lens of Time and Space

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Abstract

This article starts with an assertion that TIME and SPACE are constant factors of war and goes on to say that these factors take on variable values of impact at different timelines in history. Currently Time has drastically shortened, and Space has widened. It goes on to examine why kinetic weapons were weapons of choice and why 'soft weapons' are increasingly becoming important. The article asserts that War is a continuum with intensity ranging from non-contact across full spectrum anonymity strikes to visible effect limited spectrum kinetic strikes interspersed. Importantly, the article brings out that no longer are the Information age weapons in support or force multipliers to kinetic warfare. They are a potent arsenal of warfare, especially when war is not officially declared. Both kinetic, semi kinetic (Proxy) and non-contact warfare are blending into one whole war fighting machine spanning the Time and Space arena. The coming era will increasingly see nation level coordinated efforts between contact and non-contact warfare. Even in the contact warfare, emphasis will increasingly shift to long range highly lethal platforms which have least cost in terms of resources including human capital. Indicative scenarios are painted as illustrations. The article concludes by asserting the need to change for effective adaptation of the emerging format of war.

Introduction

If we look back and analyse the causative reasons for any war

over the ages, we can easily classify these reasons into any one or both of the following two buckets – firstly, to meet a felt need which may be a physical resource or a mental ideology but is mainly economic and secondly, to overcome a perceived crisis of identity or survival. The methodology used to wage wars to achieve these aims depends on the prevailing environment realities. We have seen weaponry like stones, bows and arrows, horses, elephants ranging from earlier stone and agriculture ages transcending to iron age weapons like swords etc. to industrial age weapons like tanks, guns, aircraft and ships. Primarily kinetic weapons. And now with the advent of information age, newer weapons derived from entities like data, cyber and information have come into vogue. A shift to non-kinetic weapons. A closer look will show that at any time weapons from three generational ages are always current. Of course, the maximum share would be with the current generation with depleting inventory of the last generation and increasing inventory of the incoming age. However, the policy formulations and concepts of employment of all three categories will remain to be the current compilation. This will draw out the best effects from the current inventory but may be sub optimal for the previous and future generation weapons. Concepts for that will take time to evolve along with shift in inventory holdings.

Pre-information Age Period

A closer look at history would show that the two important parameters of warfare warp are TIME and SPACE. However, the weightage values assigned to these parameters, for the purposes of conduct of warfare, keep changing with the environment realities. It is prudent to say, in this context, that over the decades Time has compressed and Space has widened, and this is most pronounced in the current information age. The main cause for this quantum shift in assigned weightage values for Time and Space is the advent of multi-use information technologies and derivatives derived thereof.

In pre-information ages, the time for deployment and the reach of weaponry decided the values assigned to the TIME and SPACE parameters. Since the entire inventory of weapons was kinetic during this period, the constraints to the optimum values that could be assigned to these parameters was in a sense logically limited. Of course, it would be wrong to say that there was no change in the assigned weightage values because the time of deployment and reach of weaponry improved dramatically during this period, especially during industrial age. This was hugely augmented by introduction of air and naval warfare as also by long range ground warfare weaponry. But the restrictive factor has been, and is, that the weaponry and concepts are based on kinetic warfare and hence contact warfare. Seen in this context, the ultimate and final frontier dimension for a nation to exert its might would naturally be the armed forces. This is one of the major reasons we saw nations investing heavily in developing newer technologies for the military. These technologies later got adopted in the commercial stream too (e.g. internet) for bettering the national economies. Still there always was a clear distinction between the military use and non-military use of the same technology. However, with commercial dominance becoming more aspirational for nations than ground holding, new technologies started emanating from the civil industry, as against military laboratories earlier, and the military started increasingly adopting these dual use technologies.

Information Age

With the advent of Information Age and its related technologies, the already technology dependent warfighting machine saw an exponential increase in their reach (SPACE) and an exponential decrease in time taken for effect (TIME). This was unprecedented as the uniformed fraternity was used to a gradual change, maybe steep at times, in these two parameters. They were used to gradually emerging enhanced concepts in synchronisation with evolving modern kinetic technology and entities. There was adequate time to prove these hypotheses physically and brand them as current concepts of warfare. Yes, growing commercial interests have increasingly shifted the mantle of 'Technology Developer and Introducer' from the military to industrial houses.

But due to this shift, dual use technologies increasingly came to the fore and the military arsenals adopted quite well. Really speaking, these developments did not affect the military concepts too much, but rather enhanced the procurement cycles to an extent, and hence the desired effects took / take less time comparatively to achieve. Military focus now started encompassing non-contact warfare as a discussion item for future concepts but Armed Forces, being classified as the last bastion for the nation, continued / continues with major weaponry to be kinetic.

With the advent of Information Technology (IT), as a sequel to desire of nations to be commercially efficient; leaders saw the world becoming a global village commercially and paradoxically continuing to consist of geographically (sometimes based on ethnicity) defined nation states. Commercial TIME shrunk and SPACE expanded even beyond national borders. Development and deployment cycles reduced. Market strategies increasingly shifted to becoming Data Centric. Corporate wars, became common place employing IT and data as weapons. Well established sovereign laws became difficult or impossible to enforce at times. Union or groupings and breakup of nations now were more and more based on economic considerations. In short, commercial interests started eroding artificial boundaries set up in the previous environment of industrial age. However, those structures too continued simultaneously as an administrative necessity. Nations increasingly started realising that the currency of weaponry for them to meet their aspirational needs was no longer restricted to land holdings or industrial bases but had increasingly shifted to data, information and communication technologies. However, the two buckets for the causatives for war remained the same as earlier.

National policy makers started realising that with emerging environmental realities, in many cases which are long drawn out and do not necessarily require to be brought into public gaze, IT, if used as a weapon by itself, could help nations achieve their aims without use of kinetic weapons or comparatively long drawn out contact warfare. The implication is that civilian experts, mostly youngsters, can become non-contact warfare frontline 'soldiers'

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who may be anonymous or identifiable, as dictated by the situation. Another sub set of warfare started emerging in the defence forces itself. They started adopting IT in their concepts to improve and enhance their kinetic warfighting capability using newer concepts like net centric warfare, precision guided munitions, use of drones and Unmanned Aerial Vehicles (UAVs). Defence forces also started looking at Information Warfare (IW) with all its components including cyber warfare and Electronic Warfare (EW) as force multipliers and adjuncts to kinetic warfare but not as a form of warfare itself. Hence, the contact warfare concepts started employing non-contact warfare components albeit as force multipliers. Importantly, a segment of uniformed soldiers also started doing similar tasks that the civilian 'soldiers' were doing as mentioned above. Information highways and networks in most cases became intertwined but with different outcomes.

In this arena, distinguishing civil use and military use for the stated purpose are increasingly becoming blurred. Hence, IT and defensive cyber security literacy is becoming an organic need for every soldier. Offensive capabilities are increasingly shifting to the strategic national level and is top down driven with coordinated implementation by both, the uniformed and non-uniformed fraternity in a well-coordinated manner. Because of these developments, some thinkers started propagating that non-contact warfare will replace kinetic warfare in totality while their protagonists stuck to asserting that kinetic is the only way of warfare and that these new concepts are just a passing fad which will soon pass. The debate continues but obviously the answer lies somewhere in between.

Modern Warfighting

The previous paragraphs lead us to an important conclusion – the warfighting machine is no longer going to be restricted to the military domain but will encompass all aspects and segments of the nation. Decidedly military action will be dominant in the visible and tangible portion of war and will at times be supported by other national segments and at times be in a supporting role. The hegemony of military in a war is set to be blurred if not lost. Once

a nation has decided to wage war (declared or otherwise) with another nation or entity (external, internal or hybrid) the most important variable values to be assigned to the permutations and combinations of the parameters TIME and SPACE will be decided to lay out the real and virtual battlefield dimensions. This will decide how long the conflict will last, how widespread it will be, what outcomes do we desire and how much of the desired effects can be or should be in public domain or linked / linkable to us while achieving the desired outcomes. With these decisions tentatively in place, the next set of decisions would be to decide the best set of tools or components to employ in the most cost and effect efficient manner. This will have to be within the constraints imposed by selection of the TIME-SPACE-EFFECT combination selected by the national policy level decision makers. Also, it would be incorrect to lose flexibility by allocating percentages of effort or finances to various components as this allocation would be a dynamic process which will be complex and will take into account, amongst other factors, the reactions of the adversary.

For effects over a large space and over a longer time which does not require visible military effects, the component of choice may be the civil 'soldiers' in non-contact warfare, especially when the TIME and SPACE combination is large. If effects are to be visible and SPACE is large, but TIME is short, the Air Force and Navy may be the Services of choice. For a smaller SPACE, short TIME and requirement of visibility, Army will be the dominant deployment. All such combinations will of course factor in the procurement timelines and cost and thereafter decide on which combination will be able to deliver the desired outcomes with the best return on investment of resources, including human resources. As such, the multiple use technologies like cyber and other non-contact warfare implements which necessarily will have lower costs in terms of money and development / procurement time but will require greater long-term training and preparation across segments will be increasingly factored into the war fighting machinery in all forms mentioned earlier. Military will no longer be the only and / or the last bastion of the nation. The goalposts are changing rapidly as we can observe daily. Outcomes desired are changing, aspirations are changing, and hence, new paradigms are emerging with complex permutations and combinations.

War fighting is now decisively changing from the way we have viewed its conduct till now. It is now increasingly going to be a continuum of undeclared non-contact warfare in the information domain conducted by anonymous coordinated faces outside of the military entity. The outcomes of this phase will be substantial and will focus on the virtual domains of perception, economics, commerce and politics. The effects may not be physically discernible but will be substantial and will result in tangible gains but will mostly be outside public view. This continuum will at times be overlaid with a focussed proxy war in segmented geographies and interspersed with bouts of contact warfare of short durations, which will figure as blips on the national warfighting radar but will draw much more public gaze than the earlier mentioned non-contact and proxy war combination.

It can be said that contact warfare will be the acute stage while non-contact and proxy war combination will be the chronic state of war. The situation for a declaration of war will be rare and far in between. Even if it happens, this war will be very intense but of short duration and all organs mentioned above will come into full coordinated play. Kinetic portion of war will peter out comparatively faster but the non-kinetic will continue in the background, unhindered and anonymous. During the kinetic warfare dominated period, employment of Air and Naval assets will see an increase because of the increased SPACE that can be strategically and decisively EFFECTED in a shorter TIME frame with a better military return on investment (including human capital) so to say. Since capturing territory may no longer be the priority national or military aim, the role of army will increasingly be confined to a restricted TIME-SPACE combination. Their doctrines and concepts will increasingly incorporate the visible portion of non-contact warfare in addition to aiding the national effort in this direction.

Conclusion

Whichever way we see it, the warfighting machinery of a country will no longer be confined to the military wing but will increasingly bring in more and more multi tasked elements and technologies into the fray. As such warfighting will be a continuum through war

and peace and will have to be co-ordinated and conducted at the highest level with the military being part of this process. This is a process which can be delayed or botched up if not handled consciously and professionally but cannot be halted. We, in the defence forces, should start taking cognisance of these realities and take actions to prepare and train for the new environment. And we must do this fast, much faster than what the military machine has been used to in the industrial age, simply because in the Information age the Time has shrunk, Space has expanded. Multiuse personnel and technologies will increasingly achieve many of the objectives at a much lower cost and disruption. At no stage am I saying that the role of military has reduced – the bandwidth of war has increased, and we are but a part, albeit an important part, of this bandwidth. We need to change to the changing realities.

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Artificial Intelligence in Military Operations: Technology and Ethics Indian Perspective

Lieutenant General RS Panwar, AVSM, SM, VSM, PhD (Retd)[@]

Abstract

Artificial Intelligence (AI) technologies hold great promise for facilitating military decisions, minimising human causalities and enhancing the combat potential of forces. This article focuses on development and fielding of Lethal Autonomous Weapon Systems (LAWS) against the backdrop of rapid advances in the field of AI, and its relevance to the Indian security scenario. It gives a broad overview of the possible military applications of this technology and brings out the main legal and ethical issues involved in the current ongoing debate on development of LAWS. Further, international as well as Indian perspectives are given out on the development and deployment of LAWS. It reviews the status of AI technology in India, assesses the current capability of the Indian Army (IA) to adapt to this technology, and suggest steps which need to be taken on priority to ensure that Indian defence forces keep pace with other advanced armies in the race to usher in a new AI-triggered Revolution in Military Affairs (RMA).

Introduction

Artificial Intelligence (AI) has become a field of intense interest

and high expectations within the defence technology community. AI technologies hold great promise for facilitating military decisions, minimising human causalities and enhancing the combat potential of forces, and in the process dramatically

changing, if not revolutionising, the design of military systems. This is especially true in a wartime environment, when data availability is high, decision periods are short, and decision effectiveness is an absolute necessity.

The rise in the use of increasingly autonomous unmanned aerial vehicles (UAVs) in military settings has been accompanied by a heated debate as to whether there should be an outright ban on Lethal Autonomous Weapon Systems (LAWS), sometimes referred to as 'killer robots'. Such AI enabled robots, which could be in the air, on the ground, or under water, would theoretically be capable of executing missions on their own. The debate concerns whether artificially intelligent machines should be allowed to execute such military missions, especially in scenarios where human lives are at stake.

This article focusses on development and fielding of LAWS against the backdrop of rapid advances in the field of AI, with special emphasis on legal and ethical issues associated with their deployment. It also reviews the status of AI technology in India, assesses the current capability of the Indian Army (IA) to adapt to this technology, and suggest steps which need to be taken on priority to ensure that we do not get left behind other advanced armies in the race to usher in a new AI-triggered Revolution in Military Affairs (RMA).

AI – Current Status of Technology

AI – A Maturing Technology- A general definition of AI is the capability of a computer system to perform tasks that normally require human intelligence, such as visual perception, speech recognition and decision-making. Functionally, AI enabled machines should have the capability to learn, reason, judge, predict, infer and initiate action. In layman's terms, AI implies trying to emulate the brain. There are three main ingredients that are necessary for simulating intelligence: the brain, the body, and the mind. The brain consists of the software algorithms which work on available data, the body is the hardware and the mind is the computing power that runs the algorithms. Technological breakthroughs and convergence in these areas is enabling the AI field to rapidly mature.

AI, Machine Learning and Deep Learning - Year before last, in a significant development, Google DeepMind's AlphaGo program defeated South Korean Master Lee Se-dol in the popular board game Go, and the terms AI, Machine Learning, and Deep Learning were used to describe how DeepMind won. The easiest way to think of their inter-relationship is to visualise them as concentric circles, with AI the largest, then Machine Learning, and finally Deep Learning - which is driving today's AI explosion - fitting inside both.[1] AI is any technique that enables computers to mimic human intelligence. Machine Learning is a subset of AI, which focuses on the development of computer programs that can change when exposed to new data, by searching through data to look for patterns and adjusting program actions accordingly. Deep Learning is a further subset of Machine Learning that is composed of algorithms which permit software to train itself by exposing multi-layered neural networks (which are designed on concepts borrowed from a study of the neurological structure of the brain) to vast amounts of data.

AI Technologies - The most significant technologies which are making rapid progress today are natural language processing and generation, speech recognition, text analytics, machine learning and deep learning platforms, decision management, biometrics and robotic process automation. Some of the major players in this space are: Google, now famous for its artificial neural network based AlphaGo program; Facebook, which has recently announced several new algorithms; IBM, known for Watson, which is a cognitive system that leverages machine learning to derive insights from data; Microsoft, which helps developers to build Android, iOS and Windows apps using powerful intelligence algorithms; Toyota, which has a major focus on automotive autonomy (driver-less cars); and Baidu Research, the Chinese firm which brings together global research talent to work on AI technologies.

AI – Future Prospects -. Today, while AI is most commonly cited for image recognition, natural language processing and voice recognition, this is just an early manifestation of its full potential. The next step will be the ability to reason, and in fact reach a level where an AI system is functionally indistinguishable from a

human. With such a capability, AI based systems would potentially have an infinite number of applications.[2]

The Turing Test - In a 1951 paper, Alan Turing proposed the Turing Test to test for artificial intelligence. It envisages two contestants consisting of a human and a machine, with a judge, suitably screened from them, tasked with deciding which of the two is talking to him. While there have been two well-known computer programs claiming to have cleared the Turing Test, the reality is that no AI system has been able to pass it since it was introduced. Turing himself thought that by the year 2000 computer systems would be able to pass the test with flying colours! While there is much disagreement as to when a computer will actually pass the Turing Test, one thing all AI scientists generally agree on is that it is very likely to happen in our lifetime.[3]

Fear of AI - There is a growing fear that machines with artificial intelligence will get so smart that they will take over and end civilisation. This belief is probably rooted in the fact that most of society does not have an adequate understanding of this technology. AI is less feared in engineering circles because there is a slightly more hands-on understanding of the technology. There is perhaps a potential for AI to be abused in the future, but that is a possibility with any technology. Apprehensions about AI leading to end-of-civilisation scenarios are perhaps largely based on fear of the unknown, and are largely unfounded.

AI in Military Operations

AI – Harbinger of a New RMA? Robotic systems are now widely present in the modern battlefield. Increasing levels of autonomy are being seen in systems which are already fielded or are under development, ranging from systems capable of autonomously performing their own search, detect, evaluation, track, engage and kill assessment functions, fire-and-forget munitions, loitering torpedoes, and intelligent anti-submarine or anti-tank mines, among numerous other examples. In view of these developments, many now consider AI and Robotics technologies as having the potential to trigger a new RMA, especially as Lethal Autonomous Weapon Systems (LAWS) continue to achieve increasing levels of sophistication and capability.

"LAWS" – Eluding Precise Definition. In the acronym "LAWS", there is a fair amount of ambiguity in the usage of the term "autonomous", and there is lack of consensus on how a "fully autonomous" weapon system should be characterised. In this context, two definitions merit mention, as under:-

(a) **US Department of Defence Definition**. A 2012 US Department of Defence (DoD) directive defines an autonomous weapon system as one that "once activated, can select and engage targets without further intervention by a human operator." More significantly, it defines a semi-autonomous weapon system as one that, "once activated, is intended to engage individual targets or specific target groups that have been selected by a human operator". By this yardstick, a weapon system, once programmed by a human to destroy a "target group" (which could well be interpreted to be an entire army) and thereafter seeks and destroys individual targets autonomously, would still be classified as semi-autonomous![4]

(b) **Human Rights Watch Definition**. As per Human Rights Watch (HRW), "fully autonomous weapons are those that once initiated, will be able to operate without Meaningful Human Control (MHC). They will be able to select and engage targets on their own, rather than requiring a human to make targeting and kill decisions for each individual attack." However, in the absence of consensus on how MHC is to be specified, it concedes that there is lack of clarity on the definition of LAWS.[5]

Narrow AI – An Evolutionary Approach. There is a view that rather than focus autonomous systems alone, there is a need to leverage the power of AI for increasing the combat power of the current force. This approach is referred to as "Narrow" or "Weak" AI. Narrow AI could lead to many benefits, as follows: using image recognition from video feeds to identify imminent threats, anticipating supply bottlenecks, automating administrative functions, etc. Such applications would permit force re-structuring, with smaller staff comprising of data scientists replacing large

organisations. Narrow AI thus has the potential to help the Defence Forces improve their teeth-to-tail ratio.[6]

Centaur: Human-Machine Teaming. Another focus area on the evolutionary route to the development of autonomous weapons is what can be termed as "human-machine teaming", wherein machines and humans work together in a symbiotic relationship. Like the mythical centaur, this approach envisages harnessing inhuman speed and power to human judgment, combining machine precision and reliability with human robustness and flexibility, as also enabling computers and humans helping each other to think, termed as "cognitive teaming". Some functions will necessarily have to be completely automated, like missile defense lasers or cybersecurity, and in all such cases where there is no time for human intervention. But, at least in the medium term, most military AI applications are likely to be team-work: computers will fly the missiles, aim the lasers, jam the signals, read the sensors, and pull all the data together over a network, putting it into an intuitive interface, using which humans, using their experience, can take well informed decisions.[7]

LAWS – Legal and Ethical Issues

LAWS powered by AI are currently the subject of much debate based on ethical and legal concerns, with human rights proponents recommending that development of such weapons should be banned, as they would not be in line with international humanitarian laws (IHL) under the Geneva Convention. The legal debate over LAWS revolves around three fundamental issues, as under:-

(a) **Principle of "Distinction".** This principle requires parties to an armed conflict to distinguish civilian populations and assets from military assets, and to target only the latter (Article 51(4)(b) of Additional Protocol I).

(b) **Principle of "Proportionality"**. The law of proportionality requires parties to a conflict to determine the civilian cost of achieving a particular military target and prohibits an attack if the civilian harm exceeds the military

advantage (Articles 51(5)(b) and 57(2)(iii) of Additional Protocol I).

(c) **Legal Review**. The rule on legal review provides that signatories to the Convention are obliged to determine whether or not new weapons as well as means and methods of warfare are in adherence to the Convention or any other international law (Article 36 of Additional Protocol I).

Marten's Clause. It has also been argued that fully autonomous weapon systems do not pass muster under the Marten's Clause, which requires that "in cases not covered by the law in force, the human person remains under the protection of the principles of humanity and the dictates of the public conscience" (Preamble to Additional Protocol I).[8]

"Campaign to Stop Killer Robots"- Under this banner, Human Rights Watch (HRW) has argued that fully autonomous weapon systems would be prima facie illegal as they would never be able to adhere to the above provisions of IHL, since such adherence requires a subjective judgement, which machines can never achieve. Hence, their development should be banned at this stage itself.[9]

Counter-Views- There is an equally vocal body of opinion which states that development and deployment of LAWS would not be illegal, and in fact would lead to saving of human lives. Some of their views are listed as under[10]:-

(a) LAWS do not need to have self-preservation as a foremost drive, and hence can be used in a self-sacrificing manner, saving human lives in the process.

(b) They can be designed without emotions that normally cloud human judgment during battle leading to unnecessary loss of lives.

(c) When working as a team with human soldiers, autonomous systems have the potential capability of objectively monitoring ethical behaviour on the battlefield by all parties.

(d)   The eventual development of robotic sensors superior to human capabilities would enable robotic systems to pierce the fog of war, leading to better informed "kill" decisions.

(e)   Autonomous weapons would have a wide range of uses in scenarios where civilian loss would be minimal or non-existent, such as naval warfare.

(f)   The question of legality depends on how these weapons are used, not their development or existence.

(g)   It is too early to argue over the legal issues surrounding autonomous weapons because the technology itself has not been completely developed yet.

Degree of Autonomy and Meaningful Human Control (MHC) – Central to the issues being debated are the aspects of degree of autonomy and MHC. LAWS have been broadly classified into three categories: "Human-in-the-Loop" LAWS can select targets, while humans take the "kill" decision; "Human-on-the-Loop" weapons can select as well as take "kill" decisions autonomously, while a human may override the decision by exerting oversight; and "Human-out-of-the-Loop" LAWS are those that may select and engage targets without any human interaction. Entwined within this categorisation is the concept of MHC, i.e., the degree of human control which would pass muster under IHC. Despite extensive discussions at many levels, there is no consensus so far on what is meant by full autonomy as also how MHC should be defined.[11,12]

Deliberations at the UN- Triggered by the initiatives of HRW and other NGOs, an informal group of experts from a large number of countries has been debating the issue of LAWS for three years now at the United Nations Office of Disarmament Affairs (UNODA) forum, Convention on Certain Conventional Weapons (CCW). In December 2016, countries agreed to formalise these deliberations, and as a result a Group of Governmental Experts (GGE) has been established, the first of which was held from 13-17 Nov 2017, chaired by Ambassador Amandeep Gill of India. Approximately 90 countries along with many other agencies participated in the meeting. Some of the

conclusions arrived at during the meeting are as follows: states must ensure accountability for lethal action by any weapon system used by them in armed conflict; acknowledging the dual nature of technologies involved, the Group's efforts should not hamper civilian research and development in these technologies; and, there is a need to keep potential military applications using these technologies under review. It was also agreed that a ten-day meeting should be scheduled in 2018.

AI In Military Operations – International Perspective

LAWS – Current Status of Deployment- As of now, near-autonomous defensive systems have been deployed by several countries to intercept incoming attacks. Offensive weapon systems, in contrast, would be those which may be deployed anywhere and actively seek out targets. However, the difference between offensive and defensive weapons is not watertight. The most well-known autonomous defensive weaponry are missile defense systems, such as the Iron Dome of Israel and the Phalanx Close-In Weapon System used by the US Navy. Fire-and-forget systems, such as the Brimstone missile system of the United Kingdom and the Harpy Air Defense Suppression System of Israel, are also near-autonomous. South Korea uses the SGR-A1, a sentry robot with an automatic mode, in the Demilitarised Zone with North Korea. One example of an offensive autonomous system likely to be deployed in the near future is Norway's Joint Strike Missile, which can hunt, recognize and detect a target ship or land-based object without human intervention.[13]

US DoD Perspective and the Third Offset Strategy- The US has put AI at the centre of its quest to maintain its military dominance. In November 2014, the then US Secretary of Defense Chuck Hagel announced a new Defense Innovation Initiative, also termed as the Third Offset Strategy. Secretary Hagel modelled his approach on the First Offset Strategy of the 1950s, in which the US countered the Soviet Union's conventional numerical superiority through the build-up of America's nuclear deterrent, and on the Second Offset Strategy of the 1970s, in which it shepherded the development of precision-guided munitions, stealth, and intelligence, surveillance, and reconnaissance (ISR)

systems to counter the numerical superiority and improving technical capability of Warsaw Pact forces. As a part of its Third-Offset Strategy, the Pentagon is reportedly dedicating $18 billion for its Future Years Defense Program. A substantial portion of this amount has been allocated for robotics, autonomous systems, human-machine collaboration, and cyber and electronic warfare.[14,15]

Chinese Initiatives- China is also laying a huge focus to AI enabled autonomous systems. In August last year, the state-run China Daily newspaper reported that the country had embarked on the development of a cruise missile system with a "high level" of AI. The announcement was thought to be a response to the "semi-autonomous" Long Range Anti-Ship Missile expected to be deployed by the US in 2018. Chinese military leaders and strategists believe that the nature of warfare is fundamentally changing due to unmanned platforms. High-level support for R&D in robotics and unmanned systems has led to a myriad of institutes within China's defense industry and universities conducting robotics research. China's leaders have labelled AI research as a national priority, and there appears to be a lot of co-ordination between civilian and military research in this field.[16]

AI in Military Ops – Indian Perspective

Perhaps as a result of being preoccupied with the huge challenges being faced on operational and logistic fronts including issues related to modernisation, the AI/ robotics/ LAWS paradigm is yet to become a key driving force in the doctrinal thinking and perspective planning of the IA. The above discussion dictates that this needs to change. The following paragraphs shed some light on the relevance of AI and LAWS in our context and what we need to do in order to keep pace with 21st Century warfare.

Employment Scenarios- The Indian military landscape is comprised of a wide variety of scenarios where autonomous systems (AS), and more specifically LAWS, can be deployed to advantage. With the progressive development of AI technologies, example scenarios in increasing degree of complexity can be visualised as under[17]:-

(a) **Anti-IED Operations**. Autonomous systems designed to disarm IEDs are already in use in some form, although there is scope for further improvement. Such autonomous systems are "non-lethal" and "defensive" in nature.

(b) **Swarm of Surveillance Drones**. An AI-enabled swarm of surveillance drones (as against manually piloted Unmanned Aerial Vehicles (UAVs) or Unmanned Undersea Vehicles (USVs)) could greatly boost our surveillance capabilities. Such a system would be "non-lethal", but could support both offensive and defensive operations.

(c) **Robot Sentries**. There is scope for deployment of Robot Sentries, duly tailored to our requirements, along the IB/LC, on the lines of SGR-A1. Such a deployment would be categorised as "lethal" and "defensive" in character.

(d) **Autonomous Armed UAVs/USVs**. We are currently in the process of procuring manually piloted armed UAVs. Future armed UAVs/USVs with increasing degrees of autonomy in navigate/ search/ detect/ evaluation/ track/ engage/ kill functions may be visualised. Such systems would be classified as "lethal" and "offensive".

(e) **Land-Based Offensive Robot Soldiers**. Offensive or 'Killer Robots' deployed in land-based conventional offensive operations would require a much higher technological sophistication to become a feasible proposition.

(f) **Robot Soldiers in Counter-Insurgency (CI) Operations**. If Robot Soldiers are to be successfully deployed in CI operations, a very high AI technology threshold would need to be breached. In addition to a more sophisticated "perceptual" ability to distinguish an adversary from amongst a friendly population, qualities such as "empathy" and "ethical values" similar to humans would need to be built into such systems. As per one school of thought, such capability can never be achieved, while others project reaching such a technological "singularity" within this century.

India's Stand at the UN

India's response in international fora has been to hedge against the future and, until such weapons are developed, attempt to retain the balance of conventional power that it currently enjoys in the sub-continent. At the Informal Meeting of Experts on LAWS held in Geneva in April 2016, India reiterated this strategy. Our permanent representative at the UN, Ambassador DB Venkatesh Varma stated that the UN CCW on LAWS "should be strengthened … in a manner that does not widen the technology gap amongst states", while at the same time endorsing the need to adhere to IHL while developing and deploying LAWS.[18]

India's Overall Strategy

International deliberations on legal and ethical issues related to LAWS is unlikely to slow the pace of their development and deployment by various countries. China is already well on its way to becoming a technology leader in this field, and Pakistan is expected to leverage its strategic relationship with China to obtain these technologies. India, therefore, needs to take urgent steps to ensure that it remains well ahead in this race. It can do this by leveraging the strengths of players from both the public and private sectors. The challenge for the Indian political leadership is to put together a cooperative framework where civilian academia and industry can collaborate with bodies like the Defence Research and Development Organisation (DRDO) to develop autonomous systems. Also, steps should be taken to ensure that the United States becomes India's strategic ally in autonomous technologies.[19]

R&D Initiatives by DRDO

The DRDO stated way back in 2013 that they are developing "robotic soldiers" and that these would be ready for deployment around 2023. Given DRDO's credibility based on past performance, these statements must be taken as an expression of intent rather than as the final word on delivery timelines. DRDO's main facility working in this area is the Centre for Artificial Intelligence and Robotics (CAIR), whose vision, mission and objectives all refer to development of intelligent systems/ AI/ Robotics technologies. CAIR has achieved some headway in making some prototype systems, such as "Muntra" UGV, "Daksh"

remotely operated vehicle, wall climbing and flapping wing robots, etc. It is now in the process of developing a Multi Agent Robotics Framework (MARF) for catering to a myriad of military applications. However, in order to keep in step with progress in the international arena, these efforts alone may not suffice.[21]

AI and Robotics – Perspective of the IA

The Indian Defence Forces, and the IA in particular, are still a long way off from operationalising even older generation technologies pertaining to Network Centric Warfare (NCW) and Information Operations (IO) in general and C4I2SR systems in particular.[20] As regards next generation technologies such as AI and Robotics, presently there appears to be a void even in terms of concepts, doctrines and perspective plans. Occasional interactions with CAIR and other agencies do take place, mostly at the behest of the DRDO. Despite good intentions, DRDO is not likely to be successful in developing lethal and non-lethal autonomous systems without the necessary pull from the IA. It is also worth noting that world-wide, R&D in these technologies is being driven by the private commercial sector rather than the defence industry. Unfortunately, Indian equivalents of Baidu, Amazon, Google and Microsoft, etc, are yet to rise to the occasion, despite the strengths of our IT industry. Clearly, much more needs to be done.

IA – Need for a Lead Agency

Given the very high level of sophistication involved in AI/Robotics technologies, together with the fact that our public as well as private sector defence industry is not too mature, our project management interface with R&D agencies cannot afford to be based on purely operational knowledge. Therefore, while the MO and PP Directorates, in conjunction with HQ ARTRAC, would necessarily be central to formulation of concepts and doctrines, it is imperative to institute, in addition, a lead agency which, while being well versed with operational requirements, has a clear grasp of these sophisticated technologies. Currently, MCEME is the designated Centre of Excellence for Robotics. Since AI is a sub-discipline of Computer Science, MCTE appears to be best placed to play the role of a lead agency for the development of AI-based autonomous systems, provided the Corps of Signals develops AI

as an area of super-specialisation. It would be prudent, at this juncture, to brainstorm this issue at the apex level and take urgent follow up action.

Conclusion

Given the extended borders with our adversaries on two fronts and the volatile CI scenarios in J&K and the North-East, it is well appreciated that having sufficient "boots on the ground" is an absolute must. At the same time, it is imperative that the IA keeps pace with the changing nature of warfare in the 21st Century, driven by rapid advances in technology on many fronts. AI/ Robotics technologies, after decades of false starts, today appear to be at an inflection point, and are rapidly being incorporated into a range of products and services in the commercial environment. It is only a matter of time before they manifest themselves in defence systems, in ways significant enough to usher in a new RMA. Notwithstanding the world-wide concern on development of LAWS from legal and ethical points of view, it is increasingly clear that, no matter what conventions are adopted by the UN, R&D by major players in this area is likely to proceed unhindered.

Given our own security landscape, adoption of AI based systems with increasing degrees of autonomy in various operational scenarios is expected to yield tremendous benefits in the coming years. Perhaps there is a need to adopt a radically different approach for facilitating the development of AI-based autonomous systems, utilising the best available expertise within and outside the country. As with any transformation, this is no easy task. Only a determined effort, with specialists on board and due impetus being given from the apex level, is likely to yield the desired results.

Endnotes

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Turmoil in West Asia: Challenges and Opportunities for India

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Abstract

While the present-day divide between Saudi Arabia and Iran has been framed in doctrinal and sectarian terms, it is the result of deep strategic vulnerabilities being felt in Riyadh in response to what is seen as the burgeoning role of Iran in areas that the kingdom views as its domain of exclusive influence – Lebanon, Syria, Iraq and Yemen. For the kingdom, this expanding influence is a "Shia Crescent" that is strangling it across West Asia and is an "existential" threat. Saudi Arabia has responded to the Iranian challenge by confronting Iran in the theatres of its influence – Syria and Yemen.

Given the deep hostility of the Trump administration for Iran, the robust United States (US) support to an Israeli-Saudi alliance against Iran in Syria and the interest of the US and its allies to effect regime change in Iran, there is a real prospect of a direct military conflict between the two major Islamic neighbours.

This article proposes that India, that enjoys extraordinary goodwill and standing with all the principal countries of the region, shape a peace process that would lead to dialogue between the kingdom and Iran and, over time, would lead to negotiations to realise a regional security cooperation arrangement in West Asia.

Introduction

The roots of the current competitions and contentions in West

Asia between Saudi Arabia and the Islamic Republic can be traced to events that took place forty years ago - in 1979.[1]

The year began with the Islamic Revolution in Iran. Not only did this event overthrow the country's royal order, it also made Islam, as propounded by its leader Ayatollah Ruhollah Khomeini, its ruling doctrine. This made Iran a revolutionary force against secular politics and Western political power and cultural influence.

Saudi Arabia viewed the revolution with alarm as it challenged its leadership of the Arab and Islamic world. Saudi concerns were aggravated by the second event of that year – the occupation of the Grand Mosque in Mecca by Islamic zealots from within the Saudi Wahhabi fold. They condemned the Saudi royal family for its materialism, corruption and licentiousness and its proximity to the West, and declared it unfit to be the guardian of Islam's holy sites of Mecca and Madinah.[2]

The rebellion was crushed with military force, but the kingdom's concerns about the challenge to its authority from domestic sources, coupled with the threat from the spread of the Iranian revolution remained. To confront the latter, the Saudi leadership encouraged the Iraqi leader, Saddam Hussein, to launch a military attack on Iran. Seeing the Iranian armed forces in disarray, Saddam thought his army would capture large chunks of Iranian territory and dictate terms that would end the Islamic regime and replace it with a more amenable leadership.

But Saddam's plans were foiled as his attack united Iran and encouraged its forces to face the aggression resolutely. The war stretched over eight years and ended only when both sides were exhausted.

The war not only saved the Islamic revolution; it also imbued into the Iranian psyche a sense of achievement in the face of near-total global isolation when its cities were showered with missiles and its people with chemical weapons, with no protest from the international community and its institutions.

In 1979 itself, in early November, revolutionary youth attacked the US Embassy in Tehran and took its diplomats hostage for 444 days, largely as a reprisal for the long period of western interventions in Iranian politics, particularly the overthrow of its democratic government in 1953. For the Americans, the diplomats' incarceration and the failed rescue effort by President Jimmy Carter created an enduring animosity for the Islamic revolution and its leaders that continues to influence to this day large sections of the US political, official, media and academic establishments.

Regime-change in Iraq

The end of the Iraq-Iran war was marked by an extended period of camaraderie and positive engagement between Iran and Saudi Arabia when Iran shifted its focus from revolutionary zeal to economic development. Iran stopped questioning the legitimacy of the Saudi royal family, while Saudi leaders proclaimed there were no limits to cooperation with Iran.

This camaraderie ended with the US assault on Iraq in 2003 and subsequent regime-change, along the US commitment to Shia empowerment in the country that overtly privileged the majority Shia community. Saudi Arabia and its Gulf Cooperation Council (GCC) partners viewed this approach as opening the door to the expansion of Iran's influence into one more Arab country.[3]

This increased the Saudi sense of strategic vulnerability vis-à-vis its Gulf neighbour, viewing this challenge in sectarian terms. King Abdullah II of Jordan first spoke of the "Shia Crescent" engulfing the region in 2004, remarks that were later echoed by Egypt's President Hosni Mubarak and Saudi foreign minister Prince Saud Al Faisal. To confront this "Shia Crescent", Saudi Arabia set up a regional balance of power by aligning itself with Egypt.

Iraq remained an area of competition in the Gulf. Iran expanded its influence with the support of the regime headed by Prime Minister Nouri al Maliki who depended on Shia militia funded, armed and trained by Iran. Saudi Arabia retaliated by providing backing for the jihadi insurgency that commenced from

2003 itself under the leadership of the Afghanistan veteran, Abu Musab Zarqawi, who proclaimed his formal affiliation with Al Qaeda by calling his organisation Al Qaeda in Iraq (AQI). After Zarqawi's death in 2006, his successors renamed the body the Islamic State of Iraq (ISI) to affirm their independence from Al Qaeda and their intention to make Iraq into an Islamic state.

While Saudi Arabia maintained no ties with the Iraqi government in Baghdad, Iran remained the most influential foreign presence in the country and the principal backer of the government against the ISI.

Arab Spring and After

The balance of power in West Asia ended abruptly with the fall of the Mubarak regime in February 2011 in the wake of the Arab Spring agitations. The Saudi sense of vulnerability increased with the demand for political reform in Bahrain, a neighbour and GCC member with a Shia majority. The kingdom believed that reform in Bahrain would empower the Shia and provide a fresh opportunity for the expansion of Iran's influence up to the Saudi border and within the GCC family.

Saudi Arabia brought an abrupt end to the reform agitation in Bahrain by sending its troops into the country in mid-March 2011 and forcibly dispersing the demonstrators. The kingdom then confronted Iranian interests in Syria. It felt that removal of the pro-Iran Bashar al Assad regime would bring a major Arab country back into the political mainstream and restore the regional balance of power. It would also cut Iran's outreach to the Mediterranean, besides having the additional benefit of ending Iran's ties to the Hezbollah via Damascus, thus bringing one more country into the Arab mainstream.

The kingdom's game-plan for Syria met an obstacle at the very outset when US President Barack Obama refused to bomb Damascus to effect regime-change on the ground that earlier US interventions had brought no advantage to the US and had only benefitted the jihadis. Saudi Arabia then perforce had to rely on ground action against Assad. It shaped this confrontation on sectarian basis, mobilising Salafi militants from Syria's Sunni

community, in alliance with Qatar and Turkey, which were ranged against Shia militia provided by Iran from its Islamic Revolutionary Guards Corps (IRGC) as well as from the Hezbollah and militants from Iraq, Afghanistan and Pakistan.

Though the Saudi-backed militants met with some initial successes, the entry of Russian forces on the side of the Assad government in September 2015 ensured that there would be no military victory for the rebels. The kingdom's efforts received a further setback when Turkey, alarmed by the military successes of the Syrian Kurds and the prospect of their setting up a "homeland" at the Syria-Turkey border, left the Saudi side and joined Russia and Iran in the Astana peace process, even as Assad's forces continued to take more territory from the rebels.

Besides the ongoing conflict in Syria, Saudi Arabia opened another front against Iran, this time in Yemen with which it shares 1400-km border. Here, taking advantage of a weak central government in Sanaa, after the replacement of longstanding President Ali Abdullah Saleh by his deputy, Abd Rabbo Mansour Hadi, the disgruntled Zaydis of north Yemen mobilised themselves as a militant movement 'Ansarullah' though they are informally referred to as "Houthis" after the family name of their founder.[4]

The Houthis, allied with the former President, occupied Sanaa and then went southwards to take Aden. Based on the Zaydis' Shia identity, Saudi Arabia viewed these successes as providing Iran with a strong military and political base at its border. It launched a military assault on the Houthis from March 2015 and later initiated ground action from the south.

After four years of war, the Saudis have little to show in terms of achievement on the ground, and, despite widespread death and destruction, the major towns of Taiz, the port city of Hodeidah and Sanaa, the capital, remain with the Houthis.

With the advent of the Trump presidency in the US, the regional security scenario in West Asia has deteriorated. The President has withdrawn from the nuclear agreement with Iran and has committed himself to effecting regime change in the Islamic Republic by encouraging internal insurrection. In this

endeavour, Trump has established close ties with Saudi Arabia and is also promoting a US-Saudi-Israel coalition against Iran in the theatres of its influence, particularly in Syria and Iraq.

Indian Peace Initiative

There are now serious possibilities of the ongoing proxy conflicts in Syria and Yemen evolving into a direct conflict between Iran and Saudi Arabia, which will plunge West Asia into a region-wide conflagration. Given India's significant energy, economic, logistical and community-based ties with the region, this would seriously jeopardise India's abiding interests in regional stability.

Hence, it is proposed that India shape and promote a diplomatic initiative that will encourage mutual confidence and dialogue between the two estranged Islamic neighbours. Once this has been achieved, India should pursue the realisation of a regional cooperative security arrangement.

It makes sense for India to lead the peace initiative: it has the longest, uninterrupted and substantial ties with all the Gulf countries. It has an established regional standing for its political, economic and technological achievements as also the fact that its conduct in international interaction has consistently been non-hegemonic, non-intrusive and non-prescriptive. It also has the highest stake in regional stability on account of its energy and economic interests. Above all, it has a resident community of over eight million in the region whose welfare is of paramount importance to all governments in Delhi.

Again, in recent years India has maintained the momentum of bilateral engagements with the principal countries of the Gulf. In June 2016, Prime Minister Modi completed an unprecedented Indian diplomatic interaction with the countries of the Gulf. Over a ten-month period, he visited the UAE, Saudi Arabia, Iran and Qatar, and hosted the Abu Dhabi Crown Prince, Sheikh Mohammed bin Zayed Al-Nahyan, in Delhi. In every capital, he was received with the greatest warmth; every country applauded its historic and civilisational links with India, and every interaction yielded substantial agreements which will take bilateral relations to

new areas and re-shape ties to make them relevant to contemporary times.

The countries saw India as their "strategic partner", a status that represents a high degree of shared values, perceptions and approaches on matters of security concern. Thus, the joint statement with the UAE spoke of "shared threats to peace, stability and security", and agreed to a "shared endeavour" to address these concerns, which is founded on "common ideals and convergent interests".[5] It spoke of the need for the two countries to establish a "close strategic partnership" for "these uncertain times" and called upon them to "work together to promote peace, reconciliation, stability … in the wider South Asia, Gulf and West Asia".

Similarly, the joint statement with Saudi Arabia talked of the two countries' responsibility to promote peace, security and stability in the region. It noted "the close interlinkage of stability and security of the Gulf region and the Indian sub-continent and the need for maintaining a secure and peaceful environment for the development of the countries of the region".[6] In Tehran, Mr Modi noted that India and Iran "share a crucial stake in peace, stability and prosperity" in the region and have shared concerns relating to "instability, radicalism and terror". The two countries agreed to enhance cooperation between their defence and security institutions.[7]

These interactions were followed by visit to India of the Abu Dhabi Crown Prince as chief guest at India's Republic Day celebrations in January 2017, the visit of Iranian President Hassan Rouhani to Delhi in February 2018, and then the visit of Saudi Crown Prince, Mohammed bin Salman, in February 2019.

The first part of the peace initiative will need to focus on areas of ongoing confrontation – Syria, Yemen and Iraq – where each side will need to explore compromises in terms of its maximalist demands. In Syria, this would consist of supporting the peace process, the development of a national constitution and free elections, without insisting on a prior removal of Assad from power.

In Iraq, this will require both countries to end pursuit of their own interests in the country through local proxies and allowing the country's politicians to shape national politics without outside interference. In Yemen, Iran would need to recognise the kingdom's legitimate concerns about Iranian influence, while Saudi Arabia would have to let the Houthis join the country's political and economic order.

While progress in addressing these contentious issues will be slow, India has the credibility and the diplomatic skill to encourage dialogue between the two parties. The satisfactory outcome in discussions relating to these matters will set the stage to address the more serious issue of shaping a regional security cooperation arrangement that will be inclusive, in that it will bring together all the regional entities and external powers with a stake in regional security.

Here, India could consider putting together a "Third Party" of influential nations on the lines of the group of countries that had facilitated discussions that led to the Peace of Westphalia in 1648 after a five-year diplomatic effort.[8] These partners could include: China, Japan, Russia and the European Union, all of which have substantial ties with regional players and high stakes in regional stability.

This peace initiative will bring to West Asia, for the first time in a century, a non-military approach to regional security that involves active participation of regional states as key role players in determining their own destiny.

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India's Role in the Shanghai Cooperation Organisation

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Abstract

The Shanghai Cooperation Organisation (SCO) comprises four Central Asian Republics (CARs), namely Kazakhastan, Kyrgyzstan, Tajikistan and Uzbekistan; Russia; China; India and; Pakistan. Russia and China are contiguous to Central Asia. India does not have a direct land boundary with the CARs. In Indian strategic thinking CARs are part of its extended neighbourhood. The Russian Federation and the People's Republic of China have already established a strong presence in the Region and have initiated mega projects. It is an opportunity as well as a challenge for India to carve out a niche for itself in a Region that is of vital importance to it. The article explores the significance of regional grouping as well as India's ability to play an effective role.

Introduction

Adiscussion was held among experts on the question: whether India's membership of the Shanghai Cooperation Organisation (SCO) would be helpful in promoting India's foreign policy goals in the region? The discussion revealed two diverse opinions. One point of view was that the Russian Federation had already established their presence in Eurasia. They have established a strategic partnership and are key players in the region. Both have initiated their respective ambitious projects in the region; the Eurasian Economic Union (EEU) and the Collective Security Treaty Organisation (CSTO) by Russia and China has launched its mega project Silk Road Economic Belt (SREB), often referred to as the Belt and Road Initiative (BRI). These projects

encompass the area of the other four members of the SCO, namely, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan. Importantly, Russia and China are contiguous to Central Asia, whereas India does not have a direct land boundary with these landlocked members. In view of the geopolitical reality, would the two leading actors share their Eurasian space with India? Can India overcome the geographical impediment or be able to compete with the leading players? However; now that India is a full member of the SCO, it is plausible that such a view may have undergone a rethink.

On the other hand, a large section of experts, diplomats, journalists etc. had been of the opinion that India should strive for membership as it would be an opportunity to advance India's strategic interests in the region. After all, in Indian strategic thinking the Central Asian Republics (CARs) are part of its extended neighbourhood and this objective has acquired even greater significance by the turn of the century. In June 2017 India, along with Pakistan, was accorded full membership and in June 2018, Indian Prime Minister Narendra Modi participated in the 18th Summit of Heads of State in Qingdao, China. It is argued that membership of SCO is not only a major milestone in India's foreign policy, importantly it will give a big thrust to its "Look North" strategy. Though Russia and China are pursuing a vigorous foreign policy in the region, India can play a productive role in the SCO. It is proposed to explore areas where Indian engagement can be productive. The focus of the article is on those members of the SCO who are equally important for the CARs. In order to assess India's role, it is necessary to analyse the significance of the grouping for it.

Significance for India

The SCO is an Eurasian inter-governmental organisation. After the break-up of the Soviet Union in 1991, the vast Eurasian land mass was open. Its geopolitical location, flanking two potential leading powers of Asia and abundant natural resources, attracted global attention from the beginning. As a consequence, a fundamental shift in international outlook occurred from Europe to

Asia including Eurasia. In the process, Eurasia began to witness an interplay of two tendencies; cooperative as well as competitive.

However, these developments did impact on Indian policy. India's strategic vision had broadened by the turn of the century. It was no longer South Asia centric, but had expanded to include the Middle East, Persian Gulf, Central Asia, South Asia and South East Asia. Two factors, however, stymied Indian engagement with the Central Asian Region. Firstly, Indian attempts to energise its ties with the CARs coincided with the focus on multilateralism in which the SCO assumed significance as its instrument. India was not a member. Secondly, India's bilateral mechanism was not an efficient instrument because it did not share a direct land boundary with the Central Asian Region. Today, India's full membership of the SCO and the operationalisation of Shahid Behesti port in Chabahar has opened a regular gateway to the region and provided a vast opportunity.

An equally significant development was India's launching of its Connect Central Asia Policy (CCAP) in 2012 encompassing all the CARs as a region. The CCAP was India's first regional initiative. Prime Minister Modi's visit to all the five Central Asian countries highlighted India's regional approach. In Bishkek, Kyrgyzstan he said, "We see an important place for Central Asia in India's future".[1] The centrality of the region was brought out in a succinct manner while addressing members of the Nazarbayev University. He said, "Central Asia is at the crossroads of Eurasia. It has been caught in the currents of history and it has also shaped".[2] In its regional focus, India accorded equal importance to connectivity.

Besides, as a member of the SCO India can participate in all its structures and not remain a mute spectator watching from the sidelines. The structures are: Heads of State, Heads of Government, Council of Ministers of Foreign Affairs, Meetings of Heads of Ministers and/or Agencies, Regional Anti-Terrorist Structure (RATS) etc. Moreover, the focus of SCO is on regional security and economic development and deliberations on these issues are also in India's interest. Participation in these structures, with commonality of interests, gives India an opportunity to

understand these issues and interact with Central Asian leaders. Since joining the SCO, India has participated in over 12 Ministerial level meetings. In October 2018, Foreign Minister Smt. Sushma Swaraj participated in the Council of Heads of Government in Dushanbe. The meeting was both in the restricted as well as extended formats.[3] In fact, informal meetings play a useful role in fostering better understanding of issues at hand and could often lead to solutions. Moreover, the regional presence will enable India to observe trends in security, energy, connectivity etc. Undoubtedly, membership of the SCO will provide a stimulus to CCAP.

India and the SCO

The establishment of the SCO coincided with the broadening of India's strategic vision. With the defeat of the Taliban, a window of opportunity opened to connect with Afghanistan and the CARs. Since its inception, India had evinced interest in joining the grouping because of its stake in peace and stability in the region. At the Astana summit in 2005 India was accorded Observer status in the grouping. In his acceptance speech, then Foreign Minister Shri Natwar Singh highlighted the role India could play. He said, "If India was offered full membership, it would bring its rich experience of multilateral diplomacy into the SCO. India has played a very productive role in organisations like the Non-Aligned Movement of which it was a founder member". India had been cooperating with RATS and shared its experience and intelligence in tackling religious extremism and terrorism.

India has been regularly attending the summit meetings, represented by its Foreign Minister. In the course of the past years, the SCO passed several momentous resolutions such as the Astana summit in 2005 where the SCO gave a call to the US to announce a time frame for the withdrawal of its military base facilities from Central Asia. Later, the SCO at its Shanghai summit in 2006 forcefully asserted that it was the responsibility of the countries in the region to take care of their security issues.[4] The SCO set up an Afghan-SCO contact group with the goal of ensuring peace, stability, and reconstruction of Afghanistan. A

Comprehensive Counter Terrorism Resolution was passed in 2009.

At the Ufa summit in Russia in 2015, it was decided that India and Pakistan would be admitted as full members of SCO. After procedural matters were sorted out, the membership became effective in 2017. The CARs and Russia supported India's candidature as full member. India's membership at that juncture, in the opinion of Dr. Alexander Lukin, a reputed Russian scholar, was because of India's political weight and economic attractiveness among developing countries as India can make a significant contribution to the Central Asian countries and help diversify their external economic relations.[5] In his acceptance speech Prime Minister Narendra Modi said,"… our membership of the Shanghai Cooperation Organisation is the natural extension of the relationship that India has with member countries and mirrors the region's place in India's future".[6] At the Qingdao summit in China in June 2018, Prime Minister Modi stated, "… that SCO should explore ways to utilise the SCO platform to stabilise the energy market for mutual benefit and that the development strategy of SCO until 2025 provides a good roadmap for cooperation".[7] However; the high point of Prime Minister Modi's speech was that, connectivity was key to economic development of the region. He said, "Connectivity with our neighbourhood and in the SCO region is our priority. India welcomes any such (connectivity) project which includes sustainable, transparent and which respects member states' sovereignty and territorial integrity".[8] He suggested a novel acronym outlining his vision for a *"secure"* region; where "S" stood for security for citizens, "E" for economic development, "C" for connectivity in the region, "U" for unity, "R" for respect of sovereignty and integrity and "E" for environmental protection. India has also been participating in various structures of SCO.

However, over the years the SCO has evolved as a forum, rather than as a regional security and stability provider. Nevertheless, the SCO can initiate a positive discourse on regional cooperation. In the light of widespread expansion of religious extremism and terrorism in the region, the SCO can initiate a discourse on extremism and terrorism and promote

regional cooperation. From the Indian perspective, membership of the SCO is a milestone in its regional policy. It is an opportunity to engage with members, as well as with countries of Observer status, that is, Afghanistan, Belarus, Iran and Mongolia, on issues of common concern within the framework of SCO.

What Role Can India Play in SCO

The CARs have viewed India as a friendly country with no hidden agenda. Hence have been supportive of India's candidature in the SCO. In the changed context of fundamental shifts in the region and the emerging geopolitical competition between Russia and China for the Central Asian space, the support of CARs is also of equal importance. The CARs are apprehensive that in pursuit of their respective projects, they are likely to come under pressure. Undoubtedly, Central Asia is the key to the success of Russian and Chinese projects. The CARs are of the view that India's regional presence would strengthen their multi vector foreign policies. In their opinion, India could change the existing narrative and add substance to their policy of "No Single" power shall dominate Central Asia.

Meanwhile, another noteworthy trend that is apparent is the rising need for cooperation among the Central Asian leaders. In this regard the role of Uzbek President Shavkat Mirziyoyev is commendable. His primary goal is "Region First" and has launched hectic diplomatic parleys towards this objective. These initiatives have elicited a positive response from the other members. At a conference in Astana in March 2018 to discuss regional cooperation, the following reaction by the Kazak President Nursultan Nazarbayev to a question reflects the cooperative spirit at the conference. He said, "… In order to solve the problems of Central Asia, we do not need any third person. We ourselves can resolve all questions and that is why we are meeting".[9] There is now greater awareness that, if they have to progress and be recognised as sovereign and equal partners by the international community, and not as pawns in the power play of other powers then economic development is absolutely essential to integrate into the world economy. An idea that is likely to fructify is the introduction of a Silk Road visa on the pattern of

Shengen visa. This trend towards regional cooperation needs to be encouraged and strengthened.

The regional aspiration of members can be fulfilled with faster economic growth. Although these members are still in their transformative stage, nevertheless their economies are fairly well developed and can adapt new and high technology especially in agriculture and industry. In this regard, they need investments, trade and transit facilities. They are seeking opening in the southern direction on the Indian Ocean. Intertwined with trade and transit, and investments is the issue of connectivity because all are landlocked. India can assist in their aspiration. On the issue of connectivity in the region Prime Minister Modi highlighted India's goal of connecting with the region, "…Our involvement with the International North South Transport Corridor (INSTC) and Chabahar Agreement and our decision to join the Ashkhabad Agreement will bring India close to the region".[10] Besides, India can play a significant part in modernising and upgrading infrastructure, which will facilitate inter as well as intra-regional trade. There is a possibility of linking Mongolia with Kazakhstan giving it a north south opening. In the words of President Khaltmaagin Battulga, "Mongolia wishes to work actively in energy, infrastructure, transit transport, mining, heavy industry, agriculture and other economic spheres in cooperation with the SCO participating countries".[11]

In the sphere of economic development, India has offered to foster socio-economic development of the SCO region as well as share its experience in skill development, capacity building and human resource development.

Apart from the urgent need for transport links in the southern direction, peace and stability in neighbouring Afghanistan is equally crucial. An Afghan-SCO contact group was set up in 2009 but divergent views of members led to lack of progress. The Qingdao summit appropriately focussed on combating three evils 'terrorism, separatism and extremism'. A Joint Appeal by the Heads of SCO Member States for Prevention of Radicalisation of Youth; Programme of Cooperation in Combating Terrorism, Separatism and Extremism for the years 2019-21 among other

documents was adopted. The Appeal is not only timely, but gives India an opportunity to revive the Afghan-SCO Contact Group and through sustained effort build a coordinated approach to this critical issue. It may be noted that the percentage of young population in the SCO countries and Afghanistan is approximately 40 to 42 per cent. Prevention of radicalisation can be achieved through expanding employment opportunities, education, health care etc. and here India could meaningfully involve itself both, with member countries and countries with Observer status. The SCO is likely to be confronted with a changed geopolitical situation due to the agreement between the US and the Taliban stipulating the withdrawal of all foreign troops from Afghanistan within 18 months. The future scenario is undoubtedly heading for further instability and possible turmoil. The SCO should be ready with its own plan of action. Indian association with the organisation will be useful to members.

Conclusion

India's membership of the SCO has given a big thrust to its regional policy. Indian policy is rooted in the region and has a regional outlook. Membership of the SCO has given a regional presence and an opportunity to observe trends in the region, particularly in the energy market and to involve in the connectivity issues. On the other hand, the Central Asian members have welcomed India's participation as they share a wide perception of common concerns and interests. An active role by India will strengthen their multi vector foreign policies and these countries perceive Indian role as a soft balancer in a region where geopolitical competition has started. It would be in Indian interest to enhance its engagement, particularly work on their aspiration of connecting in the southern direction. Similarly, India could activate the Afghan-SCO Contact Group and try to build up a consensus on the scourge of terrorism and extremism widely prevalent in Afghanistan. The issues are serious and the SCO is a forum which can set a positive discourse. A political will needs to be generated to tackle these issues.

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Non Contact Warfare (NCW) - Managing
Conflict in 21st Century

Brigadier Vivek Verma@

Abstract

The world has been devising strategy of winning without fighting. Over last three decades, terms like hybrid warfare, unrestricted warfare, asymmetric warfare, information warfare and political warfare have been used to define future warfare. At the heart of these is technology that has fuelled competitions and conflicts. The technological innovations have closely networked government, people and financial institutions. It has, for the first time, exposed people, political leadership, governance structures and economy to new generation threats emanating from Non-Contact Warfare (NCW). Autonomous systems, miniaturisation, stealth, speed and stand-off precision strike, incognito platforms have changed the character of war. The technological developments have increased accessibility to state competitors and non-state actors, a fact that risks eroding military response capabilities. In such a dynamic and ever evolving world, non-contact warfare is being rampantly used and abused by all actors to remain ahead in the dominance race. It is imperative for India to evolve policies to thwart impending threats from NCW.

The Endless War

The speech of Mike Pence, Vice President of the United States,

on 04 October 2018 at Hudson Institute has portents of

unveiling a cold war 2.0 and replay of 'competitive strategy' as practiced in 1980s against the Soviet Union that led to its implosion. Pence bluntly accused China of using predatory economics and legislations to steal American technology and intimidate American companies and neighbouring countries, militarising the South China Sea and persecuting religious believers at home, while in the same breadth he boasted about the crippling effect the trade war is having on Chinese economy. The Vice President laid out clearly the United States National Defence Strategy of 'compete, deter and win'.[1]

Gulf War of 1991 and 2003 demonstrated the "Revolution in Military Affairs" (RMA) created by combination of new technologies and doctrines where the long range vectors shaped the battlefield and information operations unleashed by Cable News Network (CNN) influenced the global perceptions. New millennium saw 11 September 2008 (9/11) attack on the United States by the armed non-state actors. The world, which was so far battling capitalist and communist ideology, was now confronted with religious ideology and the threat of terrorism. A Global War on Terrorism (GWoT) declared against rogue regimes in Iraq and Afghanistan and terrorist organisations like Al Qaeda, Taliban and ISIS saw extensive use of non-contact means by the Allied Forces. By 2010, the social media applications connecting the world were weaponised. Faceless platforms were created to script mass agitations and revolutions like Arab Spring to change and challenge regimes across Arab world. More recently, the Facebook/Cambridge Analytica crisis opened up debate of data diversion and analytics and resurfacing of 'political warfare'. Actions like Wikileaks highlighted the potency of data compromise and its effect on strategic alliances.

Militaries across the world have been forced to reassess the impact of new warfare. There has been shift in operational doctrine from 'massing of forces' to 'massing of effects', with quantum reduction in physical contact between adversarial forces. The pace of technological reforms in the fields of stealth, stand-off precision targeting, networked Intelligence, Surveillance and Reconnaissance (ISR), autonomous systems have compelled

major powers like the United States, Russia and China to initiate defence reforms. The traditional battlespace of land, seas, air and outer space is overlapping with the non-battlespace like technological space (cyber and electromagnetic space), social spaces (politics, economics and culture) and cognitive space of human mind.[2] Virtually every space is being contested with battlefield significance. Chaos and complexities added by non-state actors are affecting civil and military equally. The opportunity to use non-lethal means, asymmetric measures and non-contact response options has pushed the world to endless war.

NCW – Understanding the Perceptions

Russian military analyst, Major General Vladimir Slipchenko in the aftermath of Desert Strom in 1991, spoke of "no-contact warfare" as the optimal form for sixth generation warfare (6 GW) necessitating major military reforms.[3] According to him victory would pivot on defeating the opponent's armed forces in his own territory, destruction of the enemy's economic potential and subverting or changing adversary's political system. The goal is to attack the political and military leadership in order to quickly achieve the stated strategic objectives.[4] He made a compelling case for Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) in conducting such operations with blurring of distinction between combatants and non-combatants.[5] According to Major General Alexander Vladimirov, armed phase in future operations will decrease. It will be 'preceded by operations against nation's civil society, political leadership and population reinforced by information warfare and psychological warfare' with reliance on diversionary operations.[6] General Makhmut Gareev, though endorsing the pursuit of non-contact capabilities, underlines the need for contact warfare options citing the outcome of urban warfare in Lebanon in 2006. In 2013, Russian Chief of the General Staff, General Gerasimov while analysing the 'Arab Spring' and 'Colour Revolutions' pointed out that in 21st Century wars will increasingly use non-military methods and will target population and communications with active deployment of special-operations forces.[7]

In May 2001 George Bush Jr., while speaking at the Naval Academy in Annapolis, underlined the need for high-tech armed forces capable of conducting operations by the no-contact method. He emphasised that force structure will rely more on mobility and ease of operations brought about by RMA.[8] Raphael Cohen, political scientist at RAND, points out that 'Political Warfare' has resurfaced as preferred tool of war today by states and armed non-state actors to advance their territorial interests without provoking a full-fledged military response.[9] George Kennan, described 'Political Warfare' in May 1948 as "the employment of all the means at a nation's command, short of war, to achieve its national objectives.....They range from such overt actions as political alliances, economic measures …and 'white' propaganda to such covert operations as clandestine support of 'friendly' foreign elements, 'black' psychological warfare and even encouragement of underground resistance in hostile states".[10] Hoffman's 'Hybrid Warfare', though contested initially within Pentagon,[11] talked about convergence of physical and psychological domain, combatants and non-combatants, disruptors and information operations. '2018 United States National Defense Strategy' talks about employment of both non-kinetic and kinetic means by adversaries to coerce or subvert the competitive space across multiple domains through use of economy and new technologies including Weapons of Mass Destruction (WMD).[12] It seeks interagency synergy, lethal agile force with advanced autonomous systems and resilient logistics capable of working in a multi-domain attack so that it can deter and win.

Chinese white paper of 2015 has been sceptical of RMA reaching a 'new stage' where technology sophistication of kinetic and non-kinetic platforms coupled with aggressive strategic competition in outer space and cyber space will accelerate informationization and significantly impact international political and military landscapes.[13] The book 'Unrestricted Warfare', which has PLA endorsement, posits that non-war actions will significantly impact militaries like CNN's broadcast of an exposed corpse of a US soldier in the streets of Mogadishu stumped American military in the din of public clamour. According to the book, unconventional methods employed by the technologically

inferior force against advance militaries like the United States will yield disproportionate success.[14]

Major General Rajiv Narayanan, Distinguished Fellow at the United Service Institution of India, finds the world oscillating between 4 GW (guerrilla warfare and use of non-state actors), fifth generation warfare (5 GW) i.e. non-contact warfare enabled due to digitisation and the 6 GW aimed at manipulating the space-time loop based on extreme electronic deception.[15] Lieutenant General Devender Kumar, former Signal Officer-in-Chief of Indian Army, was the first to define the NCW in Indian context. According to him, this type of warfare "involves application of all national capabilities in an integrated manner, while ensuring minimum physical contact of own forces, to conduct distant operations to achieve a quick decisive victory by disrupting, denying and destroying the enemy's war waging potential and his command and control systems through remote delivery of destructive kinetic energy and soft power by relentless information operations".[16] This definition is military-centric and focuses on information warfare, missile warfare, remote warfare and robotics.

Defining NCW

The world has been devising strategy of winning without fighting. Hence, the hosts of term like hybrid warfare, unrestricted warfare, asymmetric warfare, information warfare, political warfare have gained currency. Technology is fuelling not only growth but also competition and conflict. The technological innovations brought about by digitisation have networked people and financial institutions. It has for the first time exposed people, political leadership, governance structures and economy to new generation threats emanating from NCW. Autonomous systems, miniaturisation, stealth, speed and stand-off precision strike platforms have changed the character of war. The fact that many technological developments come from the commercial sector means that state competitors and non-state actors will also have access to them, a fact that risks eroding military response capabilities. Hence, options to use non-contact methods to surprise, embroil, embattle, and degrade the adversaries will be used rampantly.

Hence, NCW can be broadly defined as the form of warfare which seeks to employ all elements of national power across multiple domains to target enemy's population, sovereignty, governance structures and economy through non-kinetic and kinetic means with a view to intimidate, paralyse or denude its politico-military response capabilities and enable winning without fighting. NCW looks at targeting enemy sensitivities rather than its vulnerabilities thereby forcing the enemy to react. It looks at employing diversionary methods and deceptions to undermine the enemy OODA (Observe, Orient, Decide and Act) loop thus creating false orientation resulting in decision dilemma and disorder. In the era of endless war, non-kinetic means of 'information war' will play lead role in shaping battlespace across the continuum of conflict to deceive, deny, disrupt and disorientate the governance structures thereby creating crisis in decision making. Kinetic capabilities will be used to degrade, deter and restrict response actions. NCW will be waged through a well devised escalation matrix. The role of conventional forces as the nation's last responder will be tested due to the fluidity of the operational environment. The breakdown of governance structure may create conditions where the probability of the armed forces being sucked into a subsidiary role may increase. Non-contact response and asymmetric response to conventional superiority is where NCW will play a pivotal role – typically, American 'Full Spectrum Dominance' and Chinese 'Unrestricted Warfare'.

Implications for India

Ajit Doval, India's National Security Advisor (NSA), while expounding about the RMA at Sardar Patel Memorial Lecture in New Delhi in November 2018, alluded that India needs to prepare for fourth generation warfare (4 GW), including fighting invisible enemies. He spoke about contactless wars and how major powers have increased the non-conventional force components as part of their force restructuring.[17] It is evident that Government of India is seized of the enormity of the threat posed by NCW to the population, governance structure and the economy. Key areas which need government attention are:-

(a) **Data Sovereignty.** EU has been the vanguard at looking at the data processing legislation through its General Data Protection Regulation May 2018. The framework is both technology and sector-agnostic and lays down the fundamental norms to protect the privacy of Europeans, in all its facets. China has approached the issue of data protection from the perspective of averting national security risks. Its 2017 cyber-security law, has adopted a consent-based framework with strict controls on cross-border sharing of personal data. Indian draft Personal Data Protection Bill 2018 formulated by Ministry of Electronics and Information has tried to follow a middle path while examining the current legislation i.e. to unlock the data economy, while keeping data of citizens secure and protected.[18] Data sovereignty remains a key to protect the nation and the report by Justice B.N. Srikrishna on 'A Free and Fair Digital Economy Protecting Privacy, Empowering Indians' needs deeper look by the security establishment.[19]

(b) **Technology Sovereignty.** 2014 Air Marshal M Matheswaran Committee Report stressed on the need to develop at least a dozen of critical technologies to prevent foreign powers from interfering with our security.[20] According to Dr Arvind Gupta, former Deputy NSA, the challenge includes the need to keep pace with rapidly evolving technologies; protect critical infrastructure and deal with regulatory and legal challenges.[21] Hence, while developing and deploying critical technologies, India need to simultaneously work on legislations to enable progressive evolution of these new technologies based on security and economic considerations.

(c) **Inter-ministerial synergy.** The threats to population and governance structures necessitate constant risk analysis. Hence, each ministry needs to evolve response levels based on threats. Inter-ministerial flow of information and coordination is essential to deal with them in real time. Information space across multiple domains require inter-agency coordination and action plan.

(d) **Reforming Higher Defence Organisation.** According to Brig Gurmeet Kanwal, Defence Planning Committee (DPC) constituted under the Chairmanship of the NSA in April 2018, is the right step to deal with the challenges of national security. DPC will drive country's military and security strategy and guide defence equipment acquisitions.[22] The committee will operate through four sub-committees: on Policy and Strategy, Defence Diplomacy, Plans and Capability Development and Defence Manufacturing Ecosystem. The composition of the DPC makes it a high-level empowered committee. However, the challenge remains how to redeem strategic planning from insular vertical silos while resolving of contentious inter-ministerial issues.

(e) **Reforming the Armed Forces.** With the enhanced battlespace scenario it is prudent that armed forces undertake structural reforms and work out doctrines to deal with the threats across non-traditional fronts too. The transformation set about by General Bipin Rawat for Indian Army will require support from Ministry of Defence. The defence planning, procurement and acquisitions will have to be smoothened to enable timely capacity and capability building. The forces will need to have cross domain knowledge to tackle threats emanating from different quarters. It should also look at cross pollination of experts from civilian fields to infuse talent.

(f) **Expanding Strategic Partnership and Cooperation.** To strengthen security, it is imperative to work out strategic partnerships to curb cross border terrorism and money laundering by non-state actors. Mutually beneficial collective security will help us to fight the tide of growing radicalism. Therefore, we need to form strategic alliances with the countries where our interest lies. Trade, tariff and technology will need to be negotiated to prevent the countries from tremors of economic upheavals.

(g) **Robust Legislation.** The new technologies have opened new spheres of influence. While the countries with

first user advantage will like to influence legislations to retain their influence, it is imperative for India to formulate such legislations so as to regulate these technologies and prevent their use for inimical purpose. With resurfacing of political warfare as tool to influence legislation in democratic countries, it is important that legislative reforms be brought about to arrest outside interference in our polity.

Conclusion

How a nation must adapt to meet the growing threat of NCW is a challenge every government and military is facing today. Leon Trotsky's words resonate the security battlespace, "you may not be interested in war, but war may be interested in you". Hence, for all security planners the point illustrated by Alvin and Heidi Toffler in their book 'War and Anti-War' remains relevant, "if war was ever too important to be left to generals, it is now too important to be left to the ignorant – whether they wear uniform or not". Reform is the only key to remain ahead in this endless war.

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India's Wars Since Independence: Would We have Performed Better if We Had A Chief of Defence Staff (CDS)?

Colonel S Dinny@

Abstract

The appointment of a CDS for the Indian Armed Forces is the single most procrastinated decision of the political establishment. From perceived fear of a possible military takeover, to pure government antipathy, to the turf wars between the Services, the issue of CDS has been on the backburner.

The radical changes undertaken by the US to facilitate evolution of Joint Chief of Staff into an institutionalised structure is an excellent case study. The 'Goldwater-Nichols Department of Defence Reorganisation Act' of 1986 completely transformed the US Armed Forces. India too had many opportunities where a CDS would have made an impact.

***Sino-Indian 1962 War.** A CDS could have stymied the rampant political interference prevalent during that time. A Modus Vivendi and a functional arrangement at the highest level could have ensured that a 'clear, unambiguous and achievable' national aim could be enunciated. A CDS would have insisted that only a thorough bred professional is appointed as the Corps Commander to handle critical operations as also empower him to express his operational art. The decision of using offensive air power would have been arrived at after allaying the fears of political leadership.*

***1965 Indo-Pak War.** A CDS could have advised the political leadership to use the IAF in offensive*

role against the Pakistani land forces in Rann of Kutch, prior to the war. He would have ensured that not only the Indian Navy's punch remained intact but also it could have been employed strategically as part of manoeuvre warfare. The operational importance of territories captured across the Line of Control could have been forcefully projected by a CDS to prevent handing them over back to Pakistan.

1971 Indo-Pak War. *General (later Field Marshal) Manekshaw was the Chairman Chiefs of Staff Committee, who emerged as the virtual CDS and had full faith and support of the government. However, a CDS would have incorporated views from all stakeholders before finalising the enemy's Centre of Gravity, a critical aspect of the war. He would have ensured that strategic targets are correctly identified as part of joint target list, ensured close coordination between IN and IAF and also resulted in better Identification of Friend or Foe (IFF) procedures.*

Kargil War. *CDS as part of NSC would have received timely and well analysed intelligence from multiple sources and could have employed every available national asset to verify and corroborate the inputs. A CDS with perspectives from all three Services and real time situational awareness from the battle front would have ensured seamless integration of all Services before approaching the CCS for decisions like employment of the Air Force.*

Conclusion

Military history is not only a reflection of the exploits and sacrifices of its armed forces in protecting the nation's integrity, but it is also a grim reminder to the political and military leadership to learn from its mistakes. India's Goldwater-Nichol's moment has been long overdue. The question is who will ride the tiger?

Introduction

> *"Without a CDS India would be hoping to stage Hamlet without the Prince of Denmark"*[1]

The appointment of a CDS for the Indian Armed Forces is the

single most procrastinated decision of the political establishment. From perceived fear of a possible military takeover, to pure government antipathy, to the turf wars between the Services, the issue of CDS has been kept on the backburner for a very long time. The issue remains the 'numero uno' factor in streamlining the Higher Defence Organisation (HDO) as part of the overall Indian national security apparatus revamp.

War at the national level is of coordination, orchestration and synchronisation of forces. The dire necessity for coordinated efforts by all elements of national power during war or otherwise is well understood. In most of the advanced democracies in the world, where civilian control over armed forces is completely established, the role of a single point military advisor to the highest political decision making entity of the state is institutionalised. In an extremely volatile neighbourhood and even after having fought many wars, Indian Armed Forces still do not have a CDS. Military history from a political context is the structured study of force application in furtherance of statecraft and state policy.[2] However, we surely have to learn from the most glaring, common and important lessons emerging from our own military history, and of others.

JOINT CHIEF OF STAFF (JCS): EVOLUTION IN US - A CASE STUDY

The radical changes undertaken by the US to facilitate evolution of JCS into an institutionalised structure is an excellent case study.

> *"The road, as I see it, stretches straight and with no turns.. The end, of course, must be the integration of every element of America's defence in one department under one authoritative, responsible head. Call it the War Department or the Department of National Security*

or what you will, just so it is one department.. One team with all the reins in one hand.. Under such a set-up another Pearl Harbour will not have to be feared."[3]

Soon after the Pearl Harbour attack, President Roosevelt at the 'Arcadia'[4] conference in Washington established the Combined Chiefs of Staff as the supreme military body for strategic direction of the Anglo-American war effort.[5] He created the Committee of US Staff Commanders to coordinate all operational strategy of its armed forces. This was established as the American component of the Combined Chiefs of Staff of Great Britain and the US. This group later came to be known as United States Joint Chiefs of Staff. It is interesting to note that President Roosevelt's special military advisor, Admiral William D Leahy, was appointed to preside over the JCS, with the title of Chief of Staff to the Commander-in-Chief of the Army and Navy. Each member of the JCS was promoted to five star rank in December 1944.[6] Although during the war it was an ad-hoc arrangement, in 1947 through the National Security Act, it was formally established as the United States JCS and also laid the foundation for future HDO of the US.

However, even after the National Security Act, there were shortcomings in Unified Command which manifested in several operational deficiencies during the Vietnam War, the Grenada operations and the Iranian hostage rescue attempt. The Grenada operations in particular brought the political focus into providing operational and administrative 'independence' to the Commander-in-Chiefs. These issues and many more such challenges necessitated the next round of reforms and resulted in the 'Goldwater-Nichols Department of Defence Reorganisation Act' of 1986. This completely transformed the HDO of US into a truly joint structure with Unified Command and Control[7]. Therefore, it can be seen that the US learnt from its shortcomings through the Vietnam war, Grenada operations and Iranian hostage crisis, incorporated the necessary changes and transformed itself. Is India ready and heading towards its own *'Goldwater-Nichols' moment based on the lessons learnt from its previous wars?*

ANALYSIS OF INDIA'S WARS THROUGH THE PRISM OF A 'NOTIONAL' CDS

Indian Armed Forces since independence have seen a myriad of operations covering various spectrums of warfare. However, for the purpose of this article only major wars have been included and the operation of Indo-Pakistan war of 1948 has been omitted as India did have a Commander-in-Chief in place then.

Sino-Indian 1962 War

The 1962 Sino-Indian war has been a watershed moment in independent India's history. The war exposed many a 'myth' which were so passionately pursued by the highest political leaders of the country. Except for raw courage displayed by the officers and men of Indian Army (IA) under inhospitable terrain and weather conditions, everything else related to India's Armed Forces was a disaster. *How could a CDS, if present have affected the course of the war in 1962?*

Stymie the Political Interference in Armed Forces. It was no secret that the Nehru-Menon duo had a huge influence on the military in the pre-1962 war era with absolutely no uniformed personnel offering any professional advice or counter views to those being advocated by the political masters. Although, there were Generals of the likes of Thimayya and SPP Thorat, even they couldn't stop the political inference on almost all aspects of military affairs.[8] With increasing political interference, the ever powerful bureaucracy gained immense power which manifested in birth of subservient Generals. A CDS of the stature of General Thimayya could have forced the government to adopt a more professional way of handling the military and could have stymied the political interference to a large extent.[9]

Ensure Enunciation of Clear National Aims by Political Establishment. The Sino-Indian war was fought with no clear national aim by India. Although, after independence we followed the British system, there was no initiative for a well debated, well articulated and widely acceptable 'National Aim'. The so called formulation of a national aim remained the prerogative of selected few political leaders and there was no coordination between the

military and civilian establishments.[10] A CDS could have achieved Modus Vivendi and a functional arrangement at the highest level whereby each stakeholder within the Services and outside it, could bring out the relevant aspects and a 'clear, unambiguous and achievable' national aim could be enunciated. The ill fated 'eviction' of Chinese 'intruders' from 'own territory' through the 'forward policy' which became the de-facto national strategy could thus have been avoided.

Ensure Operational Preparedness of Forces. *"An increase in the size or improving the equipment of the army costs not only money but also needs time"* - Statement by Mr Y B Chavan, Defence Minister of India regarding the NEFA inquiry in the Lok Sabha on 02 September 1963.[11] It is well known that IA was totally 'Unfit for War' in 1962. Systematical decay in matters related to military affairs and inordinate delays in modernisation through bureaucratic webs ensured that Indian armed forces remained totally ill prepared for a war. Without correctly assessing the threat or rather deliberately underplaying the threat from China, the highest decision making body in the country did not find it necessary to equip the armed forces with bare minimum resources required to defend the territorial integrity of the nation. Sudden political imperatives were allowed to spark off a war for which there was no preparation.[12] A CDS would have made the correct threat assessment sans any political compulsions. Based on that threat assessment, he would have ensured that the Armed Forces were adequately equipped, and more importantly trained for operations aligned towards that threat.

Facilitate Operational Art. The highest army leadership did not dictate the operational plans so as to decide on where and how the battles were to be fought. Lieutenant General Umrao Singh wanted to fight with his defensive line at Tawang and Lieutenant General Harbaksh Singh wanted to fight his defensive battle in Walong Sector at Hayuliang.[13] There was no attempt made to display any operational art by the Corps Commander of IV Corps.

A CDS would have insisted that only a thorough bred professional was appointed as the Corps Commander to handle

critical operations and thereafter he was provided the necessary guidance so as to empower him to express his operational art for carrying out a successful defensive battle. It has been speculated by many that had Lieutenant General Harbaksh Singh or Lieutenant General Sam Manekshaw, two plain speaking veterans from WW II, been appointed as the Corps Commander, probably they would have given a display of their superior understanding of operational art and fought a well coordinated defensive battle at a ground of their own choosing.[14]

Offensive Use of Air Power. The non utilization of combat air power in 1962 remains one of India's biggest blunders of the war. The superior aerial reconnaissance and offensive air power assets could have been used to blunt the uncontested run of PLA in NEFA and Ladakh.[15] Out of the many reasons attributable for not using air power, purely from the military perspective, the army's opposition, lack of Army/AF joint planning, Air Marshal Dewan's note and failure of the HDO stand out.[16] In case there was a single point advisor to the government in the form of a CDS, the decision of using offensive air power would have been arrived at after thorough in-house discussions and deliberations. This forceful advice from the CDS would have probably overcome the inhibitions in the mind of Nehru due to his own perceptions of air power and also due to advice rendered to him against the use of air power by people like US Ambassador to India, Professor J K Galbraith. Air Marshal Bharat Kumar aptly puts it when he writes, *"The obvious question that arises is whether the 'correct' decision on the use of air power could have been taken. One opinion is that 'prejudiced' mind of the decision – makers could have been 'corrected' if there had been a proper higher defence organisation in operation at that time".*[17]

1965 Indo-Pak War

The 1965 Indo-Pak war in many ways has been classified as a 'stalemate' by many analysts. However, it can be best summarised as a war in which *'Pakistan lost face and India lost opportunities'.* Coming immediately after the debacle of 1962 Sino-Indian war, the Indian Armed Forces and political establishment had learnt their lessons. However, the presence of

a CDS would have played a critical role in the turn of events during and after the war.

Use of Air Power as a Tool of Deterrence.[18] In the early summer of 1965, while Pakistani President, Ayub Khan decided to test India's willingness to go to war by sending in almost a division sized force into the Rann of Katch, India chose to ignore it as part of an overall strategy. A CDS in place could have advised the political leadership to use the IAF in offensive role and created havoc amongst the Pakistani land forces which were moving in an open terrain without any cover and without any air support. This kind of response would have definitely forced Pakistan to rethink before launching Operation Gibraltar and Operation Grand Slam.[19]

Facilitate Synergy Between Army and IAF. There were occasions during the course of the war when there was lack of synergy between the Army and the IAF. The IAF lacked situational awareness in the battle, which was not adequately provided by the Army. The Chief of Air Staff (CAS), Air Marshal Arjan Singh had indicated to the Defence Minister that when air attack is launched without adequate preparations, losses must be accepted and that pilots may make mistakes between friends and foes.[20] This was proved correct later when there were unfortunate incidents in which the IAF targeted own land forces. A CDS would have ensured that there was joint planning and execution both before and during the war.

Ensure an Operationally Fit Navy. During the course of the war, the Indian Navy (IN) was not equipped adequately. The IN was in neglect during the post 1962 years. The involvement of the IN can be best summarised by the fact that INS Vikrant was on 'routine' maintenance during the war. A CDS appointed well in advance would have ensured that not only the Navy's punch remained intact during the war but also it would have been employed strategically as part of manoeuvre warfare. The IN could have established a naval blockade of Karachi port or carried out a coordinated attack on it.[21] This was not withstanding the fact that the political leadership did not want to escalate the conflict to the seas and had decided to limit the hostilities.[22]

Advice Regarding Timing as well as Terms and Conditions for Ceasefire. The Indian political leadership agreed to a ceasefire with Pakistan when India was still capable of fighting and the enemy was showing signs of exhaustion. As part of this ceasefire, both sides agreed to withdraw from the territories they had captured. This meant that India had to return critical posts at Kargil, which overlooked the Srinagar-Leh highway and also the strategic Uri-Poonch Bulge with the critical Hajipir Pass.[23] The operational importance of territories captured across the Line of Control (LOC) could have been forcefully projected by a CDS and avoided much Indian bloodshed in future. Besides Jammu and Kashmir being integral part of India, parting with our territory gained, weakened our case as far as Jammu and Kashmir issue is concerned.

1971 Indo-Pak War

The Indo-Pak war of 1971 was fought with a decisive strategic and military victory for India which led to the liberation of Bangladesh. It was the first war in which all three Services played an equally important role in achieving the overall national aim. The government of the day knew its mind and had a clear political objective. General (later Field Marshal) Manekshaw was the Chairman Chiefs of Staff Committee and emerged as the virtual CDS and had full faith and support of the government.[24] During the war although there was no formal National Security Council (NSC), the civilian-military interface was adequate. However, there were instances during the course of the war, wherein the presence of CDS would have facilitated operations.

Joint Planning for Determining the Enemy Centre of Gravity (COG). During the planning stage of the war, a lot of deliberations were carried out for formulation of war plans and correct identification of the enemy COG. By end May 1971 itself, the Army HQ had asked HQ Eastern Command to prepare a draft plan for an offensive on East Pakistan.[25] In the beginning of August 1971, a conference was held at HQ Eastern Command Kolkata in which the Army Chief and Director of Military Operations(DMO), Major General KK Singh participated and discussed offensive plans in the East, code named Op Windfall.[26]

The main point of difference emerged in identifying the enemy COG. The Army Chief and DMO proposed the key entry ports of Khulna and Chittagong as the COG. However, Major General (later Lieutenant General) JFR Jacob, the Chief of Staff of Eastern Command had proposed Dacca. In this entire deliberation, concrete views of the IAF and IN were not fully incorporated. This is not withstanding the fact the Air and Naval chiefs asserted themselves during the formulation of joint plans.[27] A CDS would have given a wider perspective incorporating views from all stakeholders before finalising critical aspect of the war.

Coordination During Attack on Karachi Harbour. The IN during the war, had carried out two attacks on Karachi harbour on the nights of 4/5 December and 8/9 December 1971. The IAF simultaneous attacked Karachi harbour on the night of 9/10 December 1971 in which fighter aircraft, Canberras under Wing Commander (later Air Commodore) KK Badhwar had carried out bombing of oil tankers in Karachi harbour.[28] However, the IN refutes this and categorically claimed that the oil tankers were bombed by its own missile boats on the night of 8/9 December.[29] It is quite clear that at the tactical level, both IAF and IN were not aware of each other's plans. This lack of joint planning and more importantly joint execution at the lowest level could have been disastrous. Also, oil as a strategic target was righty identified by the IN and it was not so identified by the IAF.[30] It clearly brings out a lesson that had CDS been in place, firstly oil would have been identified as a strategic target as part of joint target list and secondly there would have been close coordination between IN and IAF during operations with significant strategic and military dividends.

Better Identification of Friend or Foe (IFF) Procedures. The IN had planned naval commando operations under the code name Operation Force Alfa. A special commando team was formed in conjunction with the Mukti Bahni and was launched in three merchant vessels to destroy ships in Mongla harbour. However, when the naval commandos reached Mongla harbour, they found that IAF had already destroyed it. Thereafter, the team moved to Khulna after duly informing HQ Eastern Command. However, due to lack of coordination, the IAF targeted these

vessels at Khulna mistaking them as Pakistani Navy. A joint planning architecture under the CDS would have ensured that such incidents were avoided and resulted in better IFF procedures.[31]

Coordination For Amphibious Landing at Cox Bazar. An amphibious landing operation off Cox Bazar was planned on 14/15 December to cut off possible escape routes of Pakistan personnel to Burma. The plan was to move a brigade size force through sea. The landing operation was confined to daylight hours only and at appropriate states of tide. Insufficient data on the landing sites and unexpected sea conditions rendered landing troops and handling boats extremely difficult and hazardous. As planning had been done off the map, actual survey of the beach was carried out only on arrival. However, when the troops landed in Cox Bazar, it was found that Mukti Bahni forces had already assumed control.[32] This incident once again illustrated the importance of integrated training, planning and execution of complex operations under a joint command and control architecture.

Kargil War

The Kargil conflict between India and Pakistan is unique because it took place between two democratic nuclear weapon powers.[33] The Kargil episode was marked by surreptitious intrusion of regular Pakistani troops across the Line of Control (LOC), interspersed with Mujahedeen of Pakistani and foreign origin who succeeded in occupying and fortifying a large number of posts on Indian side of the LOC.[34] The Indian Armed Forces proved their mettle, albeit at a heavy price, that they could take on any Pakistani misadventure at their own place and time of choosing. Post Kargil a number of reviews and analysis were carried out on the reasons which led to the Kargil intrusions and also the war thereafter. The role of CDS clearly emerged prominently both before and during the war.

Modernisation of Armed Forces. Prior to the Kargil imbroglio there was a progressive decline in the defence budget ever since the process of economic liberalisation began in the early nineties.[35] The annual budgets from 1990-99 allocated the

lowest possible allocation to defence at 1.6 per cent in some years and generally 2.5 per cent in the remaining years.[36] This decline in focus on armed forces drastically affected its ability to modernise and to prepare for the type of war they were called upon to fight in Kargil.[37] Starting from basic infantry weapons, the Indian armed forces were short of sophisticated surveillance and Early Warning devices and precision strike munitions for artillery and the IAF. They were also deficient in attack helicopters such as Apache and Cobra, which were light and capable of operating in the rugged Himalayan terrain in air-to-ground strike role.[38] The disparity between India and Pakistani forces were stark in many cases. The Pakistani forces had night vision devices and the Indians did not. Similarly, Pakistan had the latest US radars for bringing accurate fire onto the Indian guns.[39] Almost 80 per cent of all the Indian casualties were due to Pakistani artillery which couldn't be suppressed as India lacked a Counter Battery or Weapon Locating Radar.[40] CDS could have highlighted the deficiencies to the political leadership and thereby created the requisite pressure on the government to modernise the Armed Forces.

Intelligence Architecture Revamp. In the wake of historic visit of PM Vajpayee to Lahore, many in the defence and foreign policy making bureaucracies assumed that relations with Pakistan were on the mend. As a consequence, the routine gathering of intelligence on Pakistan's force deployment, movements and likely actions slackened.[41] No specific indicators of a likely major attack in the Kargil sector such as significant improvements in logistics and communication or a substantial force build up or forward deployment of forces were reported by any of the agencies.[42] The lack of inter-organisational coordination added to the intelligence failure. The Research and Analysis Wing's (RAW) Aviation Research Centre had the requisite aircraft for surveillance of LOC. For reasons unknown, the IA failed to activate these assets.[43] A CDS as part of NSC would have received timely and well analysed intelligence from multiple sources and could have employed every available national asset to verify and corroborate the inputs.

Employment of IAF. Immediately on commencement of hostilities and seeing the enormity of the situation, the Army had

asked for close support missions by the IAF. The employment of air power was considered by IAF as a step that could lead to escalation of the conflict and for which they were not prepared. Therefore, the Cabinet Committee on Security (CCS) could not clear the Army's request for air support till the concerned Air Commands had been alerted and the magnitude of the intrusion had been more or less assessed.[44] This delay created an avoidable bitterness between the two Services at the start of the war. Interestingly, there was also a difference of opinion between the Army and IAF in the way air power was to be used. The Army wanted to induct armed helicopters to take on the enemy, while the air force insisted on the use of fighter aircraft.[45] A CDS with perspectives from all three Services, accurate intelligence analysis and real time situational awareness from the battle front would have ensured seamless integration of all Services before approaching the CCS for a decision.

Advice Political Leadership on Operational Restrictions. During the war, the Indian government had imposed restrictions on both land and air forces from crossing the LOC. There is no documented proof, references or statements from any Chiefs of Staff that the military leadership was consulted before imposing this constraint. In the normal course, dialogue with the military leadership is imperative so as to appraise the impact of constraints being contemplated by the government. The constraints should not make the national objectives unattainable by the Armed Forces.[46] A CDS as the single point military advisor would have offered sound military advice to the government on its decision not to cross the LOC despite the severe handicap of terrain and formidable positions occupied by the enemy. Even if the political leadership did not heed to advice of the CDS, a perception could have been created that the political leadership at the highest level has been apprised of the costs involved for not crossing the LOC and yet a decision has been taken in the supreme interests of the country.

Conclusion

In almost all the wars India has fought since independence, the vacuum in space for the *'highest- single point- military leadership-*

cum- advisor' has been highlighted often with disastrous consequences. Military history is not only a reflection of the exploits and sacrifices of its armed forces in protecting the nation's integrity, but it is also a grim remainder to the political and military leadership to learn from its mistakes. India's Goldwater-Nichol's moment has been long overdue. *The question is who will ride the tiger?*

Endnotes

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Limited Wars and Deterrence in Nuclear Age

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Abstract

Deterrence meant different things to different people at different times. Disagreement on the meaning of deterrence led to divergent interpretations. However, since the challenge which deterrence seeks to answer is capable of assuming different forms, the concept of deterrence too has unavoidably assumed different roles. Defined in simple words, deterrence means providing unmistakable evidence of retaliatory capacity to the enemy with a view to deterring him from initiating any military move for gains. It operates as the "skillful non-use of military forces". General Beaufre said:

> *"The object of deterrence is to prevent an enemy power taking the decision when faced with a given situation to act or react in the light of the existence of a set of dispositions which constitute an effective threat. The result, which it is desired to achieve, is therefore a psychological one and it is sought by means of a threat."*

The psychological result is achieved through a combined effect of calculation of the risk, in relation to the stakes involved, the fear produced by the risks of nuclear war and consequent uncertainty following the war. In the first place, the enemy must be communicated an unambiguous threat of retaliation telling him that it would cause greater loss to him than any gains he might desire through resort to arms. There could be a policy statement by a responsible member of the government, like

that of "massive retaliation", or it could even be just a bluff. However, whether it is a serious and meaningful policy-statement or it is only rhetoric to frighten the other side, the chances are that the enemy would make discreet probing to assess how far he could go without inviting riposte. Therefore, it is essential to invest the threat with an air of credibility.

Introduction

The two World Wars depicted a total conflict designed to impose

the state's will on its adversary in an absolute manner, with intention to occupy the entire territory and destruction of its political centre of power. It invariably entailed unconditional surrender as the projected end-state. Nuclear weapons pushed the scale of destruction to such a horrific level that the use of such weapons in a situation of symmetry became almost akin to suicide. This in turn led to major restraints upon the scope and scale of war fighting. Exhausted by the Second World War, United States of America (USA) initially opted for a strategy of "Massive-Response or Massive Retaliation". It threatened to unleash its nuclear arsenal upon the Soviet Union, if it ever crossed the trip wire in Europe. As the Soviet Union achieved nuclear parity, the United States (US) threat of massive retaliation became less credible. By the time of Cuban crisis, its credibility had been dangerously eroded. After Cuba, war fighting regressed to the form of prolonged Low Intensity Conflicts or "Guerrilla Warfare". This took place in Vietnam where the USA faced a traumatic defeat. Soviet Union drained its economic resources in a brutal guerrilla war in Afghanistan, which hastened the economic collapse of the Soviet Union. It ended the Cold War and ushered in the era of unipolarity with the USA as the sole superpower.

Limited War in the Second Nuclear Age

As has been stated by Paul Brakcen, the second nuclear age really began with India's peaceful nuclear explosion in 1974. Today, Asia has six indigenous nuclear powers - Russia, China, India, Pakistan, Israel and North Korea. Iran is struggling to become the seventh nuclear power. How different are the "Limited Wars" in the second nuclear age from the first? There are significant parallels that are visible in the Indo-Pak nuclear dyad. Micheal Krepon has highlighted that in the year immediately after nuclearisation, the nuclear balance is unclear since tolerance thresholds and red lines have not been defined.[1] The following needs to be highlighted :-

 (a) In the first nuclear era of the Cold War the Soviet Union went nuclear in 1949 and the major limited war in Korea broke out in 1950.

 (b) In the second nuclear age, India and Pakistan went nuclear in 1998 and the Kargil conventional conflict broke out in 1999 (exactly a year later).

 (c) Low Intensity conflict broke out in a significant way in Jammu and Kashmir in 1990 - the year Pakistan first tested its nuclear weapon at Lop Nor under Chinese aegis.

 (d) The fear of escalation prevented a conventional conflict at the time of Operation Parakram in 2001-02. Conventional military parity more than nuclear parity severely constrained India's response options.

 (e) The concept of deterrence, therefore, acquires criticality in the context of limited wars.

Limited Wars

Since the peace talks at Postdam, at the end of the Second World War, a bewildering number of wars have been fought. Nuclear weapons have neither made wars obsolete nor have they even reduced their frequency. What they have done is to limit their scope and objectives and confine the use of arms to conventional weapons. However, with greater proliferation of nuclear weapons, the possibility of the use of tactical nuclear weapons cannot be ruled out. Captain BH Liddel Hart said, "To the extent it (H-bomb) reduces the likelihood of all-out war, it increases the possibilities

of 'Limited Wars' pursued by indirect and widespread local aggresslon".[2] The United States waged the Korean War under the United Nations banner and so exasperated did she feel at the irritating limitations of this war that she proclaimed, that in future she would unleash "massive retaliation" in a similar situation. There has been no dearth of provocating situations since Korea but, except for the Cuban affair in 1962, the United States did not even remotely hint at the possibility of using nuclear weapons.

In Vietnam, although the United States mounted aerial attacks of unprecedented magnitude on military installations around key North Vietnamese cities like Hanoi and Haiphong, yet in spite of mounting casualties and cost and ever-increasing enemy guerrilla activities, which made the Vietnam War the bloodiest and the costliest ever fought by the United States, she did not use nuclear weapons.

Definition. A limited war[03] is a localised conflict in which the military resources committed for waging it are voluntarily and deliberately limited. The major powers usually fight such wars through proxy but sometimes come out openly to fight on behalf of, or in aid of, one of the local parties without, however, carrying the conflict to their own homelands. Long-range "strategic" weapons, if used, are confined to the conventional use of aircraft for hitting limited number of military targets. The conflict is restrained by awareness of the destruction of an uncontrolled war which it is feared, would inevitably lead to mutual annihilation. It is a process of bargaining through a test of resolve, designed to wear down the opposite side. The aim is to pressurise the enemy and to compel him to come to the conference table for peace talks and cessation of hostilities.

The limitations which restrict the "limited wars" are not the factors which, in any case, would restrict the war due to the non-availability of war material for waging such a war. There is a difference between the local wars and limited wars. The local wars involving countries depending for their arms on more developed countries may remain limited for want of adequate arms to wage the war beyond a limit. Pointing out the difference between the local wars and limited wars, the Soviet military writers said that the

local war is limited in the geographical extent and in the weapons used.

Limited war, in the context of nuclear strategy, is one in which power possessing unlimited destructive nuclear capacity, voluntarily restricts itself to the use of conventional weapons in the conflict in which they are directly or indirectly involved. In the Vietnam War, the United States voluntarily abstained from the use of nuclear weapons but used strategic bombing on a wide scale.

Limited wars involving two nuclear powers, whose deterrence capabilities have acquired credibility, will be protracted wars of nerves and wits from which no party would emerge victorious. These wars would be inconclusive, long-drawn, seesaw battles requiring extraordinary patience to wait for a suitable climate for starting peace talks. A sense of mounting exasperation may often make the temptation to use non-conventional weapons to end the war look almost irresistible, but the knowledge that nuclear birds could come home to roost would act as a restraint.

"There is no substitute for victory", asserted General Douglas. The active military career in field of these great soldiers ended unpleasantly. It is remarkable, how like the Bourbon kings of the ancient regime of France, who had learned nothing and forgotten nothing, the most brilliant military men of our times had learnt nothing from changed circumstances. A decade and a half after the glorious career of MacArthur was promptly ended by his dismissal for upholding a doctrine which was considered too dangerous to be implemented, General Westmoreland met similar, if not exactly the same, fate for similar reasons.

What is amazing is that the lessons of Korea were analysed and learnt by the political and military leaders of the time with a view to avoiding similar pitfalls in future, and yet, the Vietnamese war was fought, and it did not produce better results. The agreement on Korea was a compromise, not entirely to the liking of either party.

There is no victory in limited wars unless the objectives are achieved in the opening rounds of the conflict. Deitchman said, *"It would appear from the data on conventional limited wars that for the successful side, objectives must be clearly understood and*

achieved with extreme rapidity. The other alternatives, resulting from inconclusive military action, appear to be escalation or an agreement, probably tacit, to settle by negotiation for limited gains. And the best that can be achieved may be a little better than the status quo ante, with the added material and political costs of the war, for both sides".[4]

Lessons Learnt

One of the major lessons of Vietnam War can be summarised as, "Limited war ends inconclusively, without victory to any side, on a note of compromise in which objectives are only partly realised. Determination to carry on the struggle endlessly despite suffering grievous losses and psychological effect play on the nerves of the adversary and may confer marginal gains".

Evolution of the Concept of Deterrence

Ten years after the end of the Cold War, there was a conviction that nuclear weapons were just instruments of deterrence. Nuclear wars cannot be won; hence, must not be fought to bring civilisation to an end and billions of people killed or maimed. Einstein knew how the nuclear weapons could mean catastrophe. He said, "I do not know with what weapons World War III will be fought, but World War IV will be fought with sticks and stones".

Dipankar Banerjee had argued that deterrence has been a fundamental part of military doctrine through the ages. It has relied essentially on two basic principles. One is through the threat of punishment. This is borne out of a belief that if another nation carries out a hostile act, it will be visited by a sure and devastating response. Offensive forces held in reserve are meant to enforce this threat. The other is through dissuasion or denial. This implies that the action a hostile nation plans to take would be so difficult and certain to be defeated that it would not be worth the effort.

According to Bharat Karnad, "The nuclear tests, at the very least, reflect India's disillusionment with self-denial and the power of moral caution". Finding complete contradiction between weaponisation and continued urge for disarmament, Karnad opines, "Delhi hangs on to the vestiges of the past by conjoining it's imperative to weaponise with the sentimental craving to advance disarmament. This is a somewhat quixotic and contrarian

effort, especially in a milieu where military power is the fulcrum of international diplomacy. Delhi seems convinced that nuclear weapons will help shove the world towards 'total disarmament' without first examining whether this has the remotest chance of succeeding.

If we accept that national security is guaranteed by nuclear deterrence, we cannot forcefully seek nuclear disarmament, yet maintaining a deterrent has been described as the 'central anomaly in the Indian policy'. In realistic military terms, the two objectives are the two ends of the pole. Though the disarmament element of India's foreign policy predates the country's nuclear weapon capability, yet once we have acquired the weapons we must give up Nehru's moral politic device and replace it by the present real politic approach. India has proclaimed itself to be nuclear weapon state. For such a country, nuclear disarmament would be counter-productive policy.

Conclusion

Minimum credible nuclear deterrence is a vital element of India's nuclear doctrine. Although, the essential elements of evolving nuclear doctrine were formally announced by Prime Minister Vajpayee in August 1998, the concept of deterrence was recognised much before the Vajpayee Government assumed office. The minimum deterrence is the national policy, and has to be kept above party politics. Once India conducted its first Pokhran test in 1974, and the fact that China was already a nuclear weapon state and Pakistan had already initiated its nuclear programme in 1972, it had become unavoidable for India to develop a minimum deterrence. The Vajpayee government, as the Prime Minister himself said, only became instrument of implementation of the country policy in its national interest.

Reaffirming India's commitment to build a small but credible nuclear arsenal (as deterrence), Prime Minister Vajpayee rejected the unreasonable external demands to limit the nation's capabilities. He asserted, in December 1998, that India's decisions on its nuclear policy are sovereign functions, not subject for negotiations. Reiterating that India's nuclear doctrine would be centered on two basic ideas – building of a minimum but credible

deterrent and the no-first-use of nuclear weapons – Mr Vajpayee explained the operational implication of these ideas.

He said that India would deploy its nuclear assets 'in a manner that ensures survivability and capacity of an adequate response', thus, rejecting foreign power's demand to limit India's nuclear capability. The Government of India made it clear that it was determined to have a minimum, though credible, deterrence in the interest of security, sovereignty and territorial integrity.

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India Needs Integrated Approach to Dismantle Conflict Trap in Kashmir

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Abstract

Former President of Pakistan General Zia-ul-Haq once said, "Proxy wars are necessary to 'keep the pot boiling". Pakistan, with the help of terror organisations and separatists, has ensured that conflict in Jammu and Kashmir becomes a conflict trap for India. Pakistan is in a position to cause relapse of the conflict to deny space for dialogue and reconciliation whenever situation appears to become near normal. It is imperative to understand that gestation period for conflict resolution under such circumstances is long and thus the objective should be to adopt structured approach to achieve enduring peace. Though there may be a debate whether we are winning this war or it has reached a stage of stalemate, but strategy certainly is not failing in its entirety. Institutions of governance and democratic process have not collapsed and the instability has been restricted to Kashmir valley by sustained military operations and administrative initiatives. Though there may be a requirement to reorient and review the overall strategy, but the bottom line is to ensure that the terror organisations are made powerless and denied public and private space. Pulwama attack has displayed how brutal terrorists can be; however, this strategy is likely to bounce back on terror organisations and sooner or later genuine resentment among the masses against the acts of extreme brutality will rise. Emergence of new political wave is a welcome step and may challenge main stream political parties. This

could be seen as the rise of youth against the dynastic politics and may bridge the gap between the youth and the State. Overall objective of the State should be to ensure that people feel empowered rather than disempowered.

Introduction

Stable peace in Kashmir cannot be delivered simply by addressing the persisting tensions, contradictions, disputes and manifestations of violence.[1] It is near impossible to seek absolute victory through military means in conflict in Kashmir which is social, political and violent in nature. The objectives should be milestones and these milestones should be to establish 'temporary peace', subsequently 'adequate peace' for day-to-day life to return to normal and finally enduring peace. Today Kashmir is an unstable plateau and there is a danger of reversal till enduring peace is achieved. David Galula posits that counter insurgency is eighty per cent political and twenty per cent military.[2] General Sir Frank Kitson posits that "there can be no such thing as a purely military solution because insurgency and terrorism are not primarily military activities."[3] Since the conflict in Kashmir is dominated by cross border terrorism, security forces perforce have to play a dominant role to keep the threshold of violence at manageable limit.

Heterogeneous intellectuals and professionals are suggesting that counter terrorism operations in Kashmir are not entirely military and the focus of the government should be to restore and recover public and private space through political and economic initiatives. But the larger issue is that as long as terrorists continue to control the public and societal space, the focus has to be military-centric initiatives. Insurgency and terrorism by contrast, are designed to diminish rule of law and create anarchical situation where non-state actors can flourish and expand their sphere of influence.

India's defensive mind set has failed to create mass movement in Pakistan Occupied Kashmir (PoK) against Pakistan's step motherly treatment to the people; where they even do not have equal rights as enjoyed by the rest of the provinces of Pakistan. But Pakistan has taken an initiative and converted its vulnerability into strength by triggering instability in Kashmir to deflect internal dissension in PoK into a movement for liberation of Kashmir by gaining popular support among the people of PoK for cross border terrorism. Pakistan has created a situation where no single stakeholder is in control of conflict in Kashmir and it is near impossible to get all stakeholders at one platform to initiate conflict resolution process. One can say it is a perfect "Conflict Trap" that has been overlooked by military professionals and policy makers in India.

Who is in Control of the Conflict in Kashmir?

The conflict in Kashmir has reached a stage where local population and political leadership do not have the power to control or end the conflict.[4] Such a stage is detrimental to the national security and under such circumstances conflict takes a direction where no stakeholder is in real control of the trajectory of the conflict. The big question is that in such an environment who is in control of the conflict and who can end it or pause to create opportunities for reconciliation? Raising of multiple terror organisations with diverse ideological background and separatists with different political objectives have ensured that no single party to conflict is in control of the situation. Multiple stakeholders act as pressure groups against each other to prevent dialogue or reconciliation. Pakistan retains the freedom to create conditions for conflict to relapse, escalate, deny reconciliation and defuse if threshold assumes dangerous proportions. Pakistan has ensured that Kashmir gets into a perfect "Conflict Trap" so that no single stakeholder is in control of the situation to reconcile and engage with the government to restore peace. Under such circumstances even if the temporary peace is restored by precise military operations and proactive political initiatives, "conflict relapse" remains a probability. Kashmir witnessed "conflict relapse" in 2008 after Amarnath Land row, 2010 agitation that erupted post Sona Pindi encounter and post Burhan Wani killing in 2016.

Under such an environment, strategy to deal with each of the constituents of the conflict would be different and should not be addressed by templated methods. Terror organisations would require precise counter-terrorist operations, separatists should be discredited by a sustained campaign and their financial channels are required to be strangulated, public opinion is required to be shaped by a positive narrative by debunking the false narrative of the inimical forces.

New Wave of Violence

Kashmiri terrorists are using violence as dominant weapon to target the pro peace section of the society and create a fear psychosis to coerce the masses. Killing those who stood up against the dictates of the terrorists and those who are willing to participate in peace process have been subjected to brutality by the terror organisations. Brutal killing of suspected informers and members of the security forces has been part of the practice of Kashmiri terrorists to discourage any visible opposition to the separatist movement. However, new wave of violence is being used as a weapon to coerce and terrorise public by making videos and sharing them on social media as was done by ISIS and Al Qaeda. Suicide attacks will add new dimension to the ongoing Jihad that will impact political parties, public at large and the security forces.

Why have the terror organisations adopted this strategy of declaring and dissemination of their brand of justice? There are four obvious objectives for unleashing violence, first to retain loyalty of the public through violence and coercion, second, to retain control over masses that was seen to be slipping and third, to justify that those who are against Jihad are enemy of Islam and would meet violent end. New wave of terrorism has caused a lurking fear among terror organisations of losing public support in spite of the huge rallies at funeral processions of the killed terrorists. However, terror organisations wish to give a message that they would not hesitate to deliver instant justice to those who are accused of betraying the cause of Jihad. Fourth, is to disrupt the intelligence network to prevent flow of ground intelligence against terrorists. It is an effective measure and also creates impact on

the large section of population. However, it has caused resentment against the terror organisations and flow of information has in reality increased.

Political Churning – Winds of Change or Winds of Deeper Crisis?

Main stream political parties boycotted Municipal and Panchayat elections on the pretext that they will not contest the polls until the Centre and the Governor clarify their positions on Article 35-A, which gives special rights to the people in the State and bars outsiders from owning immovable property.[5] However, National Conference (NC), People's Democratic Party (PDP) and Communists did not realise that youth in Kashmir was ready to take on the challenge and defy terror dictates to fight elections to the Municipalities and Panchayats. The voter turnout in Municipal elections was low but in phase one of the Panchayat elections, people came out to cast their votes in large numbers. Kupwara had witnessed highest voter turnout with 71.9 per cent and Ganderbal was lowest with 11.9 per cent.[6] This is being seen as rise of third front in Kashmir driven by the youths. It has challenged the foundations of the two dynastic political parties and there seems to be enthusiasm among the youth to participate in the democratic process in Kashmir. Larger participation of the youth in political process in Kashmir can help in building bridges with disaffected section of the society and narrow the wedge between youth and the State. However, absolute reliance on this new political churning may be expecting too much from this wave, because it is still at the experimentation stage and this political force lacks dedicated cadres at grass root level. This new political entity is without name and identity so far.

The youth in Kashmir is looking for transparent governance and people are fed up with the successive corrupt regimes that are responsible for miseries of the people of Kashmir. The old guard would endeavour to create enough impediments to ensure this experiment fails. But if it fails it may push the state into deeper crisis. Notwithstanding the outcome of this initiative, the legitimacy of Jammu and Kashmir as an integral part of India is exercised through democratic process and NC and PDP are important

constituents of this process. Thus, any endeavour to discredit these political parties will be counterproductive. Pulwama terror attack has sent shock waves to the political leaders as well. The threat of this new wave of terror will not only be against the security forces but it could be targeted against political parties whom the terror organisations consider detrimental to Jihad.

Radicalisation or Political Disaffection Acting as Traction for Youth to Join Terror Organisations?

The causal linkage between economic aspirations oversimplifies the causes for Kashmiri youths joining terror groups. Often psychological factors such as personal grievances or the desire for personal empowerment, heroic status, or simple boredom are as or more important than political factors or the absence of economic opportunity[7] are few major reasons of youth joining terror organisations in Kashmir. It is very difficult to determine if radicalisation or disaffection (anger and frustration) is acting as traction to join terrorism. Large number of youth have joined terrorism due to personal failure, various social, economic, political and other factors, which might engender conditions in which terrorist organizations could engage in recruitment and win support.[8] Simply creating low status jobs does not address these psychological factors. Radicalisation in Kashmir is an issue but to attribute youth joining terror organisation due to radicalisation is also far from truth. More than religious radicalisation it is rampant use of social media platforms that is administering a lethal dose of radical content for the last 30 years of extremism in Kashmir,[9] and there is no potent counter narrative to deal with this menace. So intertwined are the ground realities and online campaigns that one can hardly differentiate from the other. Anti-national activities and terrorist propaganda are made to appear legitimate as the new recruits are projected as the victims of the Indian State and saviours of Kashmir.[10]

A study by Jammu and Kashmir Police suggests that one noticeable outcome of this study is that this wave of fresh recruitments is not based or driven by ideology as the surge is only seen in South Kashmir and there too in identifiable areas. If it was ideology driven, then pan-Kashmir footprints would have

been evident.[11] There is no single driver of radicalisation or disaffection and, therefore, no single profile of a terrorist can determine the reason for radicalisation. Experts have identified a number of recurring factors and dynamics that apply to Kashmir as well. These could be grievances, harassment by security forces, ideology, violence, victimisation, glamour, personal failure, loss of family member or friend and even lure of money.

Defeat of the People should not be the Objective?

Security forces should endeavour to achieve stability and not victory over its own people. No nation has ever achieved peace by defeating its own people. Media plays an important role in conveying that victory of State is victory of people. A perception persists in Kashmir that people of Kashmir are slave to the main land politics and that is causing a sense of victimhood. State and political leadership should not be seen as creator of "problem, reaction and solution". Endeavour should be made to defeat the idea of separatist movement and Jihad rather than defeat of the people. Ideology certainly cannot be defeated by the gun; it requires whole of the government approach and collective efforts of the State, people and the society. But if people are not likely to be empowered politically and economically then the overall objective will be lost.

There is a need for the political leadership to understand that the youth of Kashmir are children of conflict and have no experience of political process or leading a normal life. Every child has been exposed to brush with death at some point in time due to ongoing proxy war. Muscular policy against terrorists may yield result but similar policy against people would be counterproductive. Another factor that adds to the instability is communally charged environment prevailing in India. Every incident of communal violence or even rhetoric by politicians and fringe elements adds to the insecurity among the people of Kashmir. Media can play an important role in dispelling this insecurity. Liberation of people from this "conflict trap" is imperative and display of empathy, respect and sense of belonging is vital to make the people feel part of the main stream.

Have We Succeeded in J and K?

A policy or a strategy can be pursued only if the empirical examination suggests that we are succeeding in Kashmir. If terrorists control streets and can mobilise public against the State, somewhere, the strategy is not working or it is a stalemate. If terror organisations are able to create liberated zone and no go areas, in that case strategy is certainly failing. However, in spite of 30 years of persistent efforts of terror organisations and proxy war by Pakistan, State has not allowed liberated zones or no go areas. It is an achievement that State has been able to roll up the terrorism/ militancy from the South of Pir Panjal and now restricted to Kashmir Valley. Democratic institutions are functional and other institutions of governance have not collapsed completely and are functional in spite of the efforts of Pakistan to alter the established order. There may be a need to reorient and rethink certain aspects of state policy but under the circumstances the strategy certainly is not failing. Ultimate victory will be in case India is able to demystify, decode and dismantle conflict trap laid by Pakistan.

Where do we go Now?

Insurgency and terrorism are long wars and no readymade solution is available for conflict resolution. Reclaiming the support and faith of the people is a cornerstone for success. Some of the measures are as under:-

> (a) It is important to understand the nature of conflict in Kashmir. It is a "conflict trap" aimed at ensuring that conflict remains inexorable and unresolved for long period. That is why multiple stakeholders with diverse objectives have been created. Thus a uni-directional approach is unlikely to succeed. It would require synergised efforts to deal with physical, cultural and structural violence.

> (b) The objective of counterterrorist operations should be to render terrorists powerless; and in theory aim of military operations is to continue counter terrorist operations till terrorists are denied space and power to manipulate public perception and public space. To achieve this objective there is a need to cripple terror organisations by heavy attrition so that the network is disrupted, defeated and dismantled.

(c)   Disaffected locals gain motivation to join terror ranks if they have legitimate grievances against a corrupt government, thus success should be thought of in terms of empowering the youth.[12] More than elimination, it is important to put a strategy in place to prevent youth joining terror ranks. Engagement through skill development, education, sports, culture and economic empowerment is the way forward.

(d)   Terrorists continue to change their strategy and thus security forces and State should always be proactive and remain a step ahead of the terror organisations. The only way security forces can remain ahead is by putting on ground a potent intelligence system that has penetration among the separatists and terror organisations. Intelligence agencies have a great role in developing positive narrative by debunking the Pak propaganda being spread through social media.

(e)   Kashmir needs a tightly integrated military, political, informational, economic, intelligence, and law enforcement effort. This idea came from British pacification campaigns in Malaya, Kenya, and elsewhere, as well as from French officers who fought insurgents in Indochina and Algeria.[13] The endeavour should not be to achieve total victory that is impossible but to archive sufficient victory of objectives not through defeat of your own citizenry but through defeat of strategy of separatists and proxies of Pakistan.

(f)   There seems to be lack of understanding of concept of establishment of peace. The focus ideally should be to achieve temporary peace, adequate peace and enduring peace in this order. Conditions of temporary peace warrant that terror organisations are denied space to operate so that population is insulated from coercion by the terror organisation and recruitment to the terror ranks is reduced. While process of establishment of temporary peace is in place, state should be prepared to handle reversals and retain ability to gain control of the situation earliest. Adequate peace would

warrant normalisation of activities, control of situation and space is denied for terror ranks and radicals to destabilise the situation. Enduring peace is when government institutions are in control of the situation and State is free from instability and terror organisations are not in a position to create instability or revive terrorism.

(g)   No conflict has ever been resolved by security forces. It requires participation and proactive support of the people. Thus, people cannot be isolated or excluded from the solution.

(h)   There is a tendency of terrorists and insurgents to involve public and make it a people's war. The nuance of good counter terrorist operations is to insulate population from the ill effects of this unethical   war.

Conclusion

It is important to understand that conflict in Jammu and Kashmir is being orchestrated in such a manner that it becomes a perfect "Conflict Trap" irreversible and unresolved. The characteristics of a "Conflict Trap" are – it has high recidivism rate, it indeed is continuation of a previous war (1947-48), it has the potential to spill over to other regions and it could also lead to a dominant form of armed conflict. It has relapsed multiple times in various forms from armed conflict to Intifada and separatists are making all out efforts to spread it to entire J and K including South of Pir Panjal. The "Conflcit Trap" in Kashmir becomes complex because stakeholders are not on the same page when it comes to the conflict resolution or framework for common agenda for agreement. The ideological differences are so wide that it may not be possible to achieve total peace or enduring peace in Kashmir in short period of time, however, the endeavour should be to first achieve temporary peace (end of violence) so that foundation for enduring peace can be laid. People should be made aware of the fact that terrorists are a risk to everyone. David Galula said, "The population represents this new ground. If the insurgent manages to dissociate the population from the counterinsurgent, he will win the war. Thus the battle for the population   is   a   major characteristic   of   the   revolutionary   war."[14] The suicide attack should not be considered as one of the terror strikes but it

could be a routine if not morally excluded by religious clerics, political parties, youth organisations and social organisations. Such an attack has the potential to take Kashmir conflict to a point of no return.

Endnotes

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France in the Indo-Pacific

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Abstract

France is hardly mentioned in discussions pertaining to major stakeholders in the Indo-Pacific Region (IPR). With territories in both the Indian and Pacific Oceans, France is a resident power in the region. With its military power projection capability, strategic partnerships and arms agreements, it is actually a major player across the IPR. It is one of the few countries that have published an Indo-Pacific policy document. This article traces French interests and activities in the IPR to highlight its relevance in the region. This includes its territories, military presence, bilateral/ trilateral/ multilateral engagements, defence cooperation, arms exports, military deployments, and cooperation in the sectors of space and nuclear energy. The article highlights how this engagement is set to increase further due to the push by the European Union (EU) nations for strategic autonomy in the realm of security, with France leading the way.

India and France are strategic partners with collaborations across multiple sectors that include defence, space and nuclear power. Both nations have stated intentions to jointly explore possibilities of cooperation with other nations and to work towards building a regional architecture for stability. During the year 2018, a mutual military logistics agreement was concluded and the space agencies are collaborating on technology to enhance Maritime Domain Awareness (MDA) in the Indian Ocean Region. The French presence in the IPR is very relevant for India.

Introduction

France has been curiously under-estimated in the narratives

being woven about the Indo-Pacific Region (IPR). With territories in both the Indian and Pacific Oceans, France is a resident power in the region. With its military power projection capability, strategic partnerships and arms agreements, it is actually a major player in the environment of contest and contestation across the IPR. The Indo-Pacific mapping suits France since it has territories at either ends of this region and hence, has an interest in the stability and freedom of navigation in the common maritime channel traversing it. It is one of the few countries that have published an indo-Pacific policy document.

French Interests

France has elaborately narrated its interests in various policy documents released over the years. These include Defence and National Security White Papers of 1972, 1994 and 2008, Blue Book: National Strategy of the Oceans of 2009, Southern Indian Ocean Blue Book of 2011, Defence White Paper of 2015, National Strategy for Security of Maritime Areas of 2015, France and Security in the Asia Pacific of 2016, National Security Strategic Review of 2017 and France and Security in the Indo-Pacific of 2018. These documents indicate the geographical expansion of French security outlook over these years.[1]

The issues flagged by the Indo-Pacific policy document include security responsibilities of a 'resident power' (protection of its territories, Exclusive Economic Zones (EEZs) and population); threats to multilateralism and international order due to the big power rivalry and weakening of rule of law; threats from terrorism, nuclear proliferation (North Korea) and climate change.To counter these challenges, France intends to develop a network of strategic partnerships in the Indo-Pacific with countries like India, Australia, Japan, Malaysia, Singapore, New Zealand, Indonesia and Vietnam. It wishes to contribute to building of regional security architecture.[2] The document describes the Indo-Pacific as "from the east African coastline to the west American seaboard". This

geographical mapping matches India's construct as outlined by Prime Minister Narendra Modi in the Keynote Address at the Shangri-La Dialogue.

French Defence Ministers have addressed the Shangri-La Dialogue for the last three years. Each one has invoked 'rule based international order' and 'freedom of navigation', and spoken with unusual frankness on the need to uphold international maritime law in the South China Sea. They have clearly announced intentions for greater European presence in these waters.[3,4,5]

Territories

France can claim to be a resident Indo-Pacific power due to the island territories it possesses, in both the Indian and Pacific Oceans, under varied administrative arrangements. By virtue of these numerous island territories, it claims 11 million square kilometres of EEZs that is the second largest in the world.[6] 67 per cent of it is in the Pacific Ocean and 27 per cent in the Indian Ocean. The territories are listed in **Table 1.** There are 1.5 million French citizens in these territories and 200,000 more in other countries of the IPR. There are lingering territorial disputes over Mayotte and the four Scattered Islands with neighbouring nations.

Military Presence

France maintains permanent military presence in the IPR with the stationing of 7000 personnel – 4100 in the Indian Ocean and 2900 in the Pacific Ocean.[7]

The Indian Ocean Islands of Reunion and Mayotte have two frigates (with integral helicopter), one multi-mission ship, two patrol vessels (including one polar patrol vessel) and two tactical transport aircraft. The Pacific Ocean islands of French Polynesia and New Caledonia have three frigates (with integral helicopters), two multi-mission ships, three patrol vessels, five maritime surveillance aircraft, four tactical transport aircraft and five helicopters.[8]

In addition, it has bases at United Arab Emirates (UAE) and Djibouti. The base in UAE was commissioned in May 2009 and

has 650 personnel[9]. It has naval, air and land forces. The air component has six Rafale aircraft and one tactical transport aircraft. The naval facility enables docking of all French naval vessels except its aircraft carrier. The base at Djibouti is the largest French base overseas with 1450 personnel.[10] It has four Mirage-2000 aircraft, eight helicopters and one tactical transport aircraft.[11]

There are four regional Joint Commands – Commander of the French Armed Forces in the South of the Indian Ocean (COMSUP FAZSOI), Commander of the French Armed Forces in New Caledonia (COMSUP FANC), Commander of the French Armed Forces in French Polynesia and Commander of the Pacific Ocean Maritime Zone (COMSUP FAPF/ALPACI), Commander of the French Armed Forces in the United Arab Emirates and Commander of the Indian Ocean Maritime Zone (COMSUP FFEAU/AL INDIEN).

Bilateral Engagements

France has concluded numerous strategic partnerships across the region – South Korea (1992), Cambodia (1993 and 1994), Malaysia (1994), Philippines (1994), Japan (1995, Ministerial level in 2012), China (1997), Singapore (1998, 2012), India (1998), South Korea (2004), Indonesia (2011), Australia (2012), Vietnam (2013) and Thailand (2016). Its primary partners in the region are India, Australia, United States and Japan. It has also strengthened ties with Malaysia, Singapore, New Zealand, Indonesia and Vietnam "as well".[12] France has forged close economic and military relations in West Asia, especially with UAE and Qatar. Both President Emanuel Macron and his predecessor Francois Hollande have visited the region extensively. President Hollande was the first President ever to visit Australia in 2014 (for a G20 summit) and Singapore in 2017. President Macron's visit to Australia last year was the second by a French president. To face the security challenges in the region, France seeks to "develop a network of strategic partnerships".

The India-France relationship is one of the most important with cooperation across multiple sectors – defence, space, nuclear energy, solar energy and climate change. On the occasion

of the 20th anniversary of the strategic partnership between India and France, the relationship has been upgraded with the decision to hold biennial summits between the Prime Minister of India and the President of the French Republic. Both countries have agreed to cooperate in developing strategic partnerships with other countries.

The France-Japan Treaty of Friendship and Trade of 1858 is the oldest and ties are consolidating in the 160th anniversary year. The partnership was elevated to an 'exceptional' level in 2013 and the first Ministerial level 2+2 (Foreign and Defence) Dialogue was held in January 2014 at Tokyo. The third such dialogue was held last year. Japan is France's second largest trading partner in Asia (after China) and the region's leading investor in France. Cooperation in Africa, initiated with a plan for sustainable development, health and security, was adopted on 05 Oct 2015.

With Australia, the Strategic partnership that commenced in 2012 was enhanced in 2017.[13] It includes annual dialogues between the Foreign ministers and Defence ministers. Both nations have agreed to cooperate in the IPR. As with India, the cooperation is across several sectors. France has a lot of technical collaboration with Singapore. A Joint Declaration on innovation was signed in 2017.

On 4 June 1886, France and Korea signed a Treaty of Friendship and Commerce, marking the start of diplomatic relations. Comprehensive partnership for the 21st century between France and South Korea began in 2004 and the action plan was adopted by the Heads of State in November 2015.

Trilateral Engagements

Trilateral engagements are increasingly providing linkages between like-minded nations. France, Australia and New Zealand signed the FRANZ Arrangement on 22 December 1992 to coordinate Human Assistance and Disaster Relief (HADR). Since the agreement has been signed, military forces of the three nations have been deployed on more than 30 occasions to assist Pacific Island states.

During his May 2018 visit to Australia, President Macron suggested collaboration between France, India and Australia to respond to the challenges of the region.[14] India and France are also contemplating trilateral arrangements with UAE.[15]

Multilateral Engagements

France is a strong advocate of multilateralism and has been engaged with multilateral forums across the region. It has announced its intention to engage in the ASEAN Defence Ministers Meeting-Plus (ADMM-Plus), of which it is still not a member.

France is a Dialogue Partner of Indian Ocean Rim Association (IORA) since 2011 and has Observer status in the African Union. It is a member of the Indian Ocean Commission, Quadrilateral Defence Coordination Group, Indian Ocean Naval Symposium (IONS), Western Pacific Naval Symposium (WPNS) and South Pacific Defence Ministers Meeting.

The Treaty of Amity and Cooperation in Southeast Asia that was established by founding members of ASEAN was acceded to by France in January 2007.

In September 2016, the Pacific Islands Forum (PIF) admitted France's Pacific territories of New Caledonia and French Polynesia as full members making it a stakeholder in the organisation. Wallis and Futuna gained observer status in 2006, which France is currently seeking to upgrade to Associate Membership.

Defence Cooperation

Defence Cooperation with India has been upgraded during the visit of President Macron to New Delhi in March 2018. Agreement on provisioning of Reciprocal Logistics Support was concluded to extend logistical support on reciprocal access to Indian and French Armed Forces. To enhance MDA, the White Shipping Agreement signed in January 2017 has been made operational. Bilateral naval exercises were initiated in 1983. They were christened as "Varuna" in 2001 and the 16th edition was held in the Indian Ocean in 2018. The last Army joint exercise "Shakti"

was held in France in January 2018 and the Air Force joint exercise "Garuda" (initiated in 2003) will be held in France in 2019.

With Japan, the first ever bilateral naval exercise was conducted in February 2018. The two countries have signed an Acquisition and Cross-Servicing Agreement (ACSA) for mutual logistics support (including ammunition) between their militaries. Defence equipment and technology cooperation has commenced with a joint study on next-generation mine detection technology. Joint development of undersea drones for mine-sweeping is under discussion.

With Australia, the Defence Cooperation and Status of Forces agreement was signed on 14 December 2006. The Future Submarine Project of Australia is a major component of the partnership. The armed forces have signed a bilateral Mutual Logistics Support Agreement aiming to enhance their interoperability.

In South East Asia, France has Defence Cooperation Agreements with Indonesia, Malaysia, Singapore and Vietnam. Singapore is France's second largest partner in defence research and technology. The Ministers for Defence of France and Singapore meet roughly twice per year. France has hosted Singapore Air Force Advanced Jet Training detachment in Cazaux since 1998. In March 2018, a high-level French defence ministry delegation visited Manila for the first Philippines-France Joint Cooperation Committee meeting.[16]

France signed a 15 year Defence Agreement with UAE in 2012. Bilateral military exercises are organized on a regular basis in the emirates.

Agreement for security and defence cooperation between France and Qatar was signed in 1994. In 2011, French and Qatari pilots were jointly deployed in operations in Libya.

The Defence cooperation treaty between France and Djibouti was signed in Paris on 21 December 2011. It entered into force on 01 May 2014.

France has been organising the Croix du Sud (Southern Cross) biennial, multilateral exercise for HADR in the Pacific Islands since 2002. 1800 soldiers from 12 countries participated in the 2016 edition.[17]

France has been involved in the multilateral anti-piracy operations at the Horn of Africa and collaboration for capacity enhancement of nations in the region. There are two EU operations - EUNAVFOR Atlanta launched in 2008 to combat piracy off the coast and EUCAP Nestor launched in 2012 to enhance maritime and judicial capacity of countries in the region. Military capacities are also being strengthened in Somalia, with the help of EUTM Somalia, a mission launched in 2010. The other related multilateral activities are Contact Group on Piracy off the Coast of Somalia (CGPCS) and Shared Awareness and Deconfliction Mechanism (SHADE).

France has participated in setting up the regional maritime Information Fusion Centre at Madagascar and the regional centre for coordination of maritime operations at Seychelles, as part of the European Maritime Security (MASE) programme.[18]

Arms Exports

For the period 2013-17, France was the third largest arms exporter in the world (6.7 per cent of global sales) and its major clients were Egypt, China and India. The geographical distribution of the total arms exports in this period was – 42 per cent to West Asia, 31 per cent to Asia and Oceania, 10 per cent to Europe, 9.1 per cent to Americas and 7.5 per cent to Africa.[19] France is a major supplier for Saudi Arabia (third largest), India (fourth largest), UAE (second largest), China (second largest), Malaysia (second largest), Australia (third largest), Singapore (second largest), Kuwait (third largest) and Indonesia (third largest).

As per the French Indo-Pacific document, its major customers in the region between 2008 and 2017 were India, Singapore, Malaysia, South Korea, Indonesia and Australia.[20]

France has been a traditional defence equipment supplier for numerous countries across West Asia, South Asia and Southeast Asia. The deals in the recent past include six Scorpene

submarines and 36 Rafale aircraft for India, 36 Rafale aircraft for Qatar, 12 submarines for Australia, six frigates for Malaysia and CAESAR 155 mm howitzers to Indonesia.

Military Deployment

France has been engaged in peacekeeping and military operations in the region as part of its international security responsibilities. This includes UN missions for Cambodia (UN Advance Mission in Cambodia UNAMIC and UN Transitional Authority in Cambodia UNTAC), 1990-91 Gulf War, East Timor (Operation INTERFET in 1999-2000) and monitoring in Aceh (2005). It was part of the US-led Operation Enduring Freedom of 2001 and the International Security Assistance Force thereafter that operated in Afghanistan. The peak deployment of 4000 troops was in 2010.[21] It lost 83 soldiers in the operations.[22] However, it withdrew its troops in 2012. France also sent its aircraft carrier, the Charles de Gaulle, to the Persian Gulf to carry out strikes against ISIS in Syria and Iraq at the end of 2015.

The annual "Jeanne d' Arc" mission is a long term (five months) deployment of an amphibious task force, with integrated United Kingdom units and personnel. In addition to amphibious exercises with regional navies and US Marines, the task force makes port calls across the region. Since 2014, French naval vessels have regularly transited the South China Sea and made port calls in the region. Five ships did this sailing in 2017.[23]

In September 2018, a French Air Force contingent was deployed on Mission PEGASE. The contingent participated in the multilateral exercise Pitch Black in Australia. Thereafter, it flew to Indonesia, Malaysia, Vietnam, Singapore, India and UAE. It had three Rafale fighter aircraft, one A400M plane, one C-135 plane and one A310 plane, in addition to 100 personnel.

In May 2018, the navies of USA, UK, France and Japan held an amphibious exercise off American islands in the Pacific. The French Foreign Minister indicated that France is keen on joint and multilateral exercises with Japan in the region.[24] The French aircraft carrier Charles de Gaulle is expected to complete its refit

soon. Defence Minister Florence Parly has indicated that the aircraft carrier will be deployed to Indian Ocean in 2019.[25]

In addition, France is a regular participant in bilateral and multilateral exercises across the region like RIMPAC, Kakadu, Talisman Sabre, Cobra Gold, Pacific Partnership, Ulchi Freedom Guardian, Key Resolve, Southern Katipo, Kurukuru, Takafula, Castor, Khaan Quest, Southern Katipo, Papangue, Diana and Cutlass Express.

Space Cooperation

The French and Indian space agencies have a long association that commenced with an agreement in 1964. Over 20 Indian satellites have been launched by French launch vehicles commencing with India's 1st communication satellite launched in 1981. As per the "Joint Vision for Space Cooperation" of 2018, the space agencies will work together to co-develop products "to monitor and protect the assets in land and sea", including Automatic Identification System (AIS) for detection, identification, and monitoring of vessels. Both agencies will also begin working on launching a constellation of maritime surveillance satellites focused on the Indian Ocean.[26] The other joint projects under an umbrella agreement operative since 1993 include Megha-Tropiques, Saral-Altika, Trishna satellite and Oceansat 3-Argos mission.

The Ariane 5 has been used to launch satellites of Australia, Vietnam, Saudi Arabia, South Korea and Indonesia. UAE's communication satellite Al Yah 3 and Japan's dual use communication satellite DSN1/Superbirds were launched from French Guiana in January and April 2018 respectively.[27] France and UAE have agreed to develop a joint hyper-spectral imaging satellite to support efforts to tackle climate change.[28]

Nuclear Cooperation

Nuclear Power Corporation of India Ltd (NPCIL) and the French Électricité de France (EDF) have an agreement for construction of six nuclear power reactor units at Jaitapur. Once installed, the Jaitapur project will be the largest nuclear power plant in the

world, with a total capacity of 9.6 GW. France and Japan too have a long-standing civil nuclear energy partnership.

European Strategic Autonomy

With the USA perceived to be rescinding its global responsibilities, Europe has initiated the quest for strategic autonomy. This is expected to provide greater salience to the French in the IPR. President Macron's "Initiative for Europe" or "Europe Intervention Initiative" (EII) speech at Sorbonne in 2017 spelt out the steps – establish a common intervention force, European Defence Fund, a common doctrine for action, and Permanent Structured Cooperation (PESCO).[29] French President Emmanuel Macron has spearheaded the creation of this European military force and 10 nations have joined the EII.[30,31,32,33]

EU has stepped up its engagements with Asia. The announcement of the EU-Asia Connectivity Plan to enhance connectivity, the recently released policy document on engagement with India, the Free Trade Agreement with Japan are all part of this push, and France led by President Macron is the most vocal advocate of it.[34]

Conclusion

When Commander Abhilash Tomy of the Indian Navy got stranded during the Golden Globe Race 2018, in the southern Indian Ocean (about 2700 nautical miles or around 5000 km from Kanyakumari), it was a fishing patrol vessel (Osiris) owned by French seafood firm SAPMER that rescued him on 24 September 2018 and got him to the French administered island of Lil Amsterdam.

France is a major player in the IPR and its salience is expected to get more prominent with proactive foreign policy, forging of strategic relationships, active participation in creation of regional mechanisms for stability, increasing defence cooperation and military deployments.

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Aviation - The Future is Unmanned

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Abstract

Unmanned aircraft technologies have now matured. The world is at a transition. Dual use (optionally manned) aircraft are flying. Unmanned Combat Air Vehicles (UCAV) are being intensively used in combat with more and more drones being armed with air-to-surface weapons. Unmanned Aerial System (UAS) are taking-off and landing by themselves including on the moving aircraft carrier. Autonomous air refuelling has been tested. Unmanned stealth bombers are under development. Uninhabited helicopter convoys can be used for delivering supplies to troops deployed on combat front lines. Coordinated UAS swarms are already a reality and could also act as a multi strike decoy or jam the enemy defences through sheer numbers. UAS strikes will be a must to lead into territories with integrated air defences. UAS are now mostly being assigned the 'Dull', 'Dirty' and 'Dangerous' missions. UAS are also being used for missions like electronic attack or other non-lethal effects. By the year 2050 every conceivable mission, including heavy lift, would be unmanned. There are ethical and legal issues and also need for regulation. With no pilot inside, there is a risk of lowering the bar to using force. Also there is the risk of terrorists and non-state actors acquiring such assets. A casual hobbyist could by mistake fly a drone into an airliner. All these issues are being considered by regulators. Counter drone technologies are also evolving. India has to accelerate the development of Artificial Intelligence (AI) based weapon systems and platforms to stem excessive technological gap.

Introduction

Unmanned aircraft technologies have now matured well beyond
just reconnaissance, security and targeting. Unmanned Aerial Systems (UAS) are undertaking all missions including heavy-lift cargo. World is at a transition. There are some who see the JSF F-35 Lightening II as the last dedicated manned fighter/bomber. Solar-powered UAS are already flying. Currently, the solar-powered Airbus Zephyr holds the endurance record for UAVs, with 25 days in the air.[1] Dual use (optionally manned) aircraft are also flying. United States Air Force (USAF) has already modified F-4s and F-16s to fly them remotely. For long, the Russians have been using unmanned MiG-21s as targets. In France, Dassault leads a multi nation project for delta wing UCAV 'Neuron' of the size of Mirage 2000. UK has a Strategic UAS programme 'Taranis'. UAS are taking-off and landing by themselves, including on the moving aircraft carrier (Northrop GrummanX-47B). Autonomous air refuelling has been tested. Lockheed Martin's UCLASS drone 'Sea Ghost' looks rather like a stealth bomber and is expected to carry 1,000-pound class weapons. USA's new strike bomber is likely to be optionally manned.[2] Uninhabited helicopter convoys will deliver supplies to troops deployed on combat front lines. Coordinated UAS swarms have been tested by both USA and China. The US Army's dramatic shift to nearly all-unmanned flight over the next three decades is embedded in the UAS roadmap. USAF's UAS vision document indicates that by the year 2047 every mission would be unmanned.

UAS Military Missions and Classification

The UAS could be a fixed-wing aircraft or a rotorcraft. The military missions include 'Target' for aerial gunnery, 'Decoy' for enemy missiles, reconnaissance, battlefield intelligence gathering, unmanned aerial combat missions, operational logistics, and defence research and development. They can be further classified based on range of operations such as Hand-held (2 km), Close-range (10 km), Tactical (160 km), Medium Altitude Long

Endurance (MALE) over 200 km, and High Altitude Long Range (HALE) with unlimited range. UAS are now mostly being assigned the 'Dull', 'Dirty' and 'Dangerous' missions. Dull work could be such as; long, somewhat boring reconnaissance missions. Dirty would mean entering into a chemical or nuclear affected areas with high unsafe radioactivity. Dangerous missions involve penetrating contested air space or opening corridors or short time windows for fighters to surge into, or targets requiring long-range precision fires. More and more drones are being armed with air-to-surface weapons. UAS are also being used for missions like electronic attack or other non-lethal effects. The UAS swarm could also act as multi strike decoy or jam the enemy defences through sheer numbers. UAS will be a must to lead into territories with integrated air defences. UAS will continue to act as an eye-in-the-sky, and also to mark targets for Laser weapons and support to direct fires.

Endurance - The Great Plus

Unlike human pilot, UAS endurance is not constrained by physiological limits. Wankel rotary engines which are highly fuel efficient are used in many large UAS thus increasing range and payload. Aerial refuelling will add to the endurance. Hydrogen fuel cells may extend the endurance of small drones, up to several hours. Micro UAS endurance is so far best achieved by flapping-wings. Solar-electric UAS have achieved flight times of several weeks. Solar-powered atmospheric systems operating at altitudes exceeding 20 km may one-day operate for as long as five years. Electric UAS powered by microwave power transmission or laser power beaming are other potential endurance solutions. RQ-4 Global Hawk, a full-scale operational unmanned system flew for 33 hours in 2008. Qinetiq Zephyr Solar Electric flew for 336 hours in July 2010.

Proliferation of UAS

UAS are today used by more than 60 countries, with a few making their own. USA is the leader with nearly 10,000 operational military systems which is more than the combined strength of the rest of the world. UAS already outnumber the manned aircraft in US Armed Forces. During theatre level operations in Afghanistan, UAS flew nearly 200,000 hours a year. USA is also the lead

manufacturer with Israel a close second. General Atomics, Northrop Grumman, Israeli Aircraft Industries (IAI) and Elbit Systems are world's leading manufacturers. IAI's Harpy, Harop, Searcher and Heron are flying world over in large numbers, including in India. Elbit's Hermes 450 assault UAS carries two missiles. Miniature UAS are being used for visual and audio snooping operating in small confines like rooms or bunkers. Rotary winged UAS (RUAS), such as Northrop Grumman MQ-8B Fire Scouts, are increasing in numbers. USA manufactures around 50 per cent of all military UAS. The leading civil UAS manufacturer is China. As of February 2016, about 325,000 civilian drones were registered with the US Federal Aviation Authority (FAA)[3], though it is estimated that more than a million have been sold in the United States alone. The debate between manned vs. unmanned need not be a binary one. Offloading some manned tasks to UAS will help aircrew focus on other critical areas requiring human interface. Even Armed UAS are intensively manned, albeit at stand-off safe haven control centres.

AI Enabled Drone Swarms

UAV Swarming has been possible due recent advances in chip technology and software for robotics, and it has become feasible to design machines exhibiting complex behaviour, achieve mutual coordination and accomplish complex tasks. Aerial robots can ascend synchronously[4], communicate with each other in mid-air and create cross-references. Fixed formation group flights and complex group manoeuvres are possible. The swarm of drones behaves and functions somewhat like swarms occurring in nature, e.g., honeybee swarms, flying in coordination, displaying collective intelligence and each executing a small share of the collective task. Very small Drones – some weighing less than five pounds – can cause devastating effect if they are armed with weapons, and flown in a swarm of large numbers. Drone swarms can be both, remotely operated or fly autonomously, or may accompany ground vehicles and other aircraft. Even single getting through could be potentially lethal. Terrorists and other militants can also operate small, inexpensive drones loaded with weapons. Because of their size, these drones are difficult to see,

hard to catch on radar, and hard to shoot at with conventional weapons, particularly in swarms. During the opening ceremony of the Winter Olympics at Pyeongchang, South Korea, a spectacular display by a quad-copter drone swarm comprising 1218 drones left spectators astounded. In January 2017, the US Air Force carried out trials with 103 Perdix quad copter drones functioning as a swarm. The trial included airdropping of these drones in the battlefield from canisters carried by three F/A-18 fighter aircraft, gathering the drones in a swarm and then proceeding to engage targets in the battlefield.[5] In 2016, China demonstrated drone swarming using 119 larger, fixed wing, drones. Russia has reportedly been working on a concept of drone swarming wherein the Scandinavian countries have seen Russian drones flying in formation over their skies.

Military UAS

Armed UAS or Unmanned Combat Air Vehicles (UCAVs) such as the General Atomics Predator and Reaper carry air-to-ground missiles and have great combat abilities. MQ-1 Predator is armed with Hellfire missiles and is being used as a platform for ground attack, including assassinating high-profile individuals (terrorist leaders). UAS like RQ-9 Reaper are being used to patrol and secure borders. Payloads like synthetic aperture radar can penetrate clouds, rain or fog and in daytime or night-time conditions. On the other hand, the Northrop Grumman Global Hawk operates virtually autonomously giving live feedback and only needs a command to 'Take-off and Land'. Advances in technology have enabled more capabilities and Small Unmanned Aircraft Systems (SUAS) are being deployed on the battlefield. UAS roles have thus expanded to include strike missions, suppression and/or destruction of enemy air defence, electronic warfare, network node or communications relay, combat search and rescue, and combinations of these. The US military operates large numbers of combat UAVs. As a measure of relative cost, the MQ-9 Reaper costs US $ 12 million while an F-35 costs around US $ 95 million. In 2013, the US Navy launched a UAS from a submerged submarine. Since 1997, the US military has used

more than 80 F-4 Phantoms converted into UAS as aerial targets for combat training of pilots. In 2013, unmanned F-16s joined as more realistically manoeuvrable targets.

UAS Evolving Operational Advantages

UAS have become too attractive and potent military asset; for any significant power to ignore. USAF trains more UAS pilots than fighter and bomber pilots combined. UAS have much lower training costs and can best concentrate on Intelligence, Surveillance and Reconnaissance (ISR), close air support and take on some strike missions while air superiority could be handled by manned fighters. Manned aircraft are certainly better in dynamic environment. US Predators and Reapers were designed for counter-terrorism operations and in war zones in which the enemy lacks sufficient firepower to shoot them down. Full-fledged air-to-air combat capability, increased autonomy and UAS-specific munitions are part of the roadmap. UCAV is now a "first day of the war" force enabler which complements a strike package by performing the Suppression of Enemy Air Defence (SEAD) mission and pre-emptive destruction of sophisticated enemy integrated air defences in advance of the strike package. It operates at a fraction of the total Life Cycle Cost (LCC) of current manned systems.

The Unconventional UAS Threat

Terrorists, criminals, fanatics, and others find UAVs versatile, stealthy, and cheap airborne weapon. UAVs are also on the shopping lists of drug cartels, human smugglers, and corporate spies. Their prices have dropped to less than that of a TV set. UAS can threaten airspace security through unintentional collision, or even a deliberate attack or it could be loaded with dangerous payloads, and crashed into vulnerable targets. Payloads could include explosives, chemical, radiological, biological hazards, or even nuclear payloads. Decision makers must take into account the possible use of UAS by terrorists or unfriendly regimes. Ethical concerns and UAS-related accidents have driven nations to regulate the use of UAS. The export of UAS or technology capable of carrying a 500 kg payload at least 300 km is restricted in many countries by the Missile Technology Control Regime.

Most countries have clamped down on all illegal UAS. The immediate concern for all is a possible low-level drone attack. Many countries are working on high powered lasers to damage UAS and send them out of control.

Counter Drone Technology

Counters to UAVs (C-UAV) have been evolved. Detection requires combination of radar, radio frequency (RF), electro-optical (EO), infrared (IR), and acoustic sensors. Interdiction would be through direct bullet firing, jamming RF and Global Navigation Satellite System, spoofing, lasers, cyber attacks, physical nets to entangle the target, projectiles, electromagnetic pulse (EMP), camouflage and concealment, water projectors, birds of prey or using another drone for direct hit, and combinations of those. C-UAVs could be ground or air-based. Drone swarms have some weaknesses and limitations too. Their offensive could also be blunted through a counter drone swarm. In January 2018, Russia confirmed a swarm drone attack on its military base in Syria. Six of these small-size UAVs were reportedly intercepted and taken under control by the Russian Electronic Warfare (EW) units. The drones had satellite navigation electronics and carried professionally assembled improvised explosive devices (IEDs). USA is now deploying new radars like Q-53 system that can detect and identify such small objects and then initiate the kill chain using laser weapons. Lockheed Martin 'Skunk Works' engineers are doing research, to develop and implement the technology that will detect and defeat swarms. A 60-kilowatt system that combines multiple fibre lasers to generate the high power weapon of parallel beams. The laser weapon system can fire over and over, essentially creating an unlimited magazine of bullets. Cyber solutions to defeat drones are by using multi spectral sensor systems to detect and then using cyber electromagnetic to either disable the drone or physically take over and divert. The C-UAV mission relies heavily on advanced sensors; long-endurance platforms; data fusion to provide a view of the airspace being guarded; and some form of artificial intelligence (AI) to sort through and analyse incoming data. Hundreds of companies in more than 30 nations are reportedly

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working on more than 230 C-UAV products. US Defense Advanced Research Projects Agency (DARPA), the Russian Foundation for Advanced Research Projects and China's Scientific Research Steering Committee are leading research.

Ethical and Legal Issues and Regulation

With no pilot inside, there is a risk of lowering the bar to using force. There is a risk that a drone operator, sitting in a safe haven at thousands of miles from the actual action, could treat the entire event like a video game. As per existing international law, the drone is in many ways no different from other systems. There is a need to make sure the target is legitimate and it's a proportional strike to the benefit to be gained, and there is a need to protect as much as possible the lives of innocents. In case of autonomous weapons guided by AI, could they make decisions on their own that are detrimental to humanity ? The technology is here, and it is being refined on a day-to-day basis. Most countries including India have put in place regulations for UAS operations. UAS weighing below 250 grams will follow the powered aero-model regulations. Larger sized will have to be registered with DGCA or equivalent foreign agencies. They will require air traffic clearances and also have to follow air route like other aircraft.

India's UAS Status

No one shares high-end UAS technologies. Indian Armed Forces operate nearly 150 Israeli Heron and Searcher UAS which are also operating in insurgency prone Jammu and Kashmir to sanitise the border and in remote regions of Ladakh helping incursion management. Indian Navy is covering part of the coastline. Indian Air Force (IAF) also uses them for target lasing, Battle Damage Assessment in addition to ISR functions. In Naxal prone areas UAS are tracking possible movements and also directing security forces to the targets. India is looking at more sophisticated systems like RQ-4 Global hawks that will help it monitor much larger area. Even the numbers have to increase significantly. Chinese UCAV designs are aggressively taking shape. WZ-2000 is a long endurance version Global hawk class UAS. Shenyang's 'Dark Sword' is the stealth forward swept wing UCAV of Boeing X-45 class. Developed in Pakistan, 'Burraq' (Chinese UCAV design) and 'Shahpar' surveillance UAS were

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inducted in late 2013. The Indian Defence Research and Development Organisation's (DRDO) UAS 'Nishant' is tasked with intelligence gathering over enemy territory, reconnaissance, training, surveillance, target designation, artillery fire correction, damage assessment, Electronic Intelligence (ELINT) and Signal Intelligence (SIGINT). It has an endurance of around four hours. DRDO is also developing autonomous stealth UCAV for IAF named 'AURA'. It will be similar in design to Northrop Grumman 'B-2 Spirit' flying-wing and capable of releasing missiles and precision bombs. DRDO's 'Rustam' UAS is meant to replace the Israeli 'Heron' in all three Services one day. A large number of Indian companies showcased small UAVs at the Aero India Show 2019. They have entered joint ventures with foreign companies for technology, but all found difficulty in managing India's complex bureaucratic red tape and procurement system. In view of small defence expenditures and the persisting duplications of military capacities, mixed manned and unmanned air formations might be opportunity for future conflicts. India has to make a serious beginning to develop AI based weapon systems and platforms to stem excessive technological gap. DRDO has to get its act right.

Future of Unmanned Systems

Lethal Autonomous Weapons (LAWs) that can independently search and engage targets based on programmed constraints and descriptions, may operate in the air, on land, on water, under water, or in space. The autonomy of current systems as of 2018 is restricted in the sense that a human gives the final command to attack; though there are exceptions with certain 'defensive' systems. Autonomous weapons are today capable of deciding a course of action, from a number of alternatives, without depending on human oversight and control, although these may still be present. Soon B-1, B-52 or C-130 flying aircraft carriers will launch and retrieve drones. The US is developing new undersea drones that can operate in shallow waters, where manned submarines cannot. Russians have robots armed with grenade launchers and Kalashnikovs. China too is investing heavily in automated weapon systems and platforms. There are also UAS which operate at hypersonic

speeds and sub-orbital altitudes, or even faster in low-earth orbit. Newer ones also employ stealth technology. There are miniature UAS of around 25 kilograms and micro air vehicles weighing as low as one gram. The flapping-wing micro-UAS imitate birds or insects; have inherent stealth for spy missions. The Nano Hummingbird is commercially available, and sub-1g micro-UAS inspired by flies, albeit using a power tether, can land on vertical surfaces. Other projects include unmanned 'beetles' and other insects. Research is exploring miniature optic-flow sensors, mimicking the compound insect eyes which can transmit data. Next-Generation UAS rotorcraft will have great tactical role including for the armies and navies who cannot continue to be dependent on runways. Unmanned surface ships are already on sea trials. The 132 feet unmanned Sea Hunter is designed to missions of up to 10,000 miles on a single tank of fuel. Autonomous ground convoys which are prone to IED attacks is another important area of autonomous systems.

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Military-Ecological Interface

Colonel Pradeep Kumar Gautam (Retd)[@]

Abstract

The threats to national security have both, widened and broadened. Threats are no longer just militaries invading and conquering a country as in the past. Today threats such as ecological degradation and adverse impact of climate change are to be catered for by adaptation with resilience. Joint military doctrine recognises emerging non traditional challenges. This article traces contribution and interface by the military to ecological security. To understand contribution by the Indian military, a brief history of environmental stewardship with empirical examples of activities has been covered. The second part is about the way the United States (US) Indo-Pacific Command has institutionalised Environmental Security Forum. It achieves both, military to military cooperation and is a tool of military diplomacy. The article also recommends mechanism for addressing the present and future challenges.

"National Security not only entails Military Security but also influences our Politico – Diplomatic structure, Water, Economy, Energy, Food, Health, Education, Environment".

> \- Joint Doctrine of Indian Armed Forces, released by HQ Integrated Defence Staff (IDS) in August 2017, paragraph 4

Introduction

Ecological security is an emerging threat. This article makes a

case for an integrated approach to ecological security by the

Services and the future of military-ecology diplomacy. HQ IDS, in the quote above, has already given the doctrinal part. Rather no other doctrine of any military known so far includes issue of environmental security. This is unique and futuristic. It is now common knowledge that environmental degradation is brought about by over-exploitative human practices or unsuitable development and climate change. In the policy cum scientific domain, the latest Inter-Governmental Panel on Climate Change report as summary for policy makers titled "Global Warming of 1.5°C"[1] has been rightly called by experts as a "wake up call"[2] as the impact of global warming would be greater than what was previously anticipated. In parallel in the academic world, *The Oxford Handbook of India's National Security* (2018) has even expanded the scope of security by including a chapter on India's Environmental Security.[3]

The military has always led from the front. There is an opportunity to further raise the level for Indian military being capable of worthwhile military-ecology diplomacy. As it is, Indian military is imbibed with green consciousness. This needs to be progressed and sustained. The article may also help in passing the baton of environmental stewardship, as a custom and tradition, to the young officers and readers and future commanders and policy makers.

In part I, the article gives a brief history of environmental and ecological ethos of the Indian military. Part II focuses on some ideas from The US Pacific Command's Environmental Security Forum. Part III is recommendations for mechanism for environmental diplomacy.

Part I: Environmental and Ecological Ethos of The Indian Military: A Brief History

Brigadier Michael Harbottle from the UK had authored a monograph, *"What is Proper Soldiering: A Study on New Perspectives for the Future Uses of the Armed Forces in the 1990s" (1991).* The monograph was inspired by the late Major General Eustace D'Souza of India who presented green practices of the Indian military to foreign militaries. In 2011, Professor

Richard Tucker, Adjunct Professor, School of Natural Resources and Environment, University of Michigan, USA recalled:

> I have been looking for, and it portrays what I see as the Indian military's outstanding record of environmental management. I have seen this in the concerns of senior officers whom I've known in Delhi and Himachal over the past thirty years. I have also recently located a 1995 article by Gen. D'Souza, outlining his work with WWF (World Wildlife Fund), CSE (Centre for Science and Environment) and Bombay Natural History Society (BNHS).[4]

To recapitulate, since the 1980s a number of Ecological Task Force (ETF) units have been raised in the Territorial Army (TA) including the one for the Ganga Action Plan in 2018. An ecological cell was raised under Quartermaster General (QMG) Branch in the early 1990s. The other services also have adhoc structures under station plans.[5] Many initiatives have been taken at local formation levels and below. Some samples of national and higher level events are elucidated in succeeding paragraphs.

The Ozone Depletion Substance (ODS) Initiative. Under Montreal Protocol, phase out, banking, and replacement of ODS, which are also global warming gases in air conditioning and fire fighting equipment (like CFC and halon), in critical equipment like aircraft and tanks was executed by the three Services under the Defence Research and Development Organisation(DRDO). A toolkit for Defence Forces on *"Ozone Protection and National Security: A Military Perspective"* was published jointly by United Nations Environmental Programme (UNEP) and Centre for Air Power Studies (CAPS). For training and implementation, officers from foreign militaries were invited to learn from the Indian experience in a workshop "Benefits of ODS Phase-out in Defence" by CAPS in November 2010. HQ Technical Group of the Corps of the Electronic and Mechanical Engineers (TG,EME), as the nodal agency conducted national seminar on "Combating Climate Change by Management of Ozone Depleting Substances in Defence Applications" in 2009 under the patronage of the Vice Chief of the Army Staff whose message is still relevant: "The Armed Forces have a significant role to play in order to stand by the Nation's commitment to Montreal Protocol and take all

possible steps to reduce / negate use of ODS. We need to focus on 'Alternatives' or 'Alternative Technologies…Sustainability and good stewardship by the present generation is the need of the hour". Later, CDs as training aids were made for units and formations for them to be aware of the twin problem of ozone protection and climate change.

Renewable Energy. In 2010, HQ IDS organised a workshop on renewable energy in defence services where issues like energy efficiency in building designs, photovoltaic technology, solar cooking, bio-fuels, wind farms, and energy from kitchen waste were deliberated upon.

Public Diplomacy. Public Diplomacy Division of the Ministry of External Affairs organised a joint panel with the United Service Institution of India in February 2010 on climate change.[6]

Waste Management in Fragile Himalayas. In 2017, a study was undertaken in north Sikkim by units and formations to study the impact on environment due to deployment with special reference to waste management which also addressed issues such as overall impact on water, soil, garbage generation, landslides, sound pollution and aesthetics; mitigation measures; and most importantly the role of the military in future.[7]

Part II: The US Pacific Command's Environmental Security Forum (PESF)

Institutional Framework

The US Army's Corps of Engineers deal with all aspects of water including building and decommissioning of dams. The Institute for Water Resources (IWR) of the US Army Corps of Engineers is the nodal agency which coordinates environmental security matters through their various military commands. Adequately funded and staffed with mostly civilian academics of varied disciplines, they coordinate their activities with the Corps of Engineers, the commands, and the diplomatic staff to engage with countries within their jurisdiction. With these resources the US Pacific Command[8] launched an Environmental Security Forum beginning 2011 in Honolulu (Hawaii) and followed it up in Indonesia (2012), Australia (2013), The Maldives (2014), Thailand (2015), and

Alaska (2017). Some of the subjects that feature in the forum include – new approaches to mitigating and adapting to climate change, environmental sustainability, water resource management, disaster preparedness, pollution, global warming, deforestation, overfishing, sustainable environmental management in military operations, lessons learned from military to support disaster relief operations, managing bio-security risks in the military context, emerging technologies, waste management, resource protection, and energy among others.

Environmental Security Forum Thailand

In 2015, I was invited in this forum to present the unique ETF model of Indian Army for other countries to learn and adopt the best practices from the Indian experiment. A total of 20 countries with over 80 delegates participated and the Indian experience was well received. Other militaries also shared their experiences at the forum; for instance, the Royal Thai Navy showcased mangrove restoration and marine environmental protection activities, being undertaken by its regular combatants.[9] The presentation from The Republic of Korea Army showed how the demilitarised zone across the 38th parallel with North Korea since the 1950s has resulted in rich biodiversity and a thriving flora, fauna, and wild life - which unfortunately also gets maimed due to old mines – an experience surely shared both by the militaries of India and Pakistan astride the Line of Control in Jammu and Kashmir.

Mangolia

In Mongolia mining has been done unsustainably. There is a realisation to resort to environmental stewardship as being done by Indian Army. In 2016, I was invited to present Indian ETF model in an International Workshop on "Bareland and Rangeland Restoration in the Gobi for Climate and Environmental Security", at Ulaanbaatar, Mongolia. The Mongolians had shown great interest to adopt the ETF model, keeping their unique national circumstances in mind. This is indicative of the fact that the concept has received wide publicity in the world.

Part III: Recommendations for Mechanism for Environmental Diplomacy through the Military for India

It seems that many ecological traditions of the Indian military, such as the ETF, are unique. Importantly, we need to sustain this knowledge as with rapid urbanisation traditional ecological knowledge may get lost or forgotten. The Ministry of Defence (MoD), Army HQ, and the Additional Directorate General Territorial Army can proudly exhibit the activities of ETF as well as employ the concept as a tool of military diplomacy and keep it relevant and updated for future environmental security challenges. In this exercise, the first structural issue is consolidation of our own disparate work under one umbrella by nominating Centres of Excellence – a task yet to be implemented.

Stewardship of MoD. MoD needs to encourage this endeavour. Besides the Services, there are other civilian organs of MoD such as Ordnance factories, DRDO, defence lands, Military Engineer Services (MES), Cantonment Boards and other institutions that need to be included comprehensively. The weakest link is lack of good empirical data. Without empirical data, no worthwhile planning and progress is possible. For example, what is the overall status and future potential on the vast defence land for planting of jatropa or solar or wind farms? Or what is the emission from all equipment and infrastructure (emission by source) under MoD and capture of greenhouse gases by sinks?

A Single Point Contact. The present absence of a single point contact on ecological matters in the military is a matter of management. For example, ETF is under TA Directorate, the QMG Branch is concerned more with defence land. The Corps of Engineers has a focus on non-fossil energy and road-building in the fragile Himalayas and soon they may be mandated to take up climate proofing of defence infrastructure against extreme weather events and sea-level rise (as well as adaptation of the coastal infrastructure). TG, EME is in-charge of current and futuristic technologies which now include green technologies, reduction of dependency on fossil fuels, and so on. Halon banking is under the DRDO. Jurisdiction over defence land is divided between the MoD, land bureaucracy along with army formations and units. Naval and air force assets are under their own HQ. All institutions within the military now have to update their skills and knowledge based on both, traditional ecological knowledge and new frontiers

of knowledge about preserving biodiversity including soil fertility in a rapidly changing climate. However, these institutions within the army and within the Services are in separate silos. HQ IDS should be made the nodal agency, supported by the futuristic Indian National Defence University (INDU) for the intellectual aspects, as an appropriate forum to be the virtual centre of data of ecological restoration of the three Services and the Coast Guard.

Initial Steps. Commands can evolve simple formats like reports and returns for ecological activities to the Ecological Cell. Similar reports and returns can be instituted in the other Services. In parallel, publications such as the *Sainik Samachar* can carry an exclusive section devoted to ecology by an active network with Ecological Cell and TA Directorate in the initial stages. Each line directorate, institution or Service needs to nominate a Centre of Excellence on the expertise it possesses. Think tanks and universities[10] working on military-environment interface also need to be integrated.

Indian National Defence University (INDU). Once set up, INDU may be the ideal place to house the nodal Centre of Excellence with academic staff, which must be a combination of qualified civil academics and military officers. Each institution that performs an ecological task like the ETF may also have a networked structure. The defence-related think tanks that conduct research in the field of environmental security can likewise encourage scholarship. They may also act as nodes for specific tasks – the manner in which CAPS undertook the innovative halon banking exercise with the UNEP during 2008-2010.

Future Challenges and Suggested Way Forward. College of Military Engineers (CME), Pune can be co-opted for nuclear, biological, chemical, and radiological matters. The Army Medical Corps (through the Armed Forces Medical College, Pune) can be incorporated to address new / old strains of infectious diseases. Station Commanders, in coordination with the Cantonment Boards, can be tasked to recommend new ideas for use of defence land (planting of ecologically sound trees or solar farms keeping aesthetics in mind, and so on), hygiene, sanitation, and waste management – how the existing waste is to be disposed,

recycled, reused, and finally reduced to zero. As a part of the National Action Plan for Climate Change (NAPCC) – National Mission on Sustainable Habitat, Military Engineer Services and DRDO can be encouraged to give innovative and cost-effective proposals regarding green buildings. To begin with, carbon footprint of all buildings can be recorded and inventory made for time series data (annual) so that they could be modified appropriately to green buildings where possible. Indian-manufactured solar panels, water-related technologies, and wind mills can be supplied to military stations. These may even be exported to other countries if the WTO rules peermit.

Maritime Ecology. The Indian Coast Guard is already mandated for oil spill clean-up and can build its expertise to engage further with foreign coast guards in the region. In Thailand, the Naval Special Forces, familiar with underwater marine ecosystem, are mandated to restore mangroves in degraded coastal regions. The Indian Navy may like to interact with the Thai Navy to learn some of the practices in mangrove restoration and management.

Emissions from Warships and Aircraft. The three Services can study and quatify emissions from military aviation and warships for international negotiations.

Military Diplomacy

Military, through its ecological good practices, has a new role in diplomacy and in international relations. In military-to-military diplomacy India needs to consolidate its traditional strength in matters of biodiversity and ETF-type of work. To start with, developing countries will feature more in our diplomatic outreach. But as our expertise expands, even the developed countries may take a leaf out of our practices for their requirements. The long-term strategic effects of this type of diplomacy will be worth the effort. If we ignore ecological health, we will be destroying biodiversity which is a wealth not yet measured in monetary or GDP terms. Green and sustainable practices are the future of civilisation and the Indian military must maintain the lead.

Conclusion

It needs to be remembered that Joint Doctrine of Indian Armed Forces, quoted in the beginning, has made us re-think about ecology. This article has attempted to recommend pathways to convert doctrine to practice.

Endnotes

[1]   *Global   warming   of   1.5°C*   …   at http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf

[2] Sunita Narain, "The Wake Up Call", *Down to Earth,* 16-31 October 2018, pp. 32-43.

[3] Suman DasGupta, "Chapter 16 Environmental Security in India", in Sumit Ganguly, Nicolas Blarel, and Manjeet S Pardesi (eds.), *The Oxford Handbook of India's National Security,* 2018.

[4] Email correspondence.

[5]   P.K.   Gautam,   *Environmental   Security: Internal   and   External Dimensions and Response,* New Delhi, USI of India /Knowledge World 2003; and *Environmental Security: New Challenges and Role of Military,* IDSA/Shipra Publication, New Delhi, 2010.

[6] *Proceedings of a Panel Discussion on Climate Change held at USI, New Delhi on 03 February 2010,* USI of India, New Delhi, April 2010.

[7] Internet correspondence of December 2016 with unit tasked.

[8] Since renamed as US Indo-Pacific .

[9] The rescue of teenage footballers in Thailand who got entrapped in a cave during rainy season of 2018 was performed by the Thai Special Forces. Thus demonstrating the dual necessity of SF and non-traditional tasks.

[10] Two civilian academics have a PhD on the military and environment. They   are   Dr Dhanasree Jayaram ,   Manipal   Academy   of   Higher Education and Dr Anjan Kumar Sahu, Central University of Rajasthan, Ajmer.

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Analysis of India's Ability to Fight a 2-front War

Ravi Rikhye

Ravi Rikhye, with almost half a century of experience in South Asian military affairs, a writer and contributor to many forums, blogs and magazines/journals, is a distinguished author and his expertise in military matters is well known. His earlier books *(The War That Never Was: Story of India's Strategic Failures, Taking Back Kashmir - Operations Brasstacks, Chequerboard, Trident Replayed, Militarization of Mother India, Concise World Armies)* have been the subject of much discussion in military circles.

The book invites an eerie feeling of déjà vu. How is it that something which is obvious to all is not seen by the 'Blind men of Hindoostan'? As was to be expected from Ravi Rikhye, he has presented a well researched book that once again leaves the reader wondering whether he has a direct line to the Indian military establishment. Truth is sometimes terrifying, unpalatable and bitter. We are taken through a journey comprising eighteen chapters as the author builds up his case about India's ability to fight a two front war. His deductions are an open secret and require no study of rocket science. A two front war? With the present condition of the armed forces, their pitiful and outdated equipment profile combined with the myopic vision of the politician-bureaucrat nexus; the country will be lucky if we can hold our own in a one front war! As the author puts it so succinctly, spending barely *'1.6% of GDP, we simply cannot meet our two front requirements'.* Now to this add an ill equipped force, demoralised and systematically downgraded in the national pecking order, a military in the hands of politicians, bureaucrats and security 'experts' who treat it with suspicion and disdain. Forget about modernisation and strategic thought! Obviously, the national priorities are skewed.

Leaving aside a few inaccuracies in the equipment profile, force structure, orbat and existing deployment of the Chinese, Indian and Pakistani armies, the author has placed the chess pieces very sensibly on the chess board. But why would there be a war — or a two front war for that matter? Simple, all wars are for territory and domination. And as far as Pakistan is concerned, for this country it is make hay while the sun shines. Should there be a Sino-Indian confrontation, this country with 'magnificent delusions' will pounce at the opportunity.

As in the (great) game of chess, in all openings there is a struggle for key territory and an effort to deploy pieces and pawns in useful positions. He who plans, anticipates and plays his pieces before the opposing side moves, wins the game - the *'Kings Indian Defence'.* The author cleverly war games most of the moves and all likely scenarios of how a two front war can unfold given the existing and proposed force levels. Firstly, to hold our own if attacked, secondly to hold and then to win if attacked and thirdly to decisively win by starting a war or undertaking an offensive. And all these scenarios cater for a two front war and the force levels to achieve the military goals.

The crux of the authors' argument is the mathematical working out of what in military jargon is called 'troops to task'. For purposes of planning, this cannot be faulted. Keeping in mind the current force structure of the Indian Army (IA) (14 corps and 38 divisions), the author quite accurately calculates the force structure needed for a two front confrontation: (a) 43 Divisions for defence, no capability for even a limited offensive (b) 54 Divisions for guaranteed defensive and offensive capability (c) 72 Divisions to win solid victories and/or regain lost territories. Nothing drastically wrong in his calculations, something which is based on very simple planning figures of 1:3 for conventional attack and as high as 1:8 or even 1:10 for mountain warfare. To this, the author has factored in the requirements for a two front war in terms of modern equipment for the army, navy and the airforce vis-á-vis what the two opponents can bring to bear. As the book goes on to discuss the political, economic, military and industrial ramifications and lessons learnt from various wars, including the two world wars, what becomes clear is that mathematical superiority of the

force structure alone is not necessarily the formula for military success. Equipment, technology, educational standards of troops, belief in the cause, training, national character and will to carry on fighting in adversity are some of the imponderables which require factoring in. And this is more applicable where you have no territorial ambitions as such; but what you desire is simply to ensure you are not taken lightly by the street bully. You want to have the recognised ability to hold your own, thus forcing the enemy to exercise caution or instil in him the fear of a pyrrhic victory.

With a strong military also goes the requirement of national ethos of 'not giving up' and national mobilisation for the war effort. The book discusses as to how the British, the Russians, the Vietnamese, the Americans, the Germans had mobilised the entire nation for one purpose - to build up a military-industrial complex to win the war. Wars are never won or lost by the military. It is the nation and the citizens who win or lose, something which our leadership tends to forget. The book also lays bare the woefully inadequate military spending as compared to other countries and our main adversaries. Keeping in mind the revolution in military affairs and the tectonic shift towards technology in modern warfare (the soldier matters; but now the push button is an integral part of the battlefield), Rikhye dwells briefly on the reconfiguration and rehashing of formations down to brigade and unit level to make the forces leaner and meaner, which incidentally is an ongoing exercise in all progressive armies. Examples of Chinese, American and German models, past and present, have been critically examined. A word of caution, relevant here is to remember that most Asian armies consciously trade technology for manpower in their militaries. The reasons are obvious. Though the author has not openly stated that our threshold acceptance of body bags is higher than, say the US, the inference is there to see. Nonetheless, if we are ready to spend billions on free lunches and populist schemes, surely doubling of our defence spending need not necessarily raise the guns or butter debate. The book also focuses on the rather dismal appreciation of the Indian leaderships' resolve to modernise its military and to use it as a means of power projection. We have never fought a total war in which the entire nation is involved and

in which every citizen is either a combatant or directly involved in the war effort as the very existence of the country is threatened.

The imprescriptible requirements of a two front war are firstly, the availability of militarily acceptable force levels; secondly, the ability to hold one front while you tackle the other and; thirdly, sufficient residual power with the ability to disengage and shift troops/equipment rapidly to the other front. This switching of forces requires road, air and rail capability coupled with interoperability, secure lines of communication, good intelligence, sufficient reserves, leadership, national resilience and foresight. All this is to be planned much before and not once the balloon goes up. You cannot go for 'panicky' ammunition and equipment purchases once the front/fronts are activated. Kargil is a case in point discussed by the author. You also require support, backing of friendly and 'neutral' countries and a foreign policy which does not leave you isolated while you tackle the twin adversaries simultaneously.

Chapter 10 discusses naval assets and naval strategy not only of India, Pakistan and China but also of the major naval powers and the countries likely to fish in troubled waters. What Rikhye misses is that in the present day context, carrier battle groups are only for sabre rattling and for bullying smaller nations. Gone are the World War II days when mighty carrier groups clashed to dominate the seas. A large nuclear powered carrier will not last 48 hours in a hot war, more so against an enemy which has a measure of even moderate missile technology. Irrespective of the size of its escorts or its screen or the EW/ECM cover it enjoys, the carrier is a prime target and its loss will be catastrophic in terms of national prestige and morale. In a hot war scenario, China will never send a carrier fleet to the IOR and India will not send its fleet to the Straits of Malacca. By themselves, Australia, Japan, Indonesia, Philippines and New Zealand will not tangle with the Chinese unless the US Navy is there with its firepower. Even then, the carriers will be the most vulnerable high value targets.

Towards the end (Chapter 17), is discussed a very important facet of military and national strategy-'Intelligence: its collection,

its evaluation and misevaluation'. Again, what the author misses here is that for any meaningful operations in the 33 Corps/4 Corps zones, a massive amount of troops and war material are required to be inducted in Tibet Autonomous Region (TAR). For us, the trigger here is the moment the Chinese start movement by crossing the T'sang Po. And T'sang Po can easily be observed by satellite, aerial recce and UAV's. Whether we want to begin interdiction before the build-up is completed or wait for them to hit us (it will be too late then), is a political-military decision. It will also depend whether a shooting war has started in the Northern and Central sectors. Even if the Chinese want to address all the sectors simultaneously (as they did in 1962), crossing the T'sang Po is a dead giveaway.

Can we depend on other countries to come to our assistance? Perhaps not, there definitely will be no boots on the ground from anyone. Nonetheless, it needs to be added that if China decides to start a war, a lot of infrastructure along the border, and in TAR, will be destroyed. The Indians will use their air power and so will the Chinese. Dams, bridges, railway lines, tunnels will be targeted. Here the Chinese have more to lose. By virtue of our 'no escalation' mindset, we will wait for the Chinese to use tactical missiles first. Nuclear weapons will be a no-no. Of course, both nations may do missile and nuclear rattling, both will say 'we will not be the first to use nuclear weapons'. At some places the Chinese will capture some territory and in some places the Indians will capture some territory. The UN will go into overdrive. What further could have been highlighted in the book is that American, Australian, Japanese, Filipino and Vietnamese ships will finally have unrestricted access to the China Seas. Will Taiwan with the tacit approval of the Americans declare 'independence'? Chinese and Indian navies will clash in the Indian Ocean and the Indians will have the advantage of its 'unsinkable' aircraft carriers, viz peninsular India and our own land / island bases astride the Indian Ocean. Dominating the Straits of Hormuz will be India's best bet.

Irrespective of who gets a more bloodier nose, there will be mistrust between India and China for the next thirty years after the war. At every forum, the two countries will try and destroy each

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other diplomatically and economically. The so called 'Belt' will finish once for all and so will the economic corridor. The reader can draw his own conclusions after reading the book. Two more things come to your mind after reading the book. Firstly, irrespective whether Bangladesh remains neutral or not in a Sino-Indian faceoff, the road/railway network of Bangladesh will be 'commandeered' by India, by force if necessary. At what stage? Obviously the 'request' will be based on the threat perception and the way the war is going. More so in the unlikely event that the Chinese have been able to advance through the Chumbi Valley and/or the Siliguri Corridor is threatened.

This is a book with a lot of facts, figures, orbats, force levels and data duly supported with appropriate citations. Though alright for an individual interested in further research or for purposes of authentication, it does become a bit heavy for the average reader. It would have been prudent to keep a lot of these comparisons, tables and data as appendices so that they could be referred on as required basis. Also, the average reader would appreciate reading the force levels (ie quantity/number of corps/divisions/brigades etc.) rather than the actual identification by tactical numbers. All the same, credit to the author for painstaking research and analysis.

Bobby Fischer, the iconoclastic genius who was one of the greatest chess players the world has ever seen, had once famously remarked, 'Tactics flow from a superior position'. War and foreign policy are akin to a game of chess. Ravi Rikhye's book says it all. It is axiomatic that if we are to exhibit our strength – our strategic and tactical prowess-then we must first reach good 'positions' where our future moves, long term planning and tactics will favour us whilst placing our opposition in totally untenable positions. Not much different from *'The Six Fold Policy of the Arthasastra'* enunciated by Kautilya as far back as 300 BC !! At the present point of time, the analysis of the author is in-disputable. India does not have the capability to fight a successful two front war. We can defend ourselves, we can buy time. We may lose territory but there will be no rout, and this will not be because of our political/bureaucratic leadership: it will be inspite of

it, solely because of the ethos, leadership and professionalism of our military.

Can we mount an offensive against Pakistan and manage to hold the Chinese with the present force structure? No. But then you need a man like Stalin or Churchill at the helm of affairs to bear in the national effort and mobilise the entire financial, economic, industrial resources for a battle for survival. Your adversary having double or triple your resources does not necessarily mean the disintegration of your fighting capability. It is not the Army, it is the nation that has to fight for existence and for that you require a well equipped, well armed, well trained, fully motivated military proud of its standing with the assured knowledge that it holds a place of pride in every citizens' eye. That assured, the soldier will then face *'fearful odds and will be ready to die for the ashes of his fathers and the temples of his gods'.*

An engaging, honest and hard hitting book which does not spare any punches and lays bare the sloth, lack of strategic thought and the sickening mindset plaguing this country as far as our strategic thought is concerned. But does any Indian bureaucrat or politician really care? If we are to be really taken seriously as an 'emerging' power with the fastest growing economy, if we are to claim having the world's youngest work force, if we pride ourselves as the world's most populous nation and if we claim to have the third largest army, the fourth largest airforce and the seventh largest navy; then we also require to have muscles which can be flexed. Not just a hollow skeleton.

Ravi Rikhye, well brought out, you have said what George Santayana had alluded to a long time back, *'Those who do not remember the past are condemned to repeat it'* ! This book should not only be read by the Indian military establishment, but by every Indian citizen.

Brigadier DS Sarao (Retd)

Global Geo Strategic and Politico-Military Perspectives Through Millennia Past Vol. 1 and 2

CB Verma

For those baffled by the absurd magnitude of contemporary

history – mammoth armies, perpetual wars, automated weapon systems, barbaric massacres, shocking terrorist attacks or weapons of mass destruction – history is perhaps the only refuge. For, in it one begins to see some semblance of order emerging out of what otherwise appears a chaos threatening to spin out of control. The publication under review should find a respectable place in the list of those works which help us chart a somewhat broken path through such a landscape of human history.

Let me begin on a note of caution. This is not an Operational Manual – if you are a beginner in the profession of arms or in the skill of deep reading and only peripherally interested in history from a politico-military perspective – do not pick up this title. However, if for any reason history moves you, geo-strategy appeals to you and you find the lure of great minds decoding important events around you in "so-true" narratives irresistible – grab it!

The book is awesome for the sheer audacity of its scope. To claim to understand and interpret quite a few important landmarks of global history – from the pre-historic era to the contemporary era - from a geo-strategic and politico-military perspective and read an evolutionary logic through them, is not easy. And indeed, the author is serious – very serious in his attempt.

Fifty years of systematic study and research in matters military and geopolitical have prefaced five years of actual writing

to produce almost thousand pages of closely packed text that constitute this book. It reads like a life-time work – passion oozes from every chunk - cover to cover – reaching into the deepest recesses of the author's mind, scouring the labyrinths of his soul – driving him to challenge his own limits and explore his mind – chasing his firing neurons in something of a frenzied quest – ending exhausted but not exactly satisfied. Issues are approached from multiple perspectives – classical literature, spirituality and contemporary classics are only some of them. There is something of a passionate drive at work here – if you have experienced it you know what I mean - if not try reading through.

Understandably, the book calls for time, needs patient attention and demands perseverance, but it rewards you amply – with insights, revelations, revisions and a world view that the academia may find worth engaging with.

Two parallel streams flow in the text - a historical account of various human civilisations through pre and recorded history and the multi-dimensional developments in military strategy and thinking that have taken place intermeshed with them. Many major historical landmarks and developments in military strategy linked to them can be found in the book. Facts, inferences, observations, quotes and perspectives are liberally interspersed through the chapters, often knitting themselves into engaging and informative sections. What the book promises is not a radically new take on global history but a new synthesis of circulating ideas and opinions from the global domain.

Another aspect that a reader would find of pivotal importance is the "multiple aspects of basic strategic cultures and thoughts". These aspects have been instrumental in historically path-breaking events, including the inseparable as well as complimentary making of military history.

Let's look at the section of which we are a part – *"Space age" of the Present Modern Era.* Multiple advances in the post-industrial revolution era in the fields of electronics, computers, automation, Information Technology (IT), nanotechnology, cryogenics, Nuclear Biological Chemical (NBC) warfare, extremism, terrorism and space age – all feature here. Apart from

documenting the outlines of each, the book offers an analysis of how weapon systems and platforms and war strategies have evolved in dialogue with important political and technological developments, through this era. And, the last section studies the Indian situation in fair detail.

Information war is a case in point. If war is understood as a contest or conflict involving the use of force to control or subjugate an opponent, information war represents its special case. The human mindscape is its theatre, social/political engineers and programmers working in tandem with intelligence and military officials are its warriors, and carefully chosen and doctored information disseminated through sophisticated programmes that track their users' preferences and predispositions are its weapons. Swifter, subtler, more efficient and ruthless, this breed has already conquered minds and hearts, effected bloodless coups and enthroned and dethroned tyrants and dictators in theatres that would have proved very challenging, if not impossible, for conventional forces. The book bares some of it!

I am personally invested in the well-being of such books – not necessarily their commercial success. Such projects hold promise of looking afresh at relatively stable domains from multiple perspectives that may help answer new queries and concerns arising in many curious contemporary minds. This book is one such attempt.

Professor Sanjiv Nandan Prasad

Short Reviews of Recent Books

Neighbourhood Initiatives of the Modi Government : Challenges and Road Ahead. *Edited by Nalini Kant Jha, Sreelekha K R, (New Delhi : Pentagon Press, 2018. P 153, Price : 795, ISBN: 9789386618337)*

This interesting book is a compilation of papers presented by thinkers and academicians at the University Grants Commission (UGC) Centre for South Asia, Pondicherry. The Modi Government has shown good initiative and has been able to improve relations with China, Afghanistan, Nepal, Bangladesh, Sri Lanka, Myanmar, Maldives and Bhutan. In his paper, Jayant Prasad praises the vigour of the government to reconnect with nations of South Africa and the Indian Ocean Region (IOR). SD Muni discusses the changes made in the inherited policy but describes Modi's Pakistan policy as flip-flop! AK Gupta discusses the diplomatic activism at regional and global levels but highlights the 'neighbourhood first policy'. In their paper, NK Jha and Sreelekha rightly recommend modernisation of Indian military establishment and arsenal. However, their suggestion that Indian Government should engage directly with Pakistan's military establishment is quixotic. With regard to Nepal, the duo feels that though our relations improved initially subsequently the mutual trust and cooperation declined. While NK Jha is all praise for the skilful handling of a geostrategically important neighbour like Maldives by New Delhi, yet the influence of Wahhabi Islam and intensification of Chinese presence must be taken note of. Shivaraju CD highlights the nefarious designs of the Chinese with regard to Bhutan in Doklam, Paramlung Valley and Jakarlung Valley. With Bangladesh, the Modi Government has ratified Land Boundary Agreement and galvanised the trade and transit routes. However, Sreelekha advises caution against increase in Islamic fundamentalist tendencies. S Vasan warns against Chinese master plan of One Belt One Road and Maritime Silk Road (MSR) and recommends that India adopt a pro-active approach in the IOR. Our ties with Sri Lanka are on the upswing but as Venkatraman is quick to point; we should ignore Tamil sentiments or we may lose to the Chinese in MSR. DS Rajan wonders

whether Xi Jinping under economic interests driven foreign policy might tone down aggressive territorial claims. MP Lama discusses the challenges and opportunities but opines that India continues to be a weak nation unwilling to assert itself in the comity of nations. All essays are well researched and offer useful insights.

Major General Ashok Joshi, VSM (Retd)

An Insight : The Iconic Battle of Saragarhi : Echoes of the Frontier. *By Brig Kanwaljit Singh, Pentagon Press and the United Service Institution of India, (New Delhi, 2018, P 204, Price Rs. 995/-, ISBN 978-93-86618-60-3)*

The story of Saragarhi is an epic that has often been told. This story, however, matures with its retelling particularly because the author brings to light fascinating aspects not included in earlier narrations of this iconic battle.

For the author, Brigadier Kanwaljit Singh, this has been a labour of love because he himself belongs to this renowned battalion 'The 36 Sikhs' or 'Chathis Sikhs' or 4 Sikhs as it is known today and with whom I have had the privilege to serve, when my unit was in the same brigade.

What makes this story of Saragarhi different is that the author has brought together many aspects of war on the North West Frontier in one single narrative. This, in many ways, makes the story more complete. Aspects that deserve mention are details of tribes of North West Frontier and the campaigns launched by the British to bring some control over those recalcitrant people, the chronicles of the marvelous Sikh fighters who have punctuated the pages of military history with their brave deeds, the iconic battle of Saragarhi itself and the last stand taken by those brave stalwarts who by their attitude and behaviour have epitomised the soldierly values of valour, fortitude, courage, commitment, dedication, self-sacrifice and loyalty.

A great deal of research has been undertaken by the author to resurrect historical facts, old photographs, prints, pictures, letters, and historical data that makes this volume exceptionally useful not only to the military historian but also to the average man in the street who needs to know more about the Indian Army

which continues to serve the nation with the same ardour as in times gone by.

This book is recommended for purchase by universities and service libraries as there is a great need for students of today to know that it is knowledge of the past that helps one to understand the present and in making blueprints for the future.

Major General Ian Cardozo, AVSM, SM (Retd)

The Indian Army in the First World War. *Edited by Alan Jeffreys, (England: Helion & Company, Limited) published in association with the United Service Institution of India, 2018, P 313, ISBN: 9781911512783, Price not indicated.*

This book is a collection of essays that cover a vast swathe of aspects pertaining to the Indian Army's participation in World War I.

These essays by eminent military historians cover the part played by Indian units in campaigns fought across Europe, Asia and Africa in the Great War from 1914 to 1918. They give the reader a good perception of aspects concerning the grand strategy and the controversies that were part of it. Indian Army was quickly mobilised and sent to war zones in seven expeditionary forces. The challenges faced included defence of Suez Canal, the catastrophes at Dardanelles, Gallipoli and Kut-al-Amara. Contribution by the Indian Cavalry in Palestine and capture of Haifa were noteworthy. Animal units performed very well. British Territorial Army Units gave a good account of themselves in Mesopotamia campaign.

The British Government made a promise to accord Dominion status to India, which was betrayed. Indian officers were inducted into the Indian Army which proved beneficial to India in the long run. However, Khilafat movement caused complications. Islam and Gadhar movement had its effect on war. There was surge of Indian nationalism after the war. There was adverse effect of war on India's economy, politics and it caused social unrest. The Jalianwalabag massacre had adverse effect on Sikh troops.

There was lack of published material on substantial contribution made by India in conduct of many battles. Whatever little was published, there was bias on the part of British authors. After the war, demobilisation took place wherein Indian troops did not get a fair deal. Many such aspects have been covered that bring alive what happened a hundred years ago in global cataclysm that killed millions of soldiers and civilians across the world.

Each of the above subjects has been covered in great detail and is a 'goldmine' of information to the military historian and the academic researcher. The articles are well annotated with detailed footnotes citing sources of information. Overall the book provides a wealth of knowledge to the reader, that too in one comprehensive volume. This book should be part of all military libraries and universities where military history is researched and taught.

Major General Ian Cardozo, AVSM, SM (Retd)

Pentagon Year Book 2019: South Asia Defence and Strategic Perspective 2019. *Edited by Vijay Sakhuja (New Delhi : Pentagon Press, 2019), P 248, Price Rs.1995, ISBN – 978-93-86618-73-3.*

China today has effectively breached the Himalayan barriers and is gaining influence over the region long considered by India as its 'strategic neighbourhood'. The use of its 'cheque book diplomacy', under the garb of the Belt and Road Initiative (BRI), in the region is leading to a zero-sum-game with India and is a major cause for concern in the prevailing geo-political and geo-economic uncertainties. However, all is not as well as China wants the world to believe. The overt 'arm-twisting' of Sri Lanka to gain control of Hambantotta Port in a debt-equity swap has rung the alarm bells in the region.

Coupled with a slowing economy and a push back of sorts to its BRI, comes the US Trade War that seems to have pushed China to pause and re-calibrate its strategy. This book is a timely effort on analysing the various perspectives of the flagship project of the BRI, the China-Pakistan Economic Corridor (CPEC). It

would add to the existing knowledge, as it provides varied perspectives to the concomitant issues plaguing the CPEC at present.

The book is spread over ten Chapters dealing with the main theme (CPEC), and has the Country Notes on South Asian Countries including Military Balance at the end. The style is crisp, clear, smooth flowing and easy to read.

However, it needs to be noted that the Silk Road Economic Fund and Asian Infrastructure Investment Bank are two entirely different entities – the first is a state owned Chinese institution, while the other is a multilateral financial institution (Seigfried O. Wolf, chapter 1). It is interesting to note that James Dorsey, in chapter 4 includes Pakistan as part of Greater Middle East. The Military Balance, published as part of the Country Notes, is a good effort but lacks citation.

Overall a very nicely written book that is easy to comprehend by a layman. It should be part of every think tank, universities and military unit libraries.

Major General Rajiv Narayanan, AVSM, VSM (Retd)

India-Uzbekistan Partnership in Regional Peace and Stability : Challenges and Prospects. *Editors : Rajiv, Narayanan, Batir Tursunov, Gaurav Kumar, New Delhi : Vij Books, 2018, P 155, Price Rs. 495/-, ISBN:9789388161169*

The combined efforts of analysts from the Institute for Strategic and Regional Studies (ISRS), Uzbekistan and the United Service Institution of India (USI) have coalesced to produce a comprehensive study of relevance and importance of India-Uzbekistan Partnership in maintaining regional peace and stability. Suitably structured, each section of the book comprises narratives from Indian and Uzbek perspectives. These include an assessment of challenges to regional security, the role and approach in conflict resolution and peace building, prospects for cooperation, trade and transit, management of Islamic radicalistaion, appraisal of India-Uzbek relations and the way forward. Notwithstanding this extremely large canvas, the

distillation of ideas on each topic by the scholars is noteworthy. Various authors have rightly traced our links from Mahabharat times as Saka, Kushan, and Kamboja find reference in it. The *Uttar Path* (Northern trade route) provided overland links for India to China and Europe.

As the authors bring out, Central Asia is one of the "youngest" regions, as young people make up 60 per cent of the population. The challenges and threats to the young and hence to the region stem from terrorism, religious extremism, drug trafficking and organised crime. It is to be noted that none of the Central Asian States, although members of the Organisation of Islamic Cooperation (OIC), have renamed their states as Islamic republics. However, the Wahhabi / Salafi schools have permeated to take roots in contemporary Central Asia, especially in the Ferghana Valley shared by Uzbekistan, Kyrgyzstan and Tajikistan. *En passant,* it may be mentioned that foreign terrorists arrived in Jammu and Kashmir from 1989 onwards. To the great credit of Uzbekistan, they are taking positive steps to educate the youth and implement preventive mechanism to neutralise the scourge of terrorism. However, Salafi jihadists often prevail on the young minds with cleverly crafted narratives. Given the fascination of the millennial generation with the internet, both Uzbekistan and India have to guard against "online radicalisation". The book is a compilation of practical ideas that need to be evaluated and implemented by the two nations to ensure peace and stability in the region.

Major General Ashok Joshi, VSM (Retd)

Code	Subjects	Price (Rs)	Year
M-1/2018**	"US National Security Strategy 2017 – A Critical Analysis" By Lt Gen PK Singh, PVSM,AVSM (Retd), Maj Gen BK Sharma, AVSM,SM** (Retd) and Air Cmde (Dr) AS Bahal,VM (Retd)	195	2018
M-2/ 2018**	"Artificial Intelligence in Military Operations – A Raging Debate, and Way Forward for the Indian Armed Forces" by Lt Gen (Dr) RS Panwar, AVSM,SM,VSM (Retd)	225	2018
M-3/2018**	"PLA Reforms of XI Jingping in an Era of Assertive Diplomacy – Implications for India" By Maj Gen Rajiv Narayanan,AVSM,VSM (Retd)	250	2018
OP-6/2017**	"South China Sea in Retrospect Post Tribunal Verdict" By Cdr MH Rajesh	100	2017
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CAFHR-32	"Battle Ground Chhamb - The Indo-Pakistan War of 1971" By Maj Gen AJS Sandhu,VSM (Retd) M/s Manohar Publishers & Distributors	1395	2017
CAFHR-33**	"Sideshows of The Indian Army in World War –I". By Harry Fecitt, MBE, TD	1095	2017
CAFHR-34*	"Indian Recipients of the Military Cross", 2 Volumes Set By Sushil Talwar	7800	2017
CAFHR-35*	"India in Flanders Fields" (Coffee Table Book) By Sqn Ldr RTS Chhina,MBE (Retd) and Mr Dominiek Dendooven	2000	2017
CAFHR-36*	"India in Flanders Fields" (Booklet) By Sqn Ldr RTS Chhina,MBE (Retd) and Mr Dominiek Dendooven	200	2017
CAFHR-37	The Iconic Battle Of Saragarhi – Echoes of The Frontier" by Brig Kanwaljit Singh (Retd) M/s Pentagon Press	995	2018

*   Available at USI of India ** Available at M/s Vij Books of India Pvt Ltd

USI

(Estd. 1870)

OUR ACTIVITIES

Library and Reading Room

The library holds over 68,000 books, and journals, including some books of 17th, 18th and 19th centuries, on an astonishing variety of subjects. While the principal emphasis is on strategy and defence, there are a large number of works on different vistas of Indian life. There are memoirs, biographies, recollections, diaries, journals, manuscripts for scholars and researchers. The reading room is air-conditioned, spacious and well stocked in terms of current reading material. Library was automated in 2002.

Correspondence Courses

The Institution runs regular correspondence courses for officers of the Armed Forces to assist them in preparing for promotion examinations, and for the entrance examinations to the Defence Services Staff College and Technical Staff College. Over the years, this has been a significant and well-received activity.

USI Journal

The *USI Journal* is the oldest surviving defence journal in the country and in Asia, having first appeared in 1871. In an era when there is a feeling that free expression of views by Defence personnel is not looked upon kindly by the establishment, the Journal in fact provides just such a forum, without regard to seniority and length of service in the Armed Forces, subject of course, to propriety and quality of the written work.

Centre for Strategic Studies and Simulation

The Erstwhile Centre for Research and its resources have been merged into the new Centre named as USI Centre for Strategic Studies and Simulation (USI-CS3) wef 01 January 2005. The Centre aims at conducting detailed and comprehensive enquiry, research and analyses of national and international security related issues, and gaming and simulation of strategic scenarios, to evolve options for wider discussion and consideration.

USI Centre for UN Peacekeeping (CUNPK)

The Centre was established in 2000 and functioned with USI till Aug 2014, when it moved out of USI premises and was delinked from USI. Its aims were organising workshops, seminars and training capsules for peacekeepers, observers and staff officers – both Indian and foreign. It also oversaw the practical training of Indian contingents. It functioned under a Board of Management headed by the Vice Chief of the Army Staff and worked in close coordination with the Service Headquarters and the Ministries of External Affairs and Defence. In August 2014, CUNPK moved out to the accommodation allotted by the Army HQ.

Centre for Armed Forces Historical Research (CAFHR)

The Centre was established on 01 Dec 2000 and encourages study and research into the history of the Indian Armed Forces with objectivity, covering different facets such as strategy, tactics, logistics, organisation and socio-economic aspects and their implementation.

Gold Medal Essay Competitions

Every year the Institution organises two gold medal essay competitions: one for officers below 10 years of service and the other open to all officers. These essays, the first one of which was introduced in 1871, constitute a barometer of opinion on matters that affect national security in general and the defence forces in particular.

Lt Gen SL Menezes Memorial Essay Competition

This has been instituted from 2015 on a subject related to Armed Forces Historical Research. The Essay Competition is open to all across the globe.

Lectures, Discussions and Seminars

A series of lectures, discussions and seminars on service matters, international affairs, and topics of general interest to the Services, are organised for the benefit of local members in Delhi.

MacGregor Medal

This medal is awarded to Armed Forces personnel for valuable reconnaissance and adventure activity they may have undertaken.

MEMBERSHIP

The following are eligible to become members of the Institution :

- Officers of the Armed Forces
- Class I Gazetted Officers of Group 'A' Central Services.
- Any category mentioned above will be eligible even though retired or released from the Service.
- Cadets from the NDA and Cadets from the Service Academies and Midshipmen.

For further particulars, please write to Director, USI of India, Rao Tula Ram Marg, (Opposite Signals Enclave) Post Bag No. 8,Vasant Vihar PO, New Delhi – 110 057