USI Strategic Year Book

2020

United Service Institution of India

Strategic Year Book

2020

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Team Vij Books

Editorial Team

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Foreword

India is at the cusp of its transition from a balancing power to a leading power. Despite some headwinds, the fundamentals of our economy remain strong and our military capabilities are growing satisfactorily. India's foreign policy has become more pro-active and dynamic. Nonetheless, India's internal security scenario remains in ferment. Post abrogation of Article 370, the sustainable peace and security in J&K and Ladakh continue to pose challenges. Perceived concerns over Citizenship Amendment Bill, National Register of Citizenship, National Population Register and the like pose serious law and order problems in the whole country. Concomitant with the aforesaid are the growing asymmetric threats in the maritime, cyber and information domains. Collusive hybrid threats from Pakistan and China are persistently growing. India's internal security and external security problems remain closely enmeshed. India's strategic neighbourhood, be it the strategic brinkmanship in the Indo-Pacific or fragile security environment in Afghanistan, China's BRI or a Great Game in Eurasia, or for that matter instability in West Asia – all impact India's strategic security interests. India has to empower itself to navigate deftly through a VUCA (Volatile, Uncertain, Complex, Ambiguous) world. Building formidable national security capacities and external balancing is a sine qua non for a buoyant India. The Strategic Year Book 2020 critically examines India's security challenges and articulates approaches for building capacities for Multi-Domain Warfare (MDA), with special focus on use of niche and disruptive technologies.

The United Service Institution of India (USI) published its first Strategic Year Book in 2016 based on the overarching theme of comprehensive national security with contributions from India's noted strategic experts. The publication was widely appreciated by the policymakers, strategic community and academia for its quality, content and relevance in matters of national security. Since then we have published four volumes of the Strategic Year Book. The USI Strategic Year Book 2020 will provide readers an insight into global strategic issues, India's evolving strategic interests, geopolitical developments in the strategic neighbourhood, measures for developing comprehensive national power and defence capability. I am sanguine that this publication will be useful in generating informed debates, cross-fertilization of varied perspectives and as well as a reference work for authors, thinkers, and students of international relations and strategic affairs.

Jai Hind.

New Delhi
15 Apr 2020

Maj Gen BK Sharma, AVSM, SM** (Retd)
Director, USI

The Year Book 2020 – At a Glance

We are happy to bring out the USI Strategic Year Book 2020. Over the past four years the Year Book has earned plaudits for its farsighted articles which help in understanding unfolding strategic events and plan for alternate futures. It has been long felt that military leaders need to have a regional and global strategic vision to be able to mesh in their plans to achieve the country's strategic interests. The Year Book would empower strategists to render correct advice and leaders to take considered decisions. It will also help researchers in insightful analyses.

At present India is confronting threats on the borders and in its hinterland. Conflicts based on ideology and identities are raging in many parts of the world especially in our region, in the Middle East and Afghanistan–Pakistan. Globally, terrorism is being seen as a threat to mankind primarily because we cannot understand it. To our minds conditioned in the parameters of conventional war, terrorism appears complex because of its dichotomous association with freedom struggles on one end and conflicts which arise from opposing ideals, ideologies and concepts, on the other. To unravel complexity, we have to learn from the experience of others which this book also facilitates.

The Strategic Year Book 2020 is divided into five different sections which enables the reader to link related issues to obtain a holistic strategic view. These sections are, National Security Overview, Internal Security Environment, Pakistan-China Strategic Challenge, India's Strategic Neighbourhood and National Security Capacity Building.

Section I: National Security Overview - commences with the article ***"Building Military Capability, Developing New Partnerships and Protecting National Interests in an Uncertain World Order".*** This is derived from a talk given by ***Admiral Sunil Lanba, PVSM, AVSM (Retd)*** at the USI. He states that as the world moves from an earlier unipolar or bipolar order to a multipolar one, India needs to accurately assess as to where India fits in this 'new normal'. What are the opportunities this new environment may offer as also how will her national interest be protected? He states that the way ahead is through optimising the resources, self-reliance in defence production, enhancing interoperability and by building military capability through partnerships.

Section II: Internal Security Environment - the first article in this section is written by ***Lt Gen Syed Ata Hasnain, PVSM, UYSM, AVSM, SM, VSM & Bar (Retd),*** on the topic "***J&K After 5 Aug 2019: Prospects & Way Forward".*** He states that for 30 years J&K continued to reel under the effects of a proxy hybrid war launched from across the border by Pakistan. The decisions of 5 Aug 2020 were a form of conflict transformation and a path towards internal resolution and stability. This article thus, examines the issues of international impact and diplomatic handling, internal security, situation on the Line of Control (LoC), governance, and attitude of the people who are rightly considered the centre of gravity of such a hybrid war. ***Shri Jitesh Khosla, IAS (Retd),*** in his article ***"National Security in the North Eastern Region in the Aftermath of the NRC Update"*** states that due to ever changing pattern of geo-strategic interests, North Eastern India is an area of vital importance in so far as national security issues are concerned. The region has suffered external aggression as well as insurgency, separatist movements and terrorism for past several decades. In this milieu, the updation of the National Register of Citizens (NRC) in Assam as well

as enactment of the Citizenship Amendment Act, (CAA) 2019 would have national security implications. The next article is on ***"India's Cyber Security Threats and Response"*** written by ***Lt Gen (Dr) SP Kochhar, AVSM & Bar, SM, VSM (Retd)***. He outlines the emerging trends in Cyberspace and Cyber Security in the wake of new age technologies like Internet of Things (IoT) and Artificial Intelligence (AI). The paper further examines India in respect of Cyber Security preparedness, and the needs and work done/ recommended to be done under Heads of Strategy & Policy, Organisations and Social & Legal aspects. ***Vice Admiral HCS Bisht, PVSM, AVSM (Retd)*** in his article ***"Emerging Asymmetric Threats for India's Coastal Security and SLOCs"*** discusses the security of India's coasts and states that they are very porous unlike her land frontiers. Two major terrorist attacks in Mumbai of 1993 and 2008, depicted the gaps in the coastal security apparatus in India. He examines the various Coastal Security threats and challenges and the various mechanisms to synergize Coastal Security efforts.

Section III: Pakistan-China Strategic Challenge - the first article in this section is written by ***Maj Gen (Dr) Govind G Dwivedi, SM, VSM & Bar (Retd)*** on the topic ***"Changing Character of Warfare: Decoding China's Grey Zone Conflicts—Influence Operations; Implications for India".*** He describes the genesis of warfare and its changing contours. He tries to differentiate between 'Hybrid Warfare' and 'Grey Zone' Conflicts. He further decodes China's 'Grey Zone' Conflicts, the strategic imperatives, influence operation and its impact on India. In the next article ***Shri Gautam Bambawale, IFS (Retd),*** discusses ***"India – China Relations Post Mammalapuram: Challenges and Prospects".*** He states that China plays an extremely important part in Indian foreign policy not merely due to its size and power but also because it is a neighbour with which India has an undefined boundary. This article summarizes the outcomes of the informal summits and how they have imparted stability and momentum to bilateral ties particularly after the confrontation at Doklam in 2017. The next article deals with Pakistan and ***Shri Tilak Devasher,*** in his article ***"Pakistan's Tryst with Terrorism",*** states that right from its creation, and more so afterwards, Pakistan has used jihadis of various hues as instruments of state policy. With terrorism continuing to fester internally, extremism and sectarianism has grown. This has damaged Pakistan physically and lowered its image in the world as it is perceived as an epicenter of anti-West terrorism. Pakistan's slide on the slippery road towards the abyss will hasten in the years to come as it remains trapped in its tryst with jihadi terrorists.

Section IV: India's Strategic Neighbourhood - This section commences with an article written by ***Maj Gen Rajiv Narayanan, AVSM, VSM (Retd)*** on the topic ***"Emerging Geo-political Trends in the Indo – Pacific: Implications & Way Ahead".*** He analyses the U.S. and the Chinese strategies for the Indo-Pacific, their difference in approach, assesses the emerging trends in the region and their implications and way ahead for India. ***Dr. Geeta Kochhar*** in her article ***"Belt and Road Initiative (BRI): A Reality Check",*** states that in the last seven years of BRI, China has made remarkable progress and made large overhead investments. However, yet, some crucial issues remain, India not being a part of the BRI till date is a serious concern for the Chinese as that poses challenges to the sustainability and development of the projects in the region. ***Lt Gen Ghanshyam Singh Katoch, PVSM, AVSM, VSM (Retd)*** in his article the ***"The 'New Great Game' in Afghanistan: Challenges and Opportunities for India"*** elucidates that "The Great Game" was a term used to refer to the strategic competition between Russia and Great Britain in the 19th and 20th centuries in Central Asia and in particular in Afghanistan. However, the "New Great Game" is taking place in a changed geo-strategic environment in which India while not directly affected has enough indirect strategic stakes, to be a part of the geo-political manoeuvrings. ***Shri Ajai Malhotra, IFS (Retd)*** in his article ***"The Evolution of Eurasia and India's Strategic Response",*** writes that the post-Soviet reintegration process has gradually led to the crystallization of a contemporary geopolitical construct – Eurasia. It is here that for Russia regional economic integration has emerged as its preferred instrument to maintain its influence over the post-Soviet

space. Therefore, strategically and tactically, maintaining warm, close and friendly ties with Russia and Central Asia must constitute a fundamental and integral part of India's foreign policy. The last article in this section is written by ***Vice Admiral Satish Soni, PVSM, AVSM, NM (Retd)*** on the topic *"**Charting an Ascendant Paradigm in the Indian Ocean Region".*** The author states that the Indian Ocean is becoming an arena of contestation between extant and emerging powers. Economic interdependence between littorals and extra regional powers is metamorphosing into strategic competition and in this milieu, India is poised to play a pivotal role in shaping the destiny of this maritime landscape which has now coalesced into the 'Indo-Pacific'.

Section V: National Security Capacity Building - The first article in this section is written by ***Lt Gen PR Kumar, PVSM, AVSM, VSM (Retd),*** on the topic *"**Determinants of India's Two Front Continental Strategy",*** where he initially describes the geographical realities and some prominent international security truisms. He further examines India's security challenges and India's two front multi domains operational scenario. He concludes by suggesting two phase strategy to strengthen and optimize India's national security apparatus and some essential national and military measures which India needs to adopt. In the next article ***Lt Gen Arun Kumar Sahni, PVSM, UYSM, SM, VSM (Retd)*** on the topic ***"Transformation of Land Forces, Including Integrated Battle Groups and Additionalities"*** tells us that the classical concept of war fighting which remained restricted to the external borders of the conflicting States is now passé. The militarisation of erstwhile 'global commons' of 'cyber' and 'space' and ever increasing dependence on cyberspace, for almost all functions of 'governance' and 'security', has resulted in creating new vulnerabilities and warfare, not being restricted to traditional battle spaces. This makes it imperative that we address the emerging security challenges through organisational and other changes. ***Rear Admiral DM Sudan (Retd)*** in his article *"**Pathways for Transformation of the Indian Navy"*** elucidates that the strength of the Navy lies in well trained and motivated men and women. He emphasizes various pathways for transformation, mainly to strengthen naval capacity and capability to address coercive challenges, develop a multi-domain capability and awareness, and develop India's space based and cyber capabilities. In the next article titled *"**Taking on China by Removing No First Use (NFU) and Other Constraints", Prof Bharat Karnad*** states that strategic nature of nuclear weapons requires that they be orientated to China. Further discussing deterrence he states that it works best when 'First Use', is on the table, and suggests things like India needs to abandon NFU, rapidly augmenting its stock of long range nuclear missiles, inducting easy-to-make 1-3 kiloton yield Atomic Demolition Munitions etc, to convince Beijing that India is no pushover and is prepared to initiate nuclear weapons use. Continuing with nuclear issues ***Dr Roshan Khanijo*** in her article titled ***"Role of Artificial Intelligence (AI) in Nuclear Domain"*** examines the impact of this technology on the tactical as well as strategic decision making of a nation and highlights the lessons and approaches India needs to adopt to address this challenges. Space plays an important part in any warfare, the next article by ***Gp Capt Ajey Lele, (Retd),*** is on the topic *"**An Assessment of India's Growing Space Capabilities".*** He states that space has emerged as an important constituent of India's social, commercial, strategic and foreign policy architecture. Further, it offers a major soft-power potential for India. The need of the hour is to evolve a rule-based and transparent mechanism for protecting space. The next article is by ***Lt Gen (Dr) Ravindra Singh Panwar, AVSM, SM, VSM (Retd)*** on the topic ***"Is India Adequately Poised to Leverage Disruptive Military Technologies for Solving its Security Needs in the Coming Decades?"*** His article examines four top emerging technologies which are expected to have revolutionary or transformative effects on the battlefield in the coming decades, ie., Artificial Intelligence (AI) & Robotics, Quantum, Nano and Hypersonic Weapon technologies. Further, he briefly reviews India's defence, Research and Development (R&D) ecosystem, and identifies lack of synergy amongst various stakeholders as a fundamental flaw afflicting it. The next article is written by ***Shri Upendra Sah*** titled ***"Does India's Defence Budget Meet India's Growing Strategic Profile"*** where he discusses the significance of defence budget. He

states that the defence budget and expenditure needs efficient management, right prioritization and control to get better value for money. Constant review of defence plan is needed and long term planning is a must. Further, focus should be on increasing quality domestic defence production for military hardware, failing which India should look for out of the box solutions. The last article is written by ***Col Rajneesh Singh*** on the topic ***"CDS And Connected Reforms: An Analysis"*** where he carries out an analysis of the government's decision to institute the appointment of the Chief of Defence Staff (CDS) and create the Department of Military Affairs (DMA) in the Ministry of Defence (MoD).

The Strategic Year Book 2020 is expected to serve as a platform for sharing research findings and opinions of scholars working in the strategic field. The articles have been carefully chosen to reflect original work and be contemporary. We are thankful to all the contributors including those whose articles could not find place here.

We look forward to your feedback and suggestions on improving upon the format and contents of the journal so as to improve it further.

Happy reading!

Lt Gen GS Katoch, PVSM, AVSM, VSM (Retd)

Section I

National Security Overview

*Building Military Capability, Developing New Partnerships and Protecting National Interests in an Uncertain World Order**

Admiral Sunil Lanba, PVSM, AVSM (Retd)@

Abstract

There is little dispute over the assertion that the world today is characterised by multi-layered and multi-faceted diversity from political, demographic, economic, environmental and strategic viewpoints. In the present competition between China and the United States, each confronts the other as a near peer. It is certain that the game will continue as the world moves from an earlier unipolar or bipolar order to a multipolar one. The present phase is different from earlier ones and hence, India needs to accurately assess as to where does it fit into this 'new normal'. The conclusion is that in the present and future times, global order hinges on collaborative efforts and India has to garner strength from collaborative partnerships. This would remain fundamentally important in maintaining the strategic equilibrium of India's national security environment.

Introduction

The strategic need for nations to protect and promote their national interest in a changing world order has been the centre piece of global strategic discourse for some time. Linked to this aspect of national interest is the need to build military capability to prepare for the array of security challenges that lie ahead and also developing new partnerships, as the global order shifts from a unipolar model to a multipolar one. There is little dispute over the assertion that the world today is characterised by multi-layered and multi-faceted diversity from political, demographic, economic, environmental and strategic viewpoints. These issues are important from strategic perspective largely because it seems that the world is in another period of historical transition. It would be a fair assumption that we are living through a period of 'strategic uncertainty'.

Review of the Global Order

A perfectly stable world order is a rare thing.[1] As a matter of fact, in search for parallels to today's world, scholars and practitioners have looked as far as ancient Greece, where the rise of a new power resulted in war between Athens and Sparta. The global order which we live in today is widely believed to have been built in the aftermath of World War II. This order consisted of two parallel orders for most of its history.[2] One grew out of the Cold War between the United States and the then Soviet Union; and the other was the liberal order, which used aid and trade to strengthen ties and fostered respect for the rule of law both, within and between countries.[3]

The New Normal

The present competition between China and the United States is a new twist to an old story. Until the onset of the nineteenth century, China was by far the world's largest economy, with an estimated 40 percent share of global GDP[4]. Then it entered a long decline, and around the same time the United States was born and began its long ascent to global dominance. Both countries' have dominated the world, each has its own strengths and weaknesses, and, for the first

@ *Admiral Sunil Lanba, PVSM, AVSM (Retd)* is former Chairman Chiefs of Staff Committee (COSC) and Chief of Naval Staff. Presently, he is Chairman, National Maritime Foundation, New Delhi.

time, each confronts the other as near peer.[5] It is certain that the game will continue as the world moves from an earlier unipolar or bipolar order to a multipolar one.

Important to have 'The Long View'

There is a need to maintain a 'long view' and not be overly influenced by short-term changes. This is particularly important since there may be a tendency to view developments over the last few years as a sign of eclipse of a so called 'stable world order'[6], but that would be a mistake. Although the recent challenges should not be underestimated, it is important to recognise that they are closer to the rule than the exception. Great power rivalry has been the driver of history, but India has to protect its core interests too. The power diffusion which the region around India — which majorly includes the Indian Ocean — is witnessing is not a new or unique phenomenon. But at the same time, India will need to brace itself for the diverse array of strategic challenges which lie ahead. Many of these would have direct bearing on the national as well as regional security calculus. India needs to accurately assess as to where does it fit into this 'new normal'? The present phase is different from earlier ones. While geopolitical rivalry and the quest for global dominance may have been a 'signature phenomenon' of the entire modern era, it is probably for the first time that India is sitting astride the centre-stage of this power competition which is of the Indo-Pacific. The 21st century has witnessed an eastward shift in the locus of global geopolitics and economic power play.[7] In the recent past, the idea of Indo-Pacific has gained immense importance in international geopolitics. Given the arterial trade and energy routes originating and passing through the region, several major players are making long-term investments to protect their energy interests hinging on this region. As an example, to highlight the region's growing geostrategic importance, it is interesting to note that about 80 per cent of the trade originating from here is actually extra-regional. Unhindered flow of maritime trade through Indo Pacific Region thus assumes tremendous significance for the entire world. Further, in pure economic terms, the Indo Pacific Region contributes about 60 per cent of global GDP and is home to four of the top ten economies of the world.[8]

While geopolitical rivalry and the quest for global dominance may have been a 'signature phenomenon' of the entire modern era, it is probably for the first time that India is sitting astride the centre-stage of this power competition which is of the Indo-Pacific. The 21st century has witnessed an eastward shift in the locus of global geopolitics and economic power play.

In military context, the region is home to ten largest standing armies in the world[9] and seven of the top ten countries in terms of global military expenditure[10]. The rising military power of the region has come to complicate the security calculus in many ways. The geo-strategic eminence of the Indo-Pacific Region is here to stay. In the foreseeable future, the region would play a pivotal role in shaping the global economic and security paradigms. It is here that India has a definitive role to play in shaping the future world order. There is a renewed interest from the world to engage with India in this region, as the strategic need to preserve peace, promote stability and maintain security across Indo- Pacific is no longer a regional necessity, but indeed a global imperative. It is this feature which makes the present times different from earlier ones, especially from an Indian perspective. Therefore, India has the opportunity to play a central role in the primary theatre of geo-strategic competition

Opportunities for India

This 'uncertain' world order affects India in profound ways. The challenges which it brings along are well known, but there is also the critical need to seize the strategic opportunities which these tectonic shifts offer. These opportunities cover the entire spectrum of global interactions, most prominent of them being in the economic, trade, technological and military domains. The growing stature and clout of India affords it an unique moment in history to play a major role in shaping the collective future of the world. Given the fact that by 2024 India is estimated to be a five trillion dollar economy[11], it is but natural that it would have to assume a leadership role in global affairs, the signs of which are already

on the horizon. India is now better positioned to influence the new global and regional institutions[12] that are being created. The attributes of a strong economy, robust governance and superior military provide India with the prospect of reserving its seats on the high table which nurtures and shapes the global future.

Protecting National Interests

India's core interest centers around protecting its national interests in this uncertain world order, which forms the nucleus of all its future endeavours. The '*one and only'* driving factor of all India's present and future endeavours will be '*National Interests'*. In fact, every measure that India initiates will have this facet at its very core. Safeguarding and promoting these interests would require an integrated approach. Every arm of the government — be it finance, foreign policy, defence, trade, commerce, or technology — will have to work in unison to keep India's national interests safe and secure in these 'contested times'. While each enabler supports India's national interests in myriad ways, a secure internal and external security environment, provided by the military and other agencies, facilitates sustained growth and development of the nation. Be it on land, in the air or on the maritime theatre, a benign environment is a catalyst for national progress. Speaking in pure military terms, this will require building deterrence, both conventional and nuclear, protecting India's sovereignty, in all domains, as well as maintaining a credible presence in all areas of interest. Two points which are extremely important for preparing for the future are:

Every arm of the government — be it finance, foreign policy, defence, trade, commerce, or technology — will have to work in unison to keep India's national interests safe and secure in these 'contested times'. While each enabler supports India's national interests in myriad ways, a secure internal and external security environment, provided by the military and other agencies, facilitates sustained growth and development of the nation.

Firstly, it is important to *'anticipate change'* and do it with foresight. Change in the colours and shades of warfare will have to be accurately anticipated along with response mechanisms. The future will be different from the past. The rapidity with which events may escalate into full-blown conflicts cannot be overemphasized. As was seen during the *Balakot* strike, in February 2019, a decisive, swift and calibrated response can lead to significant strategic gains. Therefore, India's institutional capacity to anticipate changes across theatres would need to be of a very high order. This may also require a relook at our structures and processes, followed by corresponding recalibration, to keep pace with changing times.

Secondly, India needs to have an '*over-the-horizon"* approach towards our military capability building to be prepared to respond to the challenges that we will face ten to twenty years from now. Investments in developing futuristic technologies and achieving self-reliance in defence production should be high on the priority list. India has achieved a lot in this area over the past few years, nevertheless, sustained efforts from all stakeholders including government, military, public sector undertakings, R&D organisations and private sector, including the Micro Small and Medium Enterprises (MSMEs), would be essential to pursue this line of effort. In fact, achieving 'Self Reliance in Defence Production', particularly in the field of niche technologies, should be India's *national mission.*

As India progresses along this vision, partnering with like-minded countries would play a key role, since both, the aspects of anticipating change and capability building, would prosper well when followed through a collaborative route. One important lesson, in this era of multi-polarity, is the growing relevance of regional balances and constellations. In this era, 'issue based convergence' seems to be the new norm, in order to balance converging and conflicting interests. That means differences with a partner on certain issues should not obviate the scope of our mutual cooperation in other avenues. India cannot afford to be flat-footed by dogma, prejudices or obsolete theories. When India looks to the world, it would need to have an open-minded approach which allows it to pursue different approaches with different partners. For example, while India may increase the tempo of its engagements with certain long-cherished partners, it may also need to manage its relationships with others. At the same time, India will also need to 'cultivate and enthuse'

new partners. And, therefore, 'one-size-fits all' approach may not serve a purpose in the coming times. It is important that every partnership, both existing and those on the anvil, is optimally leveraged for 'mutual growth'.

Distilling these thoughts into the military aspect, there are several opportunities for India to engage with the world, particularly in the aspect of capability and capacity building. With our robust defence structures, supported by credible multi-domain proficiency, we are very well placed to play a central role in pursuing government's foreign policy initiatives through military-to-military engagements. Several important policy initiatives have been introduced over the past few years, which have collectively enabled greater military interactions with partner states.

Promoting National Interests and Building Military Capability through Partnerships

In this era of intertwined interests and challenges, it is imperative that India looks at 'leveraging military partnerships' as an essential enabler for pursing and promoting national security objectives. These partnerships not only offer it an array of tangible benefits ranging from operational to capability building, but most importantly they also allow countries to hedge against the diverse security concerns which pose serious challenges to collective security. Some of India's trusted military partnerships have contributed towards protecting our national interests as under:

Foundational Security Agreements

These enable significant sharing of resources and information in pursuance of respective national security interests. The landmark conclusion of Communications Compatibility and Security Agreement (COMCASA), in 2018, allows utilisation of U.S. based encryption technology for communication instead of using the commercial communication technology. Similarly, dedicated logistics sharing agreements, like Logistics Exchange Memorandum of Agreement (LEMOA), allows India and the United States to mutually benefit through optimal utilisation of each other's logistics facilities covered under the provisions of the agreement. Another example is the Helicopter Operations from Ships other Than Aircraft Carriers (HOSTAC) arrangement which Indian Navy signed in 2018. This enables the Indian Naval helicopters to land on the decks of the ships of over 50 Navies and Coast Guards, significantly enhancing operational interoperability between countries.[13]

In this era of intertwined interests and challenges, it is imperative that India looks at 'leveraging military partnerships' as an essential enabler for pursing and promoting national security objectives. These partnerships not only offer it an array of tangible benefits ranging from operational to capability building, but most importantly they also allow countries to hedge against the diverse security concerns which pose serious challenges to collective security.

Joint Projects

Military engagements can also contribute towards new capability building initiatives, particularly as joint developmental projects, on advanced technologies. "*Brahmos*"[14] offers one such shining example where a trusted military partnership between Russia and India translated into a tangible technological product, available to both countries. Similarly, India's collaboration with Israel on such projects also substantiates this argument.[15]

Government-To-Government (G2G)

Important military acquisitions also benefit from direct government-to-government (G2G) agreements. In India's context, Navy's multi role helicopters, Air Force's *Rafale* fighters and Army's AK 203 Assault Rifles have all been possible because of robust inter-governmental partnerships.[16]

Enhancing Regional Security

Another important contribution of military partnerships is its role in enhancing the regional security environment. The Indian Ocean Naval Symposium (IONS), an initiative of the Indian Navy, started as a regional maritime security initiative in 2008. IONS, within a short span of 10 years, have evolved into a leading maritime organisation of the Indian Ocean Region, with 24 members and 8 observer states. The forum today not only addresses regional and even sub-regional issues but also focuses on important security disciplines such as Maritime Security, Humanitarian Assistance and Disaster Relief (HADR), Information Sharing and Interoperability.[17]

Cyber Domain

The cyber domain's emergence as the fifth theatre of war warrants India to look at this aspect with serious thought and focus. The cyber domain today has transcended national boundaries, acquiring a hybrid and trans-national character. It poses serious security challenges to law enforcement agencies, including those of legal jurisdictions, authorities, penalties etc. Any effective mechanism to monitor this domain would warrant a multi-lateral initiative, further highlighting the need for trusted partnerships.

Way Ahead

There are three essential ingredients for developing India's military capability, and nurturing partnerships, as an enabler for protecting national interests. By charting a course around these three waypoints, India will be able to better prepared for combating future security threats. These are:

Given the diverse nature of socio-economic challenges which India faces, resource availability to meet the nation's security needs would continue to be a challenge. Keeping in view the fact that capability building, and force sustenance are expensive propositions, the three Services will need to look at innovative measures to enhance sharing of resources.

Optimisation of Resources

Given the diverse nature of socio-economic challenges which India faces, resource availability to meet the nation's security needs would continue to be a challenge. Keeping in view the fact that capability building, and force sustenance are expensive propositions, the three Services will need to look at innovative measures to enhance sharing of resources. It is prudent that every rupee committed towards building the military should give the nation manifold returns and for that, the Services would have to institutionally address the issue of optimisation. In this regard, much progress has been made in recent years with establishment of Joint Logistics Nodes and Joint Training Institutions, which were raised with the primary aim of optimising public expenditure. A lot can still be done once the armed forces accord it the required impetus. The appointment of Chief of Defence Staff (CDS) will be able to drive this further.

Self-Reliance in Defence Production

This is particularly important in the field of core technologies involving weapons, sensors and propulsion systems. It is important to note that self-reliance in defence production provides a country with immense flexibility to commit resources in a calibrated manner, and to modify and customise the deliverables to the requirements of the times. In other words, it gives 'Strategic Independence'. In its absence, India's dependence on external factors would continue limiting its strategic choices in the future.

Enhancing Interoperability

Leveraging partnerships between the militaries of the region; this should be one of India's key military priorities. Given the dynamic and diverse nature of challenges which the region faces, it would be imperative to maintain a high degree of military-to-military cooperation. Along with enhanced interoperability, there is a strong need to focus efforts on

establishing 'robust', 'reliable' and 'real-time' information sharing mechanisms with partner states. This aspect assumes special significance, given the speed at which local security threats can assume a national, regional or even global character. Information sharing, therefore, is not only essential but in fact, foundational to defending collective security interests. An example is the Information Fusion Centre (IFC-IOR) of the Indian Navy, which was commissioned in December 2018, to further India's commitment towards achieving collective maritime security in the IOR. Given the facility's significant potential in enhancing the security quotient of the entire IOR, twenty countries and one multi-national construct are already partnering the initiative, making it a one-point convergence centre for the entire IOR's maritime activity. This collaborative initiative highlights the tangible gains derived out of trusted partnerships.

Conclusion

The deterioration to a world order can set in motion trends that spell catastrophe. What is being seen today resembles the mid nineteenth century in important ways[18], but it is also quite certain that the world is not yet on the edge to a systemic crisis. It is the responsibility of those responsible to make our policies both in the External Affairs and Defence fields that a crisis never materialises, be it as an outcome of competing interests, hyper nationalism or even as a cumulative effect of climate change. Even in an uncertain world, India's collective endeavour should be to aim for a *'certain future'*. Protecting its core national interests would warrant India to keep pace with the changing times, adapt to the evolving geo-strategic canvas and, most importantly, *anticipate change* and prepare for it.

Building inclusive partnerships is an essential pre-requisite to shape a positive national future for 'global good'. With deep-rooted mutual trust and confidence, the world can be a calm and peaceful place.

Building inclusive partnerships is an essential pre-requisite to shape a positive national future for 'global good'. With deep-rooted mutual trust and confidence, the world can be a calm and peaceful place. In this regard, Prime Minister Narinder Modi's mantra of 5 'S', which elaborates the view of *Samman (Respect), Samvaad (Dialogue), Sahyog (Cooperation), Shanti (Peace) and Samriddhi (Prosperity)*[19], aptly indicates India's resolve to engage with the world for a shared future. In this quest, developing new partnerships in the region and beyond, with like-minded partners can only be an 'influence for good', both for internal as well as regional security dynamics. The future of the global order hinges on collaborative efforts and India has a pivotal role to play in it. Within this how India garners strength from collaborative partnerships would remain fundamentally important in maintaining the strategic equilibrium of its national security environment.

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End Notes

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Section II

Internal Security Environment

J&K After 5 Aug 2019: Prospects & Way Forward

Lt Gen Syed Ata Hasnain, PVSM, UYSM, AVSM, SM, VSM & Bar[@]

Abstract

For the past three decades J&K witnessed the effects of a proxy hybrid war launched from across the border/Line of Control (LoC) by Pakistan. The decisions of 5 Aug 2020 were a form of conflict transformation and a path towards internal resolution and stability; it was not a final solution. Therefore, it needs to be examined afresh. This article examines it from the angle of international impact and diplomatic handling, internal security, situation on the LoC, governance, and attitude of the people who are rightly considered the centre of gravity of such a hybrid war.

The Build-up to the Situation in 2019

For 30 years J&K continued to reel under the effects of a proxy hybrid war launched from across the border/LoC by Pakistan. It kept the state and rest of India involved in countering the nefarious designs of our neighbour. While it never reached proportions of an existential threat to India the continuous focus on fighting the designs of the adversary did create conditions contrary to our interests as a peaceful nation seeking high economic growth and betterment of the lot of our people. The strategy employed by our adversaries followed a pattern of testing our will by causing internal strife, increasing the alienation of the people of J&K against India and creating sufficient triggers to project the feasibility of a war between two nuclear armed neighbours with a hope of some international mediation. India stuck steadfastly to a counter strategy of neutralizing the armed elements which attempted to create mayhem, drastically reducing their strength through a combination of continuous military operations as also engagement with the people by the Indian Army. However, the much-awaited political initiative to exploit the sizeable military gains proved largely elusive. Separatism continued to survive while democratic principles that India ceaselessly followed were exploited by the adversaries.

Article 370 and 35A were two constitutional provisions of a temporary nature to give J&K a special status within the Indian Constitution. Their inclusion was the subject of many a debate. While they assuaged the feelings of the Kashmiri people, they also kept alive the idea of J&K either becoming independent or seceding to Pakistan; a disputed status which as per Indian perception had been overtaken by the history of Pakistan's attempts to wrest it by force. These provisions were concessions amounting to limited autonomy. The best time to have removed these constitutional concessions through legislation was 1972 after the signing of the Shimla Agreement in the wake of India's path breaking military victory and the burial of the 'Two Nation' theory with the creation of Bangladesh. However, there may have been limitations due to the international situation then prevailing. The concessions continued to give scope to the exploitation of 'azadi' sentiment prevalent in Kashmir and instigated by Pakistan.

[@] *Lt Gen Syed Ata Hasnain, PVSM, UYSM, AVSM, SM, VSM & Bar (Retd)* is a former GOC of the Srinagar based 15 Corps and currently Chancellor of the Central University of Kashmir. He is a Distinguished Fellow of the Vivekananda International Foundation and is on the Governing Body of the Institute of Peace & Conflict Studies.

In 1989 Pakistan launched a proxy war in J&K and by 1994 India was again under intense international pressure on alleged human rights (HR) violations in J&K. That is when some deft handling by India's political community neutralized Pakistan's vile propaganda. On 22 Feb 1994 India's Parliament passed a Joint Resolution with full political consensus, outlining clearly that all territories under the erstwhile Maharaja of Kashmir before the signing of the Instrument of Accession to India, belonged to India and that it would aspire to regain all those territories. An abrogation of the special constitutional provisions for special status at that stage may have pegged India's claims more handsomely but those were tentative times in terms of India's strategic confidence to face the world and make its claim known in more aggressive terms. This was the second opportunity lost. With rare political consensus and two tall leaders such as Prime Minister Narasimha Rao and prominent member of the Opposition Atal Bihari Vajpayee coming together, abrogation of the constitutional constitutions may have been carried without a flutter in rest of India. 25 years later that moment came back but without political consensus, constraining the government to take extraordinary measures to maintain order and balance. Among these measures included the lockdown of the mobile internet and detention of mainstream political leaders including three former Chief Ministers.

The Decisions of 05 Aug 2019

How have the constitutional and administrative decisions of 5 Aug 2019 made their impact? These were difficult decisions taken with an element of calculated risk which faced the potential of mayhem, complete breakdown of public order and warnings of Kashmir's complete capitulation to Separatists. All this had been spoken of even by mainstream pro-India political leaders giving the government the handle to detain them and take extraordinary measures to maintain order and balance. Lesser informed opinion perceives the end of the so-called J&K problem—a triumphal attitude appears to exist post the decisions. However, the one thing which is absolutely clear is that conflict is likely to persist for some time, subdued violence will mark the change in environment and politics of J&K will never be the same again.

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Since the conflict in J&K is hybrid in nature with full proxy support, the easiest way to get a clearer understanding is to analyse the conflict transformation phenomenon. Hybrid or conventional conflicts are never static in nature. They move dynamically from the initiation to progression, stabilisation, termination and then resolution. While change from one state to the other is never seamless, a sudden step up or down, to or from a status with a distinct change in the functioning environment denotes 'conflict transformation'. It can promise a better or worse state of things in the security environment. The term 'security environment' in proxy hybrid conflict includes many facets of the non-military domain, hence its usefulness in overall assessment. A visit to conflict initiation and conflict progression stages in J&K may be useful.

Conflict Initiation and Progression

When Pakistan unleashed proxy hybrid war in 1989-90 it very well knew that the special status of J&K within the Indian Union could always be exploited to provide the Kashmiri segment a sense of being a part of a disputed entity whose interests were not served while remaining a part of India. While it assiduously worked on this, India continued to follow status quo with even some thoughts towards further enhanced autonomy as demanded by the National Conference, the most influential political party in J&K's then landscape.

At Conflict initiation stage India fought back through a strategy of counter infiltration and counter terrorism which only went as far as kinetic handling. Return to democracy in 1996 through elections was again a bold step and the

formal introduction of a Military Civic Action (MCA) in the form of Operation Sadbhavana formed the humanisation element of the conflict response by India. In 2001 the Army neutralised the maximum terrorists in the 30-year conflict. 2345 terrorists were gunned down. By contrast in 2018 only 271 terrorists were neutralised[1] confirming the degree of control that the Army had been able to establish with just 300 odd terrorists left in Kashmir and the Jammu division completely free off terror except transient elements who tried to make this the route for access into the Valley.

The extraordinary measures adopted with the construction of the LoC Fence in 2004 had a transformational effect in the military domain of infiltration, forcing Pakistan's deep state and the separatists to recalibrate their strategy from 2008 onwards bringing the battle to the streets and increasing efforts towards radicalisation besides exploiting the newly emerging domain of social media for influencing alienation. Yet Indian policy remained focused upon going the kinetic way targeting only the terrorists and remaining soft on the separatists, the Over Ground Workers (OGWs), the anti-national media, many government servants, the banking system which supported financial conduits for siphoning money and corruption besides supporting the terror networks and street agitators. In short, an entire eco-system functioned which was taken for granted even as the Indian Army and the police forces battled the terrorists. A terror based 'Proxy War Ecosystem' is the nexus of politics, media, and shady third sector organizations. It also includes NGOs, lawyers, academics, intellectuals and bankers.

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In 2013-14 another conflict transformation of sorts took place. The penetration of mobile internet facilitated better coordination and control by terrorists but also brought in better means of propaganda and influence. It led to the rise of a young terrorist brigade led by Burhan Wani and comprised locals. Once again, the kinetic route adopted by the security forces was accompanied by nothing else to counter the eco-system which time and again had restructured itself and helped calibrate the adversary strategy. The year 2016 was an important one. It started with the Pathankot attack, went on to the Uri terror attack and ended with Nagrota incident. It also saw the government take ownership of a surgical strike across the LoC in Sep 2016 which initiated a new muscularity in approach. "Operation All Out" was launched early in 2017 and a robust policy resulted in a fair clean up. What was missing in Indian strategy was the proverbial 'All of Government Approach', an essential aspect of counter hybrid war strategy. The information domain remained unaddressed, finances remained in the hands of the separatists and the rabid radicalisation continued unabated.

It was finally sometime in 2017 that the first strains of a new strategy started to emerge with the National Investigation Agency (NIA) going after the financial networks and dismantling much of them. The OGWs started to feel the heat; good times for the eco-system appeared to be coming to an end. Simultaneously New Delhi worked on finding the loopholes and legal infirmities and drew a plan for the second term of the National Democratic Alliance (NDA) Government, NDA 2.0.

The Ministry of Home Affairs (MHA) had reported to Parliament that in first six months of 2019 the situation in the state of J&K had witnessed improvement with terror related incidents seeing a 28% decline, infiltration reduced by 43%, local recruitment declined by 40% and neutralization of terrorists increased by 22%.[2] To a casual observer this should have been a time for celebration with deduction that the back of the resistance and the support from Pakistan had both been effectively neutralized. To an experienced practitioner it was time to analyse deeper to see what it would take to sustain the apparent stability achieved. The results were due to a combination of Operation All Out which commenced in 2017, and the focused targeting of parts of the eco-system.

The Impact of 5 Aug 2019

It should be clear to the reader that the decisions of 5 Aug 2019 were a form of conflict transformation and a path towards internal resolution and stability; it was not a final solution. The build up to the transformation had commenced in end of 2016. If the constitutional and administrative domains had not been addressed, this conflict transformation too would have ended up in only neutralizing terrorists and the situation would have awaited a fresh initiative from Pakistan and the separatists. So, what was different this time?

The long-awaited political initiative finally came but in an unexpected way. The special constitutional status was removed but Kashmir came under a lockdown which was temporarily necessary to cater to the anticipated violence; none took place. Without money and leadership, the internet under state control, and enough police in the streets the situation remained under control. Although distasteful, detentions took place as precautionary on the basis of past experience when Kashmir had seen major turbulence in the streets in 2008-10, deliberately instigated by exploiting triggers. Prominent leaders were detained primarily because no effort towards political consensus had been made; the state of politics in India had created undesirable schisms and the utterances of the Kashmir's mainstream political leaders were not helpful. The last time in 2016 use of pellet guns by the police led to several people being blinded drawing an international furore against alleged human rights violations; exactly what the separatists hoped for. This time with lessons well learnt, Kashmir was evacuated of tourists and other non-Kashmiris well before to avoid any reprisals which could have led to an unstoppable spiral against Kashmiris around the country jeopardizing all the gains of the decision taken by the government. No one wishes a lockdown of any part of the nation but when momentous decisions have to be taken which are incorrectly perceived by a segment of the populace there are few options but to exercise full precaution. Of course, this entire exercise could have been done differently in a different context; by a government campaign over several years, to explain the benefits of full integration without awkward conditions, to the people. That became impossible due to the ongoing proxy war sponsored by Pakistan and the disinformation campaign it so astutely played out through the Inter-Services Public Relations (ISPR). The risk of efforts towards consensus appeared to be perceived as potentially compromising on secrecy. The more important aspect is the post decision handling after 6-8 weeks, the permissible period for initial stabilization. However, over six months have passed without desirable outcome. It therefore needs to be examined afresh from the angle of international impact and diplomatic handling, internal security, situation on the LoC, governance, and attitude of the people who are rightly considered the centre of gravity of such a hybrid war.

When momentous decisions have to be taken which are incorrectly perceived by a segment of the populace there are few options but to exercise full precaution.

International Impact and Diplomatic Handling

The impact has been positive across the international community and even China although initially negatively disposed has chosen not to be excessively vociferous. Two attempts to raise the J&K issue at the United Nations Security Council (UNSC) have been transactional in nature to tick the box with Pakistan. India cannot take its undoubted diplomatic success for granted even after PM Narendra Modi scored high with the Middle Eastern nations, Saudi Arabia, Bahrain and UAE. The diplomatic pressure on Pakistan must be maintained relentlessly through not just diplomacy but by direct outreach to intellectual communities in other important countries, particularly in the Middle East, US, UK, the EU, Russia and ASEAN. Chinese President Xi Jinping has visited India in Oct 2019. He has been non-committal on China's future stance on J&K although India explained Pakistan's undue interference and India's clear-cut decision.

What India needs to be mindful about is there is no permanence in international support. Pakistan's diplomatic and information-based efforts have for a change come cropper but it has managed to throw up the J&K issue internationally even if it has not gained traction in support of its cause. Organised visits to Kashmir, of the EU political community and

Delhi based diplomats have not drawn visible positivity in the international media. For the right international messaging detainees need to be released and the political opposition must be taken into confidence and its visit permitted with due precaution. Some semblance of political activity must return through outreach programs on the lines recently witnessed with Delhi's political community's visit but this must include the opposition. The most important factor for projection of normalcy is the functioning of the mobile internet. Its nuisance potential also being high the same should be calibrated. Yet, nothing projects normalcy as the emanation of communication activity from a region; this must be kept in mind.

All the above is important for international perception and time is of importance. By middle of summer restiveness in Kashmir could be expected; the initiatives must precede this, anticipating adversary moves. The likely Organisation of Islamic Cooperation (OIC) meeting in Islamabad in Apr 2020 promised by Saudi Arabia to Pakistan as a sop for its non-attendance of the recent Kuala Lumpur Summit of Islamic countries organised by Malaysia and Turkey will include J&K as one of its main themes.[3]

It appears that Pakistan is focusing on issues well outside the ambit of the Shimla Agreement of 1972; it is also unofficially expressing opinion that the provisions of the Shimla Agreement no longer apply with the change in constitutional status of J&K. Its narrative is harping upon the UN Resolutions, plebiscite and alleged human rights violations while India continues to only justify the abrogation of the constitutional provisions without explaining its narrative about the Instrument of Accession of 26 Oct 1947, the overtaking of the UN Resolutions by Pakistan's resort to forcible wrest J&K and the Shimla Agreement which includes bilateralism and no mediation. The Indian narrative needs better packaging and its understanding by our missions abroad. India cannot ignore the opinion of the high-profile international media and just label it as anti-India. It has to do more to engage by having Indian and foreign writers and columnists write more extensively explaining the Indian narrative.

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Internal Security

In the field of internal security, it is yet early to predict the future. Threats to internal security are all based upon public perception, internal politics and instigation from Pakistan. Thus far peace has prevailed although no one can claim that normalcy exists; the absence of violence must never be considered as normalcy. The protest industry of Kashmir sponsored by Pakistan, directed by the separatist leaders and led in the streets by increasingly younger men and some women needs a system to be in place; it is not on auto mode. This same eco-system related to internal security had taken several years to create and extended down to the tehsil and even block levels. It included the universities, faculties of schools and colleges, media owners and prominent journalists, bank officials and hundreds of non-descript, low profile people working as Over Ground Workers (OGWs). The best example to understand this is the speed and alacrity with which the Baramula-Kupwara road can be closed to Army convoys running logistics to maintain the troops at the LoC. An accident, a small act of misdemeanour or even the killing of a high-profile terrorist could be used to stall movement and commence stone throwing for a couple of days. Efforts by security forces and agencies to neutralize the OGWs always seemed to come to naught. Thoughtfully, from 2017 this system was targeted by the government from Delhi and later directly under Governor's rule. It is too complex to be undone in a hurry and will need several years of professional effort to take it down.

It was not possible to achieve full neutralisation in the time available, but the separatists have been isolated and their hold over the system weakened. The test of this will emerge once normalcy is gradually introduced in greater

measure. However, indicators are already available. With clandestine financial networks dented, money may not find its way into hands of instigators; preventive detentions have reduced the nuisance potential on the streets. In the event of the government strategy not working, there are enough forces on ground to cater for contingencies; the outcome then will be unpredictable but the chances of that appear bleak. The government has displayed a level of confidence by withdrawing 10,000 armed policemen from Kashmir.

Internally the other threat is mainly from Improvised Explosive device (IEDs) because that is one domain where a determined terror module may sneak past all security and create havoc of very serious proportions; recalling Pulwama 2019 and the attack on the J&K Assembly in 2001. Although Pakistan may not find it favourable to its cause, a high-profile act by one of the proxy terror groups could be planned and executed. It calls for effective intelligence collection and dissemination at all times.

Effect at LoC

The LoC will be active in spurts. It has not reached any anticipated level of turbulence yet because Pakistan is on hold pending many external factors. Among them it is hopeful of the Financial Action Task Force (FATF) decision, U.S. dependence on it for continued talks with Taliban and expected tranches of the International Monetary Fund (IMF) loan. Usually around the time when the Pakistan PM or other representatives address the UN General Assembly, activity at the LoC is ratcheted to higher levels to project chances of war between two nuclear armed states. The LoC has witnessed exchanges of fire and ceasefire violations and infiltration attempts have gone up manifold. These are directly linked to the intent of increasing terrorist capability and numbers in Kashmir and to make up shortfalls in leadership. It is expected that some regular Pakistan Army cadres may also infiltrate to provide the elusive leadership particularly in North Kashmir which has been uncharacteristically quiet for some time. Infiltration of some terrorists through the Jammu Intelligence Bureau (IB) and their transportation is an ongoing phenomenon due to the degree of difficulty in infiltration through North Kashmir.

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It should be clear that Pakistan is in a temporary state of paralysis in options but that will not last long. Its capability to sponsor proxy war is very much alive and it is in the process of re-strategizing. Experimental aspects of the strategy will start to emerge by Apr 2020 or so. What will remain in its favour is the high degree of alienation among the people attenuated by our inability to effectively engage with the masses and the worldwide trends reflective of people's movements of the Arab Spring variety.

Governance

With administrative reorganization leading to Union Territory (UT) status for J&K it is expected that development through better governance will become an important driver for future narratives. More direct oversight on various projects will hopefully curb corrupt practices and ensure delivery of authorised funds to the right quarters. The large outlay of central assistance to J&K must continue and the impact of better governance through balanced allocations must be palpable across the UT. This by itself will make a major difference in perception and communicate India's strong desire to see prosperity in J&K.

To really qualify for a landmark decision the constitutional and administrative changes must deliver quality governance and that too in a very short time. A couple of things will be needed early enough and no one is rooting for restoring of the electoral process in that time frame. The confusion in the minds of the public must be addressed by a direct outreach; call it a hearts and minds approach but that terminology unfortunately draws cynicism from many who do not understand the larger strategic gains from such action. The return of Kashmiri Pandits must be discussed with

their leadership and ways of ensuring this in an environment of existing mistrust must be sought. The right environment will need to be created for their security with a mechanism to restore unsold but occupied properties.

One of the areas which can make a major impact is revamp of the bureaucracy. J&K needs a fresh, honest, motivated, committed, and efficient bureaucracy and the Centre must aid in this by progressively posting well experienced administrators to take over a part of the responsibilities of administration.

There will be clamour for more resources for Jammu as against Kashmir due to perceived inequity in allocations over years. The Lt Governor's administration must strongly desist from falling victim and must use his discretion to ensure a fair distribution of resources. Jammu perceives that it has suffered in the entire exercise of restructuring of the administration by remaining clubbed with Kashmir. To my mind this was the Government's finest decision because there is such intrinsic linkage between the two that eventual solutions to separatism could never be found if Kashmir had been separated as an administrative entity. It is Jammu which will provide many solutions to resolve the problem of separatism in J&K. This aspect must be recognized by the leadership and work on greater affinity between the sides of the Pir Panjal must begin in earnest.

Political Activity

It is far more sensible to focus on the full and final integration of the territories under India's control even while the pressure on Pakistan is maintained in relation to PoK.

It is important to restore political activity in J&K to involve the people and overcome the trauma of the perceived lockdown. This will prove to be the most challenging task ahead as it is yet to be determined how mainstream political parties are going to emerge from the events of this period. There is a perception that Panchayati Raj will step in to take the place of mainstream political activity, with more direct empowerment of the people. This remains only a hope because getting such activity off the ground is difficult to take place in a hurry. A level of rapprochement with mainstream political parties or the creation of alternatives is a must but both have their constraints. A period bereft of political activity may emerge akin to 1990-96 but without separatist politics being allowed to rule the roost. This is a domain where greater credibility will need to be garnered for better international endorsement. Electoral activity in the true sense appears some distance away. Therefore, an elected government taking charge anytime in the future seems unlikely.

PoK

There is much talk that the only pending issue of the J&K problem is the extension of India's control over PoK. While it is a good psychological tool to brow beat Pakistan with, the reality of this happening anytime soon is not evident. PoK technically includes Gilgit-Baltistan, a region not most effectively in Pakistan's control but of immense strategic importance to China due to the presence of the China Pakistan Economic Corridor (CPEC) and proximity to the Chinese territory of Xinjiang. For Pakistan all this extends into the domain of existential threats. It is far more sensible to focus on the full and final integration of the territories under India's control even while the pressure on Pakistan is maintained in relation to PoK.

The Hearts and Minds Game

The one aspect which security managers in India need to be concerned about is the enhancing alienation and angst evident in the population in Kashmir. There are false narratives that Kashmiris have all welcomed the new constitutional provisions and the administrative arrangement. While many assume (and it is not entirely wrong) that there is a silent groundswell of support for India, it is the element which is alienated which rules the roost. In this regard it may be advisable to extend the Indian Army's Military Civic Action (MCA) project, Operation Sadbhavana to a much higher level of engagement of the public at the strategic level. The MCA project is an essential part of any counter insurgency

campaign and has achieved some impact. Involvement of the full government machinery in a typical counter hybrid proxy war campaign, with an 'all of government' approach may be the answer; the concept will need much larger think through.

Information and Influence Operations: Enhancing Effectiveness of Communication Strategy

This remains India's critical weakness and needs a transformational approach to overcome the disadvantage it suffers for insufficiency of focus towards it. It needs a structured approach and J&K can be the first of the domains to be addressed by a body which must be set up by the Centre. It cannot be the responsibility of different organizations such as the Army, intelligence agencies or civil bureaucracy, all doing their own. It needs expertise, structure, academic back up, funding and a strategy vetted at the highest level. The idea should be to secure the population from false propaganda and fake news and inculcate in subsequent generations of Kashmiris a love for India, through powerful counter narratives. Civilian information warriors under supervision of the Army, police and intelligence agencies must be the executors of this strategy.

Conclusion

Having faced proxy war for 30 years there is no doubt that India will yet continue to suffer the same for some more time. The realization of the mistakes of the past, of having only addressed the military aspects of hybrid war is dawning on the Indian strategic community. The targeting of the terror eco-system in J&K has paid initial dividends but there is much more to be done. Accompanying the kinetic measures have to be soft power measures to redress the perceived grievances that the Kashmiris have against the nation. This will have to be a long-drawn effort which will suffer setbacks due to Pakistani intransigence. A lot will depend upon what the Kashmiris view as favourable to them in the new emerging India and how conversations are made with them. Finally, there is a need for a strategy to integrate J&K—an upfront strategy—which must be secured against any political manoeuvring. The intent must be clear; J&K must be better integrated with India through the political, social, economic and psychological domains.

End Notes

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National Security in the North Eastern Region in the Aftermath of the NRC Update

Shri Jitesh Khosla, IAS (Retd)@

Abstract

Due to ever changing pattern of geo-strategic interests, North Eastern India is an area of vital importance in so far as national security issues are concerned. The region has suffered external aggression as well as insurgency, separatist movements and terrorism for past several decades. In this milieu, the updation of the National Register of Citizens (NRC) in Assam as well as enactment of the Citizenship Amendment Act, (CAA) 2019 would have national security implications which need to be carefully analyzed and understood. National security strategy needs to combine both internal and external threat perceptions.

National Security in the North East: The Backdrop

Ever since India became independent, the North Eastern Region (NE Region) of the country has been affected by external aggression as well as by separatist movements, violent insurgencies, inter-ethic and communal conflict and mass agitations aimed at defending regional and cultural identity. The internal developments have also defined politics of the region, with frequent re-organization and creation of new states to recognize identity-based claims. Various conflicts and uprisings in the NE Region have also required frequent interventions by the Armed Forces of the country, including large scale deployments over extended periods of time. On several occasions the Army had to actively use force to counter violent militancy or to uncover and destroy insurgent camps.

Consequently, the internal security situation in the NE Region, results in a disruptive system that causes additional burden on the Armed Forces who also have to defend the sensitive national borders surrounding the region against external military threats. The region was a major theatre of war with China in 1962. Apart from military threat, the border between India and China, referred to as the Line of Actual Control (LAC) north of Arunachal Pradesh, stretches across 900 km of extremely high altitude terrain of the Himalayas, and has to be guarded under the shadow of an unsettled alignment and claims over Indian Territory in Arunachal Pradesh by China. The current LAC alignment is also prone to occasional incursions by the Chinese Military. Borders with Bangladesh and Myanmar are no less sensitive, though for a different reasons. Both countries have in the past acted as launching pads and sanctuaries for armed insurgents operating in the North East. To top it all, the entire region is isolated from the rest of the country and is connected to it through a very narrow and vulnerable Siliguri Corridor.

@ *Shri Jitesh Khosla,* an officer of the 1979 batch of IAS (Assam-Meghalaya Cadre) retired as Chief Secretary, Assam in 2015. From the Anti-Foreigners Agitation in the late 70's and 80', Mr Khosla has been actively engaged in law and order related issues and has dealt closely with militancy, insurgency and terrorism in the North East. He has also held several assignments both in the Central and State Governments covering 'Infrastructure Development, Corporate and Economic Affairs'. Post retirement he is actively engaged on the security issues in the North East. Mr. Khosla is a recipient of the Prime Minister's Award for Excellence in Administration and the National Award for e-Governance 2007-2008 among others.

Disruptive Trends:

- **Separatism:** NE Region has witnessed separatist movements from time to time, starting with the demand for an independent Nagaland in the 1950s. This was followed by similar demands in Mizoram in the 1960s, in Manipur and Assam in the 1980s through 1990s. Over a period of time, through various peace accords, political accommodation through creation of separate states and continuing dialogue, these demands have been assuaged considerably. While separatist movements are at low ebb at present, they are not completely extinguished, particularly in Nagaland and Manipur, where a large number of heavily armed militants still constitute the 'Underground'. Similarly, some separatist militants from Assam are yet to join the national mainstream. An abiding feature of the NE Region has been that unrequited political aspirations easily spiral into separatist demands, fed by support, including supply of dangerous arms and ammunition from across the borders.

- **Inter - Ethnic Fault Lines:** The internal security situation is made more complex by existence of inter-ethnic fault lines that spread over all NE States. These often result in violent conflict amongst tribal groups as also between tribal and non-tribal population—sometimes practically resulting in 'ethnic cleansing' over large areas. These conflicts seem to be impervious to dialogues and political re-organization that has resulted in NE Region being fragmented into small states and autonomous district councils. The local police forces are often overwhelmed by the armed violence so caused, requiring frequent army interventions. These conflicts, however, feed a continuous stream of youth into extremism and sometimes, insurgency.

- **Immigration**: The issue of illegal immigrants has been a major disruptive element in the internal security situation in the NE Region for past several decades. This was the main cause of the Anti-Foreigners Agitation in Assam of the 1980s. Traditionally there have been apprehensions in the minds of indigenous population groups in all NE States of being outnumbered, losing political power to outsiders and their cultural identity being extinguished. The large scale movement of people following the Partition and thereafter creation of Bangladesh has resulted in very visible demographic changes over a comparatively short period.

The issue of illegal immigrants has been a major disruptive element in the internal security situation in the NE Region for past several decades. This was the main cause of the Anti-Foreigners Agitation in Assam of the 1980s. Traditionally there have been apprehensions in the minds of indigenous population groups in all NE States of being outnumbered, losing political power to outsiders and their cultural identity being extinguished.

The Anti-Foreigners Agitation of the 1980s in Assam resulted in the Assam Accord of 1985. However, the problem lingered on. In 2013, the Supreme Court ordered updating the NRC of 1951 through a Supreme Court monitored process. This exercise was completed in 2019 and was followed by the CAA, 2019. This, however, has been viewed in some quarters as a dilution of the Assam Accord and has rekindled the fears that sparked off the Anti-Foreigners Movement in the first place. The reaction in Assam may also have a knock-on effect on other states of NE who may be apprehensive about non- indigenous population from other states or countries spilling over to their territory. In the circumstances, public dissatisfaction and unrest is likely to linger on in the NE on this account.

Security Factors in the Aftermath of NRC/CAB

The national security strategy has to take into account both internal and external dimensions of the situation in the region at all times. In the current context, while the external situation would be determined by the emerging geo-political trends in South and South East Asia due to economic expansion by China, the critical factors that would determine

the overall internal environment for security are the governance mechanisms and institutions that would deal with the situation post NRC and future immigration. Some of these factors are as below:

The NRC Update

NRC update was made possible in Assam as that state had compiled this Register in 1951. Yet the recent updation process, though closely supervised by the Supreme Court and conducted with great thoroughness using modern technology, was costly and caused considerable distress amongst the people. At the end of the exercise, 19 lakh people remain excluded from the NRC due to lack of evidence as to their citizenship. Even with the conclusion of this process, the question of how to deal with illegal immigration into the NE is not answered. Meanwhile the Central Government has enacted the CAA, 2019, establishing different criteria for according citizenship to people of various religions and hailing from certain specified countries including Bangladesh. Its implications along ethnic and linguistic fault lines in the NE are yet to unfold. In the times to come the manner in which governance is conducted in the NE states will have a critical impact on public response and consequently on public order.

- **The Outcome of the NRC Update -** The intensive NRC update process put the entire population of the State to the test of proving their citizenship individually. Although the process was closely monitored by the Apex Court, it has been criticized in some political quarters as being faulty or inadequate. The issue now is whether there would be finality to the recently concluded exercise or whether it would continue as an open-ended campaign that would eventually target certain linguistic and religious minorities. The latter scenario would have potential for aggravated future conflict on communal, ethnic and linguistic lines.

If the country of origin does not speedily take back illegal immigrants, detention arrangements to house identified deportees would become necessary. If deportation is delayed, detaining large number of people in detention centers for a long time is likely to create ethnic, communal and social tensions apart from humanitarian issues and costs. The detention centers could also become breeding ground for insurgency and terrorism.

- **The Deportation Process -** People whose names are not in the recently updated (or future) NRC are to be adjudged by the Foreigners Tribunals (FTs), and if found to be illegal immigrants, they are to be deported to their country of origin. Large scale return of illegal immigrants may require a comprehensive deportation agreement. In the NE Region illegal Immigrants are largely presumed to be from Bangladesh and any such pushback could stoke fundamentalist and anti-India sentiment in that country. An agreement with Bangladesh on this matter is likely to be a very complex task. On the other hand, in the absence of such an agreement, India would be faced with the problem of dealing with a large number of stateless persons indefinitely.

- **Managing Detention -** If the country of origin does not speedily take back illegal immigrants, detention arrangements to house identified deportees would become necessary. If deportation is delayed, detaining large number of people in detention centers for a long time is likely to create ethnic, communal and social tensions apart from humanitarian issues and costs. The detention centers could also become breeding ground for insurgency and terrorism. Starting in 2004, Assam now has six detention camps for housing illegal foreign immigrants in Goalpara, Kokrajhar, Silchar, Dibrugarh, Jorhat and Tezpur pending disposal of these cases. There are plans to build more. The conditions in these detention centers have attracted adverse reactions in many quarters. Therefore, to avoid these centers from becoming festering sores, in addition to speedy disposal of cases, proper and humane administration of these detention camps by the central/state administration is essential.

- **The Foreigners Tribunals (FTs) -** The credibility of the institutions involved in identification of foreigners

and adjudication over their claims would have a significant bearing on public reaction to the process. As NRC is an enumeration and verification exercise only, non-inclusion in the NRC would not take away the right of any person to the due process of law before he/she is adjudged a foreigner and deported. In this context, the process of adjudication followed in the FTs has to ensure that there is no arbitrariness in deciding the citizenship of any person. Currently there are 100 (FTs) functioning in Assam. There however, are concerns relating to their manning by qualified personnel, inadequacy of infrastructure and anomalies in the processes followed. Consequently, handling of the cases by the FT in Assam has also attracted considerable criticism. This will have to be rectified to avoid loss of credibility of Indian judicial processes.

- **The Border Police Organisation -** Currently, there is an absence of a specialized immigration service. The Assam police border organisation, set up for detection and deportation of illegal immigrants, is inadequately trained and equipped to undertake this complex task. Other NE states do not have equivalent infrastructure or organisation. The process of identification of illegal immigrants has been prone to several mistakes, which if they persist, could shake the faith of the public and create conditions for unrest.

- **Guarding the border against illegal migrants -** The Indo–Bangladesh Border is 4156 km long and stretches over fields, waste lands, wooded and riverine areas and is guarded by the Border Security Force (BSF). A decision was taken to fence the entire border. This is a work in process. However due to linguistic, religious and ethnic contiguity on both sides, ongoing border trade between the two countries and interdependence of border areas upon each other, movement across the border cannot be entirely controlled. In the past this led to exchanges of fire between BSF and Bangladesh Rifles (BR). The situation improved with friendly relations between the Governments of India and Bangladesh but could change if the public opinion or political complexion in Bangladesh changes. In any case, guarding the border will remain a difficult and costly exercise, requiring significant deployment of BSF. The Indo Myanmar Border is 1643 Km long and stretches over even more difficult terrain. This has been entrusted to the Assam Rifles. In addition to providing sanctuary to insurgents from the NE, Myanmar is faced with ethnic crises of its own, resulting in displacement of a million Rohingias who are currently sheltered in Bangladesh. The possibility of their spreading out into the NE cannot be ruled out.

Currently, there is an absence of a specialized immigration service. The Assam police border organization, set up for detection and deportation of illegal immigrants, is inadequately trained and equipped to undertake this complex task. Other NE states do not have equivalent infrastructure or organization. The process of identification of illegal immigrants has been prone to several mistakes, which if they persist, could shake the faith of the public and create conditions for unrest.

- **Public Order and Internal Security -** The aftermath of the completion of the NRC process and the passage of the CAA 2019 sparked off protests in Assam. The response from the hill states surrounding Assam, namely Arunachal Pradesh, Nagaland, Mizoram, Meghalaya and Manipur is equally guided by fear of the influx by "outsiders". To ensure that the local populations in these states are not swamped by influx of outsiders, resort is being made to the 'Inner Line Permit Mechanism'. This restriction was introduced during colonial period through the "Bengal Eastern Frontier Regulations of 1873", and is sought to be strengthened in Arunachal, Nagaland and Mizoram, where it is already in force and may be applied to Meghalaya and Manipur as well. However, these restrictions would equally apply to all Indian citizens and may have an adverse impact on the integration of these states and their populations with the rest of the country.

Planning for National Security:

Evaluating the national security challenge would require a 360 degree vision, combining internal and external security threats. Practically, while planning for national security, it is always prudent to plan for the worst-case scenario. The following factors would, therefore, be relevant:

- **A Disaffected Underclass -** One of the long-term consequences of distortions and inadequacies of governance in handling the issue of illegal immigration and consequent restrictions to protect identity of local populations could be the emergence of an underclass comprising of religious, ethnic or linguistic minorities, that would be deprived of benefits of state programs or economic opportunity in a growing India. Such population would have little interest in upholding the law or even public order. Chances are that this section would rely on extra-legal activities for survival, making governance difficult and the region insecure.

- **Disruption of Public Order -** In the short run, the NE Region may have to deal with re-emergence of mass protests and public agitation with disruption of transport and communications in the region (road/rail/air/telecom connectivity/internet etc.) It could also intensify social and communal tensions and conflict. Further, identity based exclusion from various rights may have adverse effect on the immensely varied mosaic of communities and tribal groups spread out all over the NE, creating new conflicts.

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- **Extremist Influence -** The disruption of orderly civil life and consequent economic loss could also create a large body of idle youth open to extremist/terrorist influence. As such, NE Region, surrounded on all sides by foreign countries, whose attitude towards India may not always be friendly, could become prone to extremist/separatist activity again.

- **Impact of Continued Engagement of Armed Forces on Internal Security -** Easy access to arms and ammunition in the NE Region could create several situations where the local populations are influenced / terrorized by armed separatist cadres and the state police are out-gunned. In such cases, army deployment is likely to be more frequent, forcing deployment of personnel and equipment away from the task of protection of the country's borders, particularly with China. Frequent, or long army deployment, on internal security duties would be detrimental to the discipline, training and preparedness of the armed forces for actual combat. More significantly, the Armed forces would be forced to operate through a hostile public environment and be deprived of the security of a united and committed civilian population at the back. This could entail diverting manpower to guard vital installations as well as for maintaining lines of supply and logistics:

- **Chicken's Neck and Lines of Supply into the North East -** For the NE Region, the "Chicken's Neck" Siliguri Corridor is critical to support army deployment or operations. With enhanced threat to the Siliguri Corridor due to Chinese military presence in Doklam plateau, any disruption of lines of supply due to internal disturbance would be seriously detrimental to military operations. Arrangements will have to be made to prevent disruption of the lines of transport and communication that may follow unpredictable and violent disruptions in public order. The local police forces may often have to be bolstered by involvement of the Armed Forces in this task.

External Environment

It is well recognized that friendly relationship with the current Government in Bangladesh has resulted in a significant check on separatist/extremist activity and has contributed to peace in the NE region. Today Bangladesh is no longer a hotbed of Pakistani intelligence activities aimed at training and equipping extremists and fostering terrorism in the NE. However, Bangladesh is also subject to fundamentalist influences with a decidedly anti India rhetoric. It is matter of conjecture as to how long targeting of people of Bangladeshi origin on religious lines can go on without a backlash in Bangladesh. A change in the political climate in Bangladesh can have drastic security implications for the entire North East.

The Geo-Political Scenario

Meanwhile, in South East (SE) Asia, the Indian initiative of Look East, Act East has seen a temporarily setback due to India not joining the Regional Comprehensive Economic Cooperation (RCEP). In context of the future engagement with SE Asia, the gateway provided by the NE Region would be critical. Disruption of public order and security in the NE would result in India remaining a marginal player in SE Asia. Again, while India's trade with China has been growing, the growing influence of China in Bangladesh and Myanmar, increasing presence of Chinese Navy in the Indian Ocean with securing of port facilities in both countries, construction of roads from Yunnan (China) across the length and breadth of Myanmar and continued pressure across the Arunachal Border needs to be factored into the overall security scenario in the NE. It is noteworthy that China continues to provide sanctuary to certain factions of insurgents from some NE States and supports certain armed factions of insurgents in Myanmar as well.

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National Security and Regional Dynamics

Disturbed conditions in the NE would divert resources from the economic development of the region to maintaining internal security. It would also make it possible for a hostile power to engage the country in a costly and debilitating "hybrid War", short of open armed attack, disturb the focus and attention of the Indian State and impair the capacity of the armed forces against external aggression and scatter deployment of personnel and equipment.

In view of disputes concerning the NE border, Chinese jostling for positions of advantage along the border through intrusions, building of defence infrastructure threatening national borders or outright encroachment/ occupation of strategic salient and geographical features cannot be ruled out. Situations may be engineered that lead to loss of dominance over sensitive territory or cause military embarrassments for the country.

Diplomatic efforts, necessary to ensure an external environment conducive to national security, have often proved to be an inadequate substitute for an effectively defended border. This would require high degree of preparedness and training on the part of the armed forces. A disturbed environment in the NE with long exposure to civilian unrest can undermine the credibility of governance, retard economic development of the region, increase the cost of, or degrade the efficacy of the armed forces in taking on military adversaries armed with modern technology and equipment in difficult border terrains.

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India's Cyber Security Threats and Responses

*Lt Gen (Dr) SP Kochhar, AVSM**, SM, VSM@*

Abstract

The paper starts with a brief introduction to emergence of Cyber, and records reasons for its increasing prominence over the years. It then looks at the increasing threat in this area with special reference to Make in India, Digital India and Start up India. It goes on to outline the emerging trends in Cyberspace and Cyber Security in the wake of New Age technologies like Internet of Things (IoT) and Artificial Intelligence (AI) bringing in concepts of behavioural biometrics and utilization both by the White and Black teams. Interestingly, a mention is made of the non-technical measures undertaken by various Governments to augment its Cyber Security. With the above as a background the paper goes on to examine the pecking order of India in various cyber security reports — implying that a lot of work needs to be done. It then goes on to examine the status of Pakistan and China in this regard. There is more focus on China and China-Pak cooperation which is likely to be used against India. Having set the stage for an in-depth examination of India in respect of Cyber Security preparedness, the paper examines the needs and work done/ recommended to be done under heads of Strategy & Policy, Organisations, Social & Legal aspects. Thereafter, the all-important aspect of a suitably trained pool of manpower required, problems of devices & testing of foreign make equipment and a brief examination with suggestions on the recently announced Cyber Agency are covered. The next section covers the projected growth and livelihood opportunities in this sector. The paper concludes with the work ahead in line with the Hon'ble Prime Minister's vision.

Introduction

Cyber security has seen an increasing focus ever since the internet made its debut in the mid-eighties and increasingly business and governance activities started gravitating to the network of networks. This transition not only opened a lot of opportunities but also attracted entities that started exploiting this trend. However, till recently, the threats were generally known, and hence cyber defence evolved in the wake of identified threats. This gradual increase in opportunities and vulnerabilities took a quantum jump with the marriage of Telecom with Information Technology (IT) networks resulting in Information and Communication (ICT) solutions. Another jump came with addition of Electronics and Cyber dimensions leading to the acronym ICTEC, defining the emerging enabling yet disruptive industry. The complex situation caused due to unpredictable permutations and combinations of the constituents, gave rise to adoption of this dimension not only by criminals but also by nations and non-state actors to take forward their strategies and aims in a quicker time frame and over large borderless geographies.

Cyber is an enormous domain, and adversaries, friends and bad / good guys are all competing in the cyber space for exchange of information, to understand the adversary and get intelligence and data. The competition is also to put together a picture of what the threat is, using newer tools like Automatic Exploit Generation. In short, cyberspace

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@ *Lt Gen (Dr) SP Kochhar AVSM**, SM, VSM (Retd)* is a former Signal Officer in Chief and former CEO of Telecom Sector Skill Council. He has also served as Additional DG Personnel Services where he brought in a lot of far reaching cadre reforms. He is M Tech from IIT Delhi, a PhD, has two MPhils, and has had an exposure to Higher Education management both during service and post retirement in 2013. Known for an innovative mind and approach while in service and thereafter, he was awarded the Kalam Innovation Award in 2018.

is expanding, data flows are increasing, dark net continues unabated, exploiters are increasing and there is a perpetual shortage of cyber security professionals.

Cyber Space and Threats

Cyber space today is a collection of applications, Cloud, computer systems, connected devices, control systems, data, embedded systems, operating systems, hardware, hardware and software defined components, interdependent networks, ICT infrastructure, Skin Ware, software solutions, Telecom networks and devices, Users, Virtual Machines and more. This is further complicated by merger of wired / wireless networks and 'Social Networks'. Government, military organisations and businesses create, transmit, store, process and use significant volumes of data, thereby increasing their exposure to cyber threats. Data is proliferating in devices, datacentres and our homes. The growth in this sphere continues and increasingly data will be lethal ammunition fired from ICTEC platforms to achieve dominance. The Military is no exception — except for nomenclature, security implementation and data storage — and both civil and military are in interconnected boats.

Militaries, civil society and individuals currently face prominent, emerging and resurgent cybersecurity risks and threats which are increasing day by day. While organizations are using Internet of Things (IOT), machine learning and AI to improve their interests, so are the threat actors which pose a serious threat to national initiatives such as Smart Cities, E-Governance and digital public identity management. The same technologies that improve defences will also likely be used to attack them. In addition, the perpetuators employ targeted social media campaigns, sophisticated forgeries, cyber bullying and harassment of individuals, distribution of rumours and conspiracy theories, and other tools to cause damage to the target state and individuals. These emerging tools and techniques represent a potentially significant threat.

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Interestingly, while many threats emerge from components and systems and one would think that security would be organically built in into these systems; this is far from the truth. Business and profit motives relegate security to the cupboard. For example, Drone manufacturers are in a race right now to create the "GoPro" of the drone industry, the product that defines the entire market, and in this race security most likely will be an afterthought. Increasingly, security spend will shift from infrastructure to the application and security organizations will move towards perimeter-less security, thus changing how they allocate their budgets.

In India, Government schemes such as 'Make in India', 'Start-Up India' and 'Digital India' supplement the growth of Cyber Security market in India. The average data consumption per person a year is in the range of 15-20 gigabits. The digital economy today comprises 14-15 percent of India's total economy and is targeted to reach 20 percent by 2024. Attacks on embedded systems and IOT have registered a sharp increase of late. The growth rate in data generation is more than 35 percent. With more inclusion of AI, Machine Learning (ML), data analytics, cloud computing and IOT, cyberspace will become a complex domain, giving rise to issues of a techno-legal nature.

An expanding market like India increases the vulnerability of users thus giving rise to a new cybercrime economy where hostile state actors and organized criminal groups are converging for mutual benefits. In addition, states are rapidly developing offensive capabilities. Thus, the threat of cyber weapons becoming a major ingredient in warfare is increasing. Newer targets like Identity data / Big Data hosting companies, digital certificate providers, GPS positioning, navigation, and timing are emerging.

New Trends

AI-based analysis of behavioural biometric data will be the next major trend in cyber security and data protection. Emerging sophisticated machine learning algorithms are such that can build up a profile of a user's typical behaviour, identify unusual patterns of activity and highlight potential threats in real-time, before they have a chance to materialize. There will be a meaningful move towards predictive rather than reactive security.

FORBES has predicted that IoT vulnerabilities will get more critical and dangerous resulting in spectacular data breaches. This demographic and psychographic metadata will enable advanced spear-phishing operations against critical infrastructure executives and pervasive Influence Operations against populations. India will see adversaries using Big Data algorithms powered by machine-learning and artificial intelligence on stolen metadata in precision targeting of demographic and psychographic targets.

IoT and AI will be a new tool in the hands of both attackers and defenders and there will be a persistent cybersecurity skills shortage. False narratives will be used to generate fake news, inflate partisan debates, and undermine democratic institutions. They will launch multi-vector Distributed Denial of Service (DDoS), ransomware, and malware campaigns to impede defence, critical infrastructure cyber security and national security.

Countries, including India, have now started taking additional non-technical measures like data sovereignty, data localisation, internet governance, handling fake news and using international law as part of the cyber security suite. The change in military doctrines favouring the need to raise cyber commands reflects a shift in strategies, which include building deterrence in cyberspace. In India, the private sector has started playing a significant role in operating critical information infrastructure, particularly in power, transportation and healthcare.

India is among the top three countries in the world after the U.S. and China when it comes to phishing and malware attacks, and a Data Security Council of India (DSCI) report says that India has been the second most targeted cyber-attacked country between 2016 and 2018. Overall, when it comes to cybersecurity India bagged the 15th position; Bangladesh is placed at 6th position. Pakistan stands at 7th, China is 13th and Sri Lanka is placed at 14th position. Japan is at number 1.

Neighbourhood

According to Symantec, India is among the top three countries in the world after the U.S. and China when it comes to phishing and malware attacks, and a Data Security Council of India (DSCI) report says that India has been the second most targeted cyber-attacked country between 2016 and 2018. Overall, when it comes to cybersecurity India bagged the 15th position; Bangladesh is placed at 6th position. Pakistan stands at 7th, China is 13th and Sri Lanka is placed at 14th position. Japan is at number 1. The larger issue here is whether India is prepared for cyber-attacks which are increasingly seen as the fifth dimension in warfare after air, water, land and space. The threat level is high and there is a need to examine our neighbourhood threats and our own response capability enhancements in the offing, as available in open domain.

Pakistan

Cyber-attacks emerging from Pakistan are carried out by PatrIo Tic Hack activists and by Advanced Persistent Threats (APTs). Both are believed to be acting in conjunction with the state and have been involved in cyberespionage campaigns with open source malware delivered through spear phishing emails and/or watering hole attacks. So far, these are attention grabbing activities and hence not very significant.

China

The important points that need to be kept in mind are:

- China aims to become a super power in cyberspace. China's cyber policy against India could undermine the country's conventional power in a future military conflict.
- Technology development in the fields of artificial intelligence, robotics, quantum computing and ICT, is central to China's economic and security goals.
- The government has created new institutions, laws, and policies to manage hardware, software, data flows, and information within its borders in ways that will transform the landscape.
- Chinese networks are effectively closed networks and hence resilient to penetration.
- China has over 802 million internet users (highest in the world), including 788 million (98 percent) mobile users,
- An unprecedented 35 percent of cyber-attacks against India were attributed to China.
- A hacker group APT30 (Advanced Persistent Threat), has been attacking critical information infrastructure in India for almost a decade now and is allegedly connected to Chinese government entities.
- The hackers developed more than 200 versions of malware and were even capable of intruding highly secured air-gapped networks to steal data. This leads India to the learning that cybersecurity without privacy is a thing of the past.

Targeting India was to gain access to sensitive information from the government and the private sector and to disrupt daily activities. Traditional rivalry, India's concerns about the sea, its closer military cooperation with U.S. and Japan and desire to be a regional power may have upped the ante.

China's Cyber Threat

China's cyber warfare began in 1997 against the United States and Russia but is now used to target others including India. Between 2010 and 2018, malicious Trojans were used in cyber-attacks. Targeting India was to gain access to sensitive information from the government and the private sector and to disrupt daily activities. Traditional rivalry, India's concerns about the sea, its closer military cooperation with U.S. and Japan and desire to be a regional power may have upped the ante.

China-Pak Cooperation

The points in respect of these two "all weather friends' are given below:

- The China and Pak model is based on cyber sovereignty.
- Both countries have agreed to bridge the cyberspace development gaps.
- As part of this, an 820 km long cross-border Optical Fiber Cable (OFC) network from Rawalpindi to Khunjerab, constructed at a cost of USD 44 million[1] became commercial in February 2019.
- Another optical fiber network from Sukkur to Gwadar is on the cards.
- Safe City Projects were completed in Lahore and Islamabad in collaboration with Huawei and will be soon started in Karachi, Peshawar, Quetta and Gwadar.
- Pakistan`s "National Data Centre" established with Huawei is operational.

- Another gigantic data centre will be completed in 2020.
- Enhancement of Pakistan`s ICT HR through exchange programs is another core area of cybersecurity cooperation. Memorandum of Understanding (MoU) was signed between the National University of Sciences and Technology (NUST) and the Beihang University for the establishment of advance Cybersecurity Research Centre (CSRC) at NUST in January 2019 for research and development of cyberspace.

India — Cyber Scenario

Cyber-attacks from China made up 35 percent of the total number of cyber-attacks on official Indian websites, followed by U.S. (17 percent), Russia (15 percent), Pakistan (9 percent), Canada (7 percent) and Germany (5 percent). Such attacks, however, have not generated any catastrophic impact or caused any casualties. This maybe one reason, that India's response has been one of restraint. The other reason possibly is a lack of a credible offensive cyber capability that it could use as a deterrent and the fact that a conventional response with its attendant costs and risks may not be justified or in its national interests. However, there may be a coordinated and cooperative use of cyber space and social media by the China-Pak nexus against India. India may witness a future cyber war scenario in which web-based weapons are integrated into conventional armories to achieve the perfect fifth dimension of warfare.

The main ingredients for cyber exploitation — Data, Networks, ICTEC components and humans — straddle the three organs of government. These are the Judiciary, the Legislature and the Executive. In addition, Defence and all other sectors as well as private entities are also vulnerable are also dependent upon them. Hence, the underlying substrate to mitigate these challenges will have to be common to a large extent, with specific enhancements for a particular sector. The succeeding paragraphs examine some critical focus areas

India has a tech neutral Cyber Policy document dated 2013 which needs to be updated. It is necessary to lay down the National Cyber Security strategy in a brief document and then expand it into a detailed implementable policy at the national level. The recent step of formulating a cyber strategy followed by a cyber security policy by 2020 at the central level is a welcome step in the right direction. Hopefully, these documents will factor in the Social, Legal and Technical environments to strike a right balance between Data Sovereignty, Data Privacy and right of the state to intervene for defined national interest issues.

Strategy and Policy

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Thereafter, the onus is on the individual States to take up initiatives, drive on-ground implementation and ensure that a safe cyber space is created in the local environment.

Legal / Social Aspects

The current cyber-security framework falls in the concurrent list and is not centralized. There is also a lack of awareness about cyber laws and regulations at both corporate and individual levels. An exercise must be undertaken to periodically revisit, update and consolidate the various Acts of Law, including IT Act 2008, governing all components of ICTEC and to have effective dissemination of the same. Cross training of the three arms of Government is essential.

Organizational

The plethora of organizations dealing with Cyber is mind boggling and leads to confusion and hence greater vulnerabilities. Some of these organizations are listed below.

PM Office/Cabinet Secretary (PMO/CAB Sec)

- National Security Council (NSC)
- National Technical Research Org (NTRO)
- National Critical Info Infrastructure Protection Centre (NCIIPC)
- Joint Intelligence Bureau
- National Crisis Management Committee (NCMC)
- Research & Analysis Wing (RAW)
- National Information Board (NIB)

Ministry of Home Affairs (MHA)

- National Cyber Co-ord Centre (NCCC)
- Directorate of Forensic Science (DFS)
- National Disaster Management Authority (NDMA)
- Central Forensic Science Lab (CFSLs)
- Intelligence Bureau (IB)

Ministry of Defence (MOD)

- Military Intelligence, Naval Intelligence & Air Force Intelligence
- Tri Service Cyber Agency
- Defence Information Assurance & Research Agency (DIARA)
- Defence Intelligence Agency (DIA)
- Defence Research &Development Organisation (DRDO)

Ministry of Communication Information Technology (MoCIT)

- Department of Information Technology (DIT)
- Department of Telecommunication (DOT)
- **Indian** Computer Emergency Response Team (**CERT**-In)
- Educational Research Network (ERNET)
- Informatics Center (NIC)

- Centre for Development of Advanced Computing C-DAC
- Standardisation, Testing and Quality Certification (STQC)

Non Govt Organization (NGO)

- Cyber Security and Anti Hacking Organisation (CSAHO)
- Cyber Society of India (CySI)
- Centre of Excellence for Cyber Security Research & Development in India (CECSRDI)
- Computer Society of India (CSI)
- National Cyber Security of India (NCS)
- Cyber Attacks Crisis Management Plan of India (CACMP)
- NASSCOM

Quite succinctly, there is a need for a technically equipped and empowered central multi-agency organization to respond to threats. However, currently there is no national security architecture that unifies many existing distributed efforts. The recent resolve of the Government to set up a unified Cyber Security Authority with teeth is a welcome step. There may also be a need for a Cyber Regulator to be put in place as there is no national regulatory policy in place on Cyber Security.

Shortage of Trained Workforce

Even though India has a young workforce, there is a dearth of skilled manpower in Cyber Security and New Age Technologies. India must develop expertise in the sector and apply its resources efficiently. The Governments effort for skilling cross domain personnel in Cyber Security and New age Technologies through a Public Private Partnership (PPP) between Ministry of Skill Development, Ministry of IT and National Association of Software and Services Companies (NASSCOM) utilizing a common appropriately funded portal, is a good step and must be gainfully utilized.

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Devices

India ranks 3rd in terms of the highest number of internet users in the world after USA and China, and the number has grown six-fold between 2012–2018 with a compound annual growth rate of 44 percent. Internet usage has exceeded half a billion people for first time, pegged at 566 million and is set to reach 627 million in 2019. In India 97 percent of users use mobile phone as one of the devices to access internet. Hence it is appropriate to say that the most favoured and used interface for internet and Web access in India is the mobile phone. However, with varying income groups in India, not everyone can afford sophisticated phones and less than 1 percent of mobile phone users have access to mobile phones with higher security norms. This needs to be corrected through innovation and cooperation between businesses, government and research institutes to build new products through R & D collaborations, entrepreneurship and domestic manufacturing which conforms to security norms.

Embedded Threat in Foreign Make Devices and Software

The mandated testing of any foreign make components and software coming into India primarily undergoes 'Specification and Penetration' testing in approved laboratories, which lack state of art capabilities and capacities which need to be built up. Possibly an aspect that needs to be added is innovatively developing a capability of testing for deliberately embedded hardwired and software vulnerabilities which may reside inside the hardware or software. This becomes pertinent because of the commercial shift into software defined components especially in the routing and switching space. While traditional testing equipment and systems may be commercially available, this identified vulnerability mitigation will have to be developed in the country and is especially relevant to defence and critical infrastructure.

Joint Tri Service Cyber Agency

While this is a good step in line with current thinking, it needs to be deep dived into, especially the Human Resource (HR) capacity and capability that needs to be built in. Traditional cadre management may be detrimental to achieving the desired aims. Suggested approach is as given below:

- Mandatory pre induction IT skills training conforming to pre-selected NSQF levels.
- Basic cyber defense training for all post induction at various levels, thus making it organic.
- Cyber defense platoons at unit level, coordinated by a cyber branch at Head Quarters (HQs) who will have technical reporting to the Cyber Agency channel.
- Select personnel from these Cyber Defensive resources based on aptitude, performance and integrity for induction into the cyber units for Cyber Offensive roles after rigorous training, including at overseas locations.

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- These personnel may be posted to Task Forces which need to be suitably scaled and working as part of the Cyber Agency. They may form a cyber cadre on the lines of the existing Cipher cadre of Signals.
- Raise a cyber Territorial Army (TA)and induct youth from colleges and the environment to work as embodied but non uniformed cyber warriors. The TA will be a CT2[2]unit under the Cyber Agency working in conjunction with the regulars. It will also serve as the bridge between military cyber efforts and civil cyber efforts, converging at the highest civil office.
- Set up Cyber schools on lines of Battle Induction Schools.
- Set up foreign language schools manned by expatriates with help of MEA.
- Set up Cyber ranges suitably scaled.
- Special overt and covert Cyber Offense schools to be set up.

Livelihood Opportunities in Cyber Security Industry

The Cyber Security Market in Asia Pacific, which stood at USD 17 Bn in 2015, is poised to grow at a Compound Annual Growth Rate (CAGR) of 12.3 percent, reaching USD 54 billion by the year 2025. According to the DSCI, the current size of the global Cyber Security industry is estimated to be USD 80 Billion and is projected to grow to USD 190 Billion

by 2025. According to industry estimates, the increasing incidents of cyber-attacks and data protection efforts globally, would provide employment for about a million professionals in India by 2025. According to the web portal Research and Markets, the current size of the Cyber Security industry in India is estimated to be USD 3.8 Billion. Market watchers estimate that the Indian Cyber Security market would grow at a CAGR of 15 – 20 percent during the years 2018-2023.

The livelihood opportunities in the Global Cyber Security Market can be classified into following four sub-groups: (a) Managed Services, (b) Integration, (c) Consulting, and (d) Education & Training and may be accordingly exploited.

Conclusion

Digital transformation has reshaped our world and will continue to disrupt the status quo. While technology is a key driver for military, societal and economic benefits, it also brings about new cyber challenges. Today with dropping costs, anonymous and easy availability of cyber tools, this cyber hydra straddles not only the military wing but also governance entities and commercial organisations to wage a new form of warfare where even an individual can take on the might of a nation. The threat from professional criminals and state sponsored saboteurs in cyber space is growing and continues to become more sophisticated focusing on economic, military and political espionage and on preparing for digital sabotage. Not only are the number of countries that are developing digital attack capabilities increasing, the attacks that are carried out are also becoming increasingly complex.

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India, under the leadership of Prime Minister Narendra Modi, has made Cyber Security a strategic priority, realizing the global position and enormous importance of the IT industry for India's economy. The government has realized that because of its vulnerability towards cyber-attacks and lack of awareness about Cyber Security in businesses and society if structural changes are not brought about at the earliest, India may not only lose its market share in the global IT industry, but may not be able to create a credible Cyber defence and Cyber offense capability militarily and nationally.

End Notes

1 "India Snubbed: Pak-China Initiate CPEC Project in Gilgit-Baltistan". *The Quint. 19 May 2016. Retrieved 19 May 2016.*

2 CT 2 or Composite Table 2 units are those units whose establishment and funding are different from the regular army whose units come under CT 1.

Emerging Asymmetric Threats for India's Coastal Security and SLOCs

Vice Admiral HCS Bisht, PVSM, AVSM (Retd)[@]

Abstract

India's coasts are very porous unlike her land frontiers. Two major terrorist attacks in Mumbai of 1993 and 2008, highlighted the gaps in the Coastal Security apparatus in India. Of late there has been a sharp increase in asymmetric threat-levels, necessitating higher focus and attention. The Indian Navy (IN), Indian Coast Guard (ICG) and Marine Coastal Police regularly undertake patrolling in our waters. This coupled with the institutional changes that have been brought out in the overall mechanism of Coastal Security, like institution of Information Management and Analysis Centre (IMAC) Joint Operations Centers (JOCs) for co-ordination, regular conduct of apex level meeting of all stakeholders, delineating responsibilities of the IN, the ICG, the Coastal Police etc. has led to better coastal security architecture but some gaps still remain. The threat of piracy by Somali pirates was thwarted by proactive action by the IN. However, there are some recent reports of piracy in the waters around Singapore, which has a possibility of shifting westwards. The recent standoff between U.S. and Iran, may also have a ripple effect for India. The Iranian proxies may attack ships in the Straits of Hormuz, of any nationalities, which could also include Indian flagged ships. In addition, there are potential asymmetric threats to India's Sea Lanes of Communication (SLOCs) including the other important choke point of Straits of Malacca.

Introduction

India's distinct peninsular orientation and flanking island chains, both to the west and to the east, along with overlooking strategic sea lanes in the Indian Ocean, link her security and prosperity inextricably to the seas. With rugged terrain and high mountain ranges dominating the Northern borders, Indian heartland has been vulnerable to infiltration by terrorists through the Line of Control and the borders with Pakistan. However, with the Indian Army literally sealing the land infiltration routes, terrorists and in particular the Lashkar-e-Taiba (LeT) terrorists, found the sea route to be a more effective means of carrying out terrorist attacks in India. Two major terrorist attacks in the Indian mainland in the last three decades came from the sea route. The Mumbai bomb blast of 1993 was the first such manifestation of terrorist attacks on a large scale in the southern heartland of India. This was followed by the second terror attacks again in Mumbai in Nov 2008, popularly known as 26/11. The common thread in both these was that the route taken was sea route to avoid chances of detection and attacks were planned in the financial capital of the country, a city with maximum population, with an aim to cause maximum impact.

Why have our coasts become so vulnerable? The reasons are many but one that is at the core of all issues is that India's political and bureaucratic establishment has been besotted with a continental mindset, which has resulted

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[@] *Vice Admiral HCS Bisht, PVSM, AVSM (Retd)* is an alumnus of the National Defence Academy (NDA) and the Naval Academy. He was commissioned on 01 Jul 1979. He did the 47th NDC course. He had commanded the Eastern Fleet of the IN, the Indian Coast Guard as the DG and was also the Flag Officer Commanding in Chief of the Eastern Naval Command. Post retirement he has written a number of articles on maritime issues and lectures at various institutes including the NDC.

in neglect of the seas over the years. Further, issues such as turf expansion/protection and lack of co-ordination between various stakeholders involved has been the bane of progress in this direction. There are six ministries and 15 different agencies dealing with coastal security,[1] at times with blurred lines of responsibility. In recent years, however the importance of the seas along with its inherent 'Blue Economy' is being realized by various authorities and they find the seas to be the primary means of extending India's connectivity and trade links with her extended neighbourhood and the world at large. Not surprisingly, over 90 percent by volume and 70 percent by value of our external trade is transacted by sea.[2] Whilst maritime security remains the primary challenge at sea, given the vast expanse of the seas around India, post 26/11, coastal security has been a priority area in the national security agenda. To secure the country's critical coastal infrastructure against possible insurgent attacks, maritime agencies have undertaken a series of measures aimed at improving surveillance and crisis response capabilities in India's Maritime zones.

Evolution of Coastal Security in India

In order to understand the various emerging asymmetric threats to India's coastal and maritime security, it is important to understand the evolution of the asymmetric security challenges to India's coasts. Till the 60s and 70s, the primary asymmetric threat to India's coasts was smuggling and poaching. Smuggling was primarily in narcotics, gold and electronic items. Till the late 70s and early 80s, this threat was being dealt with primarily by the IN and Customs. It was commonplace to see a large no of Customs boats lined up inside Naval Dockyard, Mumbai in the 70s and 80s. Post 1971 war, the IN saw itself as a force meant to deter external aggression and recommended a dedicated force looking after these aspects and thus the ICG was created in 1978. The present day concept of asymmetric threats as seen in 1993 and 2008 was not thought of that time, since Pakistan had not created the terror industry then. Also, another predominant traditional asymmetric threat, i.e. from piracy had not reared its dirty head in the Indian waters.

India's maritime security drivers have shown increasing complexity in recent years, covering both traditional and non-traditional threats, with continuing and increased challenges across the regional maritime security environment. In the case of non-traditional threats, in particular, there has been a sharp increase in threat-levels, necessitating higher focus and attention. Maritime terrorism has expanded in recent years, and has developed new ways and means of execution. It poses a serious and continuing threat, with potential for asymmetric and hybrid warfare, with possibility of overlapping traditional challenges.

India's Geostrategic Location and its Impact on Coastal Security

The Indian peninsula is geo-strategically located in the Indian Ocean Region (IOR) and juts almost 1000 nms into the sea. The Indian Ocean is witness to intense shipping activity and the sea-lanes connecting the Pacific Ocean, the Atlantic Ocean and the Persian Gulf, pass through the region. It is estimated that nearly 100,000 vessels transit through the Indian Ocean carrying commodities such as bulk cargo, oil and gas, grain and containers which crisscross through the ocean. Nearly 120,000 ships pass through the neighbouring Straits of Malacca annually.[3] Whilst strategically this provides a dominating position for India to exercise control, especially in a conflict or a less than conflict situation, it also provides a fertile environment for asymmetric threats. This has to be seen in the regional perspective, since the Indian region is highly populated region with one third of the world's working population, quarter of total landmass and 75 percent of global strategic oil reserves[4]. It is also a cradle of major religions and has a spectrum of political hues ranging from democracy, monarchy to dictatorship. This wide spectrum of governance mechanisms becomes a breeding ground for terrorist activity, which also includes state sponsored terrorism.

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execution. It poses a serious and continuing threat, with potential for asymmetric and hybrid warfare, with possibility of overlapping traditional challenges. An example is the likelihood of the water wing of the LeT, co-operating with the Pakistan Navy (PN) to use their midget submarines to undertake attacks on the underwater portion of India's offshore oil platforms.

India's maritime threat levels get exacerbated by the proximity of the Offshore Development Area (ODA) to Pakistan, particularly the western ODA, which extends up to 150 nms seawards. Offshore oil is produced from both ODAs through the large no of production platforms. The overall produce from the two ODAs contributes to about 24 percent of India's domestic oil and gas requirements.[5] The ODAs including the Eastern ODA are vulnerable to asymmetric threats, and are regularly patrolled by the Indian IN and the ICG.

Coastal Security Threats and Challenges

India's Coastal Security architecture inherently has a number of challenges. Firstly, India has a coastline of 7216 kms touching nine states and four Union Territories, of which 5422 kms is on the mainland. The large number of government agencies, both civil and military and the complexities in the administrative set up, lack of a central command and control as also lack of actionable intelligence, equipment, manpower coupled with political apathy, has made the task of guarding the coast very challenging. In addition, there have always been issues between the Centre and the states on various aspects, which also impacts Coastal Security. Whilst the IN and the ICG are maritime forces under the Central government and maintaining 24x7 vigil in their areas of responsibility is their bread and butter, the same is not true of the Coastal/Marine Police, which is responsible for patrolling the inner most layer, which becomes important, since the threat of personnel/arms landing will invariably happen here. This is because, the Coastal Police by its character is not a seagoing force and personnel get rotated between normal policing duties and coastal security duties at regular intervals. They undergo small training capsules on seamanship and navigation with the IN, which is not adequate to get proper sea legs and thus, effectively guard the inner layer of the territorial waters.

The physical proximity of India's coasts to countries such as Sri Lanka, Bangladesh, Pakistan and the Gulf countries adds to its vulnerability as Coastal Security challenges such as smuggling, illegal trade, etc. originate in some of these countries. India's coasts are characterized by a diverse range of topography such as creeks, bays, backwaters, rivulets, lagoons, estuaries, swamps, sandbars etc. The Indian coastline is roughly formed by 43 percent sandy beaches, 11 percent rocky shores including cliffs and approximately 46 percent mud flats/marshy areas. The rocky shores provide ideal hiding grounds for nefarious activities. Also the water bodies and river channels run deep inside the coasts making the coasts highly indented.

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despite, the ICG and BSF's water wing patrolling regularly, suspicious boats can easily land and disappear in some creeks, taking advantage not only of the topography but also commonality of language and body features.

Mechanisms to Synergize Coastal Security Efforts

Post 26/11, there has been some positive developments on various mechanisms to address the issue of co-ordination and monitoring. The Border Management division of Ministry of Home Affairs (MHA) is the nodal agency which co-ordinates all aspects of coastal security. At the apex level, a meeting is conducted once every six months, called National Committee on Strengthening Maritime and Coastal Security against threats at Sea (NCSMCS),chaired by the Cabinet Secretary with all stakeholders in attendance as also all Chief Secretaries of states via video conferencing. The IN is the authority responsible for overall maritime security, which also includes Coastal Security. The ICG is responsible for Coastal Security in territorial waters, which also includes areas to be patrolled by the Coastal Police.

There are JOCs in Mumbai, Kochi, Vishakhapatnam and Port Blair and they operate in hub and spoke concept with all ICG Regional Operations Centers and other State Maritime Ops Centers. The capabilities of ICG in particular have been enhanced. Also at the apex level, the IN operates the IMAC at *Gurugram*, where all inputs are fused from the various nodes of the IN and the ICG, and have a handshake arrangement with all Regional Coastal Security Operation Centers (RCSOCs) and State Coastal Security Operational Centers (SCSOCs). This to ensure proper Maritime Domain Awareness (MDA) and availability of a comprehensive operational picture. There are also additional initiatives for managing and identifying own fishing boats like creation of the ReALcraft (Registration and Licensing of fishing craft) portal, colour coding of boats depicting various states of India, fitment of transponders on boats, issue of biometric cards to fishermen etc. With all these initiatives in place, Indian coasts have become more safe but surely not impregnable.

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Threats to SLOCs

Piracy has seen a rise in recent years in areas of maritime interest to India. This includes the Gulf of Aden and the Somali basin, from where piracy had spread across the Arabian Sea and to within 500 nm of the Indian mainland by 2011. Robust action by the IN and ICG has pushed piracy away from India's maritime zones. The IN has also maintained a ship on patrol in the Gulf of Aden continuously since October 2008, safely escorting more than 3,000 merchant ships and nearly 25,000 Indian seafarers, besides other nationalities. Cooperative efforts of international navies, adoption of 'Best Management Practices' (BMP) by transiting merchant vessels, and patrolling off the coast against seaborne ingress, stabilizing actions ashore in Somalia, have all resulted in a steady reduction of Somali piracy threat since 2012. However, till the root causes, ashore of governance are addressed, the danger of resurgence will remain.

Of late there have been a few incidents of piracy in the waters around Singapore. This has been reported by the Regional Co-operation against Piracy and Armed Robbery at Sea Information Fusion Centre (ReCAAP IFC) at Singapore.[7] Whilst efforts are underway to nab the culprits by the Police Coast Guard in Singapore, the fact that it has apparently re-surfaced after many years may be a dangerous trend, which can always shift westwards to our waters.

The West Asian conundrum also has threat lessons for our maritime security. Consequent to the standoff between the U.S. and Iran, following Iran's shooting down of a U.S. drone in June 2019, the U.S. bolstered its efforts to establish a coalition to deter Iranian attacks in the Persian Gulf. Earlier, in May last year, four commercial ships, including two Saudi Aramco oil tankers, were damaged near the UAE port of Fujairah in the Gulf of Oman. A U.S. assessment reportedly blamed Iranian "proxy" elements for the attack.[8] Tensions between the two countries reached a new high

when recently, on 03 Jan 20, a U.S. drone attack killed the Islamic Revolutionary Guard Corps (IRGC) leader Maj Gen Qassem Solemani. The U.S. and Iran nearly entered into an open conflict on 8 Jan 2020 when the IRGC launched missile strikes against two Iraqi military bases housing U.S. servicemen, in retaliation for the killing of Soleimani, a rare direct Iran–U.S. confrontation and the closest to the brink of war between the two nations in decades.[9] The point to note is that if tension continues in West Asia, it will have a ripple effect in Indian waters also. The Iranian proxies may attack ships in the Straits of Hormuz, of any nationalities, especially those with good relations with the U.S. and Israel. The most probable type of attack may be an asymmetric one, on possibly a tanker carrying oil towards an Indian port by a boat laden with explosives or even by limpet mines. The use of unregulated movements at sea for seaborne trafficking in narcotics and arms remains a constant threat to India. The modus operandi of trafficking/ smuggling by sea is transshipment of consignments on the high seas into local craft, which then mingle with dense fishing activity offshore and can land at any of the myriad landing points ashore under cover of darkness. With 1376 fish landing sites along the entire coast (As per data provided by the Department of Fisheries, GOI),[10] this can be a huge nuisance. One of the possible remedies is to ensure deterrence using surveillance by small commercial drones, with dedicated command and control centers, since drone technology has become very common in India and would also not cost much. The threat of nuclear material being smuggled in/ from our maritime neighbourhood also needs to be a constant consideration, requiring monitoring of the maritime spaces. There are several potential threats and challenges to India's SLOCs from both traditional and non-traditional sources, which can impact India's national interests. The high density of shipping, traversing through relatively narrow areas of maritime space, like the choke points of Straits of Hormuz or Straits of Malacca, underpins India's dependence on such SLOCs. The security of these SLOCs would require that all of these passing through India's areas of maritime interest, remain safe, secure and free for movement of shipping, as prescribed by international law. This emphasizes the importance of maritime co-operation with like-minded countries and regular maritime exercises with them.

A significant threat that India needs to be cognizant of, is the vulnerability of India's tankers, especially Very Large Crude Carriers (VLCCs), which ply in the Indian waters and more specifically, in the Deep Water Channel (DWC) in the Gulf of Kutch. These ships by virtue of their size — about 2-4 — lakh tones, can be a lucrative target for boats laden with explosives, which can then cause a large economic as well as ecological disaster.

India's energy security has a vital role in national development, and is highly dependent on the seas. Nearly 80 percent of the country's crude oil requirement is imported by sea, using the ISLs across the Indian Ocean. Another 11 percent of national crude oil requirement is met from India's offshore energy sources. Offshore gas fields also contribute to 80 percent of India's domestic natural gas production. In addition, India has built up substantial refining capacity and exports refined petroleum products to many other countries by sea. The products of the petroleum industry account for about 15 percent of India's GDP. Taking into account the total oil imports by sea, offshore oil production and petroleum exports, the country's cumulative 'sea dependence' for oil is estimated to be about 93 percent. [11]

A significant threat that India needs to be cognizant of, is the vulnerability of India's tankers, especially Very Large Crude Carriers (VLCCs), which ply in the Indian waters and more specifically, in the Deep Water Channel (DWC) in the Gulf of Kutch. These ships by virtue of their size — about 2-4 — lakh tones, can be a lucrative target for boats laden with explosives, which can then cause a large economic as well as ecological disaster. The Single Point Moorings (SPMs), around Indian coasts, which are used to button up large tankers for pumping oil are strategic assets, since they are used to discharge oil from large tankers to shore refineries and being far away from shore and relatively less guarded, can be vulnerable to asymmetric threats.

Conclusion

The seamless nature of the maritime domain enables ready flow of threats and challenges from one area to another. In recent years, the rise in asymmetric threats, especially maritime terrorism, has necessitated increased focus on coastal and offshore security. Maritime terrorism has grown and expanded over the years, operating from the sea and at sea, in both direct and indirect forms. It has also started taking an increasingly hybrid character, with possible blurring of lines between conventional and sub-conventional levels of conflict.

India has faced this expanding maritime threat for over two decades. The coastal and offshore security apparatus has accordingly evolved as per changes in the nature and type of threats, with increased involvement of the IN and the ICG in support of the state police and security agencies. The events of '26/11' and unabated threat of terrorism led to a revamp of the coastal and offshore security mechanism. However, the biggest challenge is of co-ordination amongst various stakeholders. Whilst the IN is responsible for overall maritime security, there is no 'Headmaster' with authority, as far as Maritime and Coastal Security is concerned and there is a tendency for different organizations to pull in different directions and protect their turf. The IN had organized the largest ever Coastal Security exercise in January last year called 'Sea Vigil', where all stakeholders had apparently participated, however, there is an urgent need for having a National Maritime Authority and a Maritime Security Adviser (MSA) at the National level, with the appropriate staff to co-ordinate and take charge of various issues of maritime and Coastal Security. Only then India will see a semblance of effective security in the maritime domain.

There is an urgent need for having a National Maritime Authority and a Maritime Security Adviser (MSA) at the National level, with the appropriate staff to co-ordinate and take charge of various issues of maritime and Coastal Security.

End Notes

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Section III

Pakistan- China Strategic Challenge

Changing Character of Warfare: Decoding China's Grey Zone Conflicts—Influence Operations; Implications for India

Maj Gen (Dr) GG Dwivedi, SM, VSM & Bar (Retd)@

Abstract

The art of Warfare has continuously evolved, impacted by changing politico-socio dynamics, driven by technology. Traditional ways of war fighting stand redefined as line between war and peace has blurred. With major wars becoming less likely, sub-conventional conflicts are gaining prominence, ushering an era of 'hybrid warfare' and 'Grey Zone' conflicts. Chinese concept of 'unrestricted warfare' closely approximates with Grey Zone conflicts. Concept of 'three warfares' is recent addition to Chinese strategy. Beijing's assertiveness in East and South China Seas is most notable example of 'Grey Zone' operations in maritime domain. Abundance in use of capital to serve its strategic interests is a part of China's 'unrestricted warfare' steered through initiatives like 'Belt-Road' and 'Maritime Silk route'. Indian has been the target of unconventional warfare emanating from the neighbourhood. China's hybrid warfare and Grey Zone conflict strategy has serious implications for India. A pragmatic hybrid warfare doctrine as part of national defence policy is needed to effectively counter the new security challenges.

Genesis—Changing Character of Warfare

Historically, wars have been fought to achieve political objectives by employing power, forcing opponent to yield. The art of warfare has continuously evolved influenced by politico-socio dynamics, driven by technology. So far, the traditional ways of war fighting were designed to capture territory and annihilation of adversary's war waging potential. These stands redefined, evident from the scan of recent conflicts which are characterized by blurred lines between external and internal security, war and peace, regular and non-state actors. As per American journalist and historian, David Halberstam, the current conflicts are 'war in time of peace', carefully calibrated, enabled by high tech weaponry with strong element of public opinion.[1]

Post the 'Cold War'; it is 'balance of interest' that trumps 'balance of power' dynamics, significantly obviating major conflicts. However, as possibility of failure of deterrence remains high, the reactive strategy has given way to proactive one. Therefore, intervention operations are being undertaken as part of pre-emptive strategy. With the overlap of political and military domains, there is increasing scope for interjection by political hierarchy at all levels of war. This mandates joint strategies and decision making, involving all the elements of state for surgical responses.

Given the prevailing security environment, while probability of major wars is emerging as a receding option, occurrence of limited wars or sub conventional conflicts are gaining prominence. Even the localised conflicts of minor nature can have major strategic implications. There could be varying scenarios wherein asymmetric engagement spins into conventional war; case in point is the 1999 Kargil conflict started by Pakistan in the garb of irregulars which later

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@ *Maj Gen (Dr) G G Dwivedi, SM, VSM & Bar* retired as Assistant Chief Integrated Defence Staff (Strategic). He has PhD from JNU; is alumnus of National Defence College and Harvard Kennedy School. He served as Defence Attaché in China, Mongolia and North Korea. As Professor and founder Chair at Aligarh Muslim University, he was instrumental in establishing new faculty of International Studies. Well published; is visiting faculty to reputed institutions, speaks at international forums; frequently appears as a panellist on national TV.

escalated into a limited war. Conversely limited conflict could degenerate into unconventional one; example — the U.S. intervention in Afghanistan. Future conflicts are envisioned to be multi-dimensional, cutting across the entire spectrum of 'high-low mix', combination of conventional and unconventional, non-linear and unrestricted.

'Hybrid Warfare' and 'Grey Zone' Conflicts

Today, states involved in geopolitical contest to change the global system have wider options for pursuing strategic ends, by keeping the dispute just below the threshold of traditional armed conflicts. Such a process of ensuring that conflicts are not always violent and characterized by ambiguity has come to be known hybrid warfare, and Grey Zone conflicts.

The term hybrid warfare was originally referred to irregulars and non-state actors with advance military capabilities. The concept has evolved over a period of time but the exploitation of information technology vulnerabilities by adversaries to achieve the desired outcome is relatively new. In hybrid warfare, all elements of national power including infrastructure, business systems and individuals are targets. American researcher Frank Hoffman has introduced the term hybrid threats as part of hybrid warfare. During the 2006 Israel-Lebanon conflict, Hezbollah resorting to guerrilla warfare employing innovative technology and effective information campaign which was an example of hybrid warfare. Even Russia's approach in Ukraine which includes disinformation, economic manipulation, use of proxies and insurgencies alongside diplomatic-military actions is hybrid warfare.

Grey Zone basically connotes the space between conventional and unconventional warfare or between war and peace. In political domain, Grey Zone operations include subversion, foreign interference and involvement of unmarked military forces. Such activities are provocative and escalatory but could be non-kinetic and non-lethal, thus generally draw muted response.

Grey Zone basically connotes the space between conventional and unconventional warfare or between war and peace. In political domain, Grey Zone operations include subversion, foreign interference and involvement of unmarked military forces. Such activities are provocative and escalatory but could be non-kinetic and non-lethal, thus generally draw muted response. As per the 'U.S. Special Forces Command' White Paper of 09 September 2015, Grey Zone has been defined as- "competitive interactions among and within state and non-state actors that fall between traditional war and peace duality. Grey Zone conflicts are characterized by ambiguity, opacity of parties involved, or uncertainty about relevant policy and legal frameworks".[2] Deterring aggression in the Grey Zone is a challenge, as belligerents take care not to breach the threshold between 'no war-no peace' and armed conflict, resorting to the change of status quo through gradual process. Many Grey Zone activities are functions of rewired global economy.

Contact less or 'non-contact warfare' referred to as the 'Sixth Generation' warfare aims to disrupt or disable opponent actions without engaging in open conflict. Due to ambiguity of actions, attribution or impact of activities may not justify response. Hence, war may not be formally declared, thus obviating casualties. In 'contact less warfare', the success lies in defeating the adversary, its own territory by destroying its economic potential and subverting the political system; requires 'state of art' technologies.

Comparison: Hybrid Warfare and Grey Zone Conflict[3]

Characteristics	Grey Zone Conflict	Hybrid Warfare
Level	Tactical, operational, strategic	Tactical and operational
Conventional military operations	Used alongside non-conventional operations	Used alongside non-conventional operations; usually dominant element
Non-conventional military operations	May be used standalone or alongside conventional operations	Used alongside conventional operations as auxiliary tactics
Protracted engagement	One of the dominant characteristics	Maybe protracted or short
Global and/or regional	One of the dominant characteristics	Out of scope as concept pertains to tactical operations
Symmetry between opponents	Under both symmetric and asymmetric conditions	Largely used under asymmetric conditions

Decoding China's 'Grey Zone' Conflicts — Influence Operations

Strategic Imperatives - China's concept of Unrestricted Warfare (UW) closely meets the criteria of Grey Zone conflicts. It is in sync with Chinese strategic culture which lays great emphasis on exploiting propensity of things i.e. 'strategic configuration of power'-shito achieve one's objectives.[4] Aim is not annihilation but relative positioning of own resources to gain advantage. Underlying rationale is not to fight, but to create dispositions of forces that are so favourable that fighting is unnecessary.

Recent addition to the Chinese strategy is the progression of People's Liberation Army's (PLA) approach to "Three Warfares" which is apparently a modified version of the UW. It encompasses public opinion warfare, psychological warfare and legal warfare.

Towards the late 1990, Chinese defence experts realised that to successfully pursue nation's global interests, direct military confrontation with the U.S. and its allies was not a prudent option. In 1999, two Chinese military officers namely Liang and Wang in "Unrestricted Warfare" publication advanced the concept of combining unconventional and covert tactics against U.S. The Chinese strategy sought to target weaker opponents not as a classic asymmetric warfare but in manner whereby it could transcend traditional concept of kinetic engagement, by employing 'Grey Zone' tactics. Four alternatives identified to traditional engagements were-political actions, economic clout, cyber warfare and incorporation of non-state actors. Over the past decade China has largely adhered to these principles.

Recent addition to the Chinese strategy is the progression of People's Liberation Army's (PLA) approach to "Three Warfares" which is apparently a modified version of the UW. It encompasses public opinion warfare, psychological warfare and legal warfare. Basic purpose of Three Warfares is to influence and target the adversary's psychology through utilisation of information with media as a weapon. These have been officially incorporated into PLA's education, training and operational planning.[5] As per the official manuals, employment of Three Warfares in particular circumstances should be adapted based on operational context and intended outcome.[6]

Future warfare, as per Chinese military analysts will be non-contact, non-linear and non-symmetric. The Three Warfares concept is evidently a game changer, going beyond traditional bounds, emerging as a key component of Chinese national strategy. Its employment is critical for accretion of PLA's soft power in prosecuting wars under the 'informationised conditions'. In terms of PLA's diversified military missions, Three Warfares enable seizing of 'decisive opportunities' to control public opinion, undertake psychological operations and engage in legal struggle. These can also act as intimidating force against an adversary. In essence, the Three Warfares stratagem draws upon Sun Zu's 'Art of Warfare' classic which propagated that the best wars are those which can be won without firing a shot.

Grey Zone Conflicts and Influence Operations

China's assertiveness in East and South China's Seas is most notable examples of the Grey Zone operations in the maritime domain. These relate to claims of sovereignty rights over geographical features or maritime space, as also serve to exert pressure on the other stakeholders[7]. With soft provocations overriding military actions, China has leveraged asymmetry, ambiguity and escalation to gain strategic edge. In the process, fine lines between military, economic, diplomatic, intelligence and criminal means have become indistinct. To sustain low intensity hostile actions through non state actors in concert with regular forces, not only is cost effective, but also ensures military involvement remains incognito.

The key elements in China's Grey Zone campaign in the maritime space are the irregular maritime militias. These outfits undertake the process of assertion and expansion of Chinese control over the vast disputed areas, reclaimed islands and reefs in South Sea, a region of immense strategic importance. Such sea borne militias are largely based on fishing boats complemented by elements from Coast Guards and operate primarily from Hainan Island. The seizure of 'Scarborough Shoal' by China off the Philippines coast in 2012 was duly assisted by its maritime militias. China has gradually expanded up the scope of Grey Zone conflict to contest the U.S. 'freedom of navigation operations' in South China Sea. As part of Grey Zone activities, Beijing's strategy of 'nibble and negotiate' i.e. 'talking and fighting' concurrently (*yibiandanyibian da)* has enabled it to militarise artificial islands, thus virtually gain de facto control of most of South China Sea. Even in East China Sea, there has been marked increase in Chinese maritime militia activities around Senkaku (*Diyoyu)* group of islands where in 2013, it established, 'Air Defence Identification Zone'. China's structured irregular tactics have allowed it to undermine international law and set precedents in its favour.[8]

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Another salient feature of China's Grey Zone activities in East and South China Seas is the extensive surge in the employment of Coast Guard assets for coercive operations. The Coast Guard vessels are highly versatile, mostly modified naval warships and effectively patrol the areas around Senkaku Islands and intimidate ships of the other states in South China Sea. In 2017, the Chinese Coast Guard had inducted two massive 12,000 ton cutters, larger than modern naval destroyers.[9] As a result; other stakeholders namely Vietnam, Philippines, Malaysia and Indonesia have taken measures to scale up their naval potential to confront Chinese assertiveness. In September 2018, Chinese Grey Zone operations led to near collision when its destroyer 'Luyang' tried push away and U.S. Ship 'Decatur' when the latter was conducting 'freedom of navigation 'exercise in the South China Sea.[10]

Another classic example of Chinese Grey Zone tactics was when in 2017, Beijing strongly objected to drilling by Indian oil firm 'ONGC Videsh' to explore oil block 128 as part of it fell in the 'nine-dash line'— its claim area. China's Foreign Ministry spokesperson Geng Shuang had said; "China opposes anyone carrying out unilateral, illegal oil and gas activities in waters it has jurisdiction". Around the time drilling began, Chinese General Fan Changlong cut a short visit to Vietnam and friendship meeting between the two on the border was also cancelled. India's interest in this block was strategic rather than merely commercial.[11]

China's abundance use of capital in the form of 'cheque book diplomacy' to serve its national interests is part of Grey Zone warfare. President Xi Jinping grand initiatives namely 'Belt &Road' and 'Maritime Silk Route' are aimed to extend China's strategic reach by projecting its soft power. South Asia being the region of immense strategic importance has emerged as a 'priority zone' in Chinese calculus. Consequently, Beijing has orchestrated well-conceived Southward

push by undertaking number of projects in the realm of Belt Road Initiative (BRI) to secure a strong foot hold in the region. Major BRI projects are[12]:-

- China-Pakistan Economic Corridor ($ 62 bn).
- China-Nepal Economic Corridor— includes 913 km trans-Himalayan rail link.
- China-Myanmar Economic Corridor— includes Kunming-Mandalay-Kyaukpyu-Yangon link.
- Bangladesh- projects include -6.5 km bridge over Padma, industrial zone, power plant projects ($ 10bn).
- Sri Lanka — includes completed projects namely Colombo Airport Expressway and Port City; besides Hambantota Port and Industrial Park projects under construction.
- Maldives — projects include China-Maldives Friendship Bridge, reconstruction of Male and Ibrahim Nasir International Airports.

Well aware of the risks involved in implementation of BRI projects in South Asia, Beijing is willing to pay the price for its Southward push to ensure strong influence in the region. China's Grey Zone tactics fit well in its vision of 'global South' free of Western influence, where its alternate system will be at play, with unquestionable deference by smaller players.

As cyber space remains largely ungoverned by international laws and treaties, China has built formidable capability to undertake information warfare, which includes 'network warfare' analogous to cyber warfare as part of the Grey Zone operations. In the Chinese doctrine of 'Limited War under Informationised Conditions', 'information warfare' is an important component. As per Chinese military analysts, cyber warfare is strategic warfare in the Information Age.[13] It has created 'Special Military Network Forces'—military units specialised in network attacks and defence, part of 'Ministry of State Security'. Chinese 'hacker army' is estimated to be to range from 50,000 to 100,000 personnel.

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China has been accused by many, including the U.S. Government for launching cyber-attacks. In January 2010, China launched cyber-attack against 34 U.S. companies, including military contractors. In May 2008, cyber-attack on Indian Government network, had originated from China.[14] The cyber threat China appears to pose on a regular basis is part of its strategy to achieve to national objective of global dominance employing Grey Zone strategy.

Implications for India

India has been the target of hybrid and unrestricted warfare orchestrated from its neighbourhood. Prosecution of 'proxy war' by Pakistan is a classic model of hybrid warfare where it has employed irregulars alongside non-state actors, with the patronage of regulars. China has lent unstinted support to Pakistan and has orchestrated its policy of zero-sum game, which is in the realm of Grey Zone strategy. Ironically, major flaw in India's response has been its inability to visualise the hybrid threats and adopting conventional military approach to defeat the adversary's dubious designs. Due to lack of synergy and fragmented approach, desired results could not be achieved.

China has used the unresolved border dispute to keep pressure on India and up the ante at will. Frequent intrusions and transgressions by the Chinese military personnel; incidences like Depsang Plateau in 2013, Demchok in 2014 and Doklam standoff in 2017 are part of Chinese Grey Zone tactics. China's Maritime Silk road initiative and 'string of

pearls' strategy wherein its acquisition of Hambantota port in Sri Lanka on long lease, development of deep sea port in Kyaukpyu in Myanmar, establishment of naval base in Djibouti and major BRI Projects in India's neighbourhood as brought above, are part of China's Grey Zone campaign with major strategic ramifications

China is well organized to undertake operations short of military conflict. Its hybrid warfare & Grey Zone conflict strategy poses serious challenge to Indian security. It is imperative for India's defence planner to formulate integrated 'hybrid warfare doctrine' as a subset of 'limited war' strategy in the overall framework of national defence policy. While conventional capability serves as deterrence, it is through unconventional warfare that challenges of Grey Zone conflict can be effectively mitigated. This requires holistic approach and synergized national effort which includes political, diplomatic, economic, military, cyber and information warfare to achieve its strategic objectives. It implies unified effort and simultaneous application of all the tools of war. India's strategy and doctrines have to be dynamic, smart and multi-dimensional, so as to determine when and where to fight. Initiation of bold reforms to bring about integrated application of defence potential is no more an option — but an urgent imperative.

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Hybrid warfare and Grey Zone conflicts will define the future security paradigm. Tomorrow's conflicts will not fit easily into the categories of conventional or irregular. As per Frank Hoffman, "The wars of 21st Century may take many forms. As conflicts reflect greater degree of convergence and complexity, so must our mental models and frame works".

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India — China Relations Post Mammalapuram: Challenges and Prospects

Ambassador Gautam Bambawale, IFS (Retd)@

Abstract

China plays an extremely important part in Indian foreign policy not merely due to its size and power but also because it is a neighbour with which India has an undefined boundary. Prime Minister Modi and President Xi Jinping concluded their second informal summit at Chennai in October 2019. This article summarizes the outcomes of the informal summits and how they have imparted stability and momentum to bilateral ties particularly after the confrontation at Doklam in 2017. The establishment of the 'High Level Mechanisms on People-to-People Exchanges and Trade, Investment and Services' indicate two areas of practical cooperation where the two nations can indeed focus. A relatively peaceful border is yet another outcome. Several suggestions are also made by the author as to how India and China can move ahead in these areas. The article also takes a long term perspective of ties, factoring in the asymmetry between the two countries in comprehensive national power and identifies areas where India will need to pay attention, to balance out these weaknesses.

Introduction

Two informal summits between Prime Minister Modi and President Xi Jinping of China, the first at Wuhan in April 2018 and the second at Chennai (Mammalapuram) in October 2019 have imparted a degree of stability and momentum to India-China ties. This statement becomes even more vivid when one factors in, the standoff at Doklam of over 72 days in the summer and early autumn of 2017. This important relationship between the two most populous nations on earth, has even in recent times exhibited elements of both cooperation as well as competition. To an observer, bilateral ties appear to have all the characteristics of a roller coaster with its ups and downs, its crests and troughs. Which leads many to ask the question — what is in store for the relationship in the coming year and in the third decade of the 21st Century? Will India and China continue to have this yo-yo kind of relationship? Will competition and cooperation continue to be the main characteristic of ties or will they become more even and regular? Can India and China work out their difficulties and problems or will they become more enhanced and prickly?

One important aspect having a bearing on how the relationship fares, is how the two nations are doing domestically. Most observers believe that China is not merely a rising power but an "ascendant" one, which has already risen with its Gross Domestic Product (GDP) being close to US $ 14 trillion by end 2019[1]. Conversely, India's economy has slowed down significantly from the annual 8 percent growth trend a few years ago, and India is limping towards being a US $ 3 trillion economy[2], implying that the gap between the two nations is increasing. By extension, China's Comprehensive National Power (CNP) far outstrips India's which in turn has an impact on how Beijing views and behaves with New Delhi. Hence, China has been willing to take on India's changes in Jammu & Kashmir, which it believes has a bearing

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@ *Shri Gautam Bambawale, IFS (Retd)*, was a member of the Indian Foreign Service from 1984 to 2018. He has been India's Ambassador to Bhutan, Pakistan and China. He has worked on China for 15 years of his 34 year diplomatic career including a spell as India's first Consul General in Guangzhou 2007-09. He has worked in the Foreign Secretary's Office as well as the Prime Minister's Office. Currently, he is Distinguished Professor, Symbiosis International University, Pune where he teaches a course on Diplomacy and International Governance. He writes regularly in Indian newspapers and magazines.

on the territorial issue between the two countries and has actively been doing so in international forums including the United Nations (UN). Similar is its open opposition to India's membership of the Nuclear Suppliers Group (NSG). Conversely, a weaker India has not been able to leverage China's problems in Hong Kong or Xinjiang to its own benefit or even to discomfit Beijing.

Yet another factor in the status of India – China relations is the state of play in international politics. At present, China's number one concern and priority is the trade and technology war with the United States (U.S.). Even as Washington recognizes China as a peer competitor and moves to negate this new and rising challenge to U.S. global supremacy, Beijing herself fashions policies which ensure her continued rise so that it is not contained. As Beijing focusses itself on countering the U.S. pressure, it will hope and wish for India to play a balanced role between the two big powers. Hence, developments such as the Quad bringing together the democracies of the Indo – Pacific Region give nightmares to planners in China. It also brings in the pulls and pressures on the bilateral India – China ties.

Why was it decided to have informal summits between the top leaders of India and China? Why not continue with the older methodology of formal visits which led to an outcome document such as a Joint Statement or a Joint Press Statement? It was believed that informal summits would give the leaders the opportunity to discuss any subject they wanted without any time constraint. They could discuss overarching issues of national and global import and through such discussions arrive at a better understanding of the other side's calculations, tactics, stratagems and thinking. Also, it removed the pressure on the two sides to come out with a joint document outlining the main points of their discussions. Moreover, it was also not necessary to compulsorily have a sheaf of agreements or memoranda of understanding to be signed.

As Beijing focusses itself on countering the U.S. pressure, it will hope and wish for India to play a balanced role between the two big powers. Hence, developments such as the Quad bringing together the democracies of the Indo – Pacific Region give nightmares to planners in China.

What have been the outcomes or takeaways from the two informal summits between PM Modi and President Xi? There are 5 takeaways that one can point to straight away.

First, the two leaders talked at length to each other of the national visions and goals of their nations including the means of achieving these objectives. This included an exposition on what constitutes the Chinese Dream and its implications not merely for China's worldview but for India too. Conversely, what is meant by a 'New India' would have been elaborated upon. Can China and India rise simultaneously and reclaim their positions as the top economies of the globe as they had been till the start of the 18th Century and the advent of Imperialism. This kind of strategic communication is important to judge the other side's seriousness, candor and commitment to resolving issues through negotiation and hence is of great significance in a relationship which lacks trust and understanding. It is only through such conversations that India and China can build the kind of trust and confidence which is required to tackle the issues which bedevil relations. Hence, this was the most significant part of the two informal summits and it is not easy to quantify such outcomes.

Second, the leaders of India and China agreed to work at ensuring that the border areas remain relatively peaceful and tranquil. The fact that the top leaders of both the countries have staked their reputation on ensuring such an outcome is of significance and has an impact down the line in each country. This has positive spin offs for both the nations. Only if India – China border areas remain peaceful can we focus on the more important task of resolving the boundary problem between the two countries. Else all the energies are spent on de-escalating situations such as the one which occurred at Doklam in 2017. After the discussions at the first informal Summit at Wuhan, military exchanges between the countries resumed and even led to mutual visits of Defense Ministers. Military exchanges will also be enhanced as this is a pre-requisite for peace. We must also be more ambitious and move from mere exchanges to understanding the thinking of the other side's military. If one is able to move in this direction, then it will reduce the mutual suspicions that

are harboured and which would be a very important outcome of the informal summit. At this point in time there are two strong leaders at the helm of affairs in both India and China. Moreover, PM Modi has a convincing mandate from the last elections. Hence, the time may be ripe for a boundary resolution between the two countries. On the other hand, there is also little doubt that the intricacies of India's high altitude boundary over the Himalayas is not easy to resolve.

Third, the establishment of the new High Level Mechanism headed by the Vice Premier of China and India's Finance Minister on Trade, Investment and Services, announced at Mammalapuram[3], indicates that the leaders are keen to reduce India's trade deficit with China and ensure that economics provides the ballast to this relationship. The deficit can only reduce if India sells more services to that country or if India attracts significant amounts of foreign investment from them. Dismantling the non-tariff barriers against Indian exports of services will be an important goal for this group, so too, for Indian Pharmaceutical exports. There is little doubt that the Indian market is very important for Chinese firms as stated by the managers at Huawei or Xiaomi in informal discussions. Similarly, the China market can become an important outlet for Indian exports if only the *Non-Tariff Barriers* (NTBs) were knocked off. India will need to continue working on this front. A quid-pro-quo will have to be worked out. The recent decision to permit Huawei to be in the run for 5G trials in India should have been traded off against removal of NTBs for Indian pharma exports to China. Such linking of issues will have to be resorted to in this brave new world of China trade. However, India too needs to take steps to attract Chinese investment so that the capital account will help balance our payments. For example, India has been working for years on providing Chinese firms with a China specific industrial park where they can cluster together, since it provides them greater confidence of the Indian market. Such industrial parks must come to fruition soon. There is little doubt that economics between the two nations can become mutually profitable and provide a basis for understanding, if there is a level playing field for both sides.

PM Modi and President Xi Jinping have recognized that if both the countries have to enjoy a better relationship and enhance trust, then the ordinary people of India and China need to interact more vibrantly. Therefore, in order to provide an impetus to such exchanges they established the High Level Mechanism on People-to-People Exchanges headed by their respective Foreign Ministers.

Fourth, PM Modi and President Xi Jinping have recognized that if both the countries have to enjoy a better relationship and enhance trust, then the ordinary people of India and China need to interact more vibrantly. Therefore, in order to provide an impetus to such exchanges they established the High Level Mechanism on People-to-People Exchanges headed by their respective Foreign Ministers. Two meetings of this new Mechanism have already been held. It is indeed unfortunate that India has not made a focused effort at attracting more tourists and students from China to India. Here are two areas where India has a competitive advantage, but which has not been leveraged so far. One needs to make a focused effort at attracting more Chinese tourists to India. Marketing 'Incredible India' in China will be a first step, but India should also work with Chinese travel agents, the various airlines which fly between the two countries, the new on-line agencies as well as the social media methodology to popularize India as a tourism destination. Naturally, India will also have to ensure facilities in India for Chinese tourists who have very special needs. If such an effort is indeed made, then the Indian mountains, beaches, temples, heritage sites, Buddhist trail as well as the wildlife sanctuaries are likely to become hugely popular with the Chinese. India will be surprised by the results and India can easily see up to 1.5 million Chinese tourists visiting India over the next few years. This will be significantly more than the current 2.5 lakhs[4].

Similarly, there is scope to market India's own 'Study in India' program in China. Indian education is known to be cheap but effective and good in China and once again India has not really made any concerted effort at marketing her higher education in that country. India needs to make the common sense value proposition to Chinese students that if they come and study in India they will also learn excellent English on the side, which will in turn stand them in good stead when they apply for post graduate courses in Western Universities. If only India can make the effort, then India shall be surprised at the numbers one can attract to study in India. Needless to say, the efforts of the two governments in

enhancing exchanges between ordinary people need to be bolstered by the private sectors in both countries. Attracting more Chinese tourists and students to India will help India bridge the trade gap on the services side of the balance of payments.

Finally, an important outcome from the informal summits is that, this kind of diplomatic practice has become an accepted norm in international affairs, which has been contributed by the two largest nations of Asia. Particularly, when relations are difficult or complex this kind of meeting provides the leadership with scope to think out of the box and not get tied down to standard phrases and talking points. In our context, it is significant that the top leaders of India and China have taken ownership of the relationship. This augurs well for the bilateral ties.

So, what is it that India must concentrate on in the coming few years in order to impart stability to India – China relations. The answer has to be that India should do whatever helps decrease the asymmetry with China and whatever brings down the discrepancy in national power between the two countries. Most of these areas of work lie domestically or internally to India. First, India must ensure that she resumes a trend GDP growth rate of 7.5 to 8 percent per annum. Most economists tend to agree that another round of systemic economic reform is essential to achieve this goal, including that of ensuring India become a US $ 5 trillion economy by 2024 or 2025. There is less consensus about what kind of economic reform should be undertaken, but broadly speaking the road map is quite clear. Second, India needs to focus her attention on building lean and mean armed forces, and this is an area where the establishment of the Chief of Defence Staff is a very important step which has been taken. The need for joint operations of armed services is something which is well known and hopefully India is well on her way in this direction. Moreover, India needs to ensure that she manufactures larger amounts of military equipment in India for which the private sector companies will have to pick up the gauntlet. No military power worth its salt depends entirely on imported hardware and weapons systems. This is a longer term effort tied up with the 'Make in India' program of increasing the proportion of manufacturing in India's GDP. Third, higher education reform is essential if India's younger generation need to be ready, for the market place in an increasingly technology and innovation driven economy. Fourth, science and technology regime and structures in India need to be modernized so that they meet the requirement of the industry. Stepping up research capability is essential in this process. There are many other things to be done and this listing is not intended to be exhaustive in any way but only indicative of the domestic challenges which India as a nation will have to meet. While there can be a dialogue and discussion of the nature and tempo of change required, one cannot let such debates go on forever where it becomes the enemy of the good. One needs to carry out these changes with as little fuss as necessary in a quiet manner which does not garner too much attention.

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A stronger domestic hand will enable India to play her cards more adroitly and with greater finesse in the international realm. One way of negating the rising asymmetry with China is to band together with other middle powers or big powers so as to balance out India's weaknesses and partner other nations who can assist in the efforts. The India – Japan partnership immediately springs to mind in this context. It has been nurtured and progressed by governments in both countries because it makes eminent sense in the current circumstances. While pursuing such multi-alignment one must keep in mind that the maxim 'hide one's strength and bide one's time' applies perfectly to India over the next decade or so. Such a policy will permit India to strengthen her CNP without stirring too much notice internationally. India needs to grasp the opportunities and meet these very tall demands. India can indeed achieve these goals, which is known to most of in India.

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Pakistan's Tryst with Terrorism

Shri Tilak Devasher@

Abstract

Right from its creation, and more so afterwards, Pakistan has used jihadis of various hues as instruments of state policy. It was in pursuance of this policy that Pakistan has aided, trained, organized and equipped Kashmiri militant groups. It has provided similar support to Afghan groups against the Afghan central government. The failure of every government to crack down on terrorists is simply because of their unwillingness to do so. Musharraf, like those before and after him deliberately failed to neutralize the jihadi factories because of the role these organizations played in their perception of Pakistan's national security. Given that for decades Pakistan has viewed jihadis as an instrument of state policy; it will be extremely difficult to change that policy in the future. With terrorism continuing to fester internally, extremism and sectarianism has grown. This has damaged Pakistan physically and lowered its image in the world as it is perceived as an epicenter of anti-West terrorism. Pakistan's slide on the slippery road towards the abyss will hasten in the years to come as it remains trapped in its tryst with jihadi terrorists.

Introduction

The quest for parity with India, seen largely in military terms, has been the central reason for Pakistan being a security state and its inability to transform itself into a democratic nation with a strong development agenda. Had the quest for parity with India been across the board, Pakistan may well have been a different country. While Islamisation had a certain salience in a country created on the basis of religion, the growth of jihadi terrorism and violence prevalent in Pakistan today is the result of deliberate state policy pursued for the attainment of the above mentioned 'military parity'. Right from its creation, and more so afterwards, Pakistan has used jihadis of various hues as instruments of state policy without examining their long-term effects on Pakistani society. Not surprisingly, Pakistan is seen the world over as the epicenter of terrorism. This image is embedded in the world through a number of events such as the kidnapping and killing of Daniel Pearl in Pakistan, the headquarters of the Afghan Taliban being in Pakistan and above all 'Operation Neptune Spear' where Osama bin Laden was found hiding by the Americans a scant kilometer from the Pakistan Military Academy at Abbotabad, its 'Sandhurst' equivalent.

An Unholy Alliance

The Pakistan Army's use of the Islamists as instruments of state policy has come to be termed the 'mullah–military alliance'. As Haqqani notes, 'The alliance between the mosque and the military in Pakistan was forged over time, and its

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@ *Shri Tilak Devasher* retired from the Cabinet Secretariat as Special Secretary in 2014. He writes extensively on Pakistan in all leading newspapers and magazines, lectures and appears on national TV. He is currently Member, National Security Advisory Board. He has written three very well received books: "Pakistan: Courting the Abyss", "Pakistan: At the Helm" and "Pakistan: The Balochistan Conundrum". This article has been extracted from "Pakistan: Courting the Abyss.

character has changed with the twists and turns of Pakistani history.'[1] It has two key components: allowing the state to play a duplicitous game by using non-state actors to realize foreign policy objectives while maintaining deniability for themselves and selectively empowering and targeting the non-state actors who follow/do not follow respectively, the laid-down agenda of the state. It was in pursuance of this policy that Pakistan initially aided, organized and equipped the Kashmiri militant group, Jammu and Kashmir Liberation Front (JKLF) and later ditched it for the pro-Pakistani Hizbul Mujahidin (HM), and thereafter placed the Pakistani Lashkar -e-Toiba (LeT) above the HM for providing support and resources.

In simple mathematical terms, with the Indian GDP growing at over 7 percent, as compared with Pakistan's GDP growth of around 3 percent and given that India's economy is nearly eight times the size of Pakistan's, Pakistan has to expend considerably more resources and energy to maintain military parity with India, even if it is supplemented with use of non-state actors, nuclear weapons and 'borrowed power'. With the Pakistani economy consistently underperforming due to structural flaws, the expenditure on the army is unsustainable without outside support. By being fixated on an India-centric security template and the resultant use of resources, Pakistan is unable to take care of its internal needs. There will never be adequate resources to focus on the economy and vital sectors like water and education, and this at a time when the Indian economy is growing, making the gap between the two countries even wider. However, it is unlikely that the Pakistani security establishment will relinquish the notion of military parity with India. If its track record is anything to go by, Pakistan will continue to pay a heavy price in terms of lack of internal development in its elusive quest for parity with India and hasten its trajectory towards the abyss.

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The growth of the jihadi phenomenon dates back to Pakistan's participation in the Afghan jihad that led to the maturing of the mullah–military alliance. Ahmed Rashid estimates: 'Between 1982 and 1992, some 35,000 Muslim radicals from 43 Islamic countries in the Middle East, North and East Africa, Central Asia and the Far East would pass their baptism under fire with the Afghan Mujahedeen.'[2] Lt Gen. (Retd) Hamid Gul, former chief of the Inter-Services Intelligence (ISI), boasted about how his organization had channeled Islamists from a large number of Muslim countries: 'We are fighting a jihad and this is the first Islamic brigade in the modern era.'[3] What pushed the jihadi culture further was that after the anti-Soviet jihad, the ISI diverted the returning jihadis from Punjab, especially from South Punjab, towards Kashmir. Unlike the Afghan Taliban whose agenda was territorially limited to Afghanistan, the jihadis in Pakistan developed a much wider agenda, territorially and ideologically. In implementing this, they were able to feed off tensions in society; using their muscle power to help the business community, the land mafia and the local politicians for mutual benefit.

There are a number of jihadi organizations in Pakistan with some differences in their agenda. Based upon their stated purpose they are:

- Sunni sectarian, notably the Sipah-e-Sahaba Pakistan (SSP) now called the Ahle Sunnat Wal Jamaat (ASWJ) and the Lashkar-e Jhangvi (LeJ).
- Kashmir-centric Deobandi groups like Jaish-e-Muhammed (JeM) and Harkat-ul-Mujahideen (HuM); Ahl-e-Hadis group like Lashkar-e-Taiba (LeT) and the Jamaate-Islami-supported Hizbul Mujahideen (HM).
- Anti-Pakistan groups like the Tehrik-i-Taliban Pakistan (TTP).

These distinctions are useful to understand the complexity of the jihadi scenario, and the primary agendas of various groups. On the ground, however, these distinctions are not watertight and at times, sharing of resources and volunteers is common between the groups.

Into the Grey Zone

Once Pakistan became a nuclear-weapon state in 1998, the army under Pervez Musharraf resorted to a high-risk strategy of using non-state actors under a nuclear overhang. The assumption this time was that India would not dare to retaliate due to the fear of escalation to the nuclear level. This strategy appeared to work since India restricted itself to its own side of the Line of Control (LoC) after Pakistan's Kargil intrusion, 1999; posturing at the border post the JeM attack on the Indian Parliament in 2001 and going the legal way post the LeT carnage at Mumbai, 2008.

Retaliation at the LoC to target army defense works, weapon emplacements and soldiers by both India and Pakistan has remained the norm since 1947. Such retaliation has not deterred either side to continue such activities. However, Pakistan went much further to launch terrorist attacks in the Indian hinterland bolstered by the lack of India response to every terrorist attack. It was only in 2016 that the declared retaliation at Uri by India brought in a change. The change was reinforced with the strike at Balakot in 2019. This showed a mind-set change of India and the belief that the Pakistan hinter land could be targeted by conventional military strikes in retaliation to a terrorist attack. Despite the risk of escalation, this change in Indian strategy does reduce the salience of Pakistan's terrorist proxies. Pakistan would have to think hard before launching any further terrorist acts.

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One of the fundamental problems in Pakistan has been that every leader has promised to crack down on terrorism to end the jihadi culture when he comes to power but forgets those promises in due course. For example, Musharraf in his celebrated 12 January 2002 address outlined an action plan of targeting terrorism that included an assurance that Pakistani territory would not be used for terrorism in India. While it is true that several Pakistani groups were banned, no follow-up action was taken for prosecution; banned groups continued as before by adopting new names but with the same leadership. For example, Hafiz Muhammad Saeed (LeT) and Maulana Azhar Masood (JeM) were detained only for a few months under the Maintenance of Public Order Ordinance but not under the Anti-Terrorism Act. The LeT's name was changed to Jamaat-ud-Dawa (JD) and JeM to Khudam-ul-Islam. Both leaders and organizations were able to carry on their activities as before.The recent sentencing of Hafiz Saeed to 11 years in jail is the usual eyewash since it was timed with the plenary meeting of the Financial Action Task Force (FATF) in February 2020. The verdict will be appealed and the terrorist will again be released.

Astonishingly, former Prime Minister Nawaz Sharif and his brother Shahbaz Sharif, the Chief Minister of Punjab, protected the Jamaat-ud-Dawa. Under Shahbaz Sharif, the Punjab provincial government took over JuD's operations, essentially rendering its workers employees of the provincial government. According to files released from the Abbottabad compound where Osama bin Laden was hiding, there was a reference to Shahbaz Sharif, initiating negotiations for a deal with the TTP as long as the latter agreed to halt all operations in Punjab. This not only shows the lack of seriousness on the part of the government in eliminating terrorism across the board but also its complicity. It was left to the Punjab law minister, Rana Sanaullah, and Musharraf to confirm the role of the state. Sanaullah told BBC Urdu that legal action against proscribed organizations like Jamaat-ud-Dawa (JuD) and Jaish-e-Mohammad (JeM) was not possible since 'state itself has remained a part of this.[4]

The failure of every government to crack down on terrorists is simply because of their unwillingness to do so. Musharraf, like those before him and those who have succeeded him as army chiefs – Generals Kayani, Raheel Sharif and Qamar Bajwa– deliberately failed to neutralize the jihadi factories because of the role these organizations played in their perception of Pakistan's national security. Hence, the measures announced and implemented have been cosmetic with an eye on the international community, to ease international pressure.

The Pakistani Frankenstein: TTP

The Tehrik-i-Taliban Pakistan (TTP) that has become the most dangerous terrorist group for Pakistan is a loose network of Deobandis straddling FATA and parts of Khyber Pakhtunkhwa (KPK) with linkages in Punjab. The primary focus of their violence is the Pakistan State and the objective is to establish their brand of Sharia in Pakistan. Apart from its strict ideology, the TTP has been able to attract followers due to poor governance and especially an expensive and corrupt judicial system. In places like Swat, the TTP has also won support for redistributing land to landless peasants. It is areas of poverty due to lack of jobs, economic stagnation and underdevelopment that have become fertile grounds to seed extremist ideology, though they are not the only areas. The TTP belief system is fairly simple: First, the TTP movement rejects the legitimacy of the Pakistani state and the Constitution since they believe that neither is Islamic. They only recognize the Sharia as the Constitution. Second, according to Joshua White, 'they are somewhat more Tafkiri in their ideology than the mainstream Islamists.' (Takfir is the practice of accusing other Muslims of apostasy.) In other words, 'they are willing to sanction jihad against other Muslims who reject their sectarian or ideological position.' In fact, they claim that these other groups are not truly Muslim.'

Ideology apart, one notable feature of the TTP is its linkage with criminal networks, especially transport networks engaged in smuggling, and the timber mafia. In many places, armed criminal gangs have adopted the label of the Taliban to give themselves a protective facade. According to statistics compiled by the interior ministry, the TTP runs a syndicate worth $50–120 million per month from protection racket, drugs and extortion alone. Karachi has become their financial hub with large investments in various businesses, apart from connection with organised crime.

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The links between the TTP and the Al-Qaeda are worrying for the Pakistan government and the international community. Another term being increasingly used is the 'Punjabi Taliban', The current Punjabi Taliban network has a number of key features. First, it lacks any organization or command structure and operates as a loose network of elements from distinct militant groups. Members from LeJ, SSP, JeM and their various splinter groups are all considered to be part of this loose network. Second, many of these militants were professionally trained in guerilla tactics and sabotage by the Pakistani state. Third, most of the groups are Sunni and Salafist in orientation. Fourth, Deobandi LeJ and JeM are Punjab-based and are components of the TTP. They have conducted a series of attacks in Punjab in the name of the TTP. A worrying question for Pakistan is whether its heartland – Punjab – is becoming the new Taliban focus.

The army formally had launched an operation against the TTP in North Waziristan on 15 June 2014.The moot question is how effective the operation has been. The army, of course, has been claiming that the operation was a huge success and has periodically been touting statistics of the number of terrorists killed and areas that have been cleared. For example, the Inter-Services Public Relations (ISPR) claimed that since the launch of Operation Zarb-e-Azb in June 2014, more than 21,000 suspects had been arrested in nearly 14,000 intelligence-based operations and 200 killed while

resisting arrests. However, there has been no independent verification of the army's claims. Such figures do beg the question: if despite the scale of such arrests, terrorist attacks are continuing, clearly the number of terrorists must be massive or multiplying.

The government formulated a twenty-point National Action Plan (NAP) in December 2014, against the backdrop of the Peshawar school attack, to crack down on terrorism. More than six years later, it is clear that the leadership, both civilian and military, lack the political will to fully implement the NAP. The army has no intention to act against anti-India groups like the LeT/JuD and Jaish-e-Mohammad and anti-Afghan groups like the Haqqani network and the Afghan Taliban. The freedom enjoyed by terrorists like Masood Azhar, Zakiur Rehman Lakhvi and Hafiz Saeed proves this.

The Lashkar e Taiba (LeT)– Pakistan Army Relationship

The LeT or Jamaat Ud Dawa (JuD) has the greatest potential and propensity to be Pakistan's hybrid war grey zone army. It has emerged as the most important terrorist group in Pakistan with international dimensions. What gave it additional notoriety was the Mumbai attack in November 2008. The reasons why the group fits this role are as under:

- Unlike other Pak terrorist groups, the LeT has not yet staged attacks in Pakistan or targeted the interests of the Pakistan Army/ ISI. Massive support given by the ISI in its formative stage is partly responsible for such loyalty.
- The LeT is predominantly a Punjabi terrorist group that has natural ethnic affinity to the predominantly Punjabi army.
- The LeT/ JuD had condemned in January 2010 the killing of Muslims by suicide bombing as un-Islamic and said that such attacks 'played into the hands of the U.S., Israel and India' and argued that focus should be on jihad in Kashmir and Afghanistan – against non-Muslims.
- It has condemned sectarian violence in Pakistan.
- Lastly, the LeT plays a crucial role domestically.

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Distinguished Associate Professor, Security Studies Program, Georgetown University, Ms Christine Fair argues that the LeT's domestic role is hinged on its opposition to other terrorist groups attacking the state. As a result, Pakistan would not abandon the LeT even if it were not required in the Indo-Pak context. LeT has never conducted a terrorist attack within Pakistan nor has it set its sights on any Pakistani target at home or abroad. For these reasons, the LeT enjoys the unstinting support of the Pakistani military and intelligence establishment. She sees Pakistan's reliance upon LeT deepening as the internal security problems of the state worsen.[5]

One of the fears that haunts the Pakistan Army is that targeting the LeT could push it into collaborating with the TTP. Equally, there is the fear that dealing with the LeT militarily, as with other Punjabi terrorist groups, could test the loyalty of the predominantly Punjabi army. This is all the more so now that part of the recruiting ground of the army and the jihadis is the same – South Punjab.

Though a Punjab-based group, the LeT has been spreading its tentacles to other parts of the country too. It has set up camps and established its footprint in areas like Tharparkar in Sindh, which has seen a surge in infant deaths due to malnutrition over the past two years. The LeT also has an agenda that goes beyond Kashmir. Bruce Riedel summed this

up well: 'LeT's ideology as laid out by Saeed goes far beyond recovering the Muslim parts of Kashmir for Pakistan. He seeks the creation of a Muslim caliphate over the entire subcontinent. The vision of Saeed and his fellow leaders of LeT require the literal destruction of India as a state. Saeed announced this goal in a speech in 1999 after the short Kargil war with India, saying, '… today I announce the break-up of India, Inshallah [God willing]. We will not rest until the whole of India is dissolved into Pakistan.'[6]For a long time, the West, especially the U.S., saw the LeT as predominantly an India specific threat while their focus was on the Al Qaeda. But when LeT trained terrorists started getting implicated in terrorist plots in Europe and North America, the West began to understand the true nature of LeT.

Conclusion

Pakistan's security crisis is rooted in its own skewed foreign and internal policies—which have traditionally and selectively distinguished between good non-state actors such as Afghan Taliban, Lashkar-e- Taiba, and the Haqqani network and the bad ones like the LeJ, TTP, etc. The continuous support to these Jihadi groups since the time of Zia-ul-Haq has ensured that the moderate civil society in Pakistan is faced with shrinking space and is much too weak to take on the Jehadi challenge. Decades of military rule has also stunted the growth of political parties and of democracy itself, making the political leaders toe the army's line in security matters. And so long as the army looks at security, internal and external, through the prism of India, there is little likelihood of any change in the policy of treating Jehadis as anything but 'strategic assets'. In Pakistan, the quest for military parity and an imagined threat perception from India has come at a huge cost. As Faruqui notes, 'Pakistan's continued preoccupation with seeking a military solution to the conflict with India is strategically myopic on their counts. First of all, it has not been militarily successful. Second, it has failed to achieve Pakistan's stated political aims. Third, it has been costly, in terms of the benefit forgone by not spending enough on raising the people's standard of living'.[7]

Given that for decades Pakistan has viewed jihadis as an instrument of state policy against India, it will be extremely difficult to change that policy in the future. With terrorism continuing to fester internally, Pakistan's slide on the slippery road towards the abyss will hasten in the years to come as it remains trapped in its tryst with jihadi terrorists.

For long, the army's presumption has been that the jihadi groups and especially the Kashmir-centric groups do not hurt Pakistan. However, as the example of the TTP shows, jihadi groups have turned against their master. The worst example of this was the brutal massacre of 135 schoolchildren in the Army Public School in Peshawar. Second, jihadi groups in Pakistan can be hijacked for international terrorism — for example, become affiliated with or show loyalty to groups like the AQIS (Al-Qaeda in the Indian Subcontinent) and ISIS, or develop agendas of their own. Third and most critical, jihadi terrorism may lead to a potential nuclear conflict with India in case of another 2008 Mumbai-type attack and India's present proactiveness. For the army, keeping the Indo-Pak normalization process derailed through the use of jihadis may be par for the course as it helps the army maintain its primacy, but it can pose serious dangers to Pakistan's well-being. Encouragingly, there is growing realization in Pakistan about the impact that the policy of breeding jihadis has had on Pakistan as numerous articles in Pakistani media attest. Given that for decades Pakistan has viewed jihadis as an instrument of state policy against India, it will be extremely difficult to change that policy in the future. With terrorism continuing to fester internally, Pakistan's slide on the slippery road towards the abyss will hasten in the years to come as it remains trapped in its tryst with jihadi terrorists.

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Section IV

India's Strategic Neighbourhood

Emerging Geo-political Trends in the Indo - Pacific: Implications & Way Ahead

Maj Gen Rajiv Narayanan, AVSM, VSM (Retd)@

Abstract

The Indo-Pacific region is witnessing a major flux in the geo-political and geo-strategic spheres as there is a gradual shift in the maritime trade centre of gravity towards it from the Atlantic and the Pacific regions. With the West and the USA perceived to be in a strategic retreat, it opens a window of opportunity in the region for a geo-strategic reconstruct. China, under Xi Jinping, sees this as an opportunity for China to assert itself within the Indo-Pacific and occupy the emerging vacuum. Towards that end, he has promoted the Belt Road Initiative (BRI), with the aim of gaining geopolitical space in Asia through geo-economic squeeze. However, the Hong Kong turmoil, Xinjiang correction camps for the Uyghurs under world focus, U.S. – China trade war, its economic slowdown, the coronavirus epidemic and a marked slowdown in the BRI seems to have pushed China on the back foot for the moment. This paper analyses the U.S. and the Chinese strategies for the Indo-Pacific, their difference in approach, assesses the emerging trends in the region and their implications and way ahead for India.

Introduction

The Indo-Pacific region is on the cusp of a major shift in the geo-economic, geo-political and geo-strategic spheres in its favour. It is witness to a gradual shift in the maritime trade centre of gravity towards it from the Atlantic and the Pacific regions and the rise of a revanchist China. Leading scholars have termed this phase as the 'Age of Strategic Uncertainties'. While China is keen to be recognised as a major power at the global stage, it still has not reached the level to be able to compete with the USA in all domains. It remains a major regional power in the Indo-Pacific, especially in the Western Pacific, South East Asia, and to some extent in the India Ocean Region (IOR). Concurrently, it is slowly expanding its influence in Central Asia, Middle East, Africa, Eastern Europe, South Pacific islands, Latin America and the Caribbean under the overarching umbrella of its BRI.

However, challenges abound due to its slowing economy, neo-mercantile predatory economic strategies and the debilitating trade war with USA. President Xi Jinping perceives this period of strategic uncertainties as a window of opportunity for China to take the lead on the global stage. This window is also perceived as small, due to the challenge it faces with the rise of India and the coming together of like-minded liberal democracies of the region, supported by the Western powers, which could be its counter balance. China has not, and cannot, deviate from this goal since it also serves as an effective tool for diverting attention from its internal instabilities through jingo nationalism.

Thus, while China may seem to be accommodative with other powers in the region, it would only be marking time to regain its *Shi* (strategic configuration of power) to push for its domination of the Indo-Pacific region. China lays a lot of faith in its ancient wisdom and sincerely believes in the concept of the Middle Kingdom, which was ordained as

@ *Maj Gen Rajiv Narayanan, AVSM, VSM (Retd)* was commissioned into the Armoured Corps in Dec 1978. He commanded an Armoured Regiment, an Armoured Brigade, a Mountain Division in the North East and was the Additional Director General of Military Operations (B). He served as the Defence Attaché in the Embassy of India Dushanbe, Tajikistan. His areas of interest include China, South and Central Asia, Indo-Pacific Region, and Future World Order & Regional Multilateralism. He has a large number of articles and papers published in Indian Journals and magazines (including web editions). He is presently Head CS3 at the USI of India.

a mandate from heaven to rule. The current flux in the global order is now seen as a mandate from heaven for it to rule the world; it perceives that the *Shi* is now flowing in China's favour.

All nations strive for economic growth and development, and Asia is no exception. Much of Asia needs extensive investments to be able to meet the 17 Sustainable Development Goals (SDG), as per the UN General Assembly Resolution of 2015.[1] It needs vast investments for the development of infrastructure, energy sector, communication and water needs. As per the ADB Report of 23 February 2017, Asia needs an investment of around US$ 26 Tn by 2030 for achieving the SDGs.[2]

It is this vacuum that China is targeting in a focussed approach to use its geo-economic strength to gain influence and space through its BRI. The Hong Kong turmoil, Xinjiang correction camps for the Uyghurs under world focus, U.S. – China trade war, its economic slowdown and a marked slowdown in the BRI seems to have pushed China on the back foot for the moment. Concurrently, the rise of many bilateral and multilateral partnerships by like-minded liberal democracies in the region, supported by the U.S., presents a fresh challenge to the Chinese narrative for economic development in the Indo – Pacific region. This paper looks at the following:

- U.S. Strategy for the Indo-Pacific;
- Chinese Strategy for the Indo-Pacific;
- Emerging Trends and Implications for India.

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U.S. Strategy for the Indo- Pacific

For USA, the IOR had long been a place for victualling and for linking the Atlantic with the Pacific. These were the two regions where the U.S. and its companies had major investments, apart from the Persian Gulf and the Red Sea. The deployment of its forces, in these areas[3], provides a clear evidence of its interests in the region. However, the threat and competition posed by a rising and revanchist China, which was pushing for its own influence in the Western Pacific and the IOR led to a review of the U.S. Foreign Policy in 2011 under the Obama Administration, with its 'Pivot to Asia'[4], which was essentially dealing with the Asia Pacific, more of an East Asia strategy to counter China. At that time the Chinese influence strategy through geo-economics in the IOR had not yet been unveiled.

The Chinese Silk Road Economic Belt (SREB), the first part of the BRI, was unveiled by Xi Jinping in Kazakhstan on 07 September 2013 in his speech at Kazakhstan's Nazarbayev University[5]. He next unveiled the second part, the Maritime Silk Route (MSR) in Indonesia during his speech to the Indonesian Parliament, in October 2013.[6] This fundamentally changed the geo-strategic and geo-political dynamics of the region. China subsequently clubbed the two as One Belt One Road (OBOR – Yi Dai Yi Lu), later re-christened as the BRI.

On 01 June 2019, the U.S. Department of Defence released its Indo-Pacific Strategy Report.[7] This follows its National Security Strategy (NSS) released in December 2017[8] and the National Defence Strategy on 19 January 2018[9]. The NSS identifies China and Russia as the main challengers to American power, influence, and interests, attempting to erode American security and prosperity.[10] The National Security Strategy (NSS) pitches for an America First policy and identifies four vital national interests.

- Protect American people, the homeland and American way of life;
- Promote American prosperity;

- Preserve peace through strength and ensure that the regions of the world are not dominated by one power;
- Advance American influence, globally.[11]

The U.S. Indo-Pacific Strategy Report, released on 01 June 2019, by the U.S. Department of Defence, stresses on preparedness, partnerships and promoting a networked region.[12] The whole thrust of the report is based on robust physical dominance of the region. The crux of the problem faced by the countries in the region is that the USA views the Indo-Pacific Region as one that is extending from the West Coast of India till the West Coast of USA.[13] In short U.S. perceives only the Eastern Indian Ocean to be under its Indo-Pacific construct (Refer Figure 1 below), based on the area of responsibility of its recently rechristened Indo-Pacific Command.[14]

Figure 1: US Perception of Indian Ocean under its Indo-Pacific construct

Therein lies the catch, since the bulk of the Indian Ocean (Western) is out of purview of its Indo-Pacific strategy. The balance Indian Ocean portion is divided under its Central and Africa Commands (Refer Figure 2 below).However, the rest of the world views the Indo Pacific as the region extending from the East coast of Africa till the West Coast of USA (Refer Figure 3 below). It is this dichotomy that needs to be addressed by the USA to ensure that its strategy can by synchronous with those of its allies and partners.

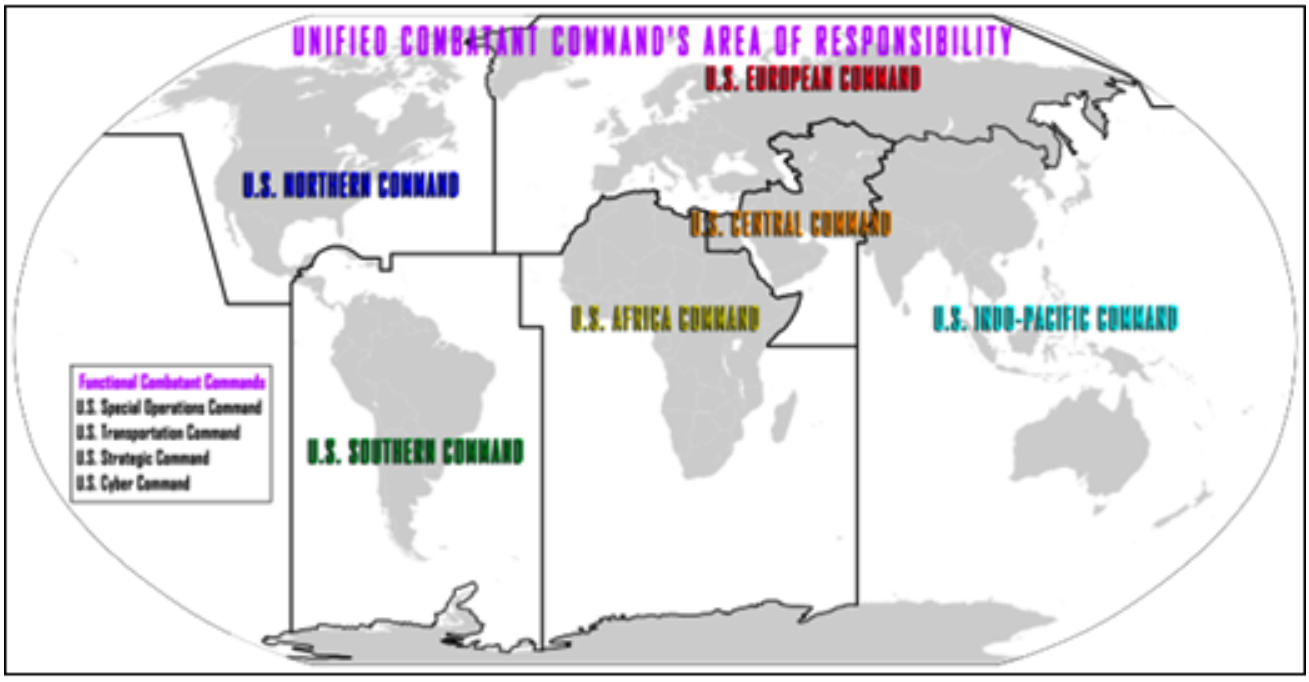

Figure 2: Area of Responsibility of US Unified Combatant Commands

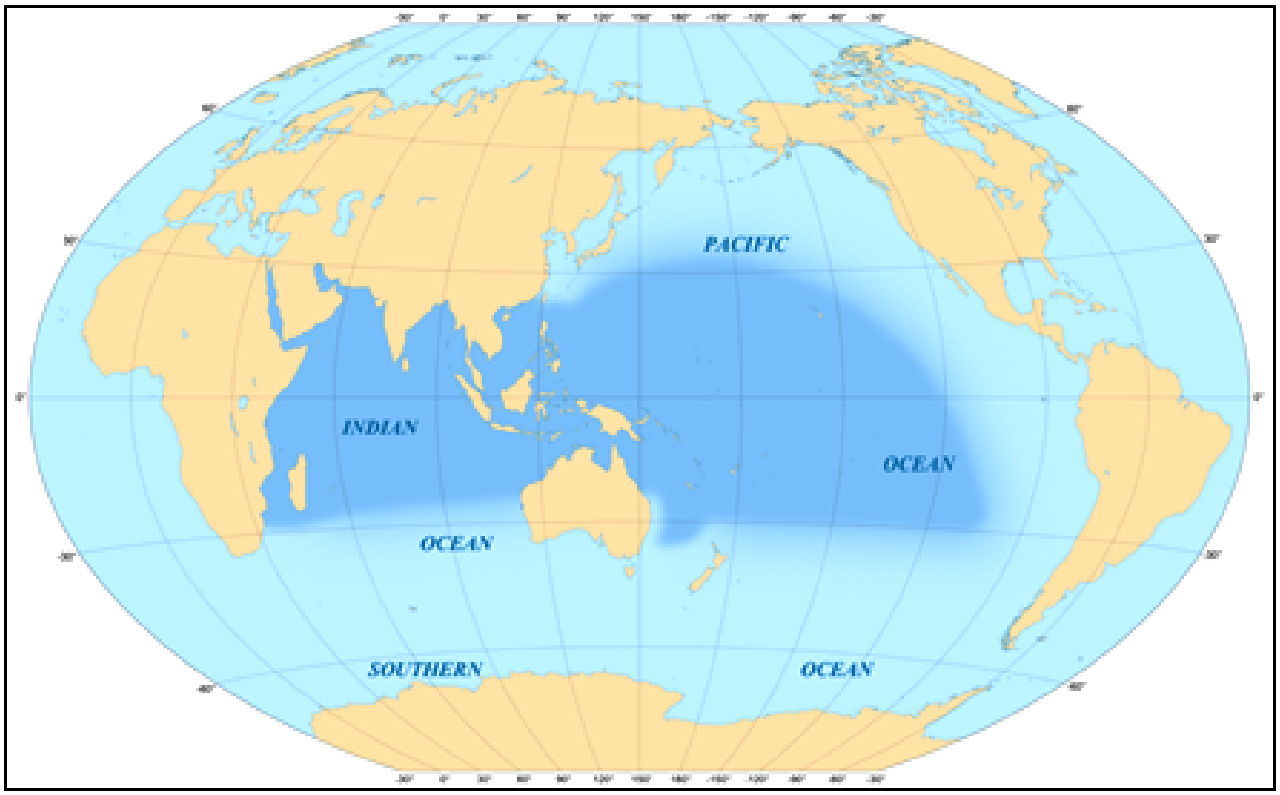

Figure 3: Global Perception of the Indo-Pacific (Less USA)

The USA has also enacted the BUILD Act 2018 (Better Utilization of Investments Leading to Development Act of 2018)[15], which was signed by the President on 05 October 2018,[16] and ARIA Act 2018 (The Asia Reassurance Initiative Act)[17], signed by the President on 31 December 2018, to counter China's increasing geo-economic push. But it has yet to gain any traction, since the funds earmarked for these are very small as compared to the Chinese commitments under its BRI. The U.S. private sector may not be as amenable to large investments in the region, since the profits may not be either forthcoming soon nor in the scale desired.

Thus, to effectively develop an alternate narrative to the BRI, USA needs allies and partners to jointly work towards a successful liberal and democratic narrative as an option for the countries of the region to meet their development and growth needs in all domains. This entails a capability to finely balance the competing core interests of all allies and partners — the first being the definition of the term Indo-Pacific itself. It also needs to ensure that the interests of the companies investing in the region are met to some extent. A start has been made by India and Japan under the Asia–Africa Growth Corridor, launched on 25 May 2017.[18] USA and other like-minded powers should consider expanding this structure by joining / supporting it.

Chinese Strategy for the Indo-Pacific

China under Xi is determined to show the developing and the under-developed nations that a contrarian model to the Western narrative, of liberal, transparent democracy, exists for economic and overall growth — autocratic socialism with Chinese characteristics. Xi Jinping showcased the same during his speech to the 19th Congress in Oct 2017 and in his New Year speech to the nation, wherein he stated that socialism with Chinese characteristics could be the path for developing nations to follow to achieve modernisation. It sees a great opportunity of expanding its sphere of influence in Asia, Oceania and Africa, amongst the global South, where it could sell this narrative amongst the smaller, under-developed nations, and so realise its 'Dream'.

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The China Dream was enunciated in a book by Col Liu Ming Fu,'China Dream: The Great Power Thinking and Strategic Positioning of China in the Post-American Era', where he argues that China should displace the United States as world leader. As early as 1923-24, Dr Sun Yat Sen had laid out the vision for China to eventually surpass USA[19]. His advice was to learn from the USA and the West to achieve the rejuvenation of the Chinese Nation. The *strategic continuum* since Deng Xiao Ping created the strong foundation for Xi Jinping to be able to take an aggressive posture in global affairs.

Xi Jinping appears to view the coming decades as a 'strategic opportunity' for China to establish a 'Pax Sinica' in Asia — the fruition of phase one of 'The China Dream' and the great rejuvenation of the nation, though he has given some new timelines during the 19th Congress[20] on the route to his China Dream, at some variance to the previous timelines, of the 'Two Hundreds'[21].

A strong message is resonating from China under Xi that it is ready to assume leadership in the 'International Order'. However, there is a push back by U.S. and the West against the Chinese opaque and predatory economic outreach lacking reciprocity. The U.S.-China trade war could also be seen in this light. Concurrently, the smaller nations are also forcing China to review the terms and conditions of the BRI agreements; the Chinese arm-twisting of Sri Lanka to take control of the Hambantotta port, Pakistan's surrender of Gwadar port, and consequent loss of sovereignty over those pieces of territory has forced a rethink amongst these nations to avoid such an eventuality.

Despite this and a steady economic slowdown since around 2013, China still possesses the heft and will to aggressively push to achieve its dream of national rejuvenation. China has followed a strategy of slowly gaining control of a major portion of the economy of many such small countries, by setting up its industries, investing in mining and other natural resources and direct investments in its economic structures — a strategy of invest, acquire and dominate. To lower their guard, China acts in the open, hiding its true intentions under the guise of common economic activities.

Once the dependence on its investments reaches over double digit of the country's GDP, it gets the necessary leverage to ensure that they follow China's lead and abide by its decisions. This is its main strategy for gaining geopolitical space in Asia under what it terms as the Neighbourhood Diplomacy through the infrastructure projects of BRI. The projects under BRI have been selected by China purely for its own long to medium term geo-strategic gains and are usually not economically viable for the host country — as seen in the case of Hambantotta port and China Pakistan Economic Corridor (CPEC) projects. This strategy aims to ensure that the accumulated gain would radically alter the geo-economic and geo-commercial balance in the Indo-Pacific in its favour. It would attempt to restrict space for competing nations in the region and continue with its creeping assertiveness on strategic territorial space based on specious historical claims.

Towards that end it appears to be utilising its doctrine of Unrestricted Warfare (URW)to denude the Comprehensive National Power (CNP) of the developing nations of the region, thereby making it easier to coerce and integrate them with China. Concurrently within the region it is also applying the concepts of its ancient game of 'Wei Qi' or Go — an 'encirclement game'. This game, along with the URW aptly sums up their strategy and operational art. The game entails 'multiple battles' over a wide front, while concurrently 'balancing the need to expand' with the need to 'build protective clusters'[22], built on specious claims that it aggressively attempts to dominate. This it does by employing what the experts have termed as 'grey zone' warfare._On the continental front it implies sending its soldiers as civilians, either as herders or as fishermen as the first line, supported by the border defence units as the second line and the main PLA ground forces as the third line. On the maritime front it has created two more navies — the Coast Guard and the Maritime Militia, its second and third sea force. The Maritime Militia, under the garb of fishing trawlers forms the first line of defence, supported by the Chinese Coast Guard as the second line with the PLA navy as the third line. Since the extant international rules of engagement do not cover such operations, it becomes difficult for nations to calibrate their responses effectively.

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China is investing heavily in development of ports in the IOR. It has termed these as nodes (overseas ports) in the Science of Military Strategy 2013, published by its Academy of Military Sciences[23]. Based on the geo-strategic and geo-political dynamics in the medium to long term, selected nodes would be converted to Overseas Strategic Strong Points (OSSPs) for effective forward deployment, victualling of its Forces like it has done in Djibouti and Gwadar. The Chinese prefer to call their overseas military bases OSSPs[24], since the term 'overseas military base' has the baggage of western imperialism.

According to it, an expansion of the geographic scope of naval operations, based on the strategic tasks that the 2015[25] and 2019[26] Defence White Papers have laid down for the PLA, requires the establishment of replenishment points and various forms of limited force presence. OSSPs fulfil these demands and would support the military's long-range projection capabilities by effectively shortening resupply intervals and expanding the range of support for Chinese forces operating abroad. The artificial islands that China has militarised in the South China Sea also fall in this category, along with the Paracel Islands and the Scarborough Shoals.

Some of these ports being secured at a later point in time by its Marines (like in Djibouti and Gwadar) would allow China to expand its outreach along the MSR. It would group a set of OSSPs to control various regions of the Indo-Pacific, viz., East China Sea and Yellow Sea, South China Sea, Bay of Bengal, Arabian Sea, Eastern Indian Ocean and Western Indian Ocean, and Southern Pacific. This appears to be the overall strategy of controlling its neighbourhood, thereby constraining U.S. in the Indo-Pacific and India's security in the Indian Ocean.

For China, its geo-economic strategy precedes its military strategy, wherein the economic squeeze that would be feasible in the middle to long term would provide it the geo-political and geo-strategic influence. The debt-equity swap provides it the opportunity to take control of the OSSPs. The military follows thereafter. This is at a stark variation to the strategies that U.S. and the West has been following in the region.

Emerging Trends and Implications for India

To counter China's above geo-economic strategy India withdrew from the Regional Comprehensive Economic Partnership (RCEP) in November 2019 to protect its farmers, Micro, Small & Medium Enterprises (MSMEs), dairy & manufacturing sector, pharmaceutical, steel & chemical industries[27] from being overrun by cheap Chinese goods without any reciprocal entry for India into Chinese markets. The events that are unfolding in the RCEP negotiations indicate that China is slowly achieving its economic stranglehold over most of ASEAN nations, thereby inhibiting them from moving away from Chinese interests. Japan, South Korea, Australia and New Zealand, however, appear to be hedging for the moment, awaiting U.S. strategy to fully unfold in the region, before taking a hard stance.

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Chinese foothold in India's economy is tenuous at present, but is slowly expanding its footprint by investing in tech-start-ups and unicorns (like Paytm etc.), thereby enabling it to achieve disproportionate impact in the long run[28]. India and these companies need to understand the medium to long term risks that the country would face if due diligence is not paid to deny a back-door influence and data loss to China.

That said, the emerging trends show two possible scenarios in the near to medium term-

- A *bipolar Indo-Pacific*, with China and its core vassal states[29] on one side and the U.S. with like-minded partners on the other;
- A *loose multi-polar Indo-Pacific*, with China and its vassal states competing with U.S. and a few partners, while the other emerging powers in the region would attempt to retain strategic autonomy by hedging in order to protect their respective national interests.

The second trend is evolving at present, but could change depending on how USA and the West calibrate their strategies. Concurrently, Russia is also evolving its own strategy for the region wherein it recognises that Greater Eurasia and the regions of the Indian and Pacific Oceans do form part of a common space. The same was very evident in the joint statement issued by Russia and India after the fifth Eastern Economic Forum (EEF) held in Vladivostok in the first week of September 2019, where Prime Minister Narendra Modi was the Chief Guest.[30] Thus Russia could also be seen as another emerging player in the region, which would also be keen to protect its core interests, especially in its Far East where it feels economically and demographically threatened by the Chinese.

For India this presents a challenge for securing its core interests in the region. As such it would prefer to hedge for the moment, under the rubric of strategic autonomy. Hence, while it has a Russia-India-China forum, it also has a Japan-Australia-India forum, a QUAD — with USA, Japan and Australia, informal dialogue at the apex level with China, Wuhan Spirit and Chennai Connect, etc.India faces a clear and present long-term threat from China in multiple domains, be it at the geo-political, geostrategic or geo-economic levels.

A rising liberal democratic India is perceived as a direct challenge to China's narrative of socialism with Chinese characteristics being the path for other developing countries in Afro-Asia to follow and achieve modernization. It provides an alternate model for development, a model that does not subsume the host country's economy with it but ensures inclusive growth.

The vast geopolitical trust that India enjoys within these regions should be built upon to create a free and open Indo-Pacific. Also work with like-minded emerging powers of the region (including Russia) and with USA and the West to create a forum, which would provide the alternate geo-economic and geo-commerce model for the Indo-Pacific Region and facilitate economic activities, security, trade, intelligence exchanges, military capacity building, technology sharing, agenda setting for regional forums and coordinated diplomatic initiatives. The overarching security architecture could be based on an expanded QUAD to encompass some more likeminded nations of the region. This architecture could also serve as the net security provider within the Indo-Pacific region.

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This would lead to the scenario of a loose multi-polarity in the region and act as succour to the smaller nations ensuring that rule of international law, good governance, equality, transparency and economic prosperity for all is ensured. However, China would also be pushing its model aggressively, especially amongst nations where it has an economic stranglehold, thereby leading in the medium term to a bipolar region. Such a scenario, which would be debilitating for the region with fault lines running through it, could be avoided if the alternate narrative succeeds and gains traction.

India also needs to ensure that it secures itself comprehensively from external threats and internal dissonance. It needs to move fast on creating a modern integrated military, with a responsive restructured Higher Defence Organisation concurrently with a restructured comprehensive Internal Security architecture. The 01 Jan 2020 creation of a 'Chief of Defence Staff' (CDS) which was announced by the Prime Minister on 15 Aug 2019 is a welcome step. However, the duties and responsibilities of the CDS and a restructured Ministry of Defence (MoD) incorporating the Services also need to be addressed. There is a need for a bipartisan approach towards socio-political, socio-economic and socio-religious security, to ensure there is no internal dissonance that enemies could exploit. A similar approach is needed to ensure India is secure from multi-domain threats that would be utilised to target the country and weaken its CNP.

Conclusion

The rise of China can be viewed from different angles of perspectives and is divided into three schools of thought. The 'Confident School' that asserts that China's rise is inevitable, and its ascendancy will challenge the U.S. preponderance both regionally and globally. The 'Pessimist School' that argues China is facing both domestic challenges and external constraints which perhaps make it unlikely to compete with or replace the U.S. either in the region or the World. The

'Not-Yet/Uncertain School', positing that although China has immense potential to be a great power or 'a challenger' to the U.S., its willingness to take the leadership role as a great power is uncertain or seemingly falls short of expectations.[31]

Xi Jinping sees the current geo-political flux as an opportunity for China to assert itself within the Indo-Pacific and occupy the vacuum due to USA's strategic retrenchment. Towards that end, he has clubbed the existing infrastructure projects, and added a few, under the much touted 'Belt Road Initiative (BRI), with the aim of gaining geopolitical space in Asia.

This is centred on a phased commercial penetration through infrastructure projects and selling a short term' economic dream' to the underprivileged nations on its periphery. Such commercial penetration is the precursor to the 'strategic equity', squeezed out from these nations due to the debt trap caused by these unviable projects, thereby gaining political, diplomatic and geopolitical space needed to achieve the China Dream of becoming a 'Great Power' by 2050 — *a Unipolar Asia centred around China*. However, the past seems to have come to haunt the Chinese. Having given loans to these small nations at market rates for unviable projects, the countries are facing debt crises and are not amenable to China's arm twisting as yet.

The emerging powers of the region supported by USA and the West need to utilise this opportunity to be able to provide an alternate narrative/ economic model to assist the small nations and ensure peace and stability within this region. It needs to be responsive and ensure that only economically viable projects are undertaken, and not the unviable projects that China had been pushing within the region to enable its geo-economic squeeze for strategic equity.

At the same time, India needs to revamp its internal and external security architectures and follow a bi-partisan approach to socio-political, socio-economic and socio-religious issues to curb internal dissonance. India and the other like-minded emerging powers of the region have a window to seize the initiative. This strategic window, due to the current geo-political and geo-economic flux, is small, post which it be increasingly difficult to maintain a multi-polar Indo-Pacific.

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Belt and Road Initiative (BRI): A Reality Check

Dr Geeta Kochhar[@]

Abstract

With many countries joining the Chinese mega project Belt and Road Initiative *(BRI), the 'debt-trap' narrative has been diluted over a period of time. China has become more conscious of the concerns of the countries and is entering into bilateral agreements to resolve issues with individual states. Hence, in the last seven years of BRI, China has made remarkable progress in signing of the projects under BRI and making large overhead investments. Yet, some crucial issues remain with Chinese investments coming mainly from State-owned enterprises and larger portion of the funds utilized in infrastructure building and for its energy needs; rather than development investment for the host country. India not being a part of the BRI till date is a serious concern for the Chinese as that poses challenges to the sustainability and development of the projects in the region.*

Introduction

In November 2019, Pradumna B. Rana, Chia Wai-Mun, and Ji Xianbai from the S. Rajaratnam School of International Studies, Singapore, published a working paper titled "China's Belt and Road Initiative: A Perception of Survey of Asian Opinion Leaders", which was based on a survey of 1200 Asian leaders from 26 Asian countries who are officially a part of the BRI. The paper concludes that there was overall unanimity in responses regarding BRI as a "positive development" for international economic cooperation and development.[1] Yet, one does find many voices against BRI, including non-participation of India, and many projects under the BRI running through rough weather. The issue then is that after seven years of BRI in place, what progress has been made in concrete terms? What are the concerns over BRI for the region in general, and to India in particular? Does the concerns over 'debt-trap diplomacy' and over China's influence in the region as the sole hegemonic leader stands any ground or they are mere rhetoric to contain China's progress? Last but not the least, what are the obstacles for China to realize this mega project?

There is clear acknowledgement among scholars that there is a shift in power symmetry and the newly emergent power — China — is set to redesign the matrix. There is also a shift in the locus towards Asia that will facilitate greater transformations, mainly pushed through the connectivity projects and linkages among nations both via land and sea. It is here that the mega project of the People's Republic of China — 'One Belt, One Road'— OBOR (一带一路 *yi dai yi lu*), which is now referred to as the 'BRI', becomes significant for regional as well as global focus. In April 2019, China hosted the second Belt and Road Forum for International Cooperation in Beijing with as many as 37 Heads of States or Governments along with over 5000 participants from 150 countries. The priority areas highlighted were: policy connectivity, infrastructure connectivity, trade connectivity, and financial connectivity.[2]

[@] *Dr. Geeta* Kochhar is an Assistant Professor, at the Centre for Chinese and South East Asian Studies, JNU. She was Visiting Professor to FDDI, Fudan University, China; Institute of Indian and Southwest Asian Studies, Vietnam; University of São Paulo, Brazil; and Indian Institute of Management Shillong, India. She has edited Modern China: Society, Culture, and Literature (2019); China's Foreign Policy and Security Dimensions (2018); co-edited Unique Asian Triangle: India, China, Nepal (2016); India–China–Nepal: Decoding Trilateralism (2016); and Nepal's Foreign Policy and Her Neighbours (2016).

On 22 April 2019, the Office of the Leading Group for Promoting the Construction of the BRI released a report titled "Progress, Contribution and Prospect of the Belt and Road Initiative". The 18,000 characters long report highly praised the success and development progress of BRI and pointed out that China has signed more than 170 cooperation documents with more than 150 countries and international organizations, including bilateral cooperation plans between China-Mongolia-Russia, China-Kazakhstan, China-Cambodia, China-Laos, China-Czech Republic, China-Hungary, China-Brunei.[3] While Chinese President promotes it as the 'project of the century', critics regard it as an attempt to cast Chinese influence on global financing by binding countries to 'debt trap'. Hence, the interests, concerns, and criticism of the BRI range across countries and continents.

What is BRI from Chinese History: Land and Sea Routes

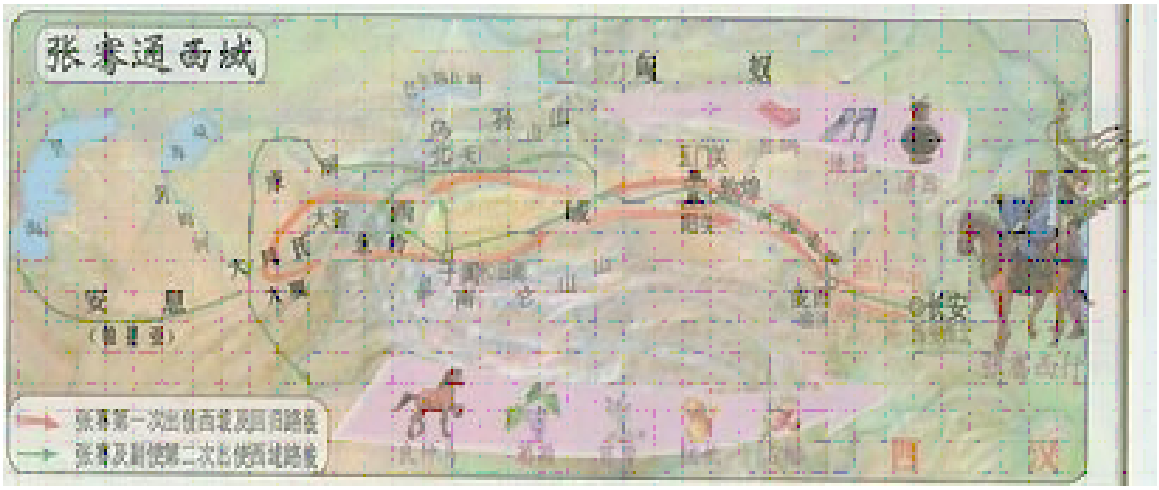
China proposed 'One Belt, One Road' in 2013 to revive the old silk route linking across countries and regions with an initial proposal of USD 4 trillion foreign reserves, in order to resolve its problem of overproduction of steel and cement through trade. The purpose was also to unite many undergoing regional connectivity projects of China with the official stated objective to boost intra-regional trade cooperation. It comprises of two main components: Silk Road Economic Belt and 21st Century Maritime Silk Route. The initiative is geographically structured along six corridors with five land routes (linking Mongolia, Central Asia, Russia, Iran, Turkey, the Balkans, Central and Eastern Europe and finally to Germany and the Netherlands); and one Maritime route (linking South East China with South East Asia, Bangladesh, India, the Persian Gulf and the Mediterranean up to Germany and the Netherlands). The six main corridors of the BRI are:

The purpose was also to unite many undergoing regional connectivity projects of China with the official stated objective to boost intra-regional trade cooperation. It comprises of two main components: Silk Road Economic Belt and 21st Century Maritime Silk Route. The initiative is geographically structured along six corridors with five land routes.

- New Eurasian Land Bridge, running from Western China to Western Russia
- China–Mongolia–Russia Corridor, running from Northern China to Eastern Russia
- China–Central Asia–West Asia Corridor, running from Western China to Turkey
- China–Indochina Peninsula Corridor, running from Southern China to Singapore
- Bangladesh-China-India-Myanmar Corridor, running from Southern China to India
- China–Pakistan Corridor, running from South-Western China to Pakistan

BRI was promoted with the notion that it is reviving the old historical roots and attempts to create future connectivity based on the older concepts**.** The land route was framed on the Zhang Qian's travel story (See Map. 1). Zhang Qian (张骞), a military officer, was sent as an envoy to western regions by Emperor Wudi of Han dynasty from Changan with a batch of soldiers mainly to establish military relations. He was twice imprisoned by the *Xiongnu* (Nomads) and after 13 years returned to Changan. On his return, he disclosed his visit to Afghanistan and saw Indian merchants trading "bamboo poles" (邛竹杖 Q*iongzhu Zhang*) and "Sichuan brocade" (蜀錦 *Shujin*). However, as his attempts to pass through the northern route of *Xiongnu* failed, he discovered the southern route for trading and hence, he is considered to have found the southern silk route. The records of his travels are compiled by Si Maqian in 1st century B.C.

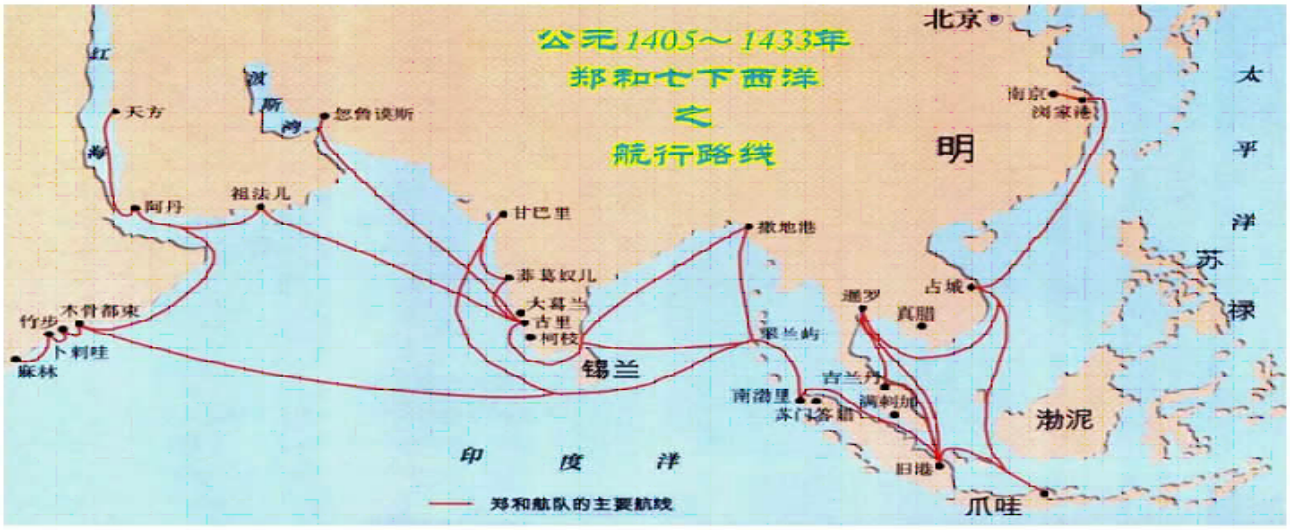
Map 1: Zhang Qian's Travel Route



Source: http://tech.qq.com/a/20100120/000365_1.htm

The Maritime Silk Route is a concept taken from the Ming dynasty when Admiral Zheng He made seven voyages to explore the connections with other states of Southeast Asia, South Asia, Western Asia, and East Africa from 1405 to 1433. (See Map 2) Most of Zheng He's voyages were under the rule of Emperor Zhu Di of the Ming dynasty (1368-1644CE) during the most flourishing period of the dynasty called the "Yongle flourishing age". This exactly resonates with the Chinese stature in the global economy in present times. An interesting aspect is, that during the Ming Dynasty large territories including some of the northern part of Vietnam (See Map 3) were under the jurisdiction of Emperor Zhu Di; while literature highlights that Zheng He's visits were to propagate the State power/might, which unprecedentedly influenced many ASEAN countries. A point of derivation is obviously what many critics fear in terms of larger Chinese influence in the region.

Map 2: Admiral Zheng He's Seven Voyages and the Route (1405-1433)



Source: http://www.t-winexpo.com/news/content/id/467.html

Map 3: Ming Dynasty Kingdom of Zhu Di

Source: http://www.qulishi.com/huati/yongleshengshi/

Financing and Projects under BRI

China's Belt and Road Initiative is now spread to at least 68 countries with an annual investment as high as USD 8 trillion for a vast network of transportation, energy and telecommunication infrastructure.[4] Chinese official records state that at present, BRI includes 71 countries and regions from Asia, Africa, Europe, and Latin America. By 2018, the import and export trade of the countries along the route reached nearly USD 6 trillion and 82 trade and economic cooperation zones, including in four newly added countries, were established in the countries along the route, with a total investment of USD 28.9 billion in zones.[5] These zones were mainly in Central Asia, Southeast Asia, Africa, and Central and Eastern Europe. The number of enterprises joining industrial parks increased to 4,000, which is more than double the number of enterprises compared to 2016. The taxes and fees paid to the host country was USD 1.14 billion in 2017, which has also doubled compared to 2016.[6] The enterprises in the parks are mainly related to agriculture, commerce and logistics, light textiles, household appliances, steel, building materials, chemicals, automobiles, machinery, minerals and other industries. There is also construction of a number of key overseas economic and trade cooperation zones, such as the China-Belarus Industrial Park, the China-Malaysia "Two-States, Two-Parks" project, and the Egyptian Suez Economic and Trade Cooperation Zone.[7] Moreover, China has signed 16 free trade agreements with 24 countries and regions. According to Chinese official reports, by 2019, China signed more than 170 agreements with a total Chinese investment of more than USD 90 billion.[8]

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In order to channelize financing investment and construction, China has established three new international financial institutions: The Asia Infrastructure Investment Bank (AIIB), the BRICS New Development Bank (NDB), and the Silk Road International Bank. It is opening new banks and establishing new cities. In the last six years, China has opened more than 3,000 new banks and established 20 new cities on BRI route countries, apart from having branches of Chinese banks in other countries. Some banks like Bank of China and China Development Bank have issued large-

scale bonds under BRI and have released loans of more than USD 180 billion.[9] Besides, it has set up a series of special funds like the Silk Road Fund, RMB Overseas Fund, China-Africa Development Fund, China-Kazakhstan Capacity Cooperation Fund, China-ASEAN Investment Cooperation Fund, China-Eurasian Economic Cooperation Fund, China-Russia Regional Cooperation Development Investment Fund, etc.

Oil and gas is a key segment of the newly established AIIB, and of other Chinese large State-owned Commercial Banks or of small and micro banks. By facilitating services to the companies engaging in oil and gas businesses, Chinese banks plan to realize cross-border capital transfer and internationalization of the RMB. By the end of 2014, Chinese oil companies under the China National Petroleum Corporation (CNPC) had invested nearly USD 40 billion in the oil and gas industry (including exploration and production, transportation by pipelines, refining, marketing, engineering services, and international trade) of Central Asia - Russia area, especially in Kazakhstan.[10] By April 2015, China had surpassed US as the world's largest net importer of crude oil.

There is also impetus to push in railway connectivity, especially towards the Europe. In the first three quarters of 2017, the "Sumanou Europe" China-Europe Railway sent 97 trains with a value of USD 834 million. In 2017, "Zheng Xin Ou", "Yi Xin Ou" and "Chang'an" were fully loaded and the "Han Xin Ou" and "Yu Xin Ou" trains had exceeded 90% capacity.[11] The types of return trains were also increasingly diversified, expanding from IT products, auto parts, and plates to milk powder, baby food, and high-value-added automobile vehicles and parts, engineering equipment, and medical equipment. In April 2017, the railway departments of seven countries including China, Belarus, Germany, Kazakhstan, Mongolia, Poland, and Russia formally signed the Agreement on Deepening the China-Europe Railway Cooperation, and in October organized the first meeting.[12] In May, at the initiative of the China Railway Corporation, seven train platform companies including Chongqing, Chengdu, Zhengzhou, Wuhan, Suzhou, Yiwu, and Xi'an jointly launched the establishment of the China-Europe Train Coordination Committee.

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The focus of investment is on China-Indochina Peninsula, China-Mongolia-Russia, and China-Pakistan Economic Corridor. According to 2017 statistics, in the previous five years, China's direct investment exceeded USD 70 billion, an average annual increase of 7.2 percent; while the value of newly signed foreign contracted projects exceeded USD 500 billion, with an average annual growth rate of 19.2 percent. China's direct investment flows to countries along the BRI was USD 20.17 billion, which is a year-on-year increase of 31.5 percent, but only in areas like energy and transportation.[13] From 2005 to 2016, China's largest investment in East Asia was the energy industry, reaching USD 37.262 billion, which was more than half of the total investment. The next major investment was in the metal industry, which accounted for USD 11.690 billion; followed by the investment in the real estate, accounting for USD 8.768 billion.[14] (See Table 1) The other areas in which BRI investment is focused are: automotive, railway, aviation, shipping, manufacturing, and power industries.[15]

Table 1: **Chinese Investments under BRI in Different Categories.**

(Unit: One hundred Million USD)

East Asia		West Asia		Europe		Middle East and North Africa	
Industry	**Investment**	**Industry**	**Investment**	**Industry**	**Investment**	**Industry**	**Investment**
Energy	372.62	Energy	601.8	Agriculture	30	Energy	182.1
Metal	116.90	Transportation	76.6	Energy	22.6	Entertainment	44
Real Estate	87.68	Metal	74.8	Transportation	22.1	Metal	21.4
Transportation	58.45	S&T	44.9	Chemical	21.1	Other	17.3
Other	29.23	Real Estate	33.9	S&T	18.4	Agriculture	14
Finance	21.92	Agriculture	24.8	Finance	12.2	S&T	5.7
S&T	21.92	Finance	17.3	Other	5.5	Transportation	1.5

Source: Nie and He, 2018: 33

With the downturn in global foreign investments, Chinese investments also showed remarkable decline. The actual total Chinese investment in countries along the BRI over the years is shrinking. According to the 2017 statistics from the Ministry of Commerce, Chinese new non-financial direct investment in the world fell by nearly 30 percent year-on-year, and investment in countries along the BRI fell marginally by only 1.2 percent. Interestingly, from January to October 2017, Chinese enterprises made non-financial direct investment of USD 11.18 billion in 58 countries along the BRI, a year-on-year decrease of 7.4 percent. This was 13 percent of China's total foreign investment, which was an increase of 4.7 percentage points compared to 2016. Investment flows were mainly to Singapore, Malaysia, Laos, Indonesia, Pakistan, Russia, and Vietnam; while Southeast Asia remains the focus of China's BRI investment flows.

Besides, there is more money spent on construction; rather than direct investment, and is concentrated on infrastructure building with Chinese State-owned enterprises as the main entities. As per the data available, from 2010 to 2017, only USD 214.1 billion was on investment financing; while the expenditure on construction amounted to USD 347.9 billion.[16] Hence, BRI is 'construction-driven' and not 'investment driven'. The top recipients of major projects under BRI from 2013 to June 2018 were: Britain (USD 156.55 billion), Malaysia (USD 86.85 billion), Pakistan (USD 67.06 billion), Italy (USD 61.34 billion), and Indonesia (USD 59.79 billion).[17]

Concerns for BRI among Chinese Scholars

Although many of the official open reports of the Chinese government show a rosy picture of the success and progress of BRI, many Chinese scholars are concerned about the risks of BRI projects. There are a range of issues that the Chinese scholars highlight: financial risks, security issues, domestic political situations in the host countries, market fluctuations, lack of proper systems in place in host countries, governance issues etc. Political considerations

are highlighted by almost all the scholars, who look at the internal turmoil of the states as well as the differences in the systems of the countries. Yao Yudong believes that in the countries and regions where the BRI has been passed, the political circles, academia and people have conflict with China. They have guarded against China's system, people's quality, character, endowment, etc. Hence, he believes there is lack of real understanding about China.[18] Jin Ling points out that in the implementation of the BRI; it is not only necessary to respond to the diversified interests and more complex political and security environment of the countries along the route, but also deal with the interference of many extraterritorial factors.[19] Wang Yiwei is more articulate in stating that the development of the BRI is facing maritime security risks, national suspicions, and challenges of "three forces" (referring to separatism, extremism, and terrorism). The habit of taking the upper line may encounter the impact of grass root revolutions from unstable countries and regions. In the future, China may be struggling to meet the challenges of safeguarding overseas interests and the safety of overseas legal persons.[20]

Therefore, cross-border terrorism, maritime terrorism, and regional security issues also figure greatly in the literature on BRI of Chinese scholars. Wang Weixing points out that the BRI faces regional security risks and challenges from small and medium-sized countries and non-state actors.[21] Hu Jian points out that as the BRI advances, maritime terrorism around the Malacca Strait, and terrorism in China's western sector that extends to Central Asia, Afghanistan, and Pakistan, cannot be ignored.[22] On a similar note, Gong Shengli states that security risks, including ethnic conflicts, extremist forces, and cross-border crime, cannot be ignored.[23]

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In terms of the economic and development considerations Jia Qingguo points out that the proof of economic benefits of building the Silk Road economic belt to the West and South needs to be deepened as there are many concerns. Further highlighting that no matter which line is taken, most of the countries along the route are developing countries, and to varying degrees, they face problems such as the immature market economic structure and mechanism as well as relatively low administrative efficiency.[24] On the same lines, Long Kaifeng points out that the countries along the way of BRI have uneven base of economic development, different expectations and pressing needs, and different strengths and advantages.[25] Zhao Jianglin makes a distinction between the countries along the 'Belt' and along the 'Road', stating that the main problem faced by the "Belt" countries is how to solve the "resource curse" faced by countries that rely on resources to drive economic growth; while the main problem for "One Road" countries is whether they can first establish a foundation of industrial division of labor with China as the core in the neighbouring countries or not.[26]

Some scholars view the problems as regional issue and consider that due to uneven development of countries in the region, there are greater risks and challenges. Tang Min here states, "There are major differences in the economies of the countries along the Belt and Road, which makes Chinese government investment and public investment face huge risks".[27] Zhang Yunling points out that the promotion of the BRI faces the challenge of how to create a sustainable new development approach.[28] Zhang Monan further states that in the "Belt and Road" construction, the difficulties that must be overcome are mainly reflected in the low level of overall regional development and market size, high-level of economic integration significantly lags behind, relatively low intraregional trade share, and huge gaps exist in investment for infrastructure in the region, and barriers and obstacles to trade.[29]

There are other scholars who are skeptical about the joint projects and view that there will be practical obstacles in managing the projects. Luo Yuze points out that the joint construction of the BRI faces many difficulties and challenges, like each country has its own economic development priorities, most countries lack construction funds, financing platforms and mechanism lag behind in the countries along the route.[30] With scholars also looking at the ecological concerns of many governments and the global community, some look at the environmental costs. Ye Qi state that the

implementation of the BRI faces both the arduous development tasks and the fragility of the ecological environment. There is also a conflict between the urgency of structural upgrades and environmental regulatory constraints.[31]

India and the BRI

There are serious concerns among Chinese scholars and government regarding India not joining the BRI. On an overall, the Chinese scholars feel that there is a wave of high and low tide in Indian attitude towards BRI since 2013. Mei Guanqun opines that there are three stages of India's attitude towards BRI: beginning with "Ambiguous attitude" (态度模糊), and then turning to "Active reaction" (积极响应), and finally moving to Resistance (抵制).[32] While summing up the various opinions of Indian intelligentsia, Mei Guanqun puts the Indian scholars' opinion under a set of IR theories:

- **Hegemonic theory perception (霸权论):** Indian scholars believe that China is not intending for common economic development of neighbouring countries (沿线国家共同的经济发展) and has no intention for sharing economic benefits (共享经济成果), but there is an objective of China to have hegemonic expansion in the Indian Ocean Region (IOR) (中国的霸权扩展到印度洋地区). China is therefore striving to seek an international leadership position from the U.S. and the plan is a hegemonic plan.

- **Black box theory (黑箱论):** Some in India believe that there is no concrete plan and strategy of China, but an empty rhetoric. As the real objectives are unclear, India cannot make any commitments (空头支票).

- **Theory of encirclement (围堵论):** India has always been a backyard for the Indian sub-continent and for Indian Ocean. It worries that the BRI will attack its influential ability and leadership position (影响力和主导权) and China might have strategic encirclement of India in mind. It believes that the CPEC corridor (中巴经济走廊), BCIM corridor (孟中印缅经济走廊), Pan-Himalayan Economic Cooperation Belt (泛喜马拉雅山经济合作带), and 21st Century Maritime Silk Route (21 世纪海上丝绸之路) will encircle India from all sides. The 21st century Maritime Silk Route is a string of pearls (珍珠链) around India.

The implementation of the BRI faces both the arduous development tasks and the fragility of the ecological environment. There is also a conflict between the urgency of structural upgrades and environmental regulatory constraints.

- **Theory of Competition (竞争论):** The BRI for some in India is a competitive strategy against U.S. "New Silk Road" (美国"新丝绸之路"), TPP, Japan's Asia Economic Corridor (日本亚洲经济走廊), and India's "Look East" policy (印度"向东看"). Therefore, India should put its own style of connectivity projects similar to OBOR ("印度版" 互联互通计划).

- **Theory of Cooperation (合作论):** A Few Indian scholars view BRI as an opportunity for India's development and hence India should cooperate with China.

Although, with the frequent high-level exchanges of the leaders of both countries, Chinese scholars feel that there is a definite shift in India's attitude, but a strong narrative posits that India believes "21st Century Maritime Silk Route" is an upgraded version of the "String of Pearl" strategy. In their understanding India has a very conservative thinking over a very strong geo-strategy and the sphere of influence that is linked to its geography, history, and culture. They state that India views a large Indian sub-continent as its sphere of cultural linkage. Therefore, whenever India talks of relations with other neighbouring countries, it does not think from the perspective of a state, but looks at the entire South Asia sub-continent and Indian Ocean as its sphere of influence. Hence, India always sees Indian Ocean as "India's Ocean".[33]

However, Hou Daoqi holds a different position stating that even though there are marked differences in opinion in India among the intelligentsia, yet the government of India has taken a more pragmatic approach. The reasons behind this approach, he states, are: one, the Indian government had a consideration of national self esteem and felt that BRI undermines India's status as a big power; two, there are security considerations whereby India believes that BRI has hidden military motives; three, there will be a loss in India's leading position in South Asia with BRI's success; and fourth, motivation of profit drives India's strategic hesitation.[34] Yet, this view is not the mainstream or popular opinion of the Chinese scholars.

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The 'New Great Game' in Afghanistan: Challenges and Opportunities for India

Lt Gen Ghanshyam Singh Katoch, PVSM, AVSM, VSM (Retd)@

Abstract

The Mar 09, 2020, bizarre swearing in of two Presidents in Afghanistan at the same time in two parallel ceremonies exemplifies the complexity of the continuing "Great Game" in Afghanistan. "The Great Game" was a term used to refer to the strategic competition between Russia and Great Britain in the 19th and 20th centuries in Central Asia and in particular in Afghanistan. Likened to a game of chess the two powers used proxies to avoid a direct conflict and through military and diplomatic stratagems tried to outmanoeuvre each other to gain an advantage and 'win' the game. In recent times the game has continued with different players. This article analyses the "New Great Game" taking place in a changed geo-strategic environment in which India while not directly affected has enough indirect strategic stakes to be a part of the geo-political manoeuvrings.

Introduction

Eighteen years and four months after the U.S.-led intervention in Afghanistan to oust the Taliban, a peace deal was signed between the U.S. and the Taliban at Doha in end Feb, 2020. Subsequent events portend that rather than douse the flames of war in Afghanistan, competition for influence by all interested parties — reminiscent of the rivalry between the Russian and British empires in the 19th and early 20th Centuries, and that during the Cold War in the 1980s — is intensifying.[1] Consequently the convoluted situation in Afghanistan seems to be tied in a Gordian knot. The "good parties" and "bad parties" like the proverbial Devas (Gods) and Asuras (Demons) of Hindu mythology told in the ancient texts called the "Puranas"— remain embroiled in a perpetual war — with their distrust as deep. Suspicion and mistrust remain the biggest obstacle to stability in strategically-located Afghanistan, which has the potential to destabilise the wider region to a greater degree than at present. A new Great Game is on.

The New Great Game — Chess or Go

Chess and 'Go' are both strategy games. 'Go' appears simpler than Chess because all the pieces have the same 'Cadburys Gem' shape and just two colours, black and white. Chess pieces though again in just two colours, have varied shapes. Different chess pieces have different types of capability in terms of mobility given by their rank; King, Queen, Knights, Bishops etc. 'Go' pieces are like the proletariat. Their only material value is their collective power. They don't move around; they are just placed at a spot and removed only if captured. Chess is a hierarchal game in which the aim is to destroy the centre of gravity, the King, which brings victory. 'Go' is an imperial game in which the aim is to control more territory. The Great Game over Afghanistan — which is territory — should be a game of 'Go'. However, in reality it is an amalgam of Chess and 'Go'. Unlike chess there is no King in the form of a supreme leader whose fall will signify

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@ *Lt Gen GS Katoch, PVSM, AVSM, VSM (Retd)* is an elected member of the USI Executive Council. He commanded the Desert Corps and superannuated in 2016 as the DG Perspective Planning after 39 years of service. He has two Masters Degrees one in Strategic Studies from Madras University and the other in Defence Analysis from the Naval Postgraduate School, Monterey, California, USA.

victory. The Taliban is an acephalous organisation as were Al Qaeda and ISIS. They did have a charismatic leader but his elimination only weakened the organisation and did not destroy it. The rank and file of the Taliban is a proletariat. If the proletariat feels that its interests are not being properly looked after, then like in chess even a king can be 'killed' or let's say 'removed' by a pawn. The proletariat thereafter selects a new leader from among themselves.

One Game — Multiple Players

For long Pakistan, considered the main supporter of the Afghan Taliban, has been accused of playing a double game. Even within Pakistan this double dealing is being viewed as potentially dangerous. As the former Pakistani Ambassador Touqir Hussain states "Pakistan maintains it cannot exert any more pressure on the Taliban. That may be a good line to take in America's war but will not work in the conflict to come. The Taliban unbound will create a reverse ideological and strategic depth in Pakistan as they remain the flagship of extremist movements in the region. We will suffer internally from the blowback of their rule in Kabul. Any foreign policy benefit will come at a domestic cost"[2] .

Presently in the 'New Great Game" it is not only Pakistan but a number of other players who are jostling for influence in Afghanistan. Some are attempting to be mediators. Each player has different capabilities and interest. In the Puranic Deva-Asura war the God Vishnu had taken on the form of the temptress called Mohini who was so beautiful that both sides accepted her as a mediator. In the mediation she obviously was not partial and favoured the Devas. Can the mediators in Afghanistan be impartial? Or is it that like Mohini they will not be that, as all have a vested interest for which they have entered the New Great Game. The succeeding paragraph carries out an analysis of these interests.

Afghanistan is geographically important for the U.S., especially in this period of heightened tension with Iran directly brought about by President Donald Trump's policies. Till this tension lasts the U.S. is unlikely to walk away from Afghanistan whatever be written in the peace agreement hammered out by Mr Zalmay Khalilzad.

The Stakes of the Players

Fears over the Islamic State. The emergence of Islamic State (IS) in Afghanistan — the group announced the creation of its Khorasan Province branch in January 2015 — provided Russia and Iran with the motivation to make "contacts" with the Taliban. The emergence of IS posed a serious challenge to the supremacy of the Taliban but also encouraged Iran, China and Russia, who were fearful of IS expansion, to review their policies and open dialogue with the Taliban. Between the two the Taliban is seen as the lesser of a threat. Taliban has had clandestine links with Iran for the past few years. And recently it emerged that Russia's ties with the Taliban were warming too. This major shift in Russia's Afghanistan policy came immediately after it expressed concerns about the possibility of Afghanistan turning into a safe sanctuary for the Islamic State militants fleeing from Iraq and Syria.

The United States. Till 2019 the only thing which kept the U.S. from quickly exiting Afghanistan was the fear of 'ungoverned spaces' and a Vietnam like ignominious pull-out not boding well for Trump and the Republican hopes in 2020. On the other hand, not withdrawing will also be a failure of Trump to deliver on his 2016 promise to the American people to exit from Afghanistan and may equally impact the 2020 elections. A U.S. Withdrawal is what the Taliban want, for them it is not only a 'notion of victory'— it is victory. The U.S. knows that unless an enforceable treaty is agreed upon, the conflict in Afghanistan will continue, in the manner it continued after the Soviet withdrawal. However, there will be a difference this time, the Russians are flexing muscle; they have done that successfully in Syria; they will be on someone's side — and it is likely they will be with the dominant side. Afghanistan is geographically important for the U.S., especially in this period of heightened tension with Iran directly brought about by President Donald Trump's policies. Till this tension lasts the U.S. is unlikely to walk away from Afghanistan whatever be written in the peace agreement hammered out by Mr Zalmay Khalilzad. Afghanistan provides the best location to watch over

developments in Iran and if required to shape them. With the complete area from Syria to Iran in turmoil, Afghanistan takes on added importance as a Sunni majority chess piece to win the game against the Ayatollahs. It may not be the strongest piece, but then even a pawn becomes powerful if it can be made to reach a space at the end of the chessboard on the opposite side.

Russia's Taliban Take off. Softening its approach towards the Taliban is a dramatic and unexpected shift for Russia. Moscow has for years opposed the Taliban, calling them terrorists, and supported the anti-Taliban "Northern Alliance" in the Afghan civil war of the 1990s. Now faced with a common enemy in the shape of IS, Russia has changed tack. Since end 2015 the Taliban and Russians have met several times. By demonstrating the constructive nature of its involvement in Afghanistan, Russia signals to the West its rising importance as a mediator and refutes the accusation that Russia has been arming the Taliban which is made by the United States and Afghan officials. It also enables Russia to tell the Chinese that Russia is not a second rung power in the Shanghai Cooperation Organisation (SCO) paradigm. Russia remained distant during the initial years of American intervention in Afghanistan since 2001. During the recent years, there has been a considerable shift in the Russian approach towards Afghanistan. The Afghan dialogue in Moscow during 2018 highlights the changes in Russia's strategy towards Afghanistan. There is a broader global context as well to Russia's new Afghan approach. The emergence of the Islamic State of Iraq and Syria (ISIS) as an independent force in the Middle East and its spread into Afghanistan is a matter of concern for Russia. It wants to avoid the spread of radical Islam into Central Asian states. Second, Russia is also apprehensive of American interests in Afghanistan centred in Kabul.

Logically Iran should find it easier to work with a democratic government in Kabul, than with the Taliban. Despite this truism, Tehran will support the Taliban as the Taliban are fiercely anti-U.S., and as the adage goes, 'my enemy's enemy is my friend'.

Iran's Taliban Tango. Shared animosity towards IS has also brought the Sunni Taliban closer to their historic nemesis, Iran, the preeminent Shia power which had previously viewed the Afghan Taliban as a major threat. Like Russia, Iran supported the anti-Taliban groups in the 1990s and the Americans in 2001. Iran also co-operated with the U.S.-led international coalition to topple the Taliban regime in late 2001.[3] Freed of a threat from Afghanistan, Iran shifted attention to building proxy militias in the West in Iraq and Syria through the Quds Force (QF). While these militias greatly helped to defeat the ISIS, Iran's avowed aim of wiping out Israel prevents the U.S. from accepting Iranian intervention as good. Currently U.S.-Iran relations are at a boil post President Donald Trump withdrawing the US from the Joint Comprehensive Plan of Action (JCPOA) signed in May 2018, and the assassination of Major General Qasim Sulemani of the QF. Presently Iran is as favoured a destination for Taliban leaders to meet each other as is Pakistan.[4] The Taliban supreme leader, Mullah Akhtar Mansour, was reportedly on his way back from Iran when he was killed in a U.S. drone strike in Pakistan's Balochistan province in May 2016. Iran has been playing a tactical game in Afghanistan. It has never had a soft corner for the Taliban, but at this time finds it a useful piece on its game board. Logically Iran should find it easier to work with a democratic government in Kabul, than with the Taliban. Despite this truism, Tehran will support the Taliban as the Taliban are fiercely anti-U.S., and as the adage goes, 'my enemy's enemy is my friend'. So, supporting the Taliban against any democratic regime in Kabul is tactically sound for Iran.

The Pakistani Prescription. The Afghan Taliban had been largely dependent on their support base in Pakistan, a country from they emerged and where their leadership lives. Their Pakistani prescription is like a bitter pill which promises power but has a side effect in that it also arouses suspicion that Pakistan is using it for a regional competition. Pakistan had brought upon itself prolonged unrest and internal strife because of its support to the U.S. But in spite of that, having U.S. support is in its interest. Whatever be its "deeper than the deepest ocean" friendship with China, it is the Western *El Dorado* that beckons the Pakistani elite and middle class as a place to live in without fettering religious restraints or to aspire to go to for upward mobility. To that extent it is in Pakistan's interest that the U.S. maintains a

presence in Afghanistan which needs Pakistani support to maintain because that is the only dependency which will get it continuing — even if decreased U.S. support.

China's Chess Board. China has its own global objectives in Afghanistan. From economic pushes like the Silk Road Economic Belt (SREB) to the strategic promise of the Shanghai Cooperation Organization (SCO), Afghanistan plays a vital role in larger global calculations of Beijing. So is the presence of strategic materials in Afghanistan in the shape of mineral deposits. Afghanistan in turmoil would adversely impact the China-Pakistan Economic Corridor (CPEC), which is China's ambitious gambit to gouge an economically and strategically important furrow through the Karakorum to the head of the Persian Gulf. But at the same time U.S. entanglement in Afghanistan/Iran keeps the US distracted and prevents proactive application of U.S. military force in the Indo-Pacific region, in particular in the South China Sea. This also suits China.

Indian Indignation. So, what options does India have, which has good relations in this region with everyone except Pakistan? Indian developmental assistance to Afghanistan has brought it goodwill of a government whose existence is precarious and of the Afghan people which can be more enduring. India has made investments to the tune of $2 billion in Afghanistan to help in rebuilding its social sector and economy. It has also been providing military capacity building assistance worth an estimated $1 billion.[5] India's direct investments in Afghanistan are important but not as important as India's global interests. India has its ambition to develop an International North-South Trade Corridor (INSTC) linking Mumbai with Moscow and beyond into Europe via Chahbahar, Kabul and then into Central Asia. While India's Chahbahar and INSTC plans have been in the pipeline for long years, since the Chinese Belt and Road Initiative (BRI) the former has become even more critical. India is justifiably indignant that its substantial contributions have been played down by the US which denies India the requisite strategic space in Afghanistan.

In Game theory, a Nash equilibrium is a set of strategies, one for each player, such that no player has incentive to change his or her strategy given what the other players are doing. In Afghanistan, India and Pakistan are in a Nash Equilibrium. Their strategies in Afghanistan are such that neither has incentive to break them.

The New Great Game and the India Pakistan Nash Equilibrium.

In Game theory, a Nash equilibrium is a set of strategies, one for each player, such that no player has incentive to change his or her strategy given what the other players are doing. In Afghanistan, India and Pakistan are in a Nash Equilibrium. Their strategies in Afghanistan are such that neither has incentive to break them. Right from the beginning Pakistan's strategy has been that its protégé — the Taliban — should hold the fort in Kabul enabling Pakistan to have its 'strategic depth' against India. Presently it appears that Pakistan is willing to accept a settlement in Kabul in which the Taliban becomes a critical actor, if not the only one, as long as the strategic depth is available. The fact that the elected government in Kabul and the larger Afghan society is not inclined towards the Pakistani position in Afghanistan does not alter Islamabad's approach towards the Taliban. Even the international disapproval and condemnation of Pakistan's support to the Taliban and its franchisees has not pressurised Islamabad to change its endgame in Kabul. As a result, the Taliban has sustained itself militarily and politically. India has its objectives in Afghanistan. Culturally and historically, India had strong links with the Afghans — except during the Taliban rule. New Delhi would want to continue with the same. More importantly, politically, India would like to ensure that Afghanistan does not become Pakistan's strategic depth. Ideally, India would prefer that the Taliban has no role to play in any future political framework in Kabul. The primary Indian fear over the Taliban is its links with Pakistan. This leads the game into a Nash equilibrium. India and Pakistan both want regimes friendly to them in Afghanistan. All their game moves have to be inclined in that direction. But since their enmity is very deep their game is zero sum. Whatever one side gains the other side loses.

Conclusion

This article concludes that keeping in view its strategic interests India has to stay the course in Afghanistan. Its best gambit lies in a regime friendly to it. Should that not happen then the best bet is to make friends with whatever power centre emerges in Kabul. In the New Great Game, many alignments are emerging in Afghanistan: the Taliban, Pakistan, former National Unity Government (NUG) politicians, warlords aligned the NUG or opposed to it, the present NUG split between Ashraf Gani and the Abdullah Abdullah faction and Hamid Karzai who is trying to build an alternative political path[6]. The USA under Trump while attempting to pull out of Afghanistan has taken Iran head on which will willy-nilly force it to maintain a military presence in the region. The American urgency to exit Afghanistan waxes and wanes largely affected by electoral politics. Iran because of tensions with the USA will further step towards the Taliban, with whom they were establishing an alliance to contain the entry of the anti-Shia ISIS. An important question is what will the Chinese do? As a rising great power China has growing interests in world security affairs. They are the second largest contributor to the UN Peacekeeping budget, and are now contributing 12.1 percent of the UN budget.[7] Keeping aloof from Afghanistan diminishes its status as a world power. World powers have to be seen to act to keep the world in order. Its actions in the South China Sea shows this aspect in poor light. It has to make up for this elsewhere. No European countries have any great interest in Afghanistan — other than some NGOs. The Russians have been mediating sans the Americans, the NUG has been talking to whoever will listen (including attending talks in an unofficial capacity), and the Pakistanis know that they have the strongest card in their hand — the Taliban's core sanctuary and command centre. The Indians have been standing back to see how the situation pans out. India's formal position is that an unstable Afghanistan can destabilise the entire region and therefore requires resolution through an "Afghan-owned and Afghan-led" peace process. While its best play remains stuck in a Nash equilibrium, it must make efforts to break out of it by reaching out to whichever regime comes to power in Afghanistan even if that is contrary to its avowed ethical concerns, liberal leanings and political philosophy. The peace deal signed at Doha between the United States and the Afghan Taliban on 29 Feb 2020, may close a curtain of a prolonged spell of terrorism in our neighbourhood and bring peace to the region or it may lead to greater turmoil. India needs to be prepared for all emerging scenarios and chose the best strategy for itself.

The USA under Trump while attempting to pull out of Afghanistan has taken Iran head on which will willy-nilly force it to maintain a military presence in the region. The American urgency to exit Afghanistan waxes and wanes largely affected by electoral politics.

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The Evolution of Eurasia and India's Strategic Response

Ambassador Ajai Malhotra, IFS (Retd)@

Abstract

The post-Soviet reintegration process has gradually led to the crystallization of a contemporary geopolitical construct – Eurasia. It represents a broad collective label invoking Russia and a limited number of other post-Soviet states. With Russia's dominance of its "near abroad" being contested in recent years by the European Union (EU) to its west and China to its south, regional economic integration has emerged as its preferred instrument to maintain its influence over the post-Soviet space. Strategically and tactically, maintaining warm, close and friendly ties with Russia and Central Asia must constitute a fundamental and integral part of India's foreign policy. India is committed to taking its partnership with the Eurasian region to a much higher level. For this, both sides need to take a number of steps to build and strengthen the partnership. In doing so it is important that old mindsets have to be left behind.

Introduction

The Belovezhskaya Accord[1] of 08 December 1991 dismantling the Soviet Union was accompanied by a Creation Agreement establishing the Commonwealth of Independent States (CIS)[2].Seeking to salvage beneficial linkages that existed in the Soviet period, Russia and several post-Soviet states pursued a reintegration process characterized both by centripetal and centrifugal tendencies. The post-Soviet reintegration process has gradually led to the crystallization of a contemporary geopolitical construct– Eurasia. It represents a broad collective label invoking Russia and a limited number of other post-Soviet states.[3]

Evolution of Eurasia as a Contemporary Geopolitical Construct

Russia's preferred path under President Vladimir Putin was for a close partnership with Europe. In a television interview to David Frost on 08 March 2000 he stated, "Russia is part of European culture and I cannot imagine my country in isolation from Europe and what we often call the civilized world."[4]Putin initially looked for a European Alliance or at least a Russia united through a full-fledged economic partnership with the European market. He reiterated during his election campaign in 2011 for a third Presidential term, his desire for a closer Russia-Europe partnership. In an *Izvestia* article of October 3, 2011, Putin proposed a Common Economic Space from Lisbon to Vladivostok.[5] This was not surprising. Despite its lackluster economic performance and poor long-term growth prospects, the EU possessed extensive trade and economic capacity and solid technological prowess, making it an attractive partner for Russia and other post-Soviet states.

However, despite the end of the Cold War, the West remained unwilling to accept Russia as an integral part of a democratic Europe. Putin's Common Economic Space proposal made no headway, with the EU instead persisting

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@ *Shri Ajai Malhotra* retired as Ambassador of India to the Russian Federation. He had thirty seven years of distinguished service at Ministry of External Affairs, New Delhi, and Indian missions in Bucharest, Geneva, Kuwait, Moscow, Nairobi, New York and Washington DC. He is currently Vice-President of the UN Human Rights Council Advisory Committee, Geneva; Distinguished Fellow & Senior Adviser (Climate Change), TERI; and Chairman & Managing Trustee of "Chikitsa" and "Shiksha".

with its effort to draw certain ex-Soviet Republics, especially Ukraine, into its economic orbit. USA too regarded Putin's proposal as an unacceptable Russian attempt to undermine its long-standing Trans-Atlantic alliance and clear a path for a more dominant Russia in Europe. As a result, the North Atlantic Treaty Organisation's (NATO) push for eastwards expansion continued as did the EU's effort to draw Ukraine towards it. Meanwhile, Russia rejected outright NATO efforts at eastward expansion into the former Soviet space, beyond the Baltics. In particular, it regarded efforts to make Ukraine a NATO member as unacceptably crossing a divisive red line.

Regional Political and Economic Integration in the Post-Soviet Space

Putin's return as President in May 2012, witnessed a refocusing of Russian attention on the post-Soviet space and a reaffirmation of Russia's desire to enhance regional integration. With hopes to partner Europe stymied, it was natural that Russia pivot eastwards and seek to strengthen its Asian linkages. Since the *Asia-Pacific Economic Cooperation (APEC)* Summit hosted in Vladivostok in 2012, Russia has also more decisively pursued an economic orientation towards Asia and for developing Siberia and the Russian Far East.[6]

Political integration across the Eurasian space, post 1991, has been limited to the creation on 26 January 2000 of the supranational Union State of Russia and Belarus. However, its contours still lack clarity and the direction of its future evolution remains unclear. Prospects for further political re-integration in the Eurasian space remain limited in the absence of an important and serious backer. Russia has neither worked for a politically unified entity for the Eurasian region nor is it in a position to do so.

Since the *Asia-Pacific Economic Cooperation (APEC)* Summit hosted in Vladivostok in 2012, Russia has also more decisively pursued an economic orientation towards Asia and for developing Siberia and the Russian Far East.

However, several Eurasian economic integration structures have emerged since 1991. The proposal for a Eurasian Economic Union (EAEU) originated in a 1994 speech at Moscow State University by President Nazarbayev of Kazakhstan. Progress towards it has been gradual, given the economic disarray across the region arising from privatization and deep-rooted economic reforms, compounded by the negative impact of the 1998 global financial crisis. It was only in 2007 that Belarus, Kazakhstan and Russia signed an agreement on a Customs Union that came into existence on 1 January 2010, while a CIS Free Trade Area agreement was signed on 18 October 2011 and ratified over the next few years by nine Eurasian states.[7] In January 2012, Belarus, Kazakhstan, and Russia launched a Common Economic Space that was a prelude to an EAEU treaty they signed on 29 May 2014. The EAEU was operationalised on 01 January 2015 and joined later that year by Armenia and Kyrgyzstan. It envisages free movement of goods, services, capital and labour, and coordinated, agreed or common policies in sectors like energy, industry, transport and agriculture. Its members have to harmonize their national laws by 2025.

Russia would have liked Ukraine, the second largest post-Soviet economy, to join as an EAEU member. Ukraine would have added to the EAEU's credibility by serving as a counterweight of the type that France provided to a more powerful Germany in the context of the early days of the European Economic Community. However, this did not materialize and the EAEU essentially unites the large Russian economy with a string of comparatively smaller ones. With Russia's dominance of its "near abroad" being contested in recent years by the European Union to its west and China to its south, regional economic integration has emerged as its preferred instrument to maintain its influence and dominance over the post-Soviet space.[8]

Regional Security and Defence Cooperation

As regards security and defence cooperation in the Eurasian space, a Collective Security Treaty encompassing nine post-Soviet states came into effect in 1994.[9] Six of them (Armenia, Belarus, Kazakhstan, Kyrgyzstan, Russia and Tajikistan) replaced it in 2002 by a military alliance, the Collective Security Treaty Organization (CSTO).[10] Its main objectives

encompass collective defense, fight against extremism, terrorism, illegal weapons and drug trafficking, preventing illegal migration from third countries, peacekeeping, and reaction to crises, emergency situations and disasters. It has a Collective Rapid Reaction Force, a Collective Rapid Deployment Force for Central Asia, a Russia-Armenia regional group, a Russia-Belarus regional group, and a CSTO peacekeeping force.

Despite its annual rotating presidency, the CSTO is dominated by Russia and is in reality an instrument to preserve and project Russian interests across much of the Eurasian region in a multilateral military context. The CSTO bar sits members from joining other military alliances but provides a security assurance that foreign aggression against any member would be regarded as aggression against all CSTO states. Still, recent practice in the context of the Armenia-Azerbaijan war in April 2016, reveals some uncertainty as to how this particular feature actually kicks in.

India and the Evolving Eurasian Dynamic

Following the dismantling of the Soviet Union in 1991, India quickly established diplomatic relations with all the post-Soviet states and opened a new chapter in its ties with them. In each case it looked at the new sovereign entity primarily through the prism of progressing bilateral ties with it. Primacy was given to India-Russia ties.

The sudden disappearance of centralized Soviet coordinating structures, especially in the defence, trade, economic and scientific fields, negatively impacted India's bilateral ties with the new countries in the post-Soviet space. Moreover, the focus of the new Russian state was initially almost exclusively on partnering with the West. As a result, India-Russia ties languished till a major directional shift in Russian foreign policy in early 1996 saw Yevgeniy Primakov replace Anatoly Kozyrev as Foreign Minister. Thereafter, matters quickly returned to an even keel and progressed further following the election of Vladimir Putin as President of Russia in 2000.India signed a Declaration on Strategic Partnership with Russia in that year, which institutionalized annual bilateral summits, giving a further fillip to relations. A decade later, to qualitatively distinguish the India-Russia strategic partnership from others, the term describing it was jointly elevated in 2010 to "special and privileged strategic partnership". The contemporary ties that emerged were characterized by close and extensive India-Russia cooperation in strategic and sensitive fields, such as defence, nuclear energy, oil and gas, space and science and technology.

India-Russia defence cooperation, has remained an important component of our ties for nearly six decades with access to sensitive Russian technologies and materials enhancing India's security profile while Russian enterprises too have benefited from having India as a reliable partner.

While India-Russia bilateral trade remains modest, the picture of our economic ties changes radically if one considers two-way investments especially in the strategically important oil and gas sector. India's cumulative investment in oil and gas in Russia, since the year 2000, exceeds US$ 15 billion and the most oil that India annually extracts from its investments in foreign oil and gas fields is from Russia. In the other direction, total Russian investments into India exceed US$18 billion, primarily due to the purchase by Rosneft and its partners of Essar Oil for US$12.9 billion in 2017.

India-Russia defence cooperation, has remained an important component of our ties for nearly six decades with access to sensitive Russian technologies and materials enhancing India's security profile while Russian enterprises too have benefited from having India as a reliable partner. India presently manufactures several Russian weapons in India, such as the SU-30MKI fighters and T-90S tanks. The world-class BrahMos supersonic cruise missile is a practical example of "Make in India" cooperation with Russia. While USA and Israel have now joined Russia as important defence partners for India, despite India's increased options, Russia will remain a key defence partner for it for the next quarter century. Recent India-Russia deals envisage the procurement of five S-400 air defence systems, four more

Project 1135.6 stealth frigates, and manufacture of Ka-226T light utility helicopters in India. At the political level a unique consensus in both countries, cutting across political party lines, recognizes the importance of warm and friendly linkages between India and Russia. Underlying this goodwill is the reality that neither India nor Russia perceives a security threat from the other. Indeed, each sees benefit for itself in the increased political and economic strength of the other. A strong, secure and prosperous Russia, fulfilling its international responsibilities, meets India's interests, and vice versa. Strategically and tactically, maintaining warm close and friendly ties with Russia and Central Asia must constitute a fundamental and integral part of India's foreign policy.

Looking at other countries in the Eurasian space, India has maintained close ties with Belarus. Its relations with Moldova are excellent, though India is yet to open its Embassy in Chisinau. Ties with Ukraine are progressing well, with Ukraine-Russia tensions largely not getting in the way. Linkages with Armenia are particularly close, with India recently securing a $40 million deal to supply four India-made weapon locating radars to it. India's ONGC Videsh Limited has invested in an offshore Caspian Sea oil and gas production sharing arrangement in Azerbaijan, as also in the Baku-Tbilisi-Ceyhan pipeline. India's long-standing ties with Georgia too are friendly, though India is yet to reciprocate by opening its diplomatic mission there. India has devoted special attention to the five countries of Central Asia — encompassing Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. It has Strategic Partnership Agreements with four of them —Kazakhstan (2009), Uzbekistan (2011) and Tajikistan (2011) and Kyrgyzstan (2019) — as also Afghanistan (2011), which in a sense is part of the same geopolitical space.

Strategically and tactically, maintaining warm close and friendly ties with Russia and Central Asia must constitute a fundamental and integral part of India's foreign policy.

The Strategic Importance of Central Asia

While India's primary strategic focus is China-Pakistan, it has a deep interest and historical connection with the Central Asian region which it considers part of its "extended neighbourhood". Interestingly, Russia describes the countries that occupy the former Soviet space, including Central Asia, as its "near abroad"; neighbouring China, with its primary strategic focus on confronting the challenge posed by USA along its Pacific Ocean side, regards Central Asia as its "strategic backyard".

It meets India's interest that the Central Asian countries are not dominated by a country politically hostile to it, are not destabilized or radicalized but are peaceful, free of terrorism and religious extremism, and not serve as a conduit for illicit narcotic drugs. The interests of countries in the Eurasian space, including Russia, also broadly coincide in this regard.

India, like Russia and the Central Asian states, has an interest in throttling the cultivation and spread of illicit narcotic drugs; moreover, revenue from drug trafficking is an important source of financing for several terrorist groups in the region and cooperation in this sphere via sharing of assessments and intelligence would be beneficial all around. Eurasian countries and India also share an interest in seeing that Al Qaeda, ISIS (Islamic State of Iraq and Syria), and other terrorist groups do not consolidate politically, ideologically and territorially anywhere in Central Asia. Much of this terrorism and extremism into Central Asia emanates out of breeding grounds in Pakistan, providing a common focus for exchange of information and assessments.

India would like to seriously step up its modest presence in Central Asia. Multiple visits at the highest levels have been exchanged between India and each Central Asian country since their independence. India's "Connect Central Asia" policy, unveiled in June 2012, reflects the heightened strategic importance it assigns to Central Asia and Afghanistan. Prime Minister Narendra Modi received a very warm reception in all five Central Asian states during his historic visit there in July 2015. India's joining the Shanghai Cooperation Organisation on 09 June 2017 has opened up new vistas for it to adopt a more proactive role in the region. During Prime Minister Modi's visit to Vladivostok for the 20th India-

Russia Annual Summit in September 2019, it was agreed that India-Russia third country partnerships in Central Asia and elsewhere would be encouraged. India must better exploit the considerable untapped potential in its relations with Central Asia and indeed the entire Eurasian region.

The convening of a Foreign Minister level India-Central Asia Dialogue in Samarkand in January 2019 was significant as it was proposed that Lines of Credit be extended to Central Asia to take forward concrete projects. Further, the establishment of a Government to Government (G2G) India-Central Asia Development Group is also underway. Moreover, an India-Central Asia Business Council was also convened for the first time in February 2020, so as to bring together business chambers, help leverage Business-To-Business(B2B) links and back G2G processes.

The five Central Asian states have also recently started interacting with other countries or regions in the C5+1 format (e.g., with USA, EU and India). At the opportune moment, India should start and institutionalize a C5+India Summit level dialogue, initially perhaps on the sidelines of the Shanghai Cooperation Organisation (SCO)/Conference on Interaction and Confidence-Building Measures in Asia (CICA)Summits or of the annual UN General Assembly sessions in New York.

India-Eurasia Trade, Transport, Economic and Cultural Cooperation

It will soon be three decades since the independence of the Central Asian States. Yet, despite excellent bilateral relations with all of them, India's combined trade with the region is still below US $2 billion per annum. There is great potential to enhance trade and economic engagement between India and Central Asia and priority sectors in this regard include agro-processing, automotive, higher education, energy, IT, medical tourism, pharmaceuticals, transport, tourism and urban infrastructure. Indian businesses need to be more entrepreneurial and take greater interest in tapping the Central Asian market and the recent establishment of the India-Central Asia Business Council provides a framework for doing so.

At the opportune moment, India should start and institutionalize a C5+India Summit level dialogue, initially perhaps on the sidelines of the Shanghai Cooperation Organisation (*SCO*)/Conference on Interaction and Confidence-Building Measures in Asia (*CICA*) Summits or of the annual UN General Assembly sessions in New York.

A serious constraint has been the lack of efficient overland connectivity between India and the Eurasian region. This is sought to be overcome by using the Iranian port of Chabahar as the "fulcrum of connectivity" for Indian goods to reach Afghanistan via the Milak-Zaranj-Dilaram route and for landlocked Central Asian states further north to access the Indian Ocean for transporting their goods.[11] India has separately allocated Rs 1,000 million for developing Chabahar port in its Union Budget for 2020-2021. It has also affirmed its commitment to the International North South Transport Corridor (INSTC) and the 2018 Ashgabat Agreement. Proposed by Russia in 1993, the INSTC multi-modal transport network would drastically improve connectivity, reducing transit time by 40 percent and costs by 30 percent for moving containers from Mumbai via Bandar Abbas/Chabahar to Southern Russia and onwards via the Russian railroad system towards Western Europe or Central Asia or Russian Far East, as required. Russia has been promoting a common SCO transport system and its Trans-Siberian Railway, Baikal-Amur Mainline and newer constructions would also tie into such plans. An efficient, seamless link between the Chabahar-Milak and Bandar Abbas-Tehran rail routes would further enhance the attractiveness for India and Eurasia of both Chabahar port and the INSTC.

Given the present geopolitical scenario, there is merit in revisiting the viability of establishing air corridors between India and Central Asia to boost trade in perishable goods, agricultural, pharmaceutical and food products.

With 180 million people, covering approximately 15 percent of the world's land surface and an annual GDP of about US$5 trillion, the EAEU is an attractive trading bloc for India to develop a free trade relationship with. This

importance increases given that the Doha Development Round remains largely stalled. India had earlier conveyed its interest in negotiating a Comprehensive Economic Cooperation Agreement with the Customs Union of Belarus, Kazakhstan and Russia. Soon after the formation of the EAEU, India has been discussing a Free Trade Area (FTA) with it. The EAEU has already tied up FTAs with China, Egypt, Iran, Moldova Serbia, Singapore, Tajikistan, Ukraine, Uzbekistan, and Vietnam. India has lagged behind on an FTA with the EAEU and ongoing negotiations must be more vigorously pursued for a quick and positive conclusion.

At the 20th India-Russia summit Prime Minister Modi launched a new 'Act Far East' policy that envisaged Indian involvement with Russia in the development of the resource-rich Russian Far East and announced a $1 billion credit line for the purpose. Consideration may also be given to appropriately replicating this elsewhere in the ex-Soviet space.

The popular Indian Technical and Economic Cooperation (ITEC) programme provides excellent opportunities for human resource development, often with courses specially tailored for those from the Eurasian space and encompassing civilian and defence fields. Several important recent initiatives have also been made in the Eurasian space; those pertaining to Central Asia include building a tele-medicine network in Kyrgyzstan, establishing IT centers in Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan, and an industrial training centre in Turkmenistan.[12] Yoga, Ayurveda, Indian films, dance and music are well appreciated across Eurasia, adding to the communion of our cultures and the affinity between our peoples. Priority should be given to opening or strengthening Indian cultural centers in all the ex-Soviet states.

India has lagged behind on an FTA with the EAEU and ongoing negotiations must be more vigorously pursued for a quick and positive conclusion.

Looking Ahead

India is committed to taking its partnership with the Eurasian region to a much higher level. For this, both sides needs to, inter alia:

- Work together at addressing common challenges such as terrorism, extremism, and illicit drug trafficking;
- Finalize the India-EAEU PTA;
- Implement the Chabahar port and INSTC proposals, and seamlessly link them;
- Start and institutionalize a C5+India Summit level dialogue;
- Improve banking arrangements;
- Further simplify and speed up visa procedures;
- Explore and implement a single window customs clearance procedure;
- Promote interaction amongst businessmen and entrepreneurs;
- Open cultural centers and promote people-to-people contacts; and
- Project latest capabilities and achievements so that old mindsets are left behind.

India is well poised to participate in a mutually beneficial development of the region. As globalization beckons and power equations change, India must forge new relationships, both economic and strategic. Eurasia provides India with the opportunity to employ its economic, political, diplomatic and cultural connections and play a more important role in Eurasia.

End Notes

1 Signed by the Russian SFSR, Ukrainian SSR and Belarus SSR

2 Original signatories Belarus, Russia, and Ukraine were joined on 21 December 1991 by eight other post-Soviet states - Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. Georgia joined in 1993 but left in 2009. Ukraine and Turkmenistan never ratified the CIS Charter, but became Associate Members in 1994 and 2005 respectively. Ukraine ended its participation in CIS statutory bodies on 19 May 2018.

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7 Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Ukraine and Uzbekistan.

8 Laure Delcour, "Relations between Russia and the CIS countries in 2012" in *Russia 2013: Insights of the Observatoire Franco-Russe; Ed. Pavel Chinsky.*(2013) p. 288.

9 Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, and Uzbekistan.

10 Uzbekistan joined the CSTO in 2006 but left in 2012. Afghanistan and Serbia joined as observers in 2013.

11 Address by Dr S. Jaishankar, External Affairs Minister, at the launch of the India-Central Asia Business Council, FICCI New Delhi, 6 February 2020.

12 Ibid.

Charting an Ascendant Paradigm in the Indian Ocean Region

Vice Admiral Satish Soni, PVSM, AVSM, NM (Retd) [@]

Abstract

Gateway to the Atlantic and the Pacific, the Indian Ocean is becoming an arena of contestation between extant and emerging powers. Economic interdependence between littorals and extra regional powers is metamorphosing into strategic competition. India is poised to play a pivotal role in shaping the destiny of this maritime landscape which has now coalesced into the 'Indo-Pacific'. It becomes incumbent upon India to chart an ascendant paradigm which secures the future of not only India but all other littorals of the region. Bilateral, regional and multilateral engagement supported by government approach for addressing key imperatives is a must.

Introduction

The Indian Ocean, with an area of 70.56 million square kms is the third largest water body in the world covering approximately 20 percent of the earth's surface. The littoral region covering 25 percent of the world's landmass is inhabited by one third of the world's population, an agglomeration of diverse people of different religions from some of the richest and the poorest 51 nation states. The unique feature of the Indian Ocean Region (IOR) is the abundance of its natural wealth and the sea lines of communication which transport it to meet the requirements of the industrialized and developing countries. The region has 40 percent of the world's oil and gas reserves, 60 percent of world's uranium, 98 percent of diamonds and 80 percent of the world's known gold reserves. The IOR abounds in 20 out of the 40 raw materials of strategic importance imported by the western countries and 40 of the 54 types of imported raw materials used by American industry. The new 'Gold Rush' is in the rising demand for seabed minerals such as Polymetallic Nodules, Polymetallic Sulphide and Cobalt Crusts which are in abundance in the South West Indian Ocean. Deep seabed polymetallic sulphide contain iron, copper, zinc, silver, gold and platinum in variable constitutions and have attracted worldwide attention for their long-term commercial as well as strategic value[1].

Of Increasing Economic Interdependence and Strategic Competition

It was in the first two centuries of the 'Common Era' chronicle that trading links between the present-day Western India and Rome were first established. The strategic implications of this trade have only increased with the determinants changing over a period of time; from frankincense to silk, spices, oil, components, natural resources etc. The sheer volume of merchandise carried across this region raises the stakes in the security of trade as over 1,00,000 ships transit across its expanse annually. Since mid-90s, trade between Indian Ocean littorals and China, Korea, Japan, Taiwan and the South East Asian countries has been increasing exponentially, primarily on account of rapid growth and consequent higher need for fossil fuels and resources. Over 70 percent of the total traffic of petroleum products passes through

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[@] *Vice Admiral Satish Soni , PVSM, AVSM, NM (Retd)* has held the appointments of Flag Officer Commanding in Chief Eastern Naval Command and Southern Naval Command, Deputy Chief of Naval Staff, Commandant National Defence Academy and Chief of Staff Eastern Naval Command in the rank of Vice Admiral. Post retirement he has been writing, travelling, participating in Seminars and discussions. He is a Distinguished Fellow with the United Service Institution of India (USI), New Delhi.

the Indian Ocean, on its way from the Middle East to the Pacific. About a fifth of the world's oil (crude, petroleum products, condensate),26 percent of world's LNG, 90 percent of Gulf's oil exports i.e. 17 mn barrels of oil per day transit through the Strait of Hormuz alone[2]. Since energy is critical in influencing geo-political strategies of a nation, any disruption and consequent turbulence in its supply has serious security consequences. Given the spiralling demand for energy from India, China and Japan, the Sea Lines of Communication (SLOCs) and choke points of the region have become strategically important for these countries. China, first became a net importer of oil in 1993 and economic interdependence with oil exporting countries in the Persian Gulf has been increasing steadily with 44.1 percent of its oil being sourced from nine middle eastern countries. The rise in China's share of global trade has been unprecedented. Since 2000, the African continent has also become economically interdependent on China with the quantum of trade increasing by nearly 400 times and overtaking the United States as their largest trading partner. Many of the continent's economies are sustained by natural resource exports and China, on account of its vast domestic manufacturing ecosystem, has served as the principal market for these. As of 2017, 54 percent of Angola's total exports to the world comprised crude oil exports to China. The figures for the Republic of Congo stood at 44 percent during the same year. Similarly, 32.7 percent of Zambia's total exports consisted of copper exports to China. The same pattern is observed with respect to the Democratic Republic of Congo's cobalt exports. On 02 Sep 2018, at the summit meeting of the Forum on China-Africa Cooperation (FOCAC), President Xi announced a 60 billion USD commitment towards Africa and has repeatedly expressed China's commitment to align the Belt and Road Initiative (BRI) with the African Union Agenda 2063, an aspirational policy document that places a particularly strong emphasis on regional integration within the continent[3]. Closer home, China has committed 62 bn USD for the China Pakistan Economic Corridor (CPEC). In the past few years, East Africa has emerged as one of the hottest natural gas fields in the world. The offshore region straddling north-east Mozambique and south-east Tanzania, known as the Rovuma Basin, contains on estimation, over 100 trillion cubic feet of recoverable natural gas, making it one of the largest gas finds in the world. Mozambique is expected to become one of the world's leading exporters of liquefied natural gas and both China and India have expressed interest in making investments in exploratory activities. Mega gas deals are being signed in Mozambique, each one bigger and more catalytic than the previous. In June 2017 Italian oil and gas company ENI committed to investing $10-billion on the building of Coral South, a floating liquified natural gas (FLNG) project off the Rovuma basin in Mozambique, the world's first ultra-deep-water FLNG facility. In June 2019, Mozambique Liquefied Natural Gas (LNG) (led by U.S.-based Anadarko) committed $20-billion on the development of integrated offshore and onshore gas fields, through LNG, in the Rovuma basin, east of Palma, and in December 2019, Rovuma LNG (led by Exxon Mobil and ENI) is expected to commit $30-billion to develop the same[4]. Not very far from these approaches lies the South West ridge where reportedly, China's unmanned submersible Qianlong 2 has discovered polymetallic sulphide deposits[5]. Such high economic inter-dependence is resulting in strategic competition between the Western Powers and China, with India beginning to have equal stakes.

Over 70 percent of the total traffic of petroleum products passes through the Indian Ocean, on its way from the Middle East to the Pacific. About a fifth of the world's oil (crude, petroleum products, condensate), 26 percent of world's LNG, 90 percent of Gulf's oil exports i.e. 17 mn barrels of oil per day transit through the Strait of Hormuz alone.

China Versus the United States

Driven by competing visions of the future of International order, United States and China are throwing up new security dilemmas and rekindling geopolitical rivalries reminiscent of the Cold War era. The South China sea was the first to witness an intense game play with the Chinese developing military infrastructure on many artificial islands to dominate the first island chain. Under President Obama's leadership, the U.S. adopted a variety of initiatives including a rebalance to the East, aggressive freedom of navigation patrols and marshalling of international support through diplomatic and economic initiatives. After the initial hiatus under President Trump, the U.S. now appears to be more committed to the

region. Rekindling of the QUAD initiative, with India as a possible bulwark against Chinese designs could see the U.S.-China rivalry spilling over to the Indian Ocean. In June 2019, the U.S. released the Indo-Pacific Strategy Report (IPSR), a U.S. vision on the Indo-Pacific based on the pillars of security, economics and governance and defined on four specific principles viz. respect for sovereignty and independence, peaceful resolution of disputes, free and fair reciprocal trade and adherence to international rules and regulations. However, no red lines have been defined and there is no threat of use of hard power. On the other hand, China has been the fastest to embrace the Indo-Pacific by exhibiting sufficient resolve for using hard power. It seized the Paracel group of islands and the Johnson South Reef in the Spratlys from Vietnam in 1974 and 1988 respectively, the Mischief Reef in the Spratlys from the Philippines in 1994, established the Sansha City on the Woody Island in the Paracel group in 2012 and took over control of the Scarborough shoal from the Philippines in Apr 2012. Amidst vociferous objections in international fora, China speedily reclaimed 3200 acres on seven features and made three airfields in the Spratly group of islands by 2015. Recent incidents in 2019 include a long stand-off with Vietnam over presence of their survey ships in Vietnam's Exclusive Economic Zone (EEZ), harassment of Philippines fishermen around the Thitu / Pagasa Island and sinking of a Philippine fishing vessel at the Reed bank. After dominating the South China Sea, the People's Liberation Army Navy (PLAN) has stepped up its activities in the Indian Ocean with commissioning of a permanent presence in Djibouti and development of likely dual use ports in Pakistan, Sri Lanka and Myanmar. Whilst the U.S. naval presence in the Indian Ocean is much superior both qualitatively and numerically, the Chinese may be expected to increase their maritime engagement and consequent naval presence exponentially.

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Island/Archipelagic States the Game Changers

As the geo-strategic heft of the Indian Ocean increases, major players Viz U.S., China and India are bound to leverage the geo strategic dividends on offer by small island and archipelagic countries of the Indian Ocean i.e. Seychelles, Mauritius, Madagascar, Maldives and Sri Lanka. These countries are not formally aligned but are certainly coming under the creeping influence of a strident China with deep pockets. They may be small in terms of their economic base and military capabilities but their geographies make them potential game changers, which can't be ignored. They would like to be considered as equal partners, their size and influence notwithstanding. They may be expected to hedge and game play bigger nations who seek to woo them in an effort to extract maximum benefit based on longer strategic perspectives. These countries may be happy to accept an equitable balance of power between India and China; perhaps only till such time that India can maintain a naval balance to counter PLAN's presence in the IOR.

India's Posturing in the Indian Ocean

India's formal strategic engagement with the Indian Ocean commenced with the formation of the Indian Ocean Rim Association (IORA) in 1997. The organization was first established as the Indian Ocean Rim Initiative in Mauritius in March 1995 and formally launched on 06–07 March 1997 by conclusion of a multilateral treaty known as the Charter of the Indian Ocean Rim Association for Regional Co-operation. India as the founder member has nurtured it over the years and provided requisite leadership at all stages. The objectives of IORA are to promote sustainable growth and balanced development of member states with a focus on those aspects of economic cooperation which provide maximum opportunities for development, shared interest and mutual benefits. IORA's priority areas are maritime security, trade and investment facilitation, fisheries management, disaster risk reduction, academic and scientific cooperation, tourism promotion and cultural exchanges, blue economy and women's economic empowerment. In 2008, the Indian Navy pioneered the Indian Ocean Naval Symposium (IONS), an inclusive maritime security construct for the IOR, similar

to the Western Pacific Naval Symposium (WPNS). In the ten years since its inception, the relevance of the initiative has grown and smaller nations are benefitting from its many initiatives. In recent times, India has articulated a strident maritime intent by announcing initiatives such as SAGAR (Security and Growth for All), 'Sagarmala' for improving hinterland connectivity, Project 'Mausam' for reviving historical linkages and an 'Act East' policy to strengthen relations with Association of Southeast Asian Nations (ASEAN) and countries of the Western Pacific. Participation in the rejuvenated Quadrilateral Dialogue is projecting India as a possible bulwark for containing China. India is contributing to improve connectivity for enhancing maritime logistics in Sri Lanka, Maldives, Myanmar, Thailand, Bangladesh, Iran, Mauritius and Seychelles. A number of infrastructure projects are being pursued viz. the Kaladan transport project leading to Sittwe port in Myanmar, the Trilateral Highway to Thailand, development of the Assumption Island in the Seychelles, Agalega in Mauritius and the Chabahar port project in Iran. Whilst the government has been engaging countries of the IOR on numerous fronts, it is the Indian Navy which has become the face of India's maritime engagement in the Indian Ocean Region and beyond. It has been unequivocally accepted that the Indian Navy is a dominant maritime force in the region and maritime security cooperation is now a key constituent of India's foreign policy. Formally mandated to be the net provider of Security, the Indian Navy provides opportunities to smaller maritime nations of the region to build capacities and capabilities for securing their EEZs. Holding of the Indian Ocean and Delhi Dialogues concurrently on 12/13 Dec 2019 for the first time, confirms India's keenness to emphasise its open and inclusive approach to foster a cooperative, free and rules-based Indo-Pacific domain, in which all nations and their aspirations for development have equal space to find expression. Whilst a clearer picture of the extent of India's multi-lateral strategic engagement is yet to emerge, India is certainly on course to improve her response to the waters around India

India is contributing to improve connectivity for enhancing maritime logistics in Sri Lanka, Maldives, Myanmar, Thailand, Bangladesh, Iran, Mauritius and Seychelles. A number of infrastructure projects are being pursued viz. the Kaladan transport project leading to Sittwe port in Myanmar, the Trilateral Highway to Thailand, development of the Assumption Island in the Seychelles, Agalega in Mauritius and the Chabahar port project in Iran.

Advancing an Ascendant Paradigm

A White Paper for an Indian Ocean

The ministry of external affairs has reorganized the jurisdiction of its divisions to impart a sharper diplomatic focus to the Indo-Pacific region. The move is being interpreted as India's intention to align with the U.S. to lay greater emphasis on the Indo-Pacific. The new division comprises the earlier divisions of the IORA and ASEAN sections and symbolizes a shift in Indian strategic thinking from considering just the maritime arc from the Straits of Hormuz to the Straits of Malacca as its zone of influence to extending it to the Western Pacific. The combined division will be in a better position to coordinate India's efforts in increasing its footprint on the vast expanse of the Indo-Pacific on myriad issues ranging from an enhanced economic interface to addressing maritime security challenges. Whilst India's intentions may not be to become part of an anti-China alliance, this reorganization is a signal of a possible option which India may consider to exercise in future. The Indian establishment must now enunciate its strategic thought in a formal manner much like what other countries have been doing at regular intervals. And in China, there is a good example. Abandoning of the Trans-Pacific Partnership by the U.S. and the general perception of the U.S. turning inwards with an 'America First' policy emboldened China to release its first white paper on Asia Pacific Security Cooperation-2017, wherein it makes a strong case for China to take a lead in defining security architectures in the Indo-Pacific and suggesting that smaller countries avoid the Cold War mentality and do not take sides. The U.S. released a provocative National Security Strategy-2017, which named China and Russia as revisionist powers and may have set the tone for a wider China-U.S. confrontation. This was followed by an Indo-Pacific Strategy Report in Jun 2019. China in response released a Defence White Paper-2019 titled 'China's National Defence in a New Era', wherein it has criticized the U.S. efforts to strengthen military alliances as 'adding complexity to regional security'. The ASEAN

has in August 2019 adopted the 'ASEAN Outlook on the Indo-Pacific' (AOIP) giving out their desire to strike the right balance between competing big powers whilst ensuring centrality of ASEAN. Similarly, Australia and New Zealand have been publishing 'Defence Papers' at regular intervals. As India gains recognition as an economic and military power with an ability to influence events in the emerging maritime landscape, it is most opportune that a White Paper outlining an Indian perspective is formally put out.

The Quadrilateral Security Dialogue or IORA?

President Obama's 'Pivot to Asia' followed by current administration's advocation of a 'Free and Open Indo-Pacific' rhymed with India's own 'Look East' and 'Act East' policies resulting in India becoming an important constituent of the rejuvenated Quadrilateral Security Dialogue (QSD). China interprets the grouping as an obstructive mechanism to oppose it in the South China Sea, a region it considers its sphere of influence. Notwithstanding, India's own definition of the Indo-Pacific as the expanse from the East coast of Africa to the West coast of America, the QSD appears to be drawing India into the power play being enacted in the Western Pacific. It would be significant to note that the QSD and the concept of the Indo-Pacific do not project India in a leadership role in the Indian Ocean which is India's backyard. Suspicion of the motives of a developing India-U.S. axis could catalyse strengthening of a China-Pakistan embrace and hasten a strategic encirclement by PLAN by establishing a permanent presence in the many logistic bases under development. What are India's options? Does India join the U.S. led alliance forces, that profess to shape a Free and Open Indo-Pacific or does India exercise her strategic autonomy and hedge her bets? The rather nebulous situation obtaining currently might afford an opportunity to encourage a grouping, more organic in nature and restricted in span covering non-traditional areas of maritime security which may elicit greater traction from the economically weaker but geographically more relevant littorals. The principle of grouping states together ought to be based on geographical proximity, commitment to international law, keenness on connectivity, focus on sustainable development, opposition to terrorism, commitment to open markets, free flow of trade/capital/ technology and ideas, maritime and cyber security. The aim should be to evolve standard operating procedures for participating agencies for meeting these challenges without being under an umbrella of a strong political interface which could be misinterpreted. Such an inclusive grouping would also ameliorate adverse perceptions inherent in the initiatives led by extra regional powers. It is for consideration that foundation of such an initiative already exists in the IORA and India could nurture it to have a wider applicability. A successful acceptance, especially by the ASEAN, Indonesia, Japan, France and South Korea with India in the lead may provide a sturdier bulwark (than the QSD) against an obdurate China that is less accepting of the concerns of the smaller and weaker nations of the Indo – Pacific littoral. Finally, this mechanism would provide insurance for the littorals against a possible rapprochement between China and the U.S., which could leave the small and the weak out in the cold.

The principle of grouping states together ought to be based on geographical proximity, commitment to international law, keenness on connectivity, focus on sustainable development, opposition to terrorism, commitment to open markets, free flow of trade/capital/ technology and ideas, maritime and cyber security.

Reprioritise Defence Allocations to Build a Strong Navy. The Defence outlay has been steadily reducing and stands at under 2 percent of GDP with the share of the naval budget in the overall Defence allocations cut sharply from 18 percent to 13 percent during the last decade. With the maritime front poised to gain more importance in the future, it is imperative that the government considers an increase in Defence expenditure and reprioritizes inter se importance of Defence projects with an aim to strengthen capabilities at sea. The Indian Navy has around 130 odd ships and submarines. The time line to reach the 200 mark has been revised from 2027 to 2050. Given that only 20 ships have been commissioned during the last five years against the 24 decommissioned, it seems unlikely that India would be able to meet the timeframe of even the revised milepost. The Navy was allocated only 70 percent of the total

projected fund requirement in the XII plan period (2012-2017), which has precluded timely replacements of critical capabilities. Only 102 contracts could be concluded in the XII plan as opposed to 157 in the XI plan. 34 ships and submarines are presently under construction and contracts for only 15 new ships have been concluded in the last five years. The capability gaps are slowly increasing and include conventional submarines, Unmanned Aerial Vehicles, Mine Countermeasures Vessels, Anti-submarine warfare and Naval utility helicopters, torpedoes and medium calibre guns. The Indigenous Aircraft Carrier (IAC) project is progressing very slowly and it has taken India nearly 20 years to build the IAC 1. India must not lose the acquired expertise and the government must accord an early approval to build the second Indigenous Aircraft Carrier (IAC 2) with enhanced capabilities. A monitoring structure akin to the Advanced Technology Vessel Project (ATV) may be considered so that the country does not lose on account of cost and time overruns like India has, for the IAC1. The Strategic submarine building programme has been extremely successful and India must graduate to building bigger submarines with longer weapon delivery ranges to have a 'Continuous at Sea Deterrence' capability. The recent announcement of the acquisition of 111 Naval Utility Helicopters and six submarines under the 75-I programme on a strategic partnership basis are extremely important for the Navy and both programmes must be pursued with alacrity. Similarly, the Navy needs replacements for the ageing Sea King multi role helicopters and Mine Counter Measure Vessels and contracts for these must be concluded on a Strategic Partnership basis. The Navy would stand to gain by actively pursuing and developing asymmetric capabilities in the fields of Cyber, Space, Intelligence and Special Operations. The focus of such capabilities should be India's ability to deliver a stinging blow in out of area scenarios in close neighbourhood to counter China's creeping influence.

Whilst combating Piracy, the North Western Indian Ocean witnessed the coming together of an interesting coalition of disparate maritime forces from different and at times opposing political leanings. Their Naval units started to communicate on a common channel 'Mercury' and exchange information to overcome a common threat; that of Piracy.

Improving Maritime Governance is the Key. Formal mechanisms which could influence maritime governance in the Indo-Pacific include the IORA, IONS, WPNS, Djibouti Code of Conduct, and ASEAN Regional Forum amongst others. Numerous think tanks have sprung up and serve an important medium for Track 2 interactions over and above the formal meetings, summits and conferences such as the Shangri-La dialogue, Indian Ocean Conference, Galle dialogue etc. Indian Ocean countries must however introspect that whilst they were unable to evolve a governance structure in response to the threat of piracy, the United States, NATO and European Union orchestrated an effective riposte by a disparate group of more than 30 navies with diverse interests. A home-grown maritime order in the India Ocean has eluded India thus far. It is of immense importance that India spearheads a collaborative effort to improve Maritime Domain Awareness in the region for the benefit of the entire littoral. A reasonable success has been achieved in this regard by way of commissioning of the International Fusion Centre at Gurugram, installation of Coastal Radar and Automatic Identification System (AIS) stations along the Indian coast and on the many island nations in the Indian Ocean. An orchestrated response strategy to provide Humanitarian Assistance to disasters would alleviate problems of many countries in the region.

Think out of the Box to Counter Non-Traditional Threats

Whilst combating Piracy, the North Western Indian Ocean witnessed the coming together of an interesting coalition of disparate maritime forces from different and at times opposing political leanings. Their Naval units started to communicate on a common channel 'Mercury' and exchange information to overcome a common threat; that of Piracy. Interesting incidents came to be recorded when a U.S. warship helped a merchant ship of its traditional foe, Iran, to thwart a hijack attempt. An Indian ship helped a Chinese merchant ship in an emergency and warships from all countries started to provide security to merchant ships irrespective of the flag they were flying. A very loose political convergence backed by a fairly rigid executive security mechanism had blossomed to address a common challenge. It is for India to introspect if such an approach is possible to counter the many other non-traditional challenges viz preservation of

biodiversity, sustainable development, climate change, illegal fishing etc facing the IOR. A coordinated approach at the executive level could perhaps change many a mindset at the political level in due course. As an example, if all smaller countries of the region were to team up against Illegal, Unreported and Unregulated fishing, it would become apparent that the chief exploiter of their fishing zones is none other than their professed benefactor – China.

Draw up a Strategy for Developing a Maritime Industrial Base

Countries of the Indian Ocean littoral look up to India for ameliorating their maritime capabilities by improving connectivity, modernising their ports, building capacities to safe guard their EEZs and implementation of measures for sustainable development of Blue Economy. They are striving to develop their maritime industrial base viz. development of ports, exploration and exploitation of Oil and Natural Gas along their coasts, cost effective mining of sea bed minerals, building ecosystems for tapping renewable energy from wind, wave and tidal variations, giving impetus to the fishing industry, promoting cruise tourism, putting in place a safe ship recycling industry, promoting a culture for protection of marine environment, adoption of measures to tackle climate change and other avenues for using the seas for an economic turnaround. Greater cooperation across all these marine industries is feasible and a strategy needs to be spelt out to identify areas of commonalities that exist across some of these groups of industries. India needs to adopt a 'whole of government' approach to facilitate cooperation between myriad sectors. A strategy should be enunciated for identification of an export-oriented development by laying out a road map for skill development in specific areas. Investments could be prioritized and shared aims between different industries identified, to benefit from economies of scale. Gains from such an initiative would help not only India's maritime industrial complex but those of her neighbours as well. Indigenous capabilities to build warships by our shipyards have been developed and India is building Destroyers, Frigates, Corvettes, missile vessels and Offshore Patrol Vessels to world class standards. These shipbuilding lines must be kept alive by orders from the Indian Navy and those from India's friendly neighbours.

India needs to adopt a 'whole of government' approach to facilitate cooperation between myriad sectors. A strategy should be enunciated for identification of an export-oriented development by laying out a road map for skill development in specific areas. Investments could be prioritized and shared aims between different industries identified, to benefit from economies of scale. Gains from such an initiative would help not only India's maritime industrial complex but those of her neighbours as well.

Conclusion

Underscoring the importance of India, KM Panikkar opined that "The vital feature which differentiates the Indian Ocean from the Atlantic or the Pacific is the sub-continent of India, which juts out far into the sea for a thousand miles. It is the geographical position of India that changes the character of the Indian Ocean." The geostrategic importance of the IOR is increasing as is evident by its adoption as part of the broader Indo-Pacific construct. India faces a challenge in its home waters from a rising China and must leverage geography to its advantage and prepare counter strategies in tandem with other littoral states of the Indian Ocean region.

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Section V

National Security Capacity Building

Determinants of India's Two Front Continental Strategy

Lt Gen PR Kumar, PVSM, AVSM, VSM (Retd)@

"The continental school of strategy argues that control over land is the organising principle of nation-states and politics. Man, lives on the land, not in the sea [or air] and control of the land far supersedes in importance control over maritime areas or lines of communication. In historical perspective, conflict has taken place almost exclusively with control over territory as the stake in the contest."

-Roger W. Barnett, 'Maritime and Continental Strategies: An Important Question of Emphasis'

Abstract

Emerging multi polar world, multi-domain security challenges both kinetic and non-kinetic, rise of authoritarianism, nationalism and bilateralism, threat of climate change, economic slowdown leading to trade wars and barriers, contest for strategic space and alliances is compelling all countries to carry out dynamic strategic balancing, leading to a turbulent international and regional security environment. Multi Domain Competition/Environment/War (MDO/E/W) has changed the security landscape globally and blurred the distinctions between peace and war, scope of confrontational activities and even levels of conflict (blurring distinction between tactical to strategic). India's Comprehensive National Power (CNP), the national security apparatus, economic positioning, military modernization structurally, hardware and software (including true integration and jointness in form of Theatre Commands) needs to be transformed to create requisite capacities and capabilities to compete, confront and if necessary fight a two-front war in a 24X7 Multi Domain Environment. At the outset it is imperative to understand that armed forces/militaries do not go to war, but nations go to war, and this fundamental principle must be addressed accordingly.

Introduction

The perennial debate: Closure of the debate on Continental Vs Maritime Vs Aerospace Power with the emergence of Multi Domain Operations/Environment/War (MDO/E/W). MDO envisions the Nation deploying and employing all facets of CNP including the military (not exclusively) and specially game changing technology —from diplomacy to economic leverages, fighters to destroyers, space shuttle to submarine, cyber to satellites, social media to psychological operations, Artificial Intelligence (AI), big data to networks, tanks to attack helicopters, munition factory worker to hacks— working together intrinsically as 'One', to overwhelm the adversary with attacks from all domains: land, sea (including sub surface), air, space, cyberspace, psychological and networks centric operations. Dense urban, Information Influence Operations (IIO) including social media and electromagnetic environments are also critical spaces for military and non-military effects. It must be understood that no single domain can dictate/guarantee dominance of the World. On the multi-dimensional chessboard, the facts of geography, the ambitions of strategy and

@ *Lt Gen PR Kumar, PVSM, AVSM, VSM (Retd)* during his career spanning 39 years had a very judicious mix of Command, Staff and Instructional Appointments in varied operational environments. He tenanted the appointment of Director General of Army Aviation prior to taking over as the Director General Military Operations. On superannuation the Officer is keeping current on all contemporary strategic and security related issues worldwide.

the realities of politics and technology all interact[1]. Numerous strategic thinkers and defence analysts are forecasting that with multi domain capabilities possessed by the bigger powers it could mean the 'end of geography' and even pure continental or maritime power. The proposition that 'domination of kinetic and non-kinetic domains, will eliminate the importance of geography and geopolitics' is clearly exaggerated. As David Lonsdale has warned, the 'fifth dimension', or the 'ionosphere', does not have its own environment and cannot apply unilateral force. Rather, cyber space and information acts as a medium for more efficient and faster physical expressions of strategic power[2]. Improved technology may ameliorate, but will not end, the timeless challenge of mastering tactical topography and of 'battling the elements. It remains a truism that 'physical geography has a continuous, powerful, and profound effect on the nature and course of combat'[3]. Realities of geography and geopolitics in conditioning strategy remain inescapable. Ultimately, the use of land power remains the most conclusive instrument of strategy and 'whether or not land constitutes the principal geographical medium on which combat is waged, strategic effect must ultimately have its way in a territorial context'. Only land forces provide presence, occupation, possession or control of physical space in modern joint conflict. However, continental power is also 'not' an end in itself. The above argument is of significant importance when discussing the dynamics of India competing/fighting a two-front threat/war. Having staked the primacy of continental domain, one would like to categorically state that from a strategic and military point of view, for India to take its destined place as a regional power in the mid-term and a global power in the long term, India needs to be an economic, diplomatic, continental, maritime, air, space, cyber, military, economic, technological and information power– a Multi Domain Power. This paper will focus on the determinants of India's two front continental strategies.

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China an emerged global power with attendant characteristics is moving to dominate Asia and subsequently the globe. Geographically contiguous India which has ideological and political differences and a boundary dispute (some would suggest deliberately unresolved) does not have the CNP to confront China. China with its strategic client state Pakistan, other acquiescent South Asian nations are trying to strangulate India's' strategic space and thus, its genuine growth and rising aspirations given its geo-strategic location, size and population. The situation gets exacerbated with both China (to lesser extent) and Pakistan conducting proxy war. However, remote the probability, India must be ready to contest a two-front war against China and Pakistan in an unstable internal security environment. An additional half front mainly in the Valley (probability of friction in the North East hinterland is lesser, as most alienated groups are not secessionist) is also spoken about due to the insurgency situation which could worsen drawing in a fairly large number of troops to protect our logistics and communication lines.

Geographical Realities[4]

India is the seventh largest country in terms of area in the world and shares approximately 15100 km of boundary with China, Pakistan, Nepal, Bhutan, Myanmar, Bangladesh and Afghanistan. India has maritime boundaries with seven countries namely; Sri Lanka, Maldives, Indonesia, Thailand, Myanmar, Bangladesh and Pakistan, and has a coastline of approximately 7500 km, a sub-continent jutting like a colossus into the Indian Ocean Region (IOR), dominating many of the Sea Lines of Communication (SLOCs) feeding Asia specially China and Japan. India's continental borders truly have a unique combination of mountains (low hills to super high altitude above 20000 ft), plains, desert and semi desert, riverine and jungle terrain with temperatures varying from -60 degrees to + 50 degrees centigrade. India's habitation profile varies from dense to uninhabited, demographic and people profile is totally diverse with different languages, cuisine and cultures. India's borders with Pakistan and China are disputed with 772.1 km of Line of Control (LC) and

126.2 km of Actual Ground Position Line (AGPL) along the Siachen Glacier with Pakistan, and 3488 km Line of Actual Control (LAC) with China (total boundary of 3507 km). The LAC is unique in itself as its formal delineation and demarcation is neither done nor actual ground positions known to each side. Each side only has a perception of the other side's LAC making it very complex. There is no maritime boundary dispute between India and China, while there is a dispute in the Rann of Kutch (Sir Creek) with Pakistan. The above is relevant because if China decides to 'bite the bullet' and prosecute war against India, there exist a reasonable probability of using the land, space and maritime domains of our immediate neighbours to his advantage (conventional forces manoeuvre through Bhutan, Nepal, Pakistan and maritime ports ex Myanmar, Sri Lanka, Pakistan, Maldives and Bangladesh, and also MDO in the hinterland.

International Security Truisms

It is pertinent to list out some prominent international security truisms before listing Indian security truisms. These are:

- International economic-political-security environment being turbulent and dynamic, multi polar assertions exemplifying statement of 'no permanent friends or enemies, only permanent interest' leading to all countries including global powers to carry out dynamic strategic balancing;

If China decides to 'bite the bullet' and prosecute war against India, there exist a reasonable probability of using the land, space and maritime domains of our immediate neighbours to his advantage.

- Scope of security, competition and conflict has enhanced in terms of geographical area, space, domains, time, potency, technology and blurred distinctions between tactical to strategic and even war and peace;

- Nature and scope of deterrence has also revolutionized. With niche technologies and multi-domain operating environment the effects of deterrence are diminishing. But, more potent the multi domain capability the more effective the deterrence, and ironically if deterrence fails this same combat power will be deployed to win the confrontation/conflict;

- Multi domain environment/competition/ 24X7 operations with gradually emerging potential of non-kinetic/ cognitive domains (cyber, information including potency of social media, psychological operations, domination of electro-magnetic spectrum, network centric operations).

- Regional security zones remaining fairly isolated from interference, further providing impetus for nationalism, authoritarianism and militarization of nation states.

- A civilizational superpower is immensely 'sensitive' to the concept of 'loss-of-face'.

Indian Security Truisms

- Lack of a formal written and promulgated strategic doctrine/National Security Strategy (NSS) has drawn criticism from security analysts that India lacks a strategic culture[56].Lack of it could well lead to India's adversaries seeing demons which don't exist.

- Real politik, globalised economies and markets, geographical remoteness makes the physical intervention of allies in a two front conflict improbable barring moral, material, intelligence/information and diplomatic support (which can be considerable in MDE). India must be prepared to fight alone within our capacity and capability. Prior shaping of the environment with strategic security alliances, diplomatic networking, building CNP becomes a national imperative, especially since there will be no redemption, and all have time gestation penalties.

- China is India's main adversary, and India's security environment is made more complicated by China's strategic encirclement both in the continental and maritime domain and collusively with Pakistan, coupled with our immediate neighbours jumping onto the Belt and Road Initiative (BRI) bandwagon thus emerging strategically closer to China *vis a vis* India.

- In the world of 'real politik' India's strategic and diplomatic outreach seems more in the realms of sentiment and diplomacy rather than conversion to hard power. (Quadrilateral Security Dialogue (QUAD), Shanghai Cooperation Organisation (SCO), Brazil, Russia, India, China and South Africa. (BRICS), agreements with U.S., Japan, Vietnam, Russian *vis a vis* Chinese strategic partnership with Russia, Pakistan, Myanmar etc; this an important strategic factor;

- 24X7 MDO/W calls for transformation of our national security architecture; our Armed Forces are not prepared to prosecute MDO/W; militarily we are neither prepared nor adequately modernized and equipped for a two front MDW which is exactly what China will prosecute since it is conceptually prepared to fight this way whilst preparing for the U.S. threat along with its anti-access/area denial (A2AD) capabilities.

- 'The now permanent, strategic China-Pakistan collusive partnership has brought in a whole new equation, with a much more expanded assistance in multi domain expected from China in case of an Indo-Pak war'. There is an increasing degree of inter-operability between China and Pakistan in soft and hard power (military and non-military) spheres which is being generated.

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- Even if China does not intervene militarily, unlike the earlier four wars, China will carry out more focussed, effective but non-military MDW. To do that China may mobilise her forces (simulate/indulge in some border activities) along the LAC along with its People's Liberation Army Air Force (PLAAF) and People's Liberation Army Navy (PLAN), preventing India's repositioning of forces (Army, Indian Air Force (IAF) and Navy) from the Northern to the Western borders, diluting India's offensive capacity and capability prohibitively.

- A two-front war is undesirable and. India must at all cost prevent a two front war and if unavoidable fight with what it has;

- Increasing India's CNP in all domains which includes military, economic, diplomatic, alliances etc will deter India's adversaries.

The Statistical Ratios Also Provide a Narrative

Everyone understands that wars are not based on just numbers; however, today smaller nations with low populations are very unlikely to become major powers. Numerous Think Tanks nationally and internationally have worked out global power indices providing comprehensive statistics on relative CNP of Nations. Quoting from Lowy Institute, Australia,[7]a respected Think Tank, the overall power index (comprising of factors ranging from economic resources, military capability, resilience, future resources, diplomatic influence, economic relationships, defence networks and cultural influence) is 84.5 to USA (naturally first), 41.0 to India, 75.9 and 15.3 to China and Pakistan (combined total 91.2). Military capability index which comprises of defence spending, armed forces, weapons and platforms, signature capabilities and military posture gives a score of 94.7 to USA, 44.2 to India, 66.1 and 25.8 to China and Pakistan

(combined total 88,9). It is apparent that even with partial force application by China (up to 30 percent) and full force application by Pakistan the numbers are adverse for India. A significant statistic to note is that 'China's official defense budget has grown 850 percent over the past 20 years from $20 billion to $170 billion in 2018,' as per the U.S. Senate Armed Services Committee Report 2018. It also noted that the real figures are significantly higher than China's official budget.' The important fact is that China has maintained its percentage of Gross Domestic Product (GDP) for defence (maybe increased it a few years) despite its phenomenal double-digit growth rate. India aims to have a dissuasive deterrence and credible deterrence capability against China and Pakistan respectively, and limited offensive capability in a two front war scenario against both adversaries[8]. Its ability to do that with its current allocation for defence is improbable as the statistics above reflect.

Probability of a Two Front War

Some experts say that India cannot fight a two-front war, and therefore, should not even plan about fighting one. They further advance the prescription that for India to avoid a two-front war, Indian diplomacy bears direct responsibility for preventing it[9]. Chinese economy is five times and defence expenditure three times that of India's (not to mention scale of indigenization of defence equipment, armaments and munitions, and hi-tech/niche tech applications and systems). In addition, Pakistan is a formidable and well trained and seasoned military power leading to a justifiable inference that India cannot contend with the realities and demands of fighting a two-front war. Since war is a contest between animate entities[10] (ultimately the human dimension takes decisions), how is it possible for India to escape the realities of confrontation with both Pakistan and China? If Beijing and Rawalpindi choose to combine forces to start a conflict, there is very little New Delhi can do to prevent it and indeed New Delhi will be compelled to fight them with what it wields. Under President Xi Jinping, the world is watching a more assertive China in all domains. But its primary focus remains Taiwan and Chinese seas on its periphery where it is prepared to confront the USA. Its focus is also the success of BRI which in the opinion of the author this is existential to the CCP. The countries opposed to China's unbridled quest for super power status are coalescing and challenging it. China needs to diffuse such coalition formation rather than indulge in a military adventure with India. Any military action against a recognised benign, democratic and emerging trans-regional power, alongside Pakistan, a country that has questionable credentials and which is on the verge of being named as a state sponsor of terrorism, is incongruous with China's world image. Salami slicing will remain its favored strategy. Given its current situation the possibility of Pakistan starting a war with China's active support is negligible. However, the collusive collective capabilities of China and Pakistan cannot be ignored and as they say, if capabilities exist, intent can change fast based on circumstances and opportunity, which can be created. While one must be pragmatic, the cost of not preparing for a two front war can be disastrous and price unaffordable. This leads us to the conclusion that whatever the probability, India must prevent but prepare for a two-front 24X7 MDO and MDW, and India's force structuring, capability and capacity development must be based on this threat perception.

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Two Front Multi Domains Operational Scenario

Having highlighted adverse force ratios[11] and the emerging MDO scenario, one should also understand that it is not 1962, and India's current force structures coupled with the attrition filled Himalayan terrain where the scenario is likely to pan out, will allow India's Armed Forces to adopt (limited) punitive posture against Pakistan and dissuasive posture against China with limited offensive capability. The vital role of Air Force (which enjoys a strategic advantage

of operating from lower altitudes against China) to fulfil its role of counter air and counter surface operations which are both battle winning and battle changing capabilities is very important. The Navy can cause considerable attrition to both Chinese and Pakistan naval assets if they manage to draw them into the IOR region. It is important to highlight that essentially the confrontation with India being political, Chinese war aims vis a vis India will be 'to teach India a lesson and show the world' her power projection potential of an 'Arrived Super Power' (in the process, humiliate India/ impact India's aspirations). In Pakistan's case it would like to resolve the Valley equation to her advantage. Jammu & Kashmir (J&K) is the only area where there is physical collusivity between China and Pakistan, and East Ladakh is vulnerable because of terrain, remoteness and sector segregation, mechanised forces operating conditions and own lack of infrastructure. Operations could start as an aggressive competition and confrontation using both kinetic and non-kinetic means but could easily escalate to a broader conflict. Deploying and employing land, maritime and air resources and routes and bases through other immediate neighbours cannot be ruled out.

Getting to more specifics, China and Pakistan operating along India's Northern and Western Borders (both prosecuting MDO pan India in hinterland also), India anticipate his employment of fires across domains - cyber, computer, IIO, especially social media, hybrid, electro-magnetic spectrum, space, application of Direct Internet Message Encapsulation (DIME) during peace (constant competition) and imposition of their will with increasing tempo, focus and lethality just prior to conflict to try and achieve his political and military aims, without fighting. Shifting gears to actual combat, both countries will employ their air assets including attack helicopters, ISR capabilities, Special Forces, rockets, missiles and artillery to degrade India's strategic, operational and tactical assets and military forces, isolate the battle field, and then employ his offensive forces to defeat our land and air forces in detail. Permanent terminal objectives even in the event of a full-scale war are most likely to be Chinese perception of his traditional borders which in Ladakh are close to the current LAC and in the Eastern Front includes the state of Arunachal Pradesh. For Pakistan he would like to capture maximum territory in J&K and along India's Western borders to use for strategic bargaining in the Valley.

India has one of the most battle-hardened troops in the World, but the intangible effect of psychological and information operations, isolation, lack of situational awareness, operating in a degraded environment coupled with a 360 degree conflict with no front, rear and flanks will certainly impact them.

The intensity of hard and soft power would be nothing like the Nation and Indian troops would have experienced. India has one of the most battle-hardened troops in the World, but the intangible effect of psychological and information operations, isolation, lack of situational awareness, operating in a degraded environment coupled with a 360 degree conflict with no front, rear and flanks will certainly impact them; if India does not train, prepare and have the capacity to counter and negate their design of conflict. Just as a stalemate for India is considered a defeat, when we launch pro-active operations against Pakistan, the same is applicable to China. Therefore, their aim would be to achieve their political and military objectives swiftly.

For India, as already highlighted, formidable terrain friction along the LAC, LC and AGPL where the land wars will be fought (Pakistan or India could initiate conflict across the international border where the dynamics are in our favour) will consume troops of the attacker (high ratios of 6 to 9 times), our dug in well-fortified and stocked positions which continues to hold ground despite being encircled or bypassed and will need physical clearing, own effective general and close fire support (artillery, rockets, missiles, Electronic Warfare (EW), optimum use of attack/armed helicopters, cyber war), strategic and operational logistics, timely ammunition, equipment and troop reinforcements, synergized counter air and counter surface support, opening up of new/different fronts/areas, newly acquired strategic lift capabilities and most importantly conduct of Theatre MDO and keeping a major portion of our strategic strike forces (four strike Corps including the Mountain Strike Corps) largely uncommitted for limited offensive operations/ riposte and continuously recreating reserves, will ensure a slow grinding attrition based defensive operations unbalancing and stalling their offensive.

The Way Forward

Given the international and regional dynamic security situation and India's national economic situation it will be pragmatic to have two phase strategy to strengthen and optimize our national security apparatus viz Phase 1 – Immediate future (3-5 years) and Long-Term Plan. Some essential national and military measures are listed below.

Immediate Future

- Strategic Direction for the Nation and the Armed Forces. Formalisation of a National Security Strategy (NSS), leading to National Military Strategy (NMS). India's Chief of Defence Staff (CDS) has already been implemented who can give impetus to this process. The NMS should clearly enunciate the contours and roadmap to prepare and fight a two-front war.
- Formal Government orders leading to true Tri-services integration and commencement of Theatre Commands raisings.
- Increased budgetary allocations are imperative for National Security. This will have to be done for a long period, as envisaged by experts to 3 percent of the budget. As a starter, the Defence Budget must be raised to 3 percent of the GDP. DPC and CDS will be the point's men to expedite the above.
- Smooth re-structuring MoD and all three Services as directed to the CDS.
- Minimum Stock Levels (MSL) of Munitions, Equipment and Spares and Setting the Stage for Technological Upgrade of Armed Forces. This will include positioning and arrangements (export oriented if required) for urgent delivery and replenishment of critical stocks (within 10–15 days for an intense, short duration war). It automatically implies robust push toward 'Make in India' and Public Private Partnership (PPP).

India must be prepared for a two-front escalating security and war scenario. Continuous building of CNP of which the military is an inescapable and operational imperative, needs to be done with focus, dedication and 'whole of Nation approach'. India's Armed Forces need to transform themselves to deter, fight and win a two-front war.

Longer Term Measures

- Build requisite strategic air and sea lift capability for switching surge requirements of forces and equipment across fronts which ipso facto are available for Out of Area Contingencies (OOAC)
- Civil-Military relations to be improved by posting military representatives in the MoD and critical Ministries at key decision-making posts.
- Modernisation of the Armed Forces with CDS laying out raising and budgeting priorities which strengthen all synergy with all actors who play a part in MDO/W.
- Roadmap, planning and implementation to fight a two-front war in MD Environment. Precise and specific roadmap has to be laid out and monitored for implementation by CCS/NSA/Ministries/CDS/ individual Services.

Conclusion

Future wars are going to be very complex, intense, multi-dimensional with blurred distinction between competition, confrontation and conflict, diminishing power of deterrence, and ambiguity of attribution and commensurate retribution. India must be prepared for a two-front escalating security and war scenario. Continuous building of CNP of which the military is an inescapable and operational imperative, needs to be done with focus, dedication and 'whole of Nation approach'. India's Armed Forces need to transform themselves to deter, fight and win a two-front war. Our MDO during the competition stage should prevent a two-front collusive adventure. While the statistical bean count is adverse in a two-front scenario, our Armed Forces with their traditions and history will predictably cover themselves with glory in any war and deny any strategic gains to our adversaries. Since modernization/transformation, preparation, synergy, training for MDO/W comes at great cost and considerable time, India must start the process as a national endeavour now.

End Notes

1 Paul Kennedy, The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000, Fontana, London, 1989, p. 111.

2 David J. Lonsdale, 'Information Power, Strategy, Geopolitics and the Fifth Dimension', in Gray and Sloan, Geopolitics, Geography and Strategy, pp. 137–60

3 Harold A. Winters with Gerald E. Galloway Jr, William J. Reynolds and David W. Rhyne, Battling the Elements: Weather and Terrain in the Conduct of War, The Johns Hopkins University Press, Baltimore, MD, 1998, p. 4.

4 Wikipedia, Encyclopedia Britannica and Survey of India.

5 Apart from non-optimisation of our CNP especially military modernisation, capability and capacity building based on NSS and threat assessment, lack of a formal NSS, could give rise to "apprehensions" externally, with adversaries being quick to perceive 'threats' and using their 'apprehensions' to further their respective "national security". For instance, Pakistan has used 'Cold Start' as an excuse for not shifting forces to their western border.

6 Preparing for a 'Two front War' is also understandable as our Nation and Armed Forces must cater for 'worst case' scenarios. A strategic doctrine contained in our NSS has utility in providing an assessment of the probability of such a scenario. The scramble to prepare for the 'two front' scenario would then not end up as a self-fulfilling prophecy in triggering a neighbour's insecurities.

7 2019, Asia Power Index, Pocket Book, Lowy Institute, Australia, https://power.lowyinstitute.org

8 Recent Army Vice Chief's presentation to the 'Parliamentary Committee for Defence' of 2018. In brief he gave out Army's thrust that: (i) 65 per cent of the arsenal is obsolete, (ii) the ammunition holdings are far below the operationally desirable stocks, and (iii) forces lack artillery, missiles and helicopters which could enable them to fight on both fronts simultaneously.

9 India's two-front war challenge: The problem of choice, scenarios and uncertainty by KartikBommakanti, 10 Oct 19, Warfare sub-section, www.orfonline.org

10 *VomKriege* or *On War*, "War, however, is not the action of a living force upon a lifeless mass (total non-resistance would be no war at all) but always the collisionof two living forces."

11 'The sobering arithmetic of a two-front war' by AbhijnanRej, ORF Special Report, 10 Jul 2018. Open domain source material and very accurate based on 10 years input from ten IISS Military Balance volumes from 2009 to 2018.Provides detailed statistical inputs to include comparison of major equipment, armaments, aircraft (combat and fighters), ships (destroyers, frigates) and combined strength of China and Pakistan Vs India to include partial deployment of forces and equipment by China (10 to 30%) in the event of two front war. Due to depletion of IAF and Army resources including obsolescence, the ratios are indeed adverse on all counts. The best ratio is attributed to Indian Navy due to its focus in the IOR vis a vis China. In numerous cases like artillery, combat ships and fighter aircraft the ratio does not give a correct picture as there has been a decrease in Chinese numbers but a very major qualitative improvement of quality and technological upgrades (more potent, accurate, consistent missiles and rocket systems, modernization of fighters and ships to latest technology almost at par with the US Armed Forces). Pakistan due to the known domination of its Army has carried out focused modernisation of it forces to plug its vulnerabilities against India.

Transformation of Land Forces, Including Integrated Battle Groups And Additionalities

Lt Gen Arun Kumar Sahni, PVSM, UYSM, SM, VSM (Retd)[@]

Abstract

In this fast changing environment, India's complexity of threat spectrum requires conflicting capabilities in the armed forces, especially the army. New age threat vectors need to be addressed while being prepared for legacy territorial threats. Contextual to the changing security landscape, the current leadership of the Indian Army has prepared a road map to meet future challenges. These are at various stages of implementation, validation and debate. The aim of this article is therefore, to briefly recount the contours of transformational changes that have commenced, with specific attention on the proposed plans of creating Integrated Battle Groups (IBGs) and other additionalities that will add to the overall operational effectiveness of the Indian Army and also address the emerging security challenges.

Introduction

It is often stated 'that militaries always prepare for the last war'. Till a few decades ago this inadequacy was pardonable, as the classical concept of war fighting remained restricted to the external borders of the conflicting States. This is now passé, with the imperatives of 'new age warfare'. The militarisation of erstwhile 'global commons' of 'cyber' and 'space' and ever increasing dependence on cyber, space, for almost all functions of 'governance' and 'security', has resulted in creating new vulnerabilities and warfare not being restricted to traditional battle spaces. The fast-paced technological advancements are not only changing war fighting wherewithal but have increased the capability to engage at longer distances with accuracy and precision, hitherto fore not known. Lethality of munitions have increased the devastation/ destruction at the target end and the vastly improved array of sensors has significantly impacted battlefield transparency. The advent of unmanned and autonomous weapon platforms in the foreseeable future, has added another dimension that requires dexterity of thought and action.

Concurrently, the International strategic landscape is experiencing rapid changes, precipitated by economic concerns, hyper nationalism and protectionism. The impact of climate change on the existing natural resources in a populous world has fuelled a race amongst the leading nations to garner critical resources, resulting in new alignments and relationships. These are in addition to the legacy affiliations, anchored on common ideologies. This contested environment for resources and dynamic strategic alignments, have created new pressure points and areas for conflict, in addition to the existing triggers for conflict.

In this fast changing environment, India's complexity of threat spectrum requires conflicting capabilities in the armed forces, especially the army. A global scan of events confirms that the war against terrorism, military action against fundamentalist ideologues and recent conflicts that have been experienced or are simmering in different parts

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[@] *Lt Gen Arun Kumar Sahni, PVSM, UYSM, SM, VSM (Retd),* is a former 'Army Commander', with extensive operational experience on external security dynamics astride Western and Northern Borders of the country and combating internal security challenges in J&K and North Eastern States. He is an active speaker at various forums on national security, emerging international dynamics in India's 'near and extended' neighbourhood, NE imbroglio, India's Act East initiatives, counterterrorism, nuclear aspects, cyber issues, and experiential leadership. He is also a Council Member with the USI and Distinguish Fellow CLAWS.

of the world, are pointers of *'new age warfare'*. Axiomatically, we need to be prepared for these security realities. On the other end of the spectrum is the legacy territorial disputes, with India's two asymmetrical adversaries. Therefore, any organizational changes that are undertaken ought to be conscious of the fact that India's threat spectrum is unique and modulation needs to be anchored on pragmatism and not for the sake of change, aping other countries with differing aspirations.

Contextual to the changing security landscape, the current leadership of the Indian Army has prepared a road map to meet future challenges. These are at various stages of implementation, validation and debate. This of course did not cater for the long awaited, welcome disruption, created with the appointment of CDS and formation of the 'Department of Military Affairs', in the Ministry of Defence. The changed 'rules of business' of the Government of India (GoI) will in due course demand some changes in the organizational structures cum functional procedures of Service Headquarters and subordinate headquarters. The aim of this article is therefore, to briefly recount the contours of transformational changes that have commenced, with specific attention on the proposed plans of creating Integrated Battle Groups (IBGs) and other additionalities that will add to the overall operational effectiveness of the Indian Army and also address the emerging security challenges.

Appraisal of Future Conflicts

The landscape of conflict has irrevocably been distorted by the arrival and increasing role of *'non state actors'* and the impact of *'disruptive technologies'*. The activism of 'non state actors' to promote and achieve ideologically derived objectives, independently and/or with state support, is reflected in the ongoing 'proxy war' in our country and the effort across the world to fight religious fundamentalism exemplified by Al Qaeda & Islamic State of Iraq and Syria (ISIS)/Islamic State of Iraq and the Levant (ISIL). The effectiveness of cyber domain and social media platforms in starting and supporting mass scale uprisings had been reflected in the success achieved during the 'Arab Spring' conflicts.

China's military capabilities are leaning towards 'non contact' warfare, with a very high premium on political and psychological dimensions of warfare. This entails increased reliance on cyber, perception management, media and legal issues for achieving its political objectives, while maintaining a formidable and modern conventional capability.

Exploitation of the cyber domain to attack national perception and State structures of governance, of target countries, to achieve desired objectives, was witnessed in Estonia and Georgia. Thereafter, Ukraine experienced the devastating impact of the combined use of 'non state' actors, crafted with the kinetic instruments of the state and simultaneous use of cyber space and social media, to achieve desired politico-military objectives. This form of warfare is there to stay and is being defined as 'non linear war', 'hybrid Warfare, 'Gerasimov Doctrine'[1] or 'Gray Zone Operations'. These have now become part of the lexicon of military terminology and an intrinsic part of future conflict. Therefore, conventional forces in today's context will have to be prepared to fight in a hybrid environment, irrespective of the type of confrontation with the adversarial neighbours; implying that structures and strategy will have to be created for 'information warfare' and honed for the defensive and offensive use of cyber and outer space, in conjunction with land warfare.

In the case of India, a territorial impasse continues with both Pakistan and China. China's military capabilities are leaning towards 'non contact' warfare, with a very high premium on political and psychological dimensions of warfare. This entails increased reliance on cyber, perception management, media and legal issues for achieving its political objectives, while maintaining a formidable and modern conventional capability. In the conventional space also, the focus is to avoid close contact by introduction of advanced technologies such as Anti-Satellite (ASAT) weaponry to target space-based assets and institutionalizing the functioning of the 'Strategic Support Forces'. In contrast, Pakistan continues to be regressive and obsessed with the 'proxy war' in Kashmir, despite of its fragile socio - political environment and weak economy. Its constant initiatives to subvert segments of Indian population, territorial ambitions and continuing

military action at the Line of Control (LoC), creates ambiguity and a high probability for conventional skirmishes, with an inherent risk of escalation. However, the growing asymmetry with both of them, one in India's favour and the other in favour of China, has further created complexities, for the security establishment. It needs to be highlighted that the intrinsic criticality of 'geo-economics', in an inter-connected world has also reduced international appetite for long drawn out conflicts. So the land forces in addition to the new frontiers of conflict will have to be prepared for short, intense and proactive engagements to achieve the desired politico – military objectives.

There is therefore a requirement of agile, potent and tailored formations of infantry and/or mechanized forces, with requisite, firepower, Information Warfare, engineers, signals, specialized subunits and logistic elements. The land forces will have to be flexible and responsive to the rapidity of change, information overload and the far reaching effects of the ongoing Information and Communications Technology (ICT) revolution.

The Proposed Changes

The proposed transformational changes including restructuring of headquarters and field units, to address the geo strategic realities and complexity of emerging challenges in the battle space, seems to be with due deliberation by the current leadership of the Army.

The planned changes are primarily three pronged, namely, restructuring of existing field formations for operational expediency, making the staff functioning focused at Army Headquarters and issues related to 'Human Resources'. These recommendations were preceded by four in-house studies by the army, namely, Reorganization of Army Headquarters (AHQ), Reorganization and Rightsizing of the Army, Cadre review of Officers and Review of Terms of Engagement of Rank & File.

These structural modulations will also synergise the complete ambit of military procurements. Simultaneously, tri-service organizations are being created to address the challenges from cyber and space and the related threats of information dominance and warfare.

The changes within AHQ are at various stages of approval and implementation. These are to redress the existing duplicity between directorates / branches, create structures to meet the challenges arising with the changing 'nature of warfare' and streamline the chain of command for centralized control of critical functions, including rationalization of responsibility of the apex leadership, for better focus and attention. These structural modulations will also synergise the complete ambit of military procurements. Simultaneously, tri-service organizations are being created to address the challenges from cyber and space and the related threats of information dominance and warfare. In the area of 'human resource' management the effort is to harmonize personal aspirations of the officers and the 'rank & file' of the army with organizational imperatives.

The other area is selective restructuring of field formations, both defensive and offensive. It envisages formalizing the semi adhoc groupings that exist, keeping the task and terrain for execution of a plan. These groupings were described by various acronyms like Division Sized Force (DSF), Integrated Battle Groups (IBGs). The changes in the field formations have been partially test bedded with the remainder being done in planned field exercises post which the final shape is to be formalized. There are points in favour of not making tactical groupings permanent as in the proposed case of IBGs, in order to retain flexibility of employment in war. Others feel that if done after due doctrinal deliberations such a change will be beneficial as it improves the training and cohesion of ad hoc groupings resorted to when warning periods, prior to war, are short.

Integrated Battle Groups

The concept of IBGs is an extension of the evolutionary thought process that commenced post 'Operational Prakram', to ensure optimal utilization of our military combat power, in any future conflict. Therefore, a quick look at the overall strategy, to place the role and task of IBGs in perspective is merited.

Post 'Operation Prakram', the shortcomings of mass mobilization without actual force manifestation, led to review of India's military doctrine against Pakistan and resulted in formulation of the 'Cold Start Doctrine'. This with iterations matured to the current 'Pro Active Strategy', that is premised on offensive action by own forces, against a nuclear armed belligerent adversary. It entails military operations to be executed on short notice, with speed and intensity, to achieve operational - tactical surprise and exploit existing defensive vulnerabilities / opportunities that would exist during the preparatory stage of the conflict. Thus, execution is anchored on principles of maneuver instead of time consuming attritive operations. It was also indicative of the confidence in own capabilities to assess the adversary's intentions in time, read the 'late battle indicators' and thereafter undertake the offensive. The overall operational architecture for undertaking conventional operations is theatre based, executed under an 'Integrated Theatre Battle'. Towards achieving this, the defensive corps were restructured as 'pivot corps' and critical resources were pooled, to be deployed to a plan, in 'hot war' situation. This has limited application in the LoC, as the operations are per force attritive, due to ab initio deployment on the border.

'Pro Active Strategy', that is premised on offensive action by own forces, against a nuclear armed belligerent adversary. It entails military operations to be executed on short notice, with speed and intensity, to achieve operational-tactical surprise and exploit existing defensive vulnerabilities/ opportunities that would exist during the preparatory stage of the conflict.

Historically, the world over, the field formation organisational structures capable of undertaking independent tasks at the apex level are the 'Command', 'Corp' and the 'Division' in descending order of size and power. The Division is the lowest field formation with intrinsic integral resources of all arms and services permitting it to carry out most operations. Specialised resources or batted at the 'Command' and 'Corps' level, are sub allocated to Divisions based on operational necessity. Such resources are additional infantry, mechanized forces, artillery and engineers in the form of independent brigades as well as specialized assets like Air Defence, Electronic Warfare (EW) and aviation etc. These provide flexibility to these commanders, for employment as reserves or accretional forces, where and when required.

In the Pivot Corps, the operational groupings for defensive operations are terrain and threat specific. These reserves are structured under a nominated brigade or by clubbing two brigades of different fighting arms, under an ad hoc headquarter which exists till the task is completed and a further regrouping done as required. This enables various contingencies to be met. For the offensive tasks of the 'pivot corps', the nominated brigade is tailor made for its role and tasks, with additional resources of infantry/mechanized battalions, artillery units, specialized elements and logistic detachments. For their synergistic employment in conflict, these units from different formations carry out regular collective and joint training.

It is to redress the shortcoming of this 'mix and match', that structural changes for task oriented, terrain specific, all arms grouping, are being formalized as IBGs. This concept is predicated on the predictability of ground operations, as each of these unique groupings, is being tailor-made for a sub sector, catering for specific terrain, threat and tasks. These new grouping are being anchored on the existing 'brigades' and would be ideally equipped for exploitation of time sensitive opportunities. This lean and agile force would also be better suited for 'new age warfare'. The IBGs as a formation are being crafted for both defensive and offensive roles, under command of a Maj Gen, similar to the Divisional Commanders. This is somewhat in the manner specialised Divisions called Reorganized Army Plains Infantry Divisions (RAPIDs) exist in the army at present.[2] IBGs will be smaller and lighter enabling them to react faster.

The construct of IBGs is also relevant in the rugged mountainous terrain astride the 'northern borders', which is suitable for infantry predominant operations. The restrictive terrain and tenuous lines of communication to the borders require compact formations that are lean and agile. This is also suitable for application of force in terrain with limited deployability at the point of contact. Therefore, the 'Mountain Strike Corps' and earmarked reserve formations in Northern and Eastern command, need to be selectively restructured for operational expediency and effectiveness. There are various combinations of units and sub units that can be orbatted with these IBGs, from four to six battalions in a brigade with supporting elements. But formation of 'square brigade', with an artillery regiment, subunit of air defence and other requisite supporting elements seems the most pragmatic. These brigades could be independent and grouped directly under the Corps Headquarter or two to three of these can be subordinated to an IBG. The agility of brigade groups will give them the capability for speedy deployment/ redeployment, by either air or road. The positive fall out of this restructuring will be availability of 'formation headquarters with staff' for redeployment within the army to areas where presently formation HQs have the dual responsibility of defensive and offensive operations.

Shortcomings

Experiential learning of the past has indicated that the optimal span of control of a Brigade Commander should be limited to 3 to 4 major units, of the same arm. This ensures intimate mentoring by the commander, for honing individual skills and collective drills of the subunits and units of his command, for its designated role and tasks. This training also develops the required resilience in the formation to meet unforeseen challenges of combat. In case a combination of units of different arms and services are placed under a brigade, the training may be impacted. On formalizing these battle groupings, suitable modulations should be implemented, to mitigate this shortfall. Also, firming in of grouping for war, for a specific contingency / plan, into a structured organization, can have negative ramifications in case events do not unfold according to the plan. It needs to be highlighted that there are few examples of tailor made task oriented groupings, structured under a Divisional Commander in the world containing each and every component required in war as this may not be economical in resources. There are however examples of combined arms grouping at the level of 'battalion groups' or maximum a brigade sized force, in USA, China and Russia. There is a need to be cautious, while finalizing the structures of IBGs, for over zealousness should not lead to them being structured for all conceivable contingencies and losing sight of the premise for initiating this process.

While the current proposals for restructuring are at various stages of examination/ implementation. Transformative actions for mitigating the dynamic changes in the domains of 'cyber' and 'space', is a must.

Additionalities

There are a few other issues that need to be looked at on priority, while the current proposals for restructuring are at various stages of examination/ implementation. Transformative actions for mitigating the dynamic changes in the domains of 'cyber' and 'space', is a must. Initial steps have been taken with the setting up of the 'defence cyber agency' and the 'space agency', as tri-service organisations.[3] These nascent organisations need to stabilise, coordinate the seminal work done till now by individual Services and formalise procedures for synergising efforts with similar national institutions. The response in these sectors has to be an all of nation approach and not 'silo' based. To cater for the rapidity of innovative changes, there is a need to ensure that the staffs' are responsive to changing skill sets and there is flexibility in the organisational structure.

Future organisations need to be adaptable to absorb and exploit the emerging technology innovations, in robotics, artificial intelligence, machine learning and 'internet of things'. A new range of weaponised platforms are at penultimate stages of development and induction, like the Unmanned Armed Vehicles (UAVs), un-manned platforms, swarm drones, loiter missiles, etc. These in the near future, will have far reaching impact on the kinetic force application in the

battlefield. Enhanced capabilities for Intelligence, Surveillance, and Reconnaissance (ISR) with the complete spectrum of advanced surveillance sensors/ systems should be a priority. The inventory should include advanced electro optical systems, radars, UAVs, satellites, smart fences with anti-intrusion devices and real time sensor monitoring system with remote capability. Preferably major acquisitions should be indigenous and acquisition via the 'make in India' route. Towards mobility in the inhospitable/ underdeveloped terrain astride the national borders, there is need for development of communication infrastructure, induction of advanced mobility platforms and an all-weather tactical airlift capability.

There is a need for the army to remove duplicity in its training facilities /Institutions and transit towards common structures for the three Services, like helicopter training, air defence etc. Rationalise manpower across all arms and services for identifying resources for re-skilling for new disciplines and organizational structures. It is imperative that future raisings and restructuring within the army follow the principle of 'save and raise'. However, reduction in manpower with induction of advanced military platforms and technologically advanced systems should only be implemented post absorption of these systems/ sub systems, for retention of force effectiveness.

The induction of new age systems is and will create an 'information overload', while the operational dynamics demand quick and effective decision making. Therefore, commanders need to be empowered through 'network enablement' and early deployment of 'Operational Information Systems'. For intimate and timely logistic support, there is a need to fast track development of the 'Management Information Systems'. Machine to machine learning and interoperability are a must in any of these networked systems for seamless linkages.

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The other area that needs attention is exploitation of the large inventory of indigenous missile systems, including the development of the revolutionary 'loiter missile'[4]. This is an area that has been long neglected. There are measures that can be instituted in our 'deterrence' policies, that ensures exclusivity of the 'strategic forces', employing near similar systems. Deployment of 'Ballistic Missile Defence' systems and their corresponding impact on the Air Defence network is another area that will warrant better integration.

The most path breaking effective transformative change will be steps for comprehensive integration amongst the three major Services, instead of the current piecemeal efforts at 'jointness'. Towards this, the merging of training and logistic establishments will be evolutionary. To have joint logistics in a manner that exists for the medical support service, there is a need to create a 'logistic corps' and doing away with separate services of supplies, ordnance and repairs. Officers commissioned from a date should only be commissioned to this new corps and allocated a sub specialisation. They will be suitable for employment across the three Services. The raising of 'joint commands' as announced by the CDS is also doable, with due deliberations in the areas of cyber, space and air defence. This requires a separate iteration.

Conclusion

It is imperative that transformative changes within the army and the armed forces, be made after due deliberations by the military practitioners, who understand the cascading impact of changes on operational dexterity and effectiveness. They need to discount the cacophony of advice being espoused at different forums and media, by self-proclaimed experts, by drawing parallels to similar actions being undertaken by militaries of some of the leading nations of the world. Downsizing continues to be appealing in the present environment of dismal budget allocations for defence, but reduction in force levels is not the way forward. Suitable restructuring for identifying manpower for emerging requirements is a must. Also, the budgeting should be viewed in the overall perspective of allocations made to Ministry of Home Affairs (MHA) and Ministry of Defence (MoD) both of which have responsibilities for border defence.

End Notes

1 Gen VV Gerasimov is the Russian strategist alleged to have conceived the "Gerasimov doctrine" – combining military, technological, information, diplomatic, economic, cultural and other tactics for the purpose of achieving strategic goals.

2 Field Formations, accessed Mar 05, 2020 from http://www.bharat-rakshak.com/ARMY/weapons/artillery/231-Field-Formations.html

3 Sudhi Ranjan Sen, "India to set up 3 new agencies, including cyber and space, to boost defence capabilities", *Hindustan Times*, Oct 16, 2018 , accessed Mar 05, 2020 from https://www.hindustantimes.com/india-news/india-to-set-up-3-new-agencies-including-cyber-and-space-to-boost-defence-capabilities/story-umuS4UOsDavc0MhHkUjuWN.html

4 For more on this type of munitions read https://dronecenter.bard.edu/files/2017/02/CSD-Loitering-Munitions.pdf

Pathways for Transformation of the Indian Navy

Rear Admiral Devender Sudan (Retd)@

Abstract

The changing dynamics of the emerging global order and rapid advancements in the new age technologies would require the Indian Navy (IN) to anticipate, adapt and be prepared for the new challenges. This transformation would require substantial change across platform, processes, and people. This article takes into account current developments and suggests pathways for transformation for the IN to effectively fulfill its role in the future.

Introduction

The Indian Navy (IN) is the principal instrument of maritime power of the country and an indispensable tool in the 'National Security' apparatus. Indian maritime interests encompass freedom of navigation for shipping, safety and security of Sea Lines of Communications (SLOCs), safeguarding interests in contiguous waters and Economic Exclusive Zone (EEZ), and protection of its Island territories. The Indian Navy applies naval power 'to safeguard the nation's use of seas for its legitimate sovereign purposes, whilst concurrently guarding against inimical use of the sea by others'[1]. A potent and professional blue-water force, the IN has been pro-active in adapting to the requirements of the maritime domain keeping in view the changing security dynamics.

Changing Dynamics

There are three major trends, which are at play, and would have a profound effect in the years ahead. These overarching trends would impact the geo-strategic landscape and consequently Indian Naval operations.

- **Big Power Competition.** The world order is in the midst of change, with big power competition on the ascendant. China's military modernization, increasingly aggressive foreign policy moves — as seen in the East/South China Seas, and steadily increasing naval activity in the Indian Ocean Region (IOR) —has implications for Indo-Pacific dynamics. With a permanent naval presence, establishment of bases, repeated forays of PLAN offensive platforms (submarines) into the IOR; the likely presence of a Chinese carrier battle group in the Indian Ocean as early as 2021 lends to complexity in the_maritime environment. The Indo-Pacific region is where military competition is likely to manifest.

- **Hybrid War.** Hybrid warfare is blurring the boundary between offensive action requiring retribution and otherwise, adding confusion.

- **Technology.** Geo-political competition with increased possibility of military conflicts is resulting in arms build-up with increased investment in weapons, platforms and infrastructure. Technology is bringing rapid change and new weapons and sensors are under development/trials. These include microwave, laser and

@ *Rear Admiral Sudan (Retd)* is a naval aviator who has commanded air squadrons and also frontline warships. He has headed the Analysis Division at the Directorate of Naval Intelligence and been on the faculty at the National Defence College, New Delhi.

hypersonic weapons amongst others. The pace of technological change is expected to intensify in the years ahead.

- **Confident India.** With India as a major economy of the world, expectations of the global community for India to play a greater role in world affairs are rising. India itself has an 'aspiration to be a leading power'. As Shri S Jaishankar noted, "Our ability to shoulder greater responsibilities at a time when the world is more reticent is also evident. Equally significant is a willingness to shape key global negotiations, such as in Paris on climate change".[2]Also evident is India's will to exercise power as seen in its response to terror attacks. India's energetic diplomacy, managing contradictions of the changing world order and seeking to play an increasingly important role in shaping the global agenda, would also be reflected in the maritime domain.

India due to its geographical location and profile has an important role in maintaining maritime stability. The IN would do well to be prepared for the changing security environment and have the capacity and capability to maintain an external maritime environment conducive for domestic growth. It would have to be prepared for engaging in the full spectrum of maritime operations — from high intensity war to Low Intensity Maritime Operations (LIMO). India's enunciation to be a 'net-security provider' brings its own set of connotations.

Pathways for Transformation

Transformation is a continuous process in anticipation of the perceived future environment. The changing dynamics of the emerging global order would necessitate changes in the Navy, to effectively fulfill its roles in the future. This transformation would require substantial change across platforms, processes and people.

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Operational Capability

The IN has operational capability across the full spectrum of operations. It is a 'balanced' three dimensional force, and over the past decades, there has been an increasing emphasis towards blue water platforms as seen by the increasing numbers of indigenous Destroyers, Frigates and Corvettes. This has allowed the Navy to operate over long ranges for sustained periods. The new policy of 'mission based deployments' by warships, at focal areas of the Indo-Pacific, is reflective of sustained 'presence' in India's maritime areas of interest. Regular airborne surveillance by Maritime Reconnaissance (MR) aircraft in areas of interest is also undertaken. The future geo-political environment would require the IN to ensure its capability for sea control remains robust, so as to be able to influence events on land through its power projection ability. The aim is to strengthen naval capacity and capability to address coercive challenges that may arise in the Indo-Pacific.

Capacity Accretion

The Maritime Capability Perspective Plan (MCPP) encapsulates the capability development plan, including acquisition plans of required platforms, within limits of budgetary support. The Navy's long-term plan of having 200 ships and 400 plus aircrafts is based on threat assessment and capabilities that the Navy would require to possess. Based on the planned platform figures, the capability to conduct sustained operations at long ranges together with long distance precision strike capability would be essential for all fighting platforms— ships, aircraft or submarines. Capacity shortfall in platform strength has its fallout on operational capability, and presently significant capacity deficit exists across ships, aircrafts and submarines. Reduced budgets, inherent weakness in acquisition processes and warship construction delays, are having a deleterious effect on capacity.

- Air power at sea and integral on ships is essential in naval operations as it is a force multiplier in every aspect of naval operations— offensive or defensive. Integral Anti-Submarine Warfare (ASW) and Utility helicopters add significantly to a ship's capability—in surveillance, ASW and Anti-ship/ Maritime Strike missions. Holding of such helicopters is extremely short and their induction needs to be given highest priority. A ship without its integral helicopter is severely limited in its inherent capability. A contract for procurement for a limited number of twenty-four MH 60R Multi-role helicopters is likely to be concluded in 2020 and the Naval Utility Helicopter case has finally been taken up under the Strategic Partnership model and needs to be progressed expeditiously.

- The IN is structured around the concept of Sea Control – the ability to use a defined sea area, for a defined period of time, for one's own purposes, and at the same time deny its use to the adversary[3 4]. *Carrier Task Forces* are substantial contributors towards achieving sea control. Centered on the aircraft carrier they form a composite self-contained offensive formation for projecting power, at sea and on land, while having intrinsic defensive capability. The Indian Naval plans for having three Carriers, so as to have at least two available for operations, need to be expedited with clearance for construction of the Indigenous Aircraft Carrier (IAC) 2 in country.

- A robust conventional and nuclear submarine build plan has been envisaged but is running behind schedule. While the induction of conventional Scorpene submarines has commenced and is a positive step, there is a need to hasten the Project 75 India build programme. Significant effort would have to be made for meeting the planned target of submarines in the planned timeline.

The aim of harnessing Information is to gain situational awareness and disseminate to relevant nodes through networks. Information domain in the context of military operations encompasses C4ISR (Command Control Communication Computers Intelligence Surveillance and Reconnaissance) technologies plus Electro-magnetic (EM) spectrum and cyberspace. Network centric capability is a critical enabler for Information Ascendancy. Through information ascendancy would accrue asymmetric advantage of greater battlespace transparency, integration and distribution of a compiled picture and option for both kinetic and non-kinetic (EM/Cyber) action.

Capability Accretion

The aim of naval forces is to finally, deliver the armament on target. Advances in technology enable naval platforms to have long range, precise and independent weapons, capable of being used for targets at sea and on land. While new ships are being accordingly fitted, refits and Mid Life Upgrades (MLU) offer opportunities for upgradation of combat management systems and weapon-sensor fits, to enhance capability of older platforms with adequate life remaining. Acquisition of force multipliers, such as Airborne Early Warning and Air to Air Re-fuellers, would add immense capability. Unmanned Air/ Surface/Sub-surface Vehicles with autonomous capability would play a significant role in operations and should be planned for induction.

Multi-Domain Capability

Naval operations would not be limited to the three dimensions of sea, air and underwater, but would also include space and cyber. The necessity to master their dynamics and be prepared with requisite offence/defence capability is a must.

Information Ascendancy

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compiled picture and option for both kinetic and non-kinetic (EM/Cyber) action. Information fed networked forces would be able to generate increased combat power by networking sensors, shooters and decision makers, resulting in faster decisions, higher tempo of operations, correct selection of targets and greater lethality. The IN to effectively perform its roles in peacetime operations and conflict situations requires having credible information ascendancy.

Maritime Domain Awareness (MDA)

Information ascendancy is achieved through enhanced MDA of the oceanic areas as also of littoral areas of interest. In the Indian context, this would include the entire Indian Ocean and increasingly the larger Indo-Pacific as well. It would also encompass all dimensions —air, surface, underwater, space and cyber. The key to effective surveillance of a wide area is the early detection of a developing situation, with adequate reaction time to weigh all available options, and prepare an appropriate response. MDA is a pre-requisite for such operational capability.

The IN is networked and has made significant strides in MDA.Information is obtained from a network of sensors including coastal radar stations, reports from IN platforms, merchant ships and sources such as Automatic Identification System (AIS), Automatic Dependent Surveillance Broadcast (ADS(B)) and Long Range Identification and Tracking (LRIT) as also through cooperative effort. The Information Management and Analysis Centre (IMAC) collates, fuses and disseminates intelligence and information on activities at sea. The Information Fusion Centre – Indian Ocean Region (IFC-IOR) is a collaborative initiative by the Indian Navy in coordination with partner nations and multi-national maritime agencies to enhance Maritime Domain Awareness and Maritime Security, by building a common coherent maritime situation picture[5].To maintain effective MDA capability is essential and would require constant up gradation in step with emerging technology and modern systems.

A multi-pronged approach to counter cyber threats is required which could include making platforms, weapons, systems and networks more resilient to cyber attack during the design stage itself. Current technologies — artificial intelligence, human-machine teaming and machine learning – could be leveraged to detect and respond to an incoming cyber threat. Training also needs to be increased for countering network attacks, potentially segment the area and continue with the mission while integrity or capability is restored

Space Based Assets

Modern warfare is heavily reliant on Space & Communication, Navigation, Surveillance (CNS) capability and to a large extent is dependent on space-based assets. Disruption of this capability through kinetic/non-kinetic means would severely degrade the Navy's fighting potential. Enhanced maritime domain awareness utilises satellite resources and the IN has been an early mover in this regard. The launch of GSAT-7, a dedicated satellite for IN requirements under Project Rukmani, is a good achievement. The need to harness indigenous space assets for communication, navigation, surveillance and networking backbones is essential. The capacity to obtain additional military satellites for communication; advanced space-based sensors for reconnaissance and identification; launch of on-demand mini satellites and anti-satellite weapons would be beneficial.

Cyber

Information infrastructure, networks and networked systems critical for military operations, can be attacked through cyber means and have negative consequences on naval operations. Space-based CNS technologies are likely to face increased and complex vulnerability risks, both through physical and cyber warfare. Naval units are also susceptible to Information Warfare (IW) operations and cyber-attacks. Sustaining the availability and integrity of information infrastructure and content is a critical requirement for the IN.

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cyber threat. Training also needs to be increased for countering network attacks, potentially segment the area and continue with the mission while integrity or capability is restored. Human capital expertise needs to be enhanced, by engaging cyber/cybersecurity professionals, engineers and system specialists, so as to build cybersecurity and cyber resiliency in the Navy. Engagement with the cyber agency under Integrated Defence Staff (IDS) Headquaters would be mutually beneficial.

Naval Diplomacy/Foreign Cooperation

The impact of IN as an instrument of the nation's foreign policy is well recognised. Naval Diplomacy is a core role and the IN has been 'Building Bridges of Friendship' over decades. In recent times, in keeping with the Prime Minister's exhortation of the geopolitical construct, 'SAGAR' (Security and Growth for All in the Region) and furthering of "Look-East/Act East and Link-West policies, the IN has ensured vigorous presence across the Indo-Pacific region. Initiatives' for maritime cooperation and engagement with other navies are carried out in multiple ways, including port visits, personnel exchanges, staff talks, assistance programmes and exercises amongst others.

Exercises

Utilised to strengthen cooperation, imbibe best practices, enhance interoperability and further mutual friendship, exercises are an important constituent of naval diplomacy. While IN undertakes a substantial number of bilateral exercises with regional and extra-regional Navies, in the multilateral format is the trilateral 'Malabar' exercise with USA, Japan and India and 'MILAN', the IN's flagship multilateral exercise. MILAN was initiated by the Indian Navy in 1995 'as a forum for improving operational interaction between navies in the region'[6]. Participation has steadily increased from five navies in 1995 to sixteen in 2018. The next edition would be held in March 2020 at Vishakapatnam 'with increased scope and complexity of the Exercise'[7].The increasing complexity and participants in the MILAN series of exercises, indicates the traction of this outreach, and further raising the profile in successive editions would be beneficial.

IN has been undertaking maritime assistance in a variety of ways including training, hydrographic surveys, transfer of naval platforms, equipment and spares, search and rescue, assistance in setting up coastal radar installations for domain awareness and patrolling assistance for maritime security. Several such initiatives to build capacities of friendly nations, such as Mauritius, Seychelles, Maldives, Sri Lanka, Myanmar and Vietnam have progressed and helped enhance their maritime capabilities.

Assistance Programmes

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- Humanitarian Assistance and Disaster Relief (HADR) forms an important part of outreach efforts. Building on the 2004 tsunami relief experience, Indian Navy has since undertaken a wide range of HADR operations in Sri Lanka, Bangladesh, Maldives etc. The latest example of Indian Navy's HADR assistance was to Mozambique in March 2019, in the aftermath of 'Cyclone Idai'. Four Indian Navy ships were despatched to render assistance.
- Deployment of Indian Naval ships for major Non-Combatant Evacuation Operations(NEO) in Libya, Iraq, Syria and Yemen have benefitted not just Indian citizens but nationals of several countries in the region and beyond.

- IN should have the capacity to be the first responder to Indian Ocean Region nations for providing HADR assistance. Budgetary support would be required for assistance programmes and the government should consider increasing fund availability for this outreach.

SAGAR

The concept of SAGAR enunciated by Prime Minister Modi, articulated the vision of India for the Indian Ocean. It encapsulates "enhancing capacities to safeguard land and maritime territories & interests; deepening economic and security cooperation in the littoral; promoting collective action to deal with natural disasters and maritime threats like piracy, terrorism"[8]. SAGAR links maritime cooperation, maritime security and economic development. SAGAR In conjunction with Indian Ocean Rim Association (IORA) and IONS (Indian Ocean Naval Symposium), would promote cooperation and ensure stability in the region. The IN would be an important player towards strengthening the concept.

Indo-Pacific Oceans' Initiative

The Prime Minister idea of an 'Indo-Pacific Oceans' Initiative' raised in his intervention at the 14th East Asia Summit in Bangkok, calls for establishing a free, open and cooperative platform to respond to a range of maritime challenges and needs. These include maritime security; managing the maritime environment; disaster risk mitigation; sustainable use of marine resources, including Illegal, Unreported and Unregulated (IUU) fishing; capacity building; and maritime trade and transport[9]. The IN would have a significant role in this initiative and its experience of IONS and IORA could be utilised, in conjunction with Ministry of External Affairs (MEA), to put in place cooperative and collaborative steps.

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Material Management

The IN is platform heavy and technologically intensive. As a result technology induction and material management have remained its priorities. Due to geo-political considerations, technology denial regimes and limited domestic industrial capability the Navy has in its inventory equipment from diverse foreign and indigenous sources, which intensifies the problem of integration, management and repair.

The Indian Navy is at the forefront of indigenization and has progressed from a 'buyer's navy' to a 'builders navy'. The Directorate of Naval Design (DND) has 'designed more than 90 warships across 19 different classes. With more than 130 platforms constructed in Indian shipyards since the first ship INS Ajay was constructed by GRSE in 1961, naval ship-building could be counted as one of the success stories of India'[10]. There are presently more than 50 ships and submarines under construction at Indian shipyards ranging from P-15 class of Destroyers, stealth Shivalik class Frigates, Corvettes and Offshore Patrol Vessels. The most ambitious project is the construction of the indigenous Aircraft Carrier by Cochin Shipyard Limited (CSL). Submarines, conventional and nuclear, are also under construction[11]. While 100 percent capability in building hulls and decent percentages have been reached in the 'move' and 'fight' categories, more needs to be done. Modern trends in design, production and maintenance of platforms need to be harnessed, and to develop indigenous Gas Turbine and electric propulsion systems, along-with modern weapon and sensors. Formulation of a technology development plan, in the overall context of shipbuilding and production of complex ship systems, would ensure planned accretion.

The Navy has received indigenous sonars, torpedoes, Electronic Warfare (EW) and communication systems from Defence Public Sector Undertakings (DPSUs) and Defence Research and Development Organisation (DRDO),

however, the time frame is prolonged. Harnessing the potential inherent within the country, both in DPSUs and private industry, through a collaborative, cooperative and focussed approach, with the IN intimately involved and steering the projects, needs to continue. A combined development programme between the IN, Indian industry and a foreign Original Equipment Manufacturer (OEM) could also be examined to develop advanced systems, which may yield desired results in a faster time frame.

The MOU signed with Council of Scientific and Industrial Research (CSIR) in 2019 to undertake joint research and development of advanced technologies for the IN is a step in the right direction.[12]

The Indian Navy's endeavour to be self-reliant is also evident by its publication of the '15 year Indigenous Development Plan' since 2003. The latest 'Indian Naval Indigenisation Plan 2015 – 2030' promulgated in 2015 enunciates the need for developing various advanced systems. Further, the Technology Perspective and Capability Roadmap (TPCR) 2018 intends to drive the technology development process by industry. This roadmap serves to guide industry in planning and initiating technology development, partnerships and production arrangements. The need to induct cutting edge technologies would be critical to reduce dependencies and enhance the domestic defence industrial base.

Naval Dockyards/Aircraft Yards

Naval Dockyards are huge reservoirs of talent and capability, to maintain and repair ships and submarines. Considering that ships and equipment have been acquired from diverse sources, Naval Dockyards maintain and refit a wide variety and origin of platforms, weapons and sensors. To keep up with concurrent induction of new technology in the newer ships, upgradation of 'Workshops and Centres' and improving technical skills of dockyard personnel is necessary. Enhancing technical knowledge, experience and exposure of work force to cutting edge technologies would need to be a constant endeavour. With increasing deployments throughout the Indo-Pacific, the need would arise to undertake refit and maintenance abroad. Such a capability should be enhanced to result in a seamless exercise when required.

Naval Aircraft Yards provide 4th line support to naval aircrafts, and are to naval aviation what dockyards are to ships and submarines. Their capabilities require to be periodically upgraded through induction of technology and improving of technical skills of personnel.

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Disruptive Technologies

The maritime landscape would be significantly affected with advances in technology. Artificial Intelligence, Big Data, Internet-of-Things and Robotics would impact on maintenance of shipboard engines, machinery and systems. It would be possible to monitor machinery condition, modify maintenance programmes, identify issues and predict potential failures. Data analysis could assist in predictive maintenance strategies, better planning and support services, drydock planning and even designing more effective onboard systems.

Additive manufacturing or 3D printing has the potential to be a significant manufacturing innovation in the maritime domain. It is already being put to limited use in manufacture of parts and tools resulting in reduced downtimes. It would be particularly useful for ships at sea or when spares are not available. The IN would benefit immensely by foraying in this aspect and conducting trials to establish efficacy and norms of application.

Another emerging trend to observe is Virtual Reality (VR) which would assist in improving technical training. VR would allow immersive learning, to better understand the complexities of onboard machinery maintenance.

Ensuring focused R&D in emerging weapon technologies such as Directed Energy weapons in association with DRDO would be beneficial to the IN. New weapon technology would in the near future be operationalized by advanced navies and would add towards combat potential of naval platforms. Acquiring and mastering these technologies would place the IN at the forefront of the future technology, and develop greater capabilities of the IN to accomplish designated missions.

Integrated logistics

With a growing Navy, the size of inventory and the responsibility of satisfying the demand for stores has increased manifold. Operational effectiveness is predicated on logistics and supporting own units for extended durations in out of area operations is essential for the IN. With a large equipment fit on naval platforms, substantial percentage of which is obtained from diverse foreign OEMs, inventory holdings tend to be large. There exists a requirement to standardise — where possible — and for reduction of inventory. Incorporation of digital technologies (artificial intelligence, block chain, the Internet of Things, automation) would lead to significant reduction in expenditure on inventory holding while moving towards reliable and 'Just-in-Time' deliveries. Warehousing would also benefit — be it contracting, inventory accounting, replenishment or delivery. Warehouse robotics would also lead to streamlining of inventory control. Consultancy or collaborative effort with industry leaders could reduce response times of implementation.

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Joint Operations

Joint operations lead to efficient utilization of a country's war waging potential, better synergy and greater effectiveness in battle. It requires requisite organization, standardized procedures and specialized training. The Joint Operations doctrine has been promulgated in 2017 and the charter of the Chief of Defence Staff includes promoting jointness.

The IN has an important role to play in joint operations, as support of land battle by Naval forces in the littoral areas, would lead to a Sea-Air-Land battle situation. The Navy has to have the capability to gain access to the theatre of operation, add to the situational awareness for decision superiority and contribute by utilizing force towards success of operations. It would require requisite platforms, equipment, structures and training. As the Indian Maritime Security Strategy notes, 'high degree of jointness and coordination required during conflict will be enabled by appropriate networking, joint operational planning, joint training and exercises, and common Standard Operating Procedures'. Synergising operational concepts, networking initiatives, acquisition plans and joint training with other Services and agencies operating in the maritime domain would ensure cohesive and effective joint operations. High level of interoperability with the Coast Guard is of particular importance towards enhancing maritime security.

Joint Expeditionary Warfare School

Expeditionary capability is essential and for the IN to meet contingencies in the maritime security domain. Assistance to Maldives in 1988 is a classic example. Establishment of a Joint Expeditionary Warfare School would lead to professionalizing training and streamlining doctrines of this aspect of joint warfare. It has been discussed for long and its early fructification would be a positive for jointness.

Human Resource Management

The Indian Navy is inducting technology at a rapid pace but at the heart of the Service, is the 'man behind the machine'. The quality of inducted manpower, their training, professional development and values contribute to operational effectiveness. Human capital needs careful nurturing to be professionally competent, technically adept, committed and motivated. The Human Capital Strategy Document for the Indian Navy was promulgated in May 2013 and seeks to align induction, training and grooming of Human Resource to the Navy's overall plan of development[13].

Modern technology is increasing automation, leading to reduction in the requirement of manpower. This has led to change in the levels of manning of platforms. 'Optimal manning', in consonance with automated and modular systems, needs to be pursued along-with user-maintainer concept and vertical specialization, while ensuring general tasks can be undertaken by all. This would lead to optimizing of expenditure by improving teeth-to-tail ratio.

How sailor's careers are managed can have a profound impact on performance and motivation. Emerging technologies like Artificial Intelligence (AI), Machine Learning (ML), Data Sciences, and Internet of Things (IoT) etc. could be leveraged for manpower management. As an example, ML uses data to identify and learn patterns in order to offer decisions and perform jobs quickly and effectively, when compared to humans. Embedding such tools could help improve Human Resources (HR) processes.

Training methodology also needs to be modified in tune with advanced systems. Emphasis on practical aspects and realistic training through gaming simulators would produce effective results. The requirement to enhance core attributes of moral, ethical and military values would remain.

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Conclusion

The Indian Navy has been embracing change and the process of transformation has been an ongoing exercise. Transformation cannot be in limited fields but has to be across all relevant areas. With the emerging strategic situation, pathways for transformation for the IN need to be well formulated. A multi-dimensional, combat-ready, networked force, working in tandem with other Services and maritime agencies, to maintain an external environment conducive to domestic growth requires the IN to be future-ready. Naval capabilities take time to fructify and an early move towards transformation would render large benefits in meeting future challenges.

End Notes

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Taking on China by Removing No First Use (NFU) and Other Constraints

Shri Bharat Karnad@

Abstract

The essentially strategic nature of nuclear weapons requiring them to be orientated principally to the only strategic threat the country faces, namely, China, and the fact that deterrence works best when first use is on the table and the enemy sees a country preparing for nuclear warfighting, are the sorts of things the Indian government and its security managers seem to be ignoring. It is time India focused on stopping the militarily more powerful China by doing several things: (1) abandoning No First Use (NFU), (2) drawing a failsafe line on the disputed border as tripwire, (3) inducting easy-to-make 1-3 kiloton yield Atomic Demolition Munitions for placement in likely PLA ingress routes, (4) rapidly augmenting its stock of long range nuclear missiles, particularly canisterised Agni missiles for launch-on-warning and launch-on-launch roles, (5) visibly training designated Mirage 2000/Su-30MKI pilots for strikes in like geographic and air defence terrains and weather conditions as the three priority targets – Three Gorges Dam, Shanghai metropolitan area, and Lop Nor nuclear weapons development and testing complex, and (6) even if belatedly, reciprocating China's cold-blooded nuclear missile arming of Pakistan by speedily equipping China's Southeast Asian neighbours with strategic armaments. Once Beijing is convinced that India is no pushover and is prepared to initiate nuclear weapons use with the sole aim and intent, no efforts spared, of disemboweling the Chinese economy, Xi Jinping and his ruling cohort with their dreams of the Tianxia system of world order imperiled, will sober up fast.

Introduction

The 1968 Non-Proliferation Treaty (NPT) is dead and proliferation will, hereafter, be less bridled now that Tehran has disavowed the Joint Comprehensive Plan of Action[1] But the international nuclear order has been about dismantled by US President Donald Trump, ditching the Intermediate Nuclear Forces (INF) Treaty and throwing the Strategic Arms Reduction Talks (START) on the chopping block. Arms control accords notwithstanding, America, Russia and China were in any case in the midst of massive nuclear force modernization and upsizing programmes. As if to compel more countries to go nuclear, Trump trashed "free-riding" by traditional Asian allies.[2] Even so India, a habitual free rider which depended on the Soviet Union in the Cold War is relying in the new millennium on dubious US security promises.[3]

In a fraught international landscape where big states are motivated by strategic goals, India, other than showing a pumped up tactical-level resolve to take on a lowly Pakistan, seems inclined to let China's strategic challenge go unmet, suggesting confusion or inability on the Indian government's part to sift the strategically significant from the tactically important. Thus, revealing, in the process, an alarming level of unfamiliarity about the workings of nuclear deterrence, evidenced in the country getting stuck, for instance, at the minimalist end of "minimum deterrence". The fact is that minimum deterrence mandates a large force of nuclear missiles to ensure even a "modest" retaliatory capability and — as the pioneering nuclear strategist Bernard Brodie noted — because deterrence is "a relative thing" varying with the

@ *Shri Bharat Karnad* is Emeritus Professor in National Security Studies at the Centre for Policy Research. He is a prolific author and his recent publication is 'Staggering Forward: Narendra Modi and India's Global Ambition'. He blogs at 'Security Wise' www.bharatkarnad.com

adversary's "degree of motivation", in case of deterrence failure or breakdown, to have the capacity to wage "total war effectively".[4] India's stock of fissile material is ample enough to permit such build-up centered on rapidly augmenting the stock of Intermediate Range Ballistic Missiles (IRBMs). Why, will become clear presently.

Pakistan Fixation

Minimalizing deterrence, the Indian government has reduced nuclear weapons to dissuading the lesser, fairly inconsequential, foe, Pakistan, rather than gearing the arsenal to take on the primary threat, China. Delhi is apparently persuaded by the usual Pakistani huffing about India intent on undoing Partition, threatening first use, putting its strategic forces on alert, and endeavouring like mad to alarm the United Nations (UN), U.S. and the West into interceding on its behalf, which Pakistan has done in past crises (1987 Brasstacks, 1999 Kargil).[5] Unfortunately, Indian leaders reflexively rise to Islamabad's bait and make similar noises, strengthening the global perceptions of parity and hyphenated polities.[6] Except in reality, the professional Pakistan army has proved, it takes risks (1947 Kashmir raiders, 1965 Op Gibraltar, Kargil) but is not foolhardy, and about nuclear weapons use will be doubly careful. There are two reasons why — the 'nuclear taboo' and a skewed 'exchange ratio' i.e. the loss of two Indian cities for Pakistan ceasing to exist (as a social organism).[7] It is Pakistan's version of Israel's earlier suicidal strategy, the "Samson Option", which it cannot realize even if it mustered the will to do so.[8]

A war of annihilation of Pakistan is infeasible, making short duration, small wars of maneuver, the norm.[9] There is one situation, however, where India's restraint might disappear. Pakistan's first use of tactical weapons on "aggressor" Indian armoured units on its territory could result in the nuclear debris seeding clouds. Winds blowing west to east in the winter "campaign season" will carry these clouds across the border where precipitation would rain down radioactivity on Indian border villages, towns and cities and Pakistan's tactical decision could become a prod for huge strategic-level retaliation.[10]

The fact is No First Use (NFU) is a hollow idea. It is an operational liability requiring the targeted country to absorb a nuclear hit before responding when there's no knowing what parts of its command and control grid and decision-making system will survive, and what level of counterattack could be realistically mobilised.

Principal Threat China: The Case for First Use

China is India's only threat, peer competitor and rival. There's the unresolved territorial dispute stoked by the all too frequent People's Liberation Army (PLA) incursions across the Line of Actual Control (LAC) to emphasize its military superiority. And because China has acquired permanent geostrategic advantage by nuclear missile arming Pakistan that Delhi has chosen not to counter with reciprocal actions of outfitting states on China's borders with like strategic armaments.[11] The fact is No First Use (NFU) is a hollow idea.[12] It is an operational liability requiring the targeted country to absorb a nuclear hit before responding when there's no knowing what parts of its command and control grid and decision-making system will survive, and what level of counterattack could be realistically mobilised.[13]

The economic and military disparities between India and China continue to grow. The extraordinary pace the PLA has set to transform itself into a 21st Century military force *non pareil* with cutting edge cyber warfare, artificial intelligence and quantum computing prowess consolidated into a separate PLA "Support Forces Command", is a matter of wonder and worry.[14] Comparing the phenomenal rise of the PLA with the still placidly industrial age Indian armed services is to acknowledge the futility of playing catch-up. So, how can India neutralize China? The answer is: Borrow from the early Chinese playbook.

In the 1950s a rifle and tin rice bowl-equipped PLA faced American nuclear threats (Korea, Quemoy-Matsu crisis). While Mao Zedong called the Atom Bomb a "paper tiger", his regime fast-tracked, with Soviet Russian help, programmes for the hydrogen bomb and long range delivery systems.[15] Having speedily secured thermonuclear weapons

in 1967— just three years after it exploded a fission device, China used them to ward off U.S. and Russian conventional military pressure and as cover for its political agenda to extend global influence, a strategy also pursued by Britain and France against the Soviet Union in the Cold War.[16] It is not surprising that armed with ex-Chinese nuclear missiles an "outgunned" Pakistan and North Korea are doing the same thing— threatening first use to deter India and U.S./Japan, respectively. This is a successful strategy for weak countries to keep militarily stronger states at bay. It is time India too adopted it. Diplomacy is not an alternative, as India's own sad experience shows.[17]

This strategy recommends itself because India cannot in the next 50-odd years hope to close the economic and conventional military gap with China, including in the cyber, Artificial Intelligence (AI), quantum computing fields, a mismatch too glaring to gloss over.[18] In this context, consider some thumbnail-sketched war scenarios. China's "comprehensive war strategy", the PLA starts a war by preemptively shutting down forward area Indian battlefield communications, throwing the Indian land and air forces on the Tibet border and deeper in India into disarray. It would then not matter very much whether the troop numbers or hardware match up locally and in-theatre or not, considering the outcome would be predetermined?[19] Assume further that a local affray were escalated by the PLA that is prepared for major action to again teach India "a lesson"; how exactly would the Indian military react to a wide area, multiple medium, onslaught on several axes?[20] And suppose further that the PLA combines its vast capabilities, for which India has no meaningful answers, with "strategic surprise", which is China's forte, won't the game pretty much be over before it has begun?[21] India readily provides Beijing with both the incentive and the opportunity for it.[22] The incentive is in the form of plainly inadequate Indian land and air forces not backed by the kind of "Support Command" PLA can call up at will; and opportunity is in terms of showing up India as a timid, "creeper vine" of a country that needs other big state support to rise, and one, moreover, that is "all talk and no show", cannot protect itself, leave alone smaller states in its vicinity, or add any real value to the correlation of forces emerging in the South China Sea and the Indo-Pacific. To diminish India this way in the eyes of its potential partners in the Indian Ocean and Southeast Asia and of the U.S., France, Australia, and Japan might appear to Beijing to be worth chancing.[23]

Strategic Forces Command activity has to become more visible and chiefly China threat oriented. It is necessary for the government to draw for SFC a failsafe line in and around the LAC as tripwire, and for officials to hint at it. This will have to be in lockstep with stockpiling dozens of easy to make 1-3 kiloton yield Atomic Demolition Munitions (ADMs) for placement in undisclosed locations to bring down mountainsides on PLA group armies that have swept past this secret line. ADMs tied to the nuclear first use clause in a revised but undisclosed doctrine will increase ambiguity, uncertainty and inevitably induce caution in PLA planners.

The issue for India is: How to utilize the nuclear wherewithal it has or can quickly put together to prevent China from believing it can get away by muscling it into submission at little or no cost to itself? In the main, the NFU needs to be jettisoned; thermonuclear testing has to be resumed to secure proven fusion weapons, because not doing so incurs deterrence credibility costs when facing China.[24] Concurrently, the Strategic Forces Command (SFC) will have to plan for precipitate action and for war fighting. All these measures are necessary because the enemy is most deterred when he sees the readiness and preparations for nuclear war fighting. This last, however, runs smack into the dogma Indian security managers mindlessly voice about nuclear weapons being for "deterrence", not "war fighting".[25] But war fighting mode is imperative for the solution to work.

Defining the Failsafe Line; Nuclear Tripwires

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and inevitably induce caution in PLA planners. ADMs, incidentally, conform to India's passive defensive mindset, are environmentally safe because, when triggered the collapsing mountainsides will seal the resulting radioactivity underground because earth effectively absorbs gamma rays.[26] But these weapons have to go hand in hand with overt steps relating to preemption and retaliation. One such step could be to align the air vectors to the three most valuable Chinese targets by training designated Mirage 2000/Su-30MKI pilots in like target terrains and weather conditions. These targets are:-

- The wealth-producing eastern seaboard, in particular the Shanghai metropolitan region responsible for nearly 3.5 percent (or $487 billion) of China's $14.2 trillion GDP and the port for lot of its export trade;[27]
- The gigantic 1.4 km-long, 607 feet high Three Gorges Dam on the Yangtze River annually producing 84.7 billion kilowatts of electricity, which if nuclear bombed will devastate the industrial and agricultural economy of the land all the way down to Nanjing[28] and
- The nuclear weapons complex at Lop Nor in northwest Xinjiang.

SFC controls all strategic-missioned strike assets but, in time of war, conventional strikes by Indian Air Force (IAF) aircraft could be used for shots "across the bow". The K-5 Submarine Launched Ballistic Missiles (SLBMs) launched from Arihant-class SSBNs, Agni-V Intermediate Range Ballistic Missiles (IRBMs) capable of extended damage in the Shanghai coastal belt, Beijing, and the Lop Nor complex, can be held in reserve in case of escalation. But attack on the Three Gorges Dam can be a joint SFC-IAF venture. While Agni IRBMs can hit the dam, first use of aircraft will inject flexibility into India's response options at every level of engagement. Precursor strikes by conventional means on secondary targets around Three Gorges Dam, such as the Gezhouba Dam and the railway bridge over the Zhi River, would constitute a warning to Beijing that the main structure is in Indian crosshairs and therefore to cease and desist. In a crisis, there is provision for Three Gorges catchment area to be emptied, but doing so hastily would have the same effect as bombing the dam — downstream inundation and economic ruin. So, imminent threat can do just as well.[29] Owing to its significance, Lop Nor can be addressed by a mix of Agni-Vs and strike aircraft. However, it is the danger to Shanghai that should be SFC's calling card, underlining India's goal to cripple China economically and no efforts spared.

In the escalation ladder, IAF's conventional weapons are at the lowest rung, the ADMs on the second higher rung, manned platforms conveying nuclear bombs and nuclear war-headed cruise missiles higher still, and Agni-V IRBMs/K-5 SLBMs fired against high value area targets would herald total war. The canisterised component of the Agni-V IRBM force, because of its launch-on-warning (LOW) and launch-on-launch (LOL) attributes is the 'joker in the pack' with elastic end-use possibilities to keep Beijing guessing.

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The former National Security Adviser, Shivshankar Menon, has wondered why India's threat of nuclear first use would be credible to China, but Pakistan's first use policy against India is discountable.[30] As I have argued, unlike Pakistan with whom India shares much, China is the unknown, inscrutable, other with little in common, hostile feelings heightened by the ineradicable memories of military humiliation in 1962. Familiarity may breed mutual contempt where India and Pakistan are concerned, but the organic links between the two societies are natural inhibitors of the use of weapons of mass destruction. No such factor is at play with China. Shared ethnic identities and culture do matter in wartime decisions. It explains why, for example, US President Franklin D. Roosevelt interned Japanese-Americans in camps during World War Two but Americans of German origin were left free, and why his successor, Harry Truman, dropped atom bombs on Japan, not Germany. As territorially large countries, moreover, exchange ratios will impact India and China only in a full-blown nuclear conflagration. But the Indian threat of first use against Shanghai and/or the Three Gorges Dam to disembowel China's economy potentially imperils "President for life" Xi Jinping's Tianxia system of world order and will be effective.[31] In contrast, India has less to lose. Its inefficient over-regulated economy, while unable to generate growth rates to put India on the map, also denies China targeting leverage.

Conclusion

A minimum deterrence strategy based on small nuclear forces with suspect thermonuclear weapons reinforces India's status as a weak-minded marginal country. For a traditionally risk-averse India to disregard the ways in which even its limited nuclear punch can stop China in its tracks is willfully to ignore the compounded utility of paying back China for nuclear missile arming Pakistan by transferring strategic missiles to its Southeast Asian neighbours, and of preparing for nuclear first use to blunt PLA's conventional military edge and prevent war. The Indian government, alas, has neither strategic wit nor iron will to follow such strategy.

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Role of Artificial Intelligence (AI) in Nuclear Domain

Dr. Roshan Khanijo[@]

Abstract

Artificial Intelligence (AI) and Automated/Autonomous Systems have impacted the civilian and military domains. Between the hype and ignorance, the mid-level reality needs to be discussed. As far as the nuclear domain is concerned, this technology will impact the nation at a tactical/operational level while also potentially impacting strategic decision making. The speed and accuracy of these emerging technologies could potentially challenge attack-time compression and present a destabilizing risk to deterrence strategy, thereby, pushing nations to adopt more escalatory "launch on warning" nuclear doctrines to maintain the status quo. This paper tries to highlight the effects of AI and Autonomous Systems on the nuclear domain and theorize how India needs to approach this technology.

Introduction

Niche technologies have historically led to a Revolution in Military Affairs (RMA) and nations' have been adopting, adapting and modernising their force structures, in order to maintain status quo through credible deterrence. Currently one such technology which has become a challenge and concern for nations is AI. The term AI was coined by John McCarthy in the mid-1950s, and at the time it was broadly defined as the 'science and engineering of making intelligent machines[1]. Advancements in machine learning such as the rise of deep learning and the integration of neural networks have made AI a potent technology with multifaceted uses. AI along with its key spin-off — 'Automated or Autonomous systems', have impacted both civilian and military domains. This paper attempts to examine the impact of AI on the latter, by specifically focusing the nuclear domain.

Emerging new weapon and support systems such as Hypersonic Glide Vehicles (HGVs), drones, etc are challenging existing manual command and control structures. In today's Nuclear Command, Control, Communications and Intelligence (NC3I) system, the quickness with which the information is received by a leader and the promptness with which his/her decisions can be executed by the military units/commanders could have a grave impact on deterrence stability. Attacks by HGVs or nuclear cruise missiles, require speedy retaliation which are in turn dependent, on quick decision making. This challenge of attack-time compression, therefore, presents a destabilizing risk to deterrence strategy[2].Thus, in the modern era along with the modernisation of weapons — information and speedy decision making will also become vital components to counter an adversary's manoeuvres. This is an area where AI can have a significant influence both at the tactical as well as strategic level. At the operational/tactical level, the applications include: autonomy and robotics; multi-actor interaction; red teaming war-gaming; big data-driven modelling; intelligence collection and analysis (e.g. to locate and monitor mobile missiles, troops movement)[3]. At a strategic level, AI uses include: qualitative

[@] *Dr. Roshan Khanijo* is Assistant Director (Research) at United Service Institution of India. She has authored, edited, books, monographs and occasional papers. She has also authored chapters in National and International books, and Magazines. She has been a panellist in national and international Seminars and has given guest lecturers in defence and strategic institutions.

improvements to the NC3I architecture; enhancing target acquisition, tracking, guidance systems and discrimination of missile and air defence systems; being force multipliers of both offensive and defensive machine-learning infused cyber capabilities; and qualitatively bolstering nuclear and non-nuclear missile delivery systems — including hypersonic variants.[4]

AI and Automated/Autonomous Systems

There is no single definition of 'Artificial Intelligence', however AI can be understood as a universal term, used for improving the performance of automated (or autonomous) systems to solve a wide variety of complex tasks including: perception (sensors, computer vision, audio and image processing); reasoning and decision-making (problem solving, searching, planning and reasoning); learning and knowledge representation (machine learning, deep networks and modelling) communication (language processing); autonomy and robotics; and human-AI collaboration (humans define the systems' purpose, goals and context)[5]. Furthermore, AI can be either Artificial General Intelligence (AGI), often termed strong AI, or the Narrow AI (AI that can handle singular or limited task).This paper talks about the utility of narrow AI in the nuclear domain.

AI and Automated/Autonomous systems can impact the entire gamut of the nuclear domain (however, with varying degrees) — beginning with a nation's Intelligence, Surveillance and Reconnaissance (ISR), early warning systems and ultimately the Command and Control systems. Further, the use of this technology in non-nuclear operations may also result in nuclear escalation. However, at present, there are limitations to its use in the nuclear domain especially with regard to its operational success in the field of decision making, where the critical role of a human decision maker cannot be substituted.

Data-processing capability therefore, is one such avenue where AI can be used to help the military command to predict developments related to nuclear weapons, including the possible production, commissioning, deployment and use of nuclear forces by adversaries.

AI in Nuclear Domain

The limitations of its applications notwithstanding, there are areas where machine learning has a clear edge over human Command and Control (C&C). Data processing is one such area. It becomes time consuming to manually correlate heterogeneous data. In cases with a large amount of aggregated discrete data, machine learning can be used to decipher and extract the quantum of nuclear related data obtained through the mobile ISR platforms —especially the surveillance drones. Data-processing capability therefore, is one such avenue where AI can be used to help the military command to predict developments related to nuclear weapons, including the possible production, commissioning, deployment and use of nuclear forces by adversaries[6]. The algorithms of the autonomous systems are better suited for ISR capabilities as opposed to remotely manned systems, and its effective utilization can help the commanders identify and respond to early warnings of nuclear attack more efficiently. Through batch processing and expedited data extraction, AI could help generate more accurate situational awareness, and consequently enhance critical decision making. For example, radars with advance algorithms can differentiate between nuclear missiles and other non-nuclear objects. Aside from this, the autonomous systems can be safely deployed in various operational theatres such as deep water, or areas protected by anti-access/area-denial (A2/AD) systems. They can conduct extended missions over days or, in the case of underwater systems, even months; and they can potentially be deployed in great number as they [tend to be] relatively inexpensive[7]. Autonomous Underwater Vehicles (AUVs) and Autonomous Aerial Vehicles (AAVs) are some of the examples. If these are deployed at choke points or at the enemy's exit routes, these systems could, for instance, serve as a virtual barrier that would deter or deny an opponent's submarines the ability to operate in specific areas[8]. Through this barricade mechanism, these technologies could significantly impact and alter anti-submarine warfare. Further, nuclear cruise missiles can accommodate the potential benefits of using machine learning to aid in navigation and further possibility of submarines being targeted by them has also been discussed by experts[9].

As far as Command and Control is concerned, AI's impact will be limited, because the total reliability on automated systems with no human operator is bound to increase nuclear escalation due to false biases, as also due to the non-transparency of black box systems. However, states could decide to automate certain other components like the Early Warning (EW) systems because autonomous systems can detect patterns and changes in patterns faster than humans and this could have potential benefits for nuclear security and stability, because well-functioning algorithms could benefit in faster recognition of a strike and give decision makers more time in a complex environment"[10].

It is alleged that the use of autonomous systems and AI in conventional sphere may also impact nuclear stability. As nations with a weak conventional army may feel threatened, hence use its nuclear weapons early on. Similarly, development of new weapon systems such as Hypersonic Glide Vehicles (HGVs), and Hypersonic Cruise Missile (HCM) due to their hypersonic speed and accuracy, may create problems for those nations' who do not have a strong second strike capabilities, and as a result in pressure situation the leaders may tend to adopt a "launch on warning" doctrine.

Approaches and Lessons for India

At the present stage of development, India's best approach would be to adopt, innovate and induct these technologies into the military domain, both at the tactical and strategic levels. This process has already begun to a certain extent. However, the adoption and incorporation process are incremental to say the least. Given the gamut of AI applicability and the critical role it can play in the future, India needs to adopt this technology on a war footing to ensure that it is capable of maintaining credible deterrence. A widening technological gap at the tactical level will have a negative impact at the strategic level as well, and significantly deteriorate the overall deterrence quotient. For example, India's data gathering and processing capability — particularly with regard to nuclear ISR capability — needs to be improved so that real time tactical and situational awareness is available to the local units and their commanders. The indigenous production of drones with both aerial and underwater ISR capabilities needs to be developed. Furthermore, India is surrounded by two nuclear weapon states and new lethal automated weapons like drones, swarms of drones, HGVs, etc will challenge crisis decision making due to attack-time compression, and the heightened threat of geographical proximity. This may also further impact the survivability of second-strike capability, because the second strike depends on nuclear submarines, which play a key role. However, this survivability of submarines can be challenged [by] the progress in capacities for AI-enabled tracking and targeting of adversaries' nuclear weapons[11]. The sacrosanct assumption that SSBNs are immune to a pre-emptive strike could disappear due to the contributions of AI to intelligence, surveillance and reconnaissance (ISR) systems and the ability of offensive Unmanned Underwater Vehicles (UUVs) to chase SSBNs[12]. Further the ability of AI to target moving missile through the collection and surveillance of data will challenge the survivability of IRBMS/ICBMs further eroding a country's second-strike capabilities. Considering the fact that China is in the process of becoming a leader in automated weapons, they will try to change the course of warfare in the future by bringing in more AI driven automated weapons. This change in warfare could lead to a reduction of human involvement at a tactical level, and an increase in technological and information warfare.

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Hence, India needs to renew its nuclear doctrine and bring in more red lines to maintain credible deterrence. India's No Fist Use (NFU) caveat could also be reassessed, as in the future, reaction time as well as survivability of nuclear weapons could be challenged due to the speed, with which technological advancements are taking place. The increased integration of algorithms and neural networks could lead to the development of more lethal automations, thereby compromising traditional nuclear postures. In March 2018 President Putin, in his annual address to the Russian

Federal Assembly, stated "we have developed unmanned submersible vehicles that can move at great depths (I would say extreme depths) intercontinental, at a speed multiple times higher than the speed of submarines, cutting-edge torpedoes and all kinds of surface vessels, including some of the fastest. […] Unmanned underwater vehicles can carry either conventional or nuclear warheads, which enable them to engage various targets, including aircraft groups, coastal fortifications and infrastructure[13]." According to the Russian news agency TASS, the Poseidon, underwater drone will approach the target for an intercontinental range at a depth of over 1 km and at a speed of 60-70 knots (110-130 km/h)[14]. These capabilities could ultimately challenge any nation's second-strike capability and force it to adopt a more escalatory nuclear doctrine in future.

Challenges to AI

AI and the Autonomous systems have not yet fully matured, and therefore they may not prompt a sweeping transformation as suggested by several experts. A machine learning system, particularly one that relies on deep neural networks, operates like a black box[15]. It is particularly difficult for humans to understand what such a system has learned and hence how it might react to input data that is different from that used during the training phase[16]. The lack of transparency of such an operational system would therefore, make it unpredictable and consequently detract from its utility for developing weapons. It is therefore, still an open research problem to design models with machine learning that are transparent, and whose behaviour is understandable. Hence using machine learning while meeting military requirements of predictability and ability to understand the system's behaviour will be a challenge[17]. Further autonomous systems lack common-sense hence they cannot be a substitute for human operators. Hence the nuclear C&C will continue to rely significantly on human decision making.

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Conclusion

Between the hype and the reality, it can be safely stated that the emergence of advancements in AI will impact the nuclear domain, but the degree to which it would cause a significant change is still variable. On the one hand certain sections like ISR may benefit from this technology but others like nuclear C&C will still rely on human decision making as its core element. However, it is the Automated/Autonomous Systems that need to be observed in the future as innovations in this sector will impact nuclear stability adversely. Given the general state of technological advancement and the shifting strategic modes of warfare, India needs to find a way to adopt and make innovations in this technology, so that the credible deterrence remains plausible. Without such proactive measures, the technological gap between India and other nations' — especially China — could increase significantly thereby, becoming a threat to the current status quo. As a result, a discussion regarding reviewing India's nuclear doctrine would serve the country well in times of crisis ahead.

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An Assessment of India's Growing Space Capabilities

Gp Capt Ajey Lele (Retd)@

Abstract

The Indian space programme is six decades old. India did a very modest beginning in the space area during early 1960s. However, post 2005, there has been a leapfrog in the activities of the Indian space agency (ISRO). Today, India is seen making good progress in various important arenas associated with the exploration of the space. India has around 50 operational satellites in space which belong to various categories like remote-sensing, meteorology, communications, navigation and astronomy. India also has its satellites operating in the vicinity of Moon and Mars. India has some interesting proposals for the future too including a manned space mission and a space station. India is found using its expertise in space technologies to offer it strategic benefits too. Broadly, India is using space to satisfy social needs, for scientific exploration, for defence purposes and for business purposes. Over the years, space has emerged as an important constituent of India's social, commercial, strategic and foreign policy architecture.

The Indian state is investing in the space domain since early 1960s. India's space programme is a product of visionary political thinking and fitting technological leadership. India's first Prime Minister Mr Jawaharlal Nehru and scientists like Dr Homi Bhabha and Dr Vikram Sarabhai are the architectures of making science and technology as a cornerstone of independent India's national policy. India's investments in space should be considered as an offshoot of this overall science policy.

India launched its first sounding rocket on November 21, 1963 from Thumba village in the southern parts of India. This village then had only one permanent and strong structure in form of a church building. Hence, India's space programme is known to have begun from a church in Thumba village from the state of Kerala. This particular location was selected since the geomagnetic equator passes through Thumba[1]. These initial efforts of sounding rocket launch were assisted by the National Aeronautics and Space Administration (NASA), which provided the Nike-Apache rocket along with other required equipment. Since, this nascent beginning India's space programme has come a long way and in the 21st century is regarded as one of important space programmes in the world.

The focus of India's space programme since inception has been to use space technologies for the socio-economic benefits. This focus continues to remain so even today. Modern-day developments taking place in the realm of technologies is enriching the field of space too. Today, satellites offer major benefits in various fields of life. In response to these realities, India is also making increased investments in the domain of space. Post its economic liberalisation during the 1990s, India is in a position to make reasonable amount of financial investments to the domain of space. The present-day assessment of India's space programme needs to cover a wider canvass beyond socio-economic aspects of its space programme. India is making noticeable investment in deep-space programmes (for Moon, Mars etc) and is also

@ *Gp Capt Ajey Lele (Retd),* is a Senior Fellow at the Manohar Parrikar Institute for Defence Studies and Analyses (MP-IDSA), New Delhi. His areas of research include issues related to Weapons of Mass Destruction (WMD) and Strategic Technologies. He has obtained his masters in Physics and doctorate in International relations. He has contributed various research articles to national and international journals. He is the author of Asian Space Race: Rhetoric or Reality? (Springer, 2013) and Mission Mars: India's Quest for the Red Planet (Springer, 2014).

using space technologies to gain strategic benefits. Globally, space has emerged as an important field to do business and India is also trying to exploit its space ecosystems to garner commercial benefits.

During 1957, the Soviet Union launched the first artificial satellite in the world called Sputnik. This made the world, including India, realise the potential of space technologies. The Indian Prime Minister at that time, Shri Jawahar Lal Nehru realised the potential of rocket science and introduced space science as a subject for research under the Department of Atomic Energy (DAE) agency in 1961. Subsequently, Indian National Committee for Space Research (INCOSPAR) was established during 1962 with Dr Vikram Sarabhai as its Chairman. The next step was the establishment of Indian Space Research Organisation (ISRO) in 1969. Since then, ISRO has been the torchbearer of India space programme and has brought laurels to the country by undertaking various successful programmes. Dr Vikram Sarabhai also played an important role towards establishing India's nuclear power programme. Unfortunately, Dr Sarabhai died during December 1971, aged 52. Dr Sarabhai's vision was implemented and expended upon by Prof Satish Dhawan (25 September 1920–3 January 2002).

India launched its first satellite in 1975 with assistance from the Soviet Union. Within five years after the launch of first satellite, during 1980, India became a spacefaring state by launching a made-in-India satellite with an indigenously developed rocket system. Since then, India has made significant progress in the space domain and today India is regarded as an important space player in the world.

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At the heart of any space programme lies rocket technology. Universally, it has been observed that rocket technology used for launch of satellites is actually a derivative of the country's Intercontinental ballistic missiles (ICBMs) programme. Hence, space programmes of various space-faring states in the world originate from their missile programmes. However, in case of India, its space programme and missile programme are entirely two different verticals.

ISRO has come a long way from the Sounding Rockets (1963) to having a capability to launch heavy satellites with geostationary satellite launch vehicle (GSLV) Mark III capable of lifting 4 tons of weight. Initially, ISRO began with Satellite Launch Vehicle-3 (SLV-3) programme as India's first experimental satellite launch vehicle. On July 18, 1980, India became the sixth spacefaring state in the world when Rohini, a 40 kg satellite was placed in the Low Earth Orbit (LEO) by SLV-3.

The successful culmination of the SLV-3 project showed the way for various advanced future launch vehicle projects. The next vehicle for ISRO was the Augmented Satellite Launch Vehicle (ASLV), which was followed by the Polar Satellite Launch Vehicle (PSLV) and the Geosynchronous Satellite Launch Vehicle (GSLV).

The flexibility of the PSLV system is remarkable. Over the years ISRO has used variants of this rocket for undertaking various categories of missions There are two interesting features of the PSLV system which ISRO has started experimenting with since 2015. One, single mission undertaking two/three orbit launches, and two, using the fourth stage of the rocket as a platform for experimentation. Developing capabilities to launch satellites into different orbits in a single mission gives ISRO more flexibility to manage their commercial interests. ISRO has developed and aptly demonstrated its capability to launch multiple satellites in a single mission. The PSLV-C37 mission on February 15, 2017 created a world record by successfully launching 104 satellites in single mission. Also, ISRO has used PSLV for undertaking their first missions to Moon and Mars. At present, ISRO is developing small satellite launch vehicle (SSLV) which is expected to have a payload capacity of around 500-1000 kilograms in the Lower Earth Orbit (LEO). This vehicle could be of immense use towards launching small, micro and nano satellites.[2]

India has majorly launched satellites for the purposes of remote-sensing/ Earth Observation (EO) and communications. Also, there are some satellites which exclusively provide weather information and there are few satellites for scientific purposes too. India is known to have one of the best and biggest remote-sensing satellite network in the world. The first remote-sensing satellite was launched during 1988 and in recent times India is known to have around ten operational remote-sensing satellites at any given point in time. Such satellites have imaging capabilities in visible, infrared, thermal and microwave regions of the electromagnetic spectrum, including hyper-spectral sensors, which has helped the country in realising major operational applications. The imaging sensors have been providing spatial resolution ranging from 1 km to better than 1m.

India has a range of communications satellites. The Indian National Satellite (INSAT) system is one of the largest domestic communication satellite systems in Asia-Pacific region. This programme was established in 1983 and today various INSAT and GSAT satellites are available. These systems have multiple transponders in C, Extended C and Ku-bands and they provide services towards telecommunications, television broadcasting, satellite news gathering, societal applications, weather forecasting, disaster warning and search and rescue operations. ISRO has also put in place an independent satellite navigational network called the Indian Regional Navigation Satellite System (IRNSS). It is also known by the name of NAVIC (NAVigation with Indian Constellation).

Over the years India's space capabilities have grown in various space related sectors. As mentioned, it has made significant progress in the arena of communications and Earth Observation (EO). These systems, particularly the communication platforms have played a significant role towards expanding the educational setup across the country (assist in linking of cities and villages) since 1980s onwards. EO satellites have major role towards rural development, management of land-water and ocean resources, in the field of agriculture, urban planning, mineral prospecting, forestry and disaster management.

India is known to have one of the best and biggest remote-sensing satellite network in the world. The first remote-sensing satellite was launched during 1988 and in recent times India is known to have around ten operational remote-sensing satellites at any given point in time. Such satellites have imaging capabilities in visible, infrared, thermal and microwave regions of the electromagnetic spectrum, including hyper-spectral sensors.

India is an agricultural economy and has major dependence on the weather. To understand more about weather and to assist towards predicting weather, ISRO has launched dedicated meteorological and oceanographic satellites viz., INSAT series, Kalpana-1, Megha-Tropiques, Oceansat-1 & 2, RISAT-1, SARAL and Scats at. There are various launches planned for the future too. Data collected by these satellites are archived and disseminated through a data portal 'Meteorological and Oceanographic Satellite Data Archival Centre' (MOSDAC). It is also important to note that India has unique topography, terrain and climatic conditions. The Indian peninsula is more prone to natural disasters like cyclonic storms and hurricanes. To the north of India is the Himalayan barrier and some parts of the region are prone to earthquakes. In addition, monsoon rains are known to flood major river systems. Along with the natural disasters, the threats from climate change, epidemics, and food and energy insecurity also persist. Remote-sensing, meteorological and communications satellites are of major use to handle such challenges. Also, satellite systems have proven their utility in tele-medicine too.

India has a well-articulated Deep Space agenda. Missions in deep are the missions that are taken at a distance of 1 lakh km or beyond from the earth's surface. India's first Moon mission, Chandrayaan-1 (2008–2009), was a very successful mission. This mission was instrumental towards the discovery of water on the Moon. The second lunar mission, the Chandrayaan-2 (2019) was a partially successful mission. India's first mission to Mars, Mars Orbiter Mission (MOM), was also successful. MOM which was designed for six months of stay has been orbiting Mars since September 2014. India is the only country in the world till date which had successfully entered into the Martian orbit in the first attempt. Now, India has also plans to undertake a mission to Venus and a project for a mission to the Sun is under progress.

The only Indian to go to space is Wing Commander Rakesh Sharma (Retd). He could go to space courtesy the Soviet Union. He flew aboard Soyuz T-11, launched on 2 April 1984, as part of the Inter kosmos programme. Now, India is proposing to send their astronaut to the space by 2022 in an indigenously developed space vehicle. ISRO also has plans to launch a space station in the near future.

India faces both asymmetric as well as conventional threats. Externally, the two main sources of threat to India's stability are from Pakistan and China. It is largely perceived that the nature of threat from China could be mostly conventional (and nuclear) in nature. While in case of Pakistan, it has been observed it could be both conventional (and nuclear) and asymmetric (essentially threat of terrorism). In the past, India has fought wars with both these adversaries and there are be several unresolved bilateral issues including border issues with them. The security dynamics of the region are further complicated by the fact that all the three are nuclear weapon states. Satellite technology, being inherently dual-use, has applicability for strategic purposes too[3]. Modern-day military preparation demands dependence on space assets for communication, navigation and reconnaissance purposes.

For last two decades or so, India is facing major security concerns associated with cross-border terrorism. There are various topographical and terrain related problems along India's Western border. This region is surrounded by thick vegetation and snow covered mountain ranges. It is extremely important to have constant day and night monitoring of this region and inputs from satellites could play a major role in this regard. Realising this need, India has developed a remote-sensing satellite network. Particularly, the satellites in the Cartosat series need specific mention. These are dual-purpose satellites with significant utility both for civilian and strategic applications. These satellites provide high-resolution imagery. Such imagery is of greater strategic significance particularly over the regions where India shares land and water borders with her adversaries. During November 2019, ISRO successfully launched its cartographic satellite called Cartosat-3. Present day Cartosats have sub-meter resolution. Cartosat-3 satellite is a third-generation satellite with a very high-resolution imaging capability (around 30 cm). The first of this series, Cartosat-1, was launched in 2005 and subsequently, seven satellites have been launched in the Cartosat-2 series.

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Also, there are few other types of satellites with strategic utility. During, November 2008, India experienced a major terror attack at Mumbai which witnessed 12 coordinated shooting and bombing attacks lasting for four days and killing more than 160 people. Because of security challenges, an immediate need for reconnaissance satellites was felt, and India imported the SAR (synthetic aperture radar) sensor from Israel. With this the first radar satellite was launched during 2009. Recently, during December 2019, the RISAT-2BR1 satellite was launched by ISRO, which is the fourth radar satellite launched in this series. Such radar satellites have major surveillance utility. For many years ISRO's focus was towards the development of optical sensors for their various remote sensing (earth observation) satellites. However, these sensors have limitations and are less effective during bad weather, and for collecting information with typical terrain and topographic features. Now, ISRO has successfully developed SAR sensor technology. Also, two communication satellites have been launched exclusively for the use by the Indian Navy (2013) and for Indian Air Force (2018).

On March 27, India conducted Mission Shakti, an anti-satellite missile (ASAT) test. This was a technological mission carried out by the Defence Research and Development (DRDO). During this test, India targeted one of its own satellites (Microsat-R, operating in a low orbit about 280 km high) with a ground-based missile. With this successful demonstration, India becomes the fourth country to test an ASAT after China, Russia, and the United States.

The test conducted by India was essentially hit-to-kill or direct ascent systems or a KKV (Kinetic Kill Vehicle) missions. Here the warhead of a missile is not an explosive but rather a piece of metal. Reports indicate the test has generated at least 250 to 300 pieces of trackable debris. However, by now most of the debris has re-entered the atmosphere and burnt off.

There is a need to situate the Indian test in the overall security matrix of the region. Over the last two decades, India has steadily and thoughtfully increased its investments in the space domain. At present, India has about 50 operational satellites in different orbits. Obviously, India needs to ensure that their satellites are safe. During 2007, China had conducted an ASAT. Possibly, owing to geostrategic compulsions, India's government felt the need to display the technological capabilities related to anti-satellite weapons.

In addition, India is also looking at Space as a tool for foreign policy. On May 05, 2017, India has launched a communication satellite (GSAT-9) which is providing assistance to the South Asian states namely Bangladesh, Afghanistan, Nepal, Bhutan, Sri Lanka and Maldives. Space is an important part of India's various multilateral and bilateral arrangements for many years. India is a part of a multilateral mechanism called BRICS, which is the acronym for an association of five major emerging national economies: Brazil, Russia, India, China and South Africa. There is a proposal to launch a satellite for BRICS.

Today, space offers a major soft-power potential for India, and India believes that it is in nobody's interest to weaponise space. The need of the hour is to evolve a rule-based and transparent mechanism for protecting space.

India has also significant interest towards making good use of its space proficiency from commercial perspective. Long-time back ISRO had realised the need for opening up their expertise for business. This led to the institution of Antrix Corporation Limited (ANTRIX) in 1992, a government of India Company. During 2019, India has established another commercial agency to enhance its space business called 'New Space'. These agencies deal in launch business and also make data available at a cost. India also builds satellites for other agencies commercially and assists various agencies to develop their ground infrastructure. As of 11 December 2019, ISRO has launched 319 satellites for 33 different countries. Now, ISRO is developing an additional spaceport (launch pad) at a town in the Thoothukudi (Tuticorin) district of Tamil Nadu. This would increase ISRO's commercial viability to undertake more small satellite launches.

All in all, during last six decades or so, India has made significant progress in the outer space area and has earned a global reputation for its Space professionalism. Since inception India is continuing with the policy of the use of space for socioeconomic development. Today, India is using its space expertise at various other echelons too including to fulfil the strategic needs of the state. Also, India has some interest in deep space arena and has demonstrated to the rest of the world how within limited budget such missions could be undertaken effectively. India has many space start-ups and is taking interest to develop its space industry significantly. ISRO has earned a good reputation in the area of satellite launch market, particularly in the small satellite sector and is keen to expand this further. Indian armed forces are getting benefited from the space technologies too and Indian state is trying to use the expertise in space for a wider global engagement.

India fully appreciates that space is an extremely important area for human survival and should not be tampered with needlessly. Contemporary life is fully dependent on assets in space. India's growth story, scientific and economic, also involves the contributions made by ISRO. Today, space offers a major soft-power potential for India, and India believes that it is in nobody's interest to weaponise space. The need of the hour is to evolve a rule-based and transparent mechanism for protecting space.

End Notes

1 S K Das, *Touching Lives* (Penguin Books: New Delhi, 2007), p.1.

2 Information mainly in regard to various space missions mentioned in the chapter has been extracted from various internet based sources and there has been much dependence on ISRO website. Author has also referred to some of his earlier works on this subject.

3 Ajey Lele (2011)Indian Armed Forces and Space Technology, India Review,10:4,379-393.

Is India Adequately Poised to Leverage Disruptive Military Technologies for Solving its Security Needs in the Coming Decades?

Lt Gen (Dr) Ravindra Singh Panwar, AVSM, SM, VSM (Retd)@

Abstract

Technology has always played a major role in determining warfighting methodologies, and technological dominance is considered a key determinant of military supremacy. Given the breath-taking pace at which breakthroughs are occurring globally across a wide spectrum of scientific fields with military applications, the power of technology to disrupt the manner in which wars will be fought in the 21st Century has increased considerably. This paper identifies four top emerging technologies which are expected to have revolutionary or transformative effects on the battlefield in the coming decades, ie, Artificial Intelligence (AI) & Robotics, Quantum, Nano and Hypersonic Weapon technologies. It reviews the efforts being made by two global powers, namely, the United States and China, towards harnessing these technologies. It then goes on to analyse India's initiatives in this area, and arrives at the conclusion that, as an aspirational regional power, India needs to do much more. The paper further, briefly reviews India's defence, Research and Development (R&D) ecosystem, and identifies lack of synergy amongst various stakeholders as a fundamental flaw afflicting it. Finally, it opines that the Armed Forces are best placed, to act as a fulcrum for rejuvenating indigenous defence R&D, by providing strategic direction and ushering in a culture of super-specialisation through organisational re-structuring.

Introduction

Emerging technologies which are expected to have a significant impact on the nature of warfare are frequently referred to as disruptive military technologies. The world today is witnessing technology breakthroughs occurring at a breath-taking pace across a whole spectrum of disciplines, with the result that every few years a new potentially disruptive technology emerges. Thus, at this juncture, there are several technologies which qualify as being disruptive from a military standpoint.

This paper attempts to examine whether India is sufficiently geared up to leverage such niche technologies for building up India's comprehensive military power in tune with her geopolitical aspirations.

Disruptive Technologies: Classification

Threats emanating from some of the disruptive technologies are already manifest on the battlefield, while from others, threats are likely to emerge over the next few decades. Their impact on warfighting methodology is also expected to vary widely. Based on such criteria, the technologies under consideration in this paper have been loosely categorised as either 'revolutionary' of 'transformative', with the former having the potential to result in a Revolution in Military Affairs (RMA). In military literature, there is little consensus as to what constitutes an RMA, hence this term too is used here very subjectively.

@ *Lt Gen (Dr) Ravindra Singh Panwar, AVSM, SM, VSM (Retd),* holds a doctorate in Computer Science from IIT Bombay, and is a Distinguished Alumnus Awardee of this premier Institution. He is also a graduate of the National Defence College. Important assignments tenanted by him include GOC 101 Area, Commandant MCTE, Cdr 81 Sub Area and Cdr EW Group. His current areas of interest include technology driven future warfare, covering aspects such as network centric warfare, information operations and AI powered military autonomous systems.

Revolutionary Technologies

- **Current Information and Communication Technologies (ICT) RMA -** With their impact having been spectacularly demonstrated during the Iraq wars, the ICT are widely believed to have resulted in the ongoing 'system of systems' RMA. This RMA is based on two related but different operational concepts, namely, Network Centric Warfare (NCW) and Information Warfare (IW), which together have resulted in a notable shift of the warfighting arena from the physical to the information cyber warfare and Electronic Warfare (EW) and cognitive (psychological warfare) domains.

- **Looming 'AI' RMA**. With the astonishing advances being so frequently reported in the closely related fields of AI & Robotics, leading to development of the contentious Lethal Autonomous Weapon Systems (LAWS), this symbiotic pair of technologies is widely believed to be the harbinger of the next RMA, the full impact of which is expected to manifest within the next two decades.

- **Future 'AI-Nano-Bio' RMA**. While a limited impact of nano and bio technologies is already being felt in some military systems, with further advances, an 'AI-Nano-Bio' RMA may be expected in a somewhat futuristic time-frame (3-4 decades).

Transformative Technologies

Two technologies which are likely to have a high disruptive (though short of revolutionary) effect are the quantum and hypersonic technologies, which may therefore be classified as 'transformative' in character. Some other transformative military technologies, which are also largely dual-use in nature, include 5G, Internet-of-Things (IoT), blockchain and 3D printing.

With the astonishing advances being so frequently reported in the closely related fields of AI & Robotics, leading to development of the contentious Lethal Autonomous Weapon Systems (LAWS), this symbiotic pair of technologies is widely believed to be the harbinger of the next RMA.

The ICT technologies have already been widely analysed, while dual-use disruptive technologies such as 5G, IoT, blockchain and 3D printing should be readily accessible in the open market. This paper, therefore, focuses on AI & Robotics, Quantum, Nano and Hypersonic missile technologies which, it is felt, deserve top priority for military research at this juncture. Also, in order to evaluate India's performance, comparisons have been drawn vis-à-vis the two leading technology giants namely, the United States (U.S.) and China.

AI & Robotics- Military Applications

Military applications of AI & Robotics technologies may be categorised under four heads: autonomous weapon systems, cyberspace operations, knowledge applications, and AI in decision-making/ war gaming, the most impactful amongst these being the sub-category of Lethal Autonomous Weapon Systems (LAWS). Autonomous weapon systems not powered by AI have already been operational for many years.[1] What is seizing the world's imagination today is the potentially disruptive nature of LAWS, which is why dominant world powers are allocating billions of dollars towards their development.

Global Research

- **U.S. AI Initiatives and the Third Offset Strategy**. The AI & Robotics technologies were central to the U.S. Defence Innovation Initiative, also termed as the Third Offset Strategy, issued in 2014.[2,3] Thereafter, the Department of Defence Artificial Intelligence Strategy was promulgated in 2018, with the *Joint Artificial Intelligence Centre* as its focal point, and Defence Adavanced Research Projects Agency (DARPA) as well as the military service laboratories in the lead.[4] One of the first DoD AI initiatives is Project Maven, which focuses on computer vision aboard, unmanned aerial vehicles. DARPA works closely with industry for research in AI, the annual funding for which is a few billion dollars.

- **China's AI Plan: Leading AI Power by 2030**. In 2017, China released the *New Generation Artificial Intelligence Development Plan*, which envisaged a domestic AI industry worth US$150 billion, and declared China's objective of becoming the leading AI power by 2030.[5] The Central Military Commission (CMC) Science and Technology Commission has launched well-funded plans for AI research. The PLA Army, Navy, Air Force, Rocket Force, and Strategic Support Force are all pursuing service-specific AI projects through their captive research institutes. The Academy of Military Science (AMS) and the National University of Defence Technology (NUDT) are the premier PLA institutions pioneering military initiatives in AI. AI R&D is being pursued vigorously by the China Electronics Technology Group Corporation (CETC), the China Aerospace Science and Technology Corporation (CASC) and the China Aerospace Science and Industry Corporation (CASIC).[6]

The Indian Context

The Indian security scenario can hugely benefit from AI-powered military systems.[7] However, the initiatives taken so far have been very weak and much delayed, as described below:-

- **National Initiatives -** In Feb 2018, the Ministry of Defence set up a task force to prepare an AI roadmap for development of warfare capabilities.[8] Based on its recommendations, a High Level Defence AI Council (DAIC) has been constituted through a 2019 government order for providing strategic direction to AI driven transformation in defence, facilitating R&D, and ensuring ethical use of AI technology, amongst other aspects. A Defence AI Project Agency (DAIPA) has also been established for monitoring implementation of the government order.[9]

Transformative military applications of quantum technology are: Quantum Cryptography, which facilitates extremely secure sharing of cryptographic keys; Cryptanalysis using Quantum Computing, which would enable the cracking of popular encryption algorithms; and Quantum Sensing.

- **DRDO Work -** The Centre for Artificial Intelligence and Robotics, DRDO's primary laboratory for AI R&D, the Central Vehicles R&D Establishment and the R&D Establishment (Engrs) have so far made limited headway in developing prototype systems, such as "Muntra" UGV, "Daksh" remotely operated vehicle, wall climbing and flapping wing robots, etc.[10,11,12]

- **Armed Forces Perspective -** Indian Armed Forces have not yet realized the importance of developing AI powered defence systems, and no concept papers or doctrinal literature have been issued so far. The Technology Perspective and Capability Roadmap (TPCR) 2018 does not list out any AI & Robotics based projects.[13] On DAIPA's directions, some project areas have now been identified, which are not being pursued with the vigour they deserve.

If India is to keep pace with global progress in this area, the above efforts are grossly insufficient. Having already lost precious time, nothing less than a mission-mode effort by all stake-holders, with the Armed Forces in the lead, will suffice at this juncture.

Quantum Technology- Military Applications

Transformative military applications of quantum technology are: Quantum Cryptography, which facilitates extremely secure sharing of cryptographic keys; Cryptanalysis using Quantum Computing, which would enable the cracking of popular encryption algorithms; and Quantum Sensing, eg, quantum radars which would be sophisticated enough to compromise current state-of-the-art stealth technologies.[14,15]

Global Research

- **United States -** The 2018 National Quantum Initiative Act (NQI) authorizes $1.2 billion to be invested in quantum information science over five years by national research institutes.[16] Among the armed forces, the U.S. Army Research Office funds extensive research in quantum computing, while the U.S. Air Force sees it as transformative technology for information and space warfare. Private-sector companies such as Google, IBM, Intel and Microsoft, have been conducting quantum research for almost a decade.[17] Google recently achieved quantum supremacy by solving a problem in 200 seconds that would take a classical computer 10,000 years to solve.[18] Unlike AI research, the U.S. is possibly ahead of China in quantum research.

- **China -** Partly motivated by the Snowden leaks, China is vigorously pursuing R&D in quantum research as a national priority, as enunciated vide its 13th Five-Year Plan's (2016-2020) National Science and Technology Innovation Plan and the National Key R&D Plan. There is a view in China that quantum technologies have the potential of undermining the technological dominance of the U.S. in information-age warfare.[19] Several Chinese state-owned defence firms are conducting R&D in this area. China's expertise in quantum communications was amply demonstrated when it launched Micius, the world's first quantum satellite, as part of Project Quantum Experiments at Space Scale (QUESS). By 2030, China plans to establish a network of quantum satellites for secure military communications.[20]

The Indian Context

- **The Quantum Science and Technology (QuST) Scheme -** In 2017, the Department of Science and Technology (DST) launched a mission-mode scheme called QuST, for the development of quantum computers, quantum communication and cryptography. In the first phase, US$ 11.5 million was allocated, primarily for building infrastructure and acquiring human resources, with focus on quantum metrology and sensors. The second phase would attempt to match international standards.[21]

- **The Quantum Experiments Using Satellite Technology (QUEST) Project -** The QUEST Project has been launched as a joint collaboration between Indian Space Research Organisation (ISRO) and the Raman Research Institute (RRI), Bangalore, with one of its first experiments aimed at establishing a secure Quantum Key Distribution link between India and Canada.[22]

Military applications of nanotechnology may be categorized as follows: materials based applications such as smart fabrics and more agile military platforms; ICT applications for an NCW scenario, such as nano RFIDs; energy and bio-based applications, such as wearable electric power and targeted drug delivery; and applications in support of unmanned operations, such as nano-robots and nano-sensors.

- **Research Institutes -** These include IIT Madras, Indian Institute of Science Education & Research (IISER) Mohali, Tata Institute of Fundamental Research Mumbai, and IISc Bengaluru, among others.[23]

- **Armed Forces -** The current level of interest appears to be limited to presentation of papers in sundry conferences.

The latest updates on the DST website (accessed on 31 Jan 2020) leaves an impression that R&D in quantum technologies is not being given due priority by India.

Nano Technologies - Military Applications

Military applications of nanotechnology may be categorized as follows: materials based applications such as smart fabrics and more agile military platforms; ICT applications for an NCW scenario, such as nano Radio-Frequency Identifications (RFIDs); energy and bio-based applications, such as wearable electric power and targeted drug delivery; and applications in support of unmanned operations, such as nano-robots and nano-sensors for use in NBC warfare. In the coming decades, nanotechnologies may result in brain-machine interfaces for remote control of military platforms and robotic systems.[24]

Global Research

- **United States -** The National Nanotechnology Initiative (NNI) was established in 2001 to further nanotechnology research. The 2019 Budget requested nearly US$1.4 billion for the NNI, bringing the cumulative total to US$ 27 billion since its inception.[25] Nanotechnology R&D is being pursued by the Army Research Laboratory, Air Force Office of Scientific Research, Office of Naval Research and DARPA, amongst others. DoD supports R&D across a broad range of nanotechnology-enabled military applications, devices and systems.[26,27]

- **China -** The CMC and the PLA have identified nanotechnology as a key transformational military technology. China's medium and long-term plan for the development of Science and Technology (2006–2020) identifies nanotechnology as a very promising area for leap-forward development. The Chinese Academy of Science (CAS) is pursuing nanotechnology research for military modernization. In 2018, China was ahead of the U.S. both in the number of nanoscience institutes (33) among the world's top 100 as well as the number of high quality research papers.[28]

The Indian Context

- **Government Initiatives -** The Nanoscience and Technology Initiative (NSTI) was launched as a mission-mode program in 2001 as part of the 10th Five Year Plan with a budget of under US$ 1 million, with Department of Science & Technology (DST) as the nodal agency. In 2007, the Government launched the Nano Mission with an allocation of US$ 140 million, and based on its success, approved its Phase-II during the 12th Plan period with an allocation of US$ 90 million. The program is steered by the Nano Mission Council at the apex level, with two advisory groups – The Nano Science Advisory Group (NSAG) and the Nano Applications and Technical Advisory Group (NATAG).[29]

DRDO is currently pursuing nanotechnology research in 30 of its laboratories, in areas such as sensors, high-energy applications, stealth and camouflage, NBC protection devices, etc. The Council of Scientific and Industrial Research (CSIR), Department of Atomic Energy (DAE) and Department of Biotechnology (DBT), amongst others, are also extending support to research agencies.

- **Research Institutions -** DRDO is currently pursuing nanotechnology research in 30 of its laboratories, in areas such as sensors, high-energy applications, stealth and camouflage, NBC protection devices, etc. The Council of Scientific and Industrial Research (CSIR), Department of Atomic Energy (DAE) and Department of Biotechnology (DBT), amongst others, are also extending support to research agencies. As per Nano Science Technology and Industry Scoreboard, in 2018 China, the U.S. and India were the three leading countries in the publication of nano-articles, although India's contributions were a fourth of those by China.[30]

- **Armed Forces -** Notwithstanding the research being conducted by DRDO, nanotechnology projects are not being vigorously pursued by the three Services.

Although India appears to be performing adequately in general research in nanotechnology, it needs to do much more to keep pace with China, especially in defence applications.

Hypersonic Weapons - Technology Overview[31]

- Hypersonic weapons combine the speed of a ballistic missile with the manoeuvrability of a cruise missile. These are weapons that travel faster than Mach 5 and can manoeuvre during flight, allowing them to bypass layered missile defences.

- There are two main designs: tactical boost glide and scramjet systems. In the former, a rocket accelerates its payload to high speeds, which then separates from the rocket and glides unpowered to its destination. Scramjet technology uses a booster to reach cruising speeds, then compresses the high-velocity, incoming air to trigger combustion using atmospheric oxygen. This 'air-breathing' technology renders a highly efficient engine at hypersonic speeds.

- The kinetic energy released on impact makes hypersonic missiles extremely destructive even without a warhead, and a direct hit without explosives could render an aircraft carrier non-operational. However, controlling the missiles well enough to manage a sufficient degree of accuracy is a huge challenge.

Hypersonic Arms Race

Currently, the U.S., China, and Russia are leading the development of hypersonic missiles. In addition, India, France, Australia, Japan and the EU all have active military/ civilian hypersonic research programs underway.[32]

- **Russia -** In March 2018, Russian President Vladimir Putin premiered six new prototype weapons, and claimed that they would be ready for battle in 2020.[33] Of these, the Kinzhal is a high-precision hypersonic missile system with a range of over 2,000-km. Its most advanced Avangard hypersonic glide vehicle, mounted on an ICBM capable of a two-megaton warhead, became operational in Dec 2019.[34]

- **China -** China has two hypersonic missiles. The Dongfeng-17 is a short-range ballistic missile that mounts the DF-ZF Hypersonic Glide Vehicle. Unveiled at the 2019 China Day military parade, this is China's first operational hypersonic weapon system and one of the world's first operational one.[35] The second missile, Xingkong-2, is perhaps still in the trial phase.[36]

Scramjet technology uses a booster to reach cruising speeds, then compresses the high-velocity, incoming air to trigger combustion using atmospheric oxygen. This 'air-breathing' technology renders a highly efficient engine at hypersonic speeds.

- **United States -** The U.S. is pouring billions of dollars into hypersonic research, with the objective of developing an operational missile by 2022.[37] The 2019 defence budget includes $2.6 billion for hypersonic, which is expected to reach $5 billion within a few years. In 2018, the U.S. Air Force contracted Lockheed Martin to develop the Air-Launched Rapid Response Weapon (ARRW), nicknamed 'Arrow', as well as the Hypersonic Conventional Strike Weapon (HCSW), or 'Hacksaw'. Also, a new Space Development Agency has been created, for putting a satellite sensor grid in low earth orbit to track incoming hypersonic missiles and direct hypersonic attacks.[38,39]

- **India** - India is investing US$500 million to develop hypersonic weapons, in a move which could give it a huge military edge over Pakistan. In Jun 2019, India partially tested a Hypersonic Technology Development Vehicle (HSTDV) which was launched atop an Agni 1 missile. The scramjet technology could not be tested, as the Agni 1 did not reach the desired altitude.[40] Apart from DRDO, BrahMos Aerospace is developing BrahMos-II, a hypersonic cruise missile, expected to be ready by 2023.[41]

Thus, while India has got a hypersonic weapons development program in place, it is yet to carry out a fully successful test.

In India Adequately Poised?

The above discussion shows that while India may have taken some welcome initiatives towards leveraging disruptive military technologies, these may not be commensurate with our aspirations as a rising regional power. More importantly, if corrective action is not taken on priority, our adverse military balance vis-à-vis China will exacerbate in the coming years. Existing studies and recommendations are for rejuvenating India's weak military industrial complex, focus on measures to be taken by the Government, DRDO, and the Industry. Here one examine an introspective approach for the Armed Forces, based on the conviction that some of the key difficulties impeding the creation of a vibrant defence R&D ecosystem are internal to the Armed Forces, can be overcome through resolute organizational re-structuring.

Strategic Direction

For any significant R&D in disruptive technologies to be undertaken, the operational need for the same must first be established. Unfortunately, efforts being undertaken in this direction are woefully inadequate, as shown below:-

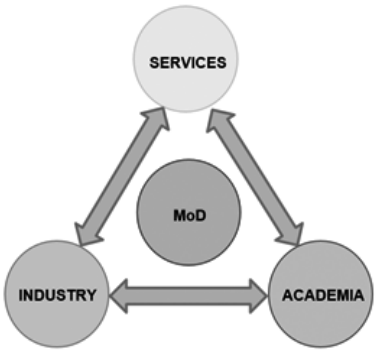
- India's 15-year operational and technology perspective plans fail to capture the changing nature of warfare in the 21st Century.
- Even after being played out for three decades now, the Current 'ICT' RMA has not been adequately embedded in India's operational concepts. As yet there is no doctrine on NCW; and while (arguably weak) doctrines on IW exist, the same is not true for cyber warfare, EW and psychological warfare.
- As regards disruptive military technologies, Indian Armed Forces are not yet off the starting block towards generating doctrinal thought. It is imperative, therefore, for India's military leadership to provide strategic direction and issued doctrines to trigger the leveraging of these technologies.

India may have taken some welcome initiatives towards leveraging disruptive military technologies, these may not be commensurate with our aspirations as a rising regional power. More importantly, if corrective action is not taken on priority, our adverse military balance vis-à-vis China will exacerbate in the coming years.

Effective R&D Model: Services at the Fulcrum

Apart from a few success stories, India's track record in indigenisation of defence products has been far from satisfactory. For instance, despite nearly 30 years of development effort, hardly any of our C4I2SR/ Tac C3I systems have as yet seen the light of day, despite the fact that the relevant ICT technologies were available within the country. The reasons are as under:-

- It is clear that a strong synergy is needed amongst the five main stakeholders: Government, Armed Forces, DRDO/ PSUs, Industry and Academia.
- India's premier academic institutions and industrial houses are comparable to the best in the world. Even the DRDO, despite its uninspiring performance in general, has its merits. The end results, however, are far from satisfactory. Where, then, lies the malaise?
- Two reasons stand out: firstly, there is an abject lack of military domain knowledge within the Industry, the Academia, and even the DRDO; and secondly, no central agency has taken on the arduous task of creating the desired synergy.
- It is the Services, with support from the Defence Ministry, which are best placed, indeed responsible, to act as the fulcrum for Defence R&D. However, in order to play such a role successfully, if at all they step up to this task, the Services would need to undergo a transformative re-structuring.



Effective R&D Model: *Synergetic interplay between Industry and Academia, **with Services at the fulcrum** and MoD in full support.*

Transformation

The contours of the desired transformation are as under:-

Presently, the scientists in the Industry/ Academia do not understand warfare, and the soldiers do not understand technology well enough. Consequently, the interfaces between the Services on the one hand and the Industry/ Academia on the other are not functioning efficiently enough to result in successful R&D.

- Presently, the scientists in the Industry/ Academia do not understand warfare, and the soldiers do not understand technology well enough. Consequently, the interfaces between the Services on the one hand and the Industry/ Academia on the other are not functioning efficiently enough to result in successful R&D.
- While the scientists are not expected to understand warfare, the reverse is not true, as there are enough soldiers with requisite technology background who, given the right environment, can become 'soldier scientists'. However, this entails significant organisational re-structuring and modification of existing HRD policies, both aimed at nurturing a culture of super-specialisation.
- The organisational re-structuring which is needed involves upgrading project management organisations in strength as well as quality of personnel, creating centres of excellence and R&D institutions which are captive to the Services, making the DRDO accountable to the Services, and creating incubation centres in India's premier research institutions jointly manned by civilian scientists and 'soldier scientists'.
- HRD policies need to be modified so as to create super-specialist streams, give ownership of technology to specific technical arms/ services, provide multiple specialist tenures to 'soldier scientists', incentivise the creamy layer to opt for specialisation by protecting their careers up to the highest ranks, ensure life-cycle association of specialists to projects, and other such provisions.
- With the above measures in place, 'soldier scientists' and civilian scientists can work together as teams, in an environment conducive for carrying out effective military research. Similar models are being followed by global leaders in military technology, most notably the U.S. and China.

Unfortunately, given the current mind-set within our Services, the measures listed here would probably be viewed as implausible, bordering on the absurd. More importantly, existing military hierarchy is predominantly of the view that

such measures are not really needed. Indeed, the current project management approach views the role of the Services as restricted to churning out qualitative requirements, which the civilian R&D ecosystem must then convert to military systems. If this does not happen, which is most of the time, the failures are attributed to the DRDO/ Industry. This model has failed India miserably so far. Only with transformative thinking within the Services can we hope to escape from this unfortunate situation.

Role of the Government

The Government, too, has a pivotal role to play in rejuvenating the R&D ecosystem: most actions listed above require Government approval; only the Government can suitably incentivise the Industry and nudge the Academia towards carrying out defence R&D; and last but not the least, cutting edge R&D is impossible without adequate funding. However, the necessary push needs to come from the Services.

Concluding Remarks

This work has attempted to analyse whether India has been able to leverage disruptive military technologies well enough to address India's national security concerns. At the outset, from amongst a whole spectrum of emerging military technologies, it identifies four critical areas, namely, AI & Robotics, Quantum, Nano and Hypersonic technologies, for assessing India's performance in frontline military research. Having first concluded that India is presently far off the mark, this paper adopts an introspective approach with respect to the Armed Forces, and suggests transformative measures which, if taken by India's Armed Forces, can help in rejuvenate the ailing military-industrial complex.

The role of the Services as restricted to churning out qualitative requirements, which the civilian R&D ecosystem must then convert to military systems. If this does not happen, which is most of the time, the failures are attributed to the DRDO/ Industry. This model has failed India miserably so far. Only with transformative thinking within the Services can we hope to escape from this unfortunate situation.

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Does India's Defence Budget Meet India's Growing Strategic Profile?

Shri Upendra Sah[@]

"A budget is telling your money where to go, instead of wondering where it went."

–John Calvin Maxwell

Abstract

Adequacy of Defence Budget is of paramount importance for any military. Synergy between defence and development is desirable, as a strong defence is meaningless without development and development cannot be without a strong defence which ensures a conducive environment for growth. Increase of defence budget is always seen with reference to growth rate, national Gross Domestic Product (GDP) and total annual government expenditure. Defence budget and expenditure needs efficient management, right prioritisation and control to get better value for money. Constant review of defence plan is needed. Opting for cutting edge technology, outsourcing of noncore tasks like logistics, maintenance and recruitment and lastly screening and proper Human Resource management is essential. All these can lead to augmentation of scarce resources. Long term planning is a must, followed by 'Five Year Defence Plan'. The Defence budget should have linkage with defence plan. A Focus on increasing domestic defence production for military hardware is necessary to cut dependence on imports. Under utilisation of capital acquisition allocations, need to be avoided. Data analysis reveals that the initial budgetary allocations are downwardly revised later for want of timely utilization of allocated funds.

Introduction

When one talks about India's strategic and economic profile, it takes India to its ancient history, past geography, worldwide influence and plan for the future. The records of the footprints of India's military, cultural, economic and territorial profile can be seen throughout history. It's past economic prosperity, cultural diversity, military might, and academic excellence attracted scholars, traders, rulers and invaders from other countries throughout its history. It followed the path of military superiority in war and leadership in peace to face all external challenges and continued to expand its influence by using diplomacy and soft power. Today India is the 5th largest economy and third largest military of the world. India's economic outreach is global, but its military aspiration is largely to defend its territory from external aggression, but is capable of reaching anywhere in the world on missions of peace, disaster response for relief and rescue, and evacuation of civilians from conflict zone.

[@] *Mr Upendra Sah,* an alumnus of NDC and M.Sc in National Development and Project Planning, University of Bradford, UK, and Master in Sanskrit Literature (Patna University), is a former Indian Defence Accounts Service (IDAS) Officer, who served in Government of India in various capacities throughout his service carrier. Important assignment handled by him are Additional Controller General of Defence Accounts, Principal Controller of Defence Accounts (DRDO) and Army Western Command, Joint Controller General (IC&T) and CVO, Controller of Finance and Accounts (Ordinance Factories), Deputy Financial Adviser, Ministry of Defence.

The Indian Defence Budgeting "Telling Your Money Where to Go"

Indian military and financial planners are conscious of the adversaries in India's immediate neighborhood with whom India has fought five major wars in the twentieth century. Requirement of budgetary support for defence preparedness and battle preparedness is well recognized by them. Top echelons on both military and civilian sides along with the political leadership strive to strike a balance between the financial needs of defence and development. Traditionally, India preferred the conservative approach on defence spending. To meet its strategic interests, India has been successfully using its diplomatic strength and greater peaceful use of military for United Nations (UN) peacekeeping, disaster assistance beyond the Indian borders and developing military to military contacts in the form of military diplomacy.

Defence budget in India flows from 'Defence Planning'. In India defence planning was introduced in 1964 and the first five year defence planning period was 1964–69.[1] Primarily it was based on available resources within the country and the foreign assistance expected at that time. Expansion and modernization of armed forces were the guiding factors for that planning as it was done post the debacle of the 1962 war with China. To reduce external dependence, domestic production of arms and ammunitions was also taken up. Synergy between defence and development was established to harness all resources of the country for development and defence. Defence Planning Cell was established in Ministry of Defence in 1965.[2] Based on experience of the first Five Year Defence Plan more flexibility was adopted in subsequent planning to facilitate annual review for accommodating priorities to meet changing strategic needs.

Right from the inception of Defence Planning, defence budget estimation has been on incremental basis to cover annual inflation. One of the recurring features in the utilization of defence budget is of non-utilization of considerable part of defence capital budget due to non-fructification of proposed acquisition of weapon systems or platforms.

Development of indigenous technology and in house production were considered for easing cost burden on exchequer and therefore, Defence Research and Development Organisation (DRDO) and defence production were given pivotal importance. While allocations of funds are done on financial year basis, no weightage is given to the provisions of the Five Year Defence Plan.

Right from the inception of Defence Planning, defence budget estimation has been on incremental basis to cover annual inflation. One of the recurring features in the utilization of defence budget is of non-utilization of considerable part of defence capital budget due to non-fructification of proposed acquisition of weapon systems or platforms. An initiative was taken to create a non-lapsable defence modernization fund to the tune of Rs 25000 in 2005 crore but the same could not be continued in absence of such provisions in budgetary rules and regulations.[3] The defence budget in India continued to grow with the growth of its economy. A budgetary allocation to the defence services is provided through Defence Services Estimates (DSE) every year which is approved by Parliament along with general budget. It comprises the Demands for Grants for the following:

- Defence
- Services (Revenue) and
- Capital Outlay on Defence Services.

The Demands for Grants is purely meant for revenue expenditure of three Services, DRDO, Ordnance Factories, covering the day to day operating and maintenance expenditure. It largely covers expenditure on salaries, procurement and maintenance of ordinance stores, rations, transportation of men and material, maintenance of available infrastructures etc. The Capital Expenditure for procurement of new weapon systems and platforms, plant and machinery, creation of infrastructure are provisioned under Capital Outlay of three services including DRDO and Ordnance Factories. Demand for Grant in respect of Army includes the budgetary requirement of National Cadet Corps (NCC), Rashtriya

Rifles (RR) and Directorate General of Quality Assurance (DGQA).In addition, there are Demands for Grants to meet expenditures on account of defence pensions and Ministry of Defence (MoD) Secretariat, departments under MoD manned by civilian staff, Coast Guard, J&K Light Infantry, Border Road Organisation, and Ex-Servicemen Contributory Health Scheme (ECHS). Earlier budgetary provisions for Indian Coast Guards and BRO were part of Department of Revenue and Ministry of Surface Transport respectively. To understand dynamics of defence budget, there is a need to look at the defence budget, its growth and utilization, as percentage of GDP and central government expenditure in succeeding paras.

The Defence Budget 2011 to 2019

In the post liberalization period of Indian Economy, defence budget and expenditure excluding defence pensions and expenditure under MoD civil grew from Rs. 17582 crore in 1992-93 to 272560 crore in 2017-18. During this period defence budget witnessed average annual growth of 11.7 percent.

Table 1: Defence Allocation and Expenditure since 2010-11

(Rupees in crore)

Year	Allocation	Actual Expenditure	% Growth (Actual)
2010-11	1,51,344.00	1,54,116.71	8.70
2011-12	1,70,936.81	1,70,931.28	10.90
2012-13	1,78,503.52	181,775.78	6.36
2013-14	2,03,672.12	2,03,499.36	11.95
2014-15	2,22,370.00	2,18,694.18	7.47
2015-16	2,24,636.00	2,25,922.98	3.31
2016-17	2,20,751.34	2,25,899.59	-0.01
2017-18	2,63,003.85	2,72,559.83	20.66
2018-19	2,79,305.33		

Data source: Defence Service Estimates (DSEs)

Growth of Defence Capital Budget is always a subject of analysis and critical review. The allocation and expenditure on this account has remained erratic due to uncertainty in materialization of acquisition proposals. Expenditure on capital accounts heads has increased from Rs5,473.30 crore in 1992-93[4] to Rs.90,438.40 crore in 1917-18.

Table 2: Growth of Defence Capital Allocation and Expenditure since 2010-11

(Rupees in crore)

Year	Revised Allocation	Actual Expenditure	% Growth
2010-11	60833.26	62,056.00	21.41
2011-12	66,143.81	67,902.38	9.42
2012-13	69,578.63	70,499.12	3.82
2013-14	78,872.63	79,125.05	12.24
2014-15	81,965.24	81,886.98	3.94
2015-16	81,4000.00	79,986.16	-2.32
2016-17	71,700.00	78,735.47	-1.56
2017-18	86,488.01	90,438.40	14.86
2018-19	93,982.13		

Data source: Defence Services Estimates (DSEs)

Although defence capital expenditure has grown significantly in actual terms, table 3 showing utilization of the budget bring out that a substantial amount of provision made at Budget Estimates (BE) stage gets reduced at Revised Estimates (RE) stage. Total reduction in capital budget at RE stage from 2000-01 to 2017-18 has been at about Rs. 93,342 crore as against the total BE provisions of Rs.9,80,086 crore during the same period. However, as the figures for 2018-19 show, at times the actual expenditure may be higher than the budget.

Table 3: Utilisation of Overall Defence Budget

(Rupees in Crore)

Year	BE (Net)	RE (Net)	Actual (Net)	Diff (BE-RE)	Diff (BE-Actual)
2000-01	58,587.00	54,460.91	49,622.04	4,126.09	8,964.9
2001-02	62,000.00	57,000.00	54,265.73	5,000.00	7,734.2
2002-03	65,000.00	56,000.00	55,661.83	9,000.00	9,338.00
2003-04	65,300.00	60,300.00	60,065.80	5,000.00	5,234.20
2004-05	77,0000.00	77,000.00	75,855.92	0.00	1,144.08
2005-06	83,000.00	81,700.00	80,800.26	1,300.00	2,1999.7
2006-07	89,000.00	86,000.00	85,761.74	3,000.00	3,238.26
2007-08	96,000.00	92,500.00	91,917.79	3,500.00	4,082.21
2008-09	1,05,600.00	1,14,600.00	1,14,499.49	-9,000.00	-8,899.5
2009-10	1,41,703.00	1,36,264.00	1,41,781.08	5,439.00	-78.08
2010=11	1,47,344.00	1,51,581.69	1,54,116.71	-4,237.69	-6,772.7
2011-12	1,684,415.49	1,70,936.81	1,70,913.28	-6,521.32	-6,497.8

Year	BE (Net)	RE (Net)	Actual (Net)	Diff (BE-RE)	Diff (BE-Actual)
2012-13	1,93,407.29	1,78,503.52	1,81,775.78	14,903.77	11,631.5
2013-14	2,03,672.12	2,03,672.12	2,03499.36	0.00	172.76
2014-15	2,29,000.00	2,22,370.00	2,18,694.18	6,630.00	10,305.8
2015-16	2,46,727.00	2,24,636.00	2,25,922.98	22,091.00	20,804.02
2016-17	2,22,456.14	2,20,751.34	2,25,899.59	1,704.80	-3,443.45
2017-18	2,59,261.90	2,63,003.85	2,72,559.83	-3741.95	-13,297.9

Data source: Defence Services Estimates (DSEs)

Table 4: Utilisation of Defence Capital Budget

(Rupees in Crore)

Year	BE(Net)	RE(Net)	Actual (Net)	Diff BE-RE	Diff BE-Actual
2000-01	17,926.40	14,778.70	12,384.05	3,147.7	5,542.35
2001-02	19,958.52	16,956.63	16,206.91	3,001.89	3,751.61
2002-03	21,410.63	14,991.55	14,952.85	6,499.08	6,457.78
2003-04	20,952.76	16,906.32	16,862.61	4,046.44	4,090.15
2004-05	33,482.85	32,147.70	31,993.79	1,335.15	1,489.06
2005-06	34,357.14	33,075.14	32,337.87	1,300.00	2,037.27
2006-07	37,458.00	34,458.00	33,828.24	3,000.00	3,629.76
2007-08	41,922.00	37,705.00	37,461.68	4,217.00	4,460.32
2008-09	48,007.00	41,000.00	40,918.48	7,007.00	7,088.52
2009-10	54,824.00	47,824.00	51,112.37	7,000.00	3,711.63
2010-11	60,000.00	60,833.26	62,056.00	-833.26	-2,056.00
2011-12	69,198.81	66,143.81	67,902.38	3,055.00	1,296.43
2012-13	79,578.63	69,578.63	70,499.12	10,000.00	9,079.51
2013-14	86,740.71	78,872.23	79,125.05	7,868.48	7,615.66
2014-15	94,587.95	81,965.24	81,886.98	12,622.71	12,700.97
2015-16	94,588.00	81,400.00	79,986.16	13,188.00	14,01.84
2016-17	78,586.68	71,700.00	78,735.47	6,886.68	-148.79
2017-18	86,488.01	86,488.01	90,438.40	0.00	-3,950.39

The GDP to Defence Expenditure Relationship

The percentage of GDP allocated to defence is an accepted though not entirely accurate way to analyse defence allocations. From the table below it emerges that in terms of percentage to GDP, the defence budget of India has

declined from 2.27 percent to 1.62 percent from 1992-93 to 2017-18 even though it has grown about 15 times in absolute terms during the same period.

Table 5: Defence Expenditure as percentage of GDP

(Rupees in Crore)

Year	Actual Defence Expenditure	GDP at Market Price	% of Defence Expenditure of GDP
1992-93	17,581.79	7,74,545.00	2.27
1993-94	21,844.73	8,91,355.00	2.45
1994-95	23,245.23	10,40,590.00	2.23
1995-96	26,856.29	12,26,725.00	2.19
1996-97	29,505.08	14,19,277.00	2.08
1997-98	35,277.99	15,72,394.00	2.24
1998-99	39,897.58	18,03,378.00	2.21
1999-00	47,070.63	20,23,130.00	2.23
2000-01	49,662.04	21,77,413.00	2.28
2001-02	54,265.73	23,5,845.00	2.30
2002-03	55,661.83	25,36,327.00	2.19
2003-04	60,065.80	28,41,503.00	2.11
2004-05	75,855.92	32,42,209.00	2.34
2005-06	80,800.26	36,93,369.00	2.19
2006-07	85,761.74	42,94,706.00	2.00
2007-08	91,917.79	49,87,090.00	1.84
2008-09	1,14,499.49	56,30,063.00	2.03
2009-10	1,41,781.08	64,77,827.00	2.19
2010-11	1,54,116.71	77,84,115.00	1.98
2011-12	1,70,913.28	87,36,329.00	1.96
2012-13	1,81,775.78	99,44,013.00	1.83
2013-14	2,03,499.36	1,12,33,522.00	1.81
2014-15	2,18,694.00	1,24,45,128.00	1.76
2015-16	2,25,922.98	1,36,82,035.00	1.65
2016-17	2,25,899.59	1,51,83,709.00	1.46
2017-18	2,72,559.83	1,68,47,455.00	1.62

Data source Defence Service Estimates & RBI (with effect from 2011-12, GDP base year is 2011-12)

Seen in isolation this may not give the correct picture, therefore to understand the declining trend of defence budget, it is essential to examine defence expenditure vis-à-vis total expenditure of the Central Government. This is shown at Table 6 below. Although, in percentage terms, defence expenditure has averaged around 14.1 percent of the total Central Government expenditure during 1992-93 to 2017-18, it has been showing declining trend since 2009-10 onwards.

Table 6: Defence Expenditure and Total Expenditure of the Central Government

(Rupees in crore)

Year	Total Expenditure of the Central Government	Total Defence Expenditure (Actuals)	% of Defence Expenditure
2008-09	7,50,884.00	1,14,499.49	15.25
2009-10	10,20,838.00	1,41,781.08	13.89
2010-11	11,08,749.00	1,54,116.71	13.90
2011-12	12,57,729.00	1,70,9313.28	13.59
2012-13	14,90,925.00	1,81,775.78	12.19
2013-14	16,65,297.00	2,22,499.36	12.22
2014-15	17,94,892.00	2,18,694.18	12.18
2015-16	17,77,477.00	2,25,922.98	12.71
2016-17	19,78,060.00	2,25,899.59	11.42
2017-18	21,46,735.00	2,72,559.83	12.70
2018-19(BE)	24,42,213.00	2,79,306.33	11.44

Data Source: Expenditure Union of India Budgets (indiabudget.nic.in) and DSE.[5]

Some salient points that emerge are:

- Defence expenditure remained the second largest component of the Central Government non-plan expenditure behind the interest payment from 1992-93 to 2007-08. However, since 2008-09, subsidy payment occupied the second place making the defence expenditure the third largest behind the interest payment and subsidy. This is also reflected in the declining share of defence in overall Central Government expenditure.
- During 2017-18, defence expenditure was Rs. 2,72,559.83, making the second largest chunk of non-plan expenditure behind the interest payment and subsidies.

To ease budgetary constraints, as considerable portion of capital budget is spent on import of military hardware, the Defence Production Policy, 2011 considers self-reliance in defence manufacturing as a vital strategic and an economic imperative. It places emphasis on utilizing the emerging dynamism of the Indian industry by leveraging domestic capabilities for fostering export capabilities in this sector.

Capital Acquisitions

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India is the third largest military in the world and the sixth biggest defence spender. It is also one of the largest importers of conventional defence equipment and spends around 30 percent of its total defence budget on capital acquisitions. 60 percent of defence related requirements are currently met through imports. An illustrative data for the last five years is appended as under:

Table 8 : Capital Acquisition Expenditure vis-à-vis Total Defence Budget for last five years

(Rupees in crore)

Year	Total Defence Exp.	Capital Acquisition Exp.	% 0f Capital Acquisition over total Def Exp.
2013-14	203499.36	66480.82	33
2014-15	218694.18	65582.33	30
2015-16	225922.98	61949.29	27
2016-17	225899.59	68963.03	31
2017-18	272559.83	72437.36	27

Data source: DSEs.

Conclusion

This paper concludes by stating firstly some obvious points which in fact is reiteration of points made by many financial analysts at varying times or forums. These points related to better manage the defence allocations are:

- Better management of Defence Revenue and Capital allocations.
- Lateral transfer of Junior Commissioned Officers and other ranks after active service of 8-10 years to Para Military Forces to reduce defence pension burden.
- Better synergy between defence and development to avoid duplication of efforts and incorporate strategic requirement at planning stage itself.
- Creation of a non-lapsable Defence/Strategic Fund.
- Outsourcing of non-core defence activities related to maintenance and logistics.

As a percentage of GDP India spends more than China on defence and on par with South Korea and Turkey — both of whom face challenging security scenarios. It is obvious that our security threats emanating from China and Pakistan are unlikely to go away for some time to come hence we will have to maintain our defence expenditure at this level. India spends around 16-17 per cent of the total central budget on defence, a fiscal stretch that is higher than many countries. It is on par with the United States, but unlike India, US defence expenditure provides large numbers of jobs locally — hence it is economically accretive[6]. Hence, the imperative of building up a world class indigenous defence industry so that we are not forced to go in for defence purchases for all our major needs from abroad. Finally, it is concluded that there is need to augment defence allocations by adopting better financial and other resource management tools to get better value for money, long term planning, disposing off obsolete and surplus assets and stores and proper prioritization. As George Washington had said, "We must consult our means rather than our wishes". If we are unable to do that then the only viable alternative —as one fiscal analyst states— is to contemplate whether rescinding our No First Use (NFU) or an alliance with a major anti-China power or any other similar radical step can enable us to reduce our defence expenditure. As that same author states "there is no room for old thinking, either in actual policymaking or in its critique!"[7]

End Notes

1 General V. P. Malik & Brigadier Gurmeet Kanwal, " Defence Planning In India" ,*Observer Research Foundation,*https://www.orfonline.org/wp-content/uploads/2005/01/Defence.pdf

2 Ibid.

3 Mahendra Gaur (Ed), Indian Affairs Annual 2005 (Vol V- Defence) , p. 146.

4 Amiya Kumar Ghosh, India's Defence Budget and Expenditure Management in a Wider Context, (New Delhi, Lancer Publications: 1996) p. 97.

5 Department of Economic Affairs, Union Budget Archives, https://dea.gov.in/budgetdivision/indiabudgetarchive

6 Somnath Mukherjee 'Crisis' in defence expenditure is not really about budget allocations, Economic Times, Feb 09, 2018. Accessed mar, 04, 2020 from https://economictimes.indiatimes.com/markets/stocks/news/crisis-in-defence-expenditure-is-not-really-about-budget-allocations/articleshow/62846686.cms?from=mdr

7 Somnath Mukerjee, ibid.

CDS and Connected Reforms: An Analysis

Col Rajneesh Singh@

Abstract

The government's decision to institute the appointment of the Chief of Defence Staff (CDS) and create the Department of Military Affairs (DMA) in the Ministry of Defence (MoD) fulfills the long felt need to bring in integration in the armed forces and at the same time empower the military by giving it a voice at the decision making forums. How much power and authority must be entrusted in the appointment of the CDS? The answer to this question lies in two conflicting yet complementary requirements, unity of command and checks and balances over the appointment. The CDS was to be the first step in a series of structural reforms to be implemented incrementally. It is expected that the government will follow up with more reforms.

Introduction

On 24 December 2019, the Cabinet Committee of Security (CCS) approved the creation of the appointment of the CDS. The CDS will head the Department of Military Affairs (DMA) in the MoD. This article is an analysis of all the assorted issues pertaining to the above-mentioned decision of the government. Before proceeding with the subject proper it would be appropriate to recapitulate the various facets of India's Higher Defence Organisation (HDO) and Higher Defence Management (HDM) system inherited at the time of independence and the ensuing attempts to reform the defence establishment. This would help develop necessary context for the analysis.

Background - Kargil Review Committee

In the wake of the Kargil conflict a committee headed by K. Subramanyam, was constituted by the government in July 1999, to review the events leading to Pakistan's aggression and to recommend such measures as were considered necessary to safeguard national security against such armed intrusions.[1] The Kargil Review Committee (KRC) report had urged for a thorough and expeditious review of the national security system in its entirety. Consequent to the submission of the KRC Report, the government set up a Group of Ministers (GoM) in April 2000 to review the National Security System in its entirety and in particular, to consider the recommendations of the KRC and formulate specific proposals for implementation.[2] The GoM set up four task forces.[3] Mr Arun Singh,[4] former Minister of State for Defence headed the Task Force on Management of Defence. The Task Force identified a number of problems with the HDM. Some of the problems which are of interest included[5]:

> "…a visible lack of synchronisation among and between the three departments in the MoD, including the relevant elements of Defence Finance. The concept of "attached offices" as applied to Services

@ *Col (Dr) Rajneesh Singh* is an infantry officer with varied operational, staff and instructional experience. He has commanded a Rashtriya Rifles Company and Battalion. He has been a military observer in Congo. His staff experience includes tenure in Directorate General of Military Operations and in Military Secretary's Branch. The officer has also been an instructor at NDA, Khadakwasla and at DSSC, Wellington and Deputy Commander of an LC formation. The officer has done his doctorate from JNU, New Delhi and has to his credit published works in reputed journals.

Headquarters; problems of inter-se relativities; multiple duplicated and complex procedures governing the exercise of administrative and financial powers; and the concept of 'advice' to the Minister, have all contributed to problems in the management of Defence. This situation requires to be rectified, to promote improved understanding and efficient functioning of the Ministry."

The GoM was also of the opinion that there are serious flaws in the functioning of the Chiefs of Staff Committee (COSC) since it is unable to provide single point military advice to the government, resolve inter service issues. The GoM report also highlighted lack of integrated approach in defence acquisition, weaknesses in linkages between plans and budgets and an absence of a dedicated, professionally equipped procurement structure within the MoD.[6] The GoM Report on Management of Defence contained 75 recommendations. The salient recommendations of the GoM of interest to the subject of this paper are mentioned below:[7]

- The GoM recommended the appointment of the CDS and the Vice Chief of Defence Staff (VCDS). The CDS once appointed would be single point military advisor to the government. He would be responsible for the administrative control of the Strategic Forces and for enhancing the efficiency and effectiveness of the planning process through intra and inter-Service prioritisation. The CDS when appointed would be required to ensure "jointness" in the armed forces.

The GoM recommended the appointment of the CDS and the Vice Chief of Defence Staff (VCDS). The CDS once appointed would be single point military advisor to the government. He would be responsible for the administrative control of the Strategic Forces and for enhancing the efficiency and effectiveness of the planning process through intra and inter-Service prioritisation.

- The CDS when appointed would be a four-star officer from one of the three Services in rotation and would function as the Permanent Chairman of the COSC. The VCDS would be the Member Secretary. The CDS would rank *primus inter pares* in the COSC and function as the "Principal Military Adviser" to the Defence Minister.

- The GoM was mindful of the important role the Defence Secretary is expected to play in the HDO. Accordingly, the report recommended that there should be no dilution in his role as "Principal Defence Adviser" to the RM. The report recommended that the Defence Secretary should be responsible to the RM for policy advice, supervising the DoD, co-ordinating the functioning of all departments in the MoD, co-ordinating the finalisation of the complete MoD Long Term Defence Perspective Plan, five-year plan, and the annual budget for approval by the RM. He is also to advise the RM on all matters relating to issues where the Services are not involved directly such as Parliament, Central Government and State Governments and coordinating personnel policies, terms and conditions of service, and the like.

Following the acceptance of GoM's report by the government many of its recommendations were implemented.[8] However, in the decade following the submission of the KRC and the GoM reports there was little move forward on the defence reforms. In June 2011 the government instituted the Naresh Chandra Committee (NCC)[9] to revisit the defence reforms process.[10] The committee submitted its report to the government in May 2012. According to Manoj Joshi[11] the purpose of the committee was to "undertake a review of challenges to national security and recommend measures that will improve our ability to deal with them." Foremost amongst the recommendations of the NCC was one concerning the appointment of the permanent Chairman of the COSC from among the three service Chiefs, allowing India to have four four-star generals. There was no mention of the CDS in the report. The Chairman was recommended to be the head of the Andaman & Nicobar Command (ANC) and the Strategic Forces Command (SFC) and the three Services Chiefs were to continue to lead their respective Services. The NCC also recommended the integration of the service HQ and the MoD by allowing more cross postings and also recommended the creation of separate Special Operations Command, the Aerospace Command and the Cyberspace Command.[12]

Defence Reforms 2019: CDS and its Enabling Framework

The PM's announcement of 15 August 2019 and the alacrity with which the government machinery has moved to implement the reforms were welcome. The news media have reported in varying details about the role and the responsibilities of the CDS and of the newly created DMA. Some of the news items have been corroborated by the government announcements. The analysis of the subject, hereafter, is based on these sources.[13]

Role and Responsibilities of the CDS

- CDS act as the 'Principal Military Advisor' to the Raksha Mantri (RM) on tri-services matters. The three Chiefs will continue to advice RM on matters concerning their respective services. He will also be the Permanent Chairman of the Chiefs of Staff Committee. In this role he will be assisted by the Integrated Defence Staff (IDS). The three Chiefs will continue to advise RM on matters exclusively concerning their respective Services.
- The CDS will not exercise any military command, including over the three service Chiefs.
- CDS will administer tri-services organisation. Their military command will be with the Chief of the duly notified service, which has the predominant role in the effective functioning of the organisation. However, tri-services agencies, viz. Cyber and Space Agencies will be under comd of the CDS.
- CDS will be the member of the Defence Acquisition Council and Defence Planning Committee.
- Bring about jointness in operations, logistics, transport, training, support services, communication, repairs and maintenance, etc. of the three services within three years of the first CDS assuming office.
- Ensure optimal utilization of infrastructure and rationalize it.
- Enhance the share of indigenous equipment.
- Evaluate plans for out of area contingencies, as well as other contingencies such as humanitarian assistance and disaster relief.
- Implement five year Defence Capital Acquisition Plans, and two year roll-on Annual Acquisition Plans, as follow-up of Integrated Capability Development Plans.
- Assign inter-services priority to capital acquisition proposals based on anticipated budget.
- Prepare strategy papers on military matters for consideration of the competent authority.
- Bring about reforms in the functioning of the three services aimed at augmenting the combat capabilities of the armed forces.
- Function as the military advisor to the Nuclear Command Authority.

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Department of Military Affairs

- A new department, DMA will be created within the MoD.
- It will work exclusively pertaining to military matters, while the Department of Defence (DoD) will deal with larger issues dealing with the defence of the country.

- Armed forces will fall in the ambit of DMA, which will have appropriate expertise to manage military affairs.
- CDS will head DMA.
- DMA will have appropriate mix of civilian and military officers at every level.
- The department will promote jointness in procurement, training and staffing for the services. Facilitate restructuring of the military commands for optimal utilization of the resources by bringing jointness in the operations, including through establishment of joint/theatre commands. Promoting use of of indigenous equipment by the services.

The government has also promulgated orders to the effect that the CDS can serve up to the age of 65 years.

CDS's Authority, Responsibility and Accountability

The government has directed that the CDS will not exercise military command over the three services. He will 'administer' tri-services organisations which will continue to be commanded as hitherto fore by one of the service chiefs. The extent of the command and administrative responsibility entrusted in the CDS is among the most critical decisions the government has taken in the reform process. This has been a subject of great deliberation and debate. How much power and authority must be entrusted in the appointment of the CDS? The answer to this question lies in two conflicting yet complementary requirements, unity of command and checks and balances over the appointment. Unity of command is a time tested and accepted military principle of organizing military hierarchy. The application of this principle without moderation will confer the CDS with authority, which perhaps may not be in the larger interest of the defence establishment. The authority of the CDS has to be tempered with prudent checks and balances to achieve a desired state of equilibrium between the military, the civil bureaucracy and the elected representatives, a necessary pre-condition to achieve operational efficiency and administrative effectiveness. Indian HDO has to be appropriately designed and the systems and processes put in place to balance authority and responsibility with accountability. The extent of command responsibility, in some detail, has been articulated in the government orders available in the open domain. The DMA, headed by the CDS, would facilitate restructuring of the military commands for optimal utilization of the resources by bringing in jointness in operations, including through establishment of joint/theatre commands. This instruction is suggestive of the vision of the government which envisages establishment of theatre commands, leading to enhanced role of the CDS at the expense of the service Chiefs.

Now with the CDS in place and DMA in the process of being established and the government has articulated its vision to have theatre commands in the future, where does it leave the Chiefs? Although the aim of the reforms is to have a HDO which is suited for India's unique requirements, yet there are certain fundamental principles which cannot be overlooked.

Enhancement of Jointness and Its Implications

The broad contours of the jointness among the three Services were defined in the GoM's report which led to the establishment of HQ IDS, the ANC and the SFC. The missing links in the reforms were the CDS and the integration of service HQ with the MoD. Now with the CDS in place and DMA in the process of being established and the government has articulated its vision to have theatre commands in the future, where does it leave the Chiefs? Although the aim of the reforms is to have a HDO which is suited for India's unique requirements, yet there are certain fundamental principles which cannot be overlooked.

Chiefs as Capability Managers

The appointment of the CDS is the beginning of the reduction of the role and responsibilities of the service Chiefs as operational commanders. Whatever be the form and shape of India's HDO in future, the responsibilities of the service Chiefs will in some manner change. As the reform's agenda is implemented it is likely that the role of the Chiefs in planning and conduct of operations would reduce and they will be more involved in raising and sustaining their respective service. In the coming days there will be greater centralisation of policy making functions, authority for allocation of resources and control of operations in the office of the CDS. The Chiefs are likely to become capability managers for their service, a marked contrast to the situation in 1965 when the Army Chief alone could plan and get sanction from the government for waging war without keeping his naval and air force counterpart in picture.[14]

Personality and Jointmanship

The Indian roadmap for jointmanship has been unique. It started with the formation of the COSC and was furthered with the establishment of the Advance HQ of the Indian Air Force (IAF), co-located with the army HQ commands. In the wake of Kargil war the jointness was attempted and experimented with the establishment of the ANC, the SFC and HQ IDS with mixed results. The future milestones are the DMA, Special Forces Division and the Cyber and Space Agencies. The journey will culminate with the establishment of theatre commands and the CDS having a coordinating role.

In the government orders the CDS has been designated as the 'principal military advisor' to the RM. It is important that the CDS is the 'principal military advisor' to the government and presents the views of the services in all forums, the CCS, the National Security Council (NSC) etc.

Principal Military Advisor

One of the key reasons for creating the appointment of the CDS and designating him as the 'principal military advisor' is to improve the quality of military advice to the government. As is the practice now, the Defence Secretary represents the services in most of the forums, especially those concerning peace time administrative activities. The services find this blameworthy for many of the ills plaguing the HDO, particularly shortfalls in defence preparedness. In the government orders the CDS has been designated as the 'principal military advisor' to the RM. It is important that the CDS is the 'principal military advisor' to the government and presents the views of the services in all forums, the CCS, the National Security Council (NSC) etc. Quality of advice to the government will improve by lending the military leadership with voice in the right forums. Presence of the CDS in the forums mentioned will help achieve the government's objective. The CDS as the 'principal military advisor' will be expected to present all shades of opinions of the three Services, consensus and dissent. He will also be expected to present these views duly annotated with his independent assessment.

Preparation of Strategy Papers

One of the tasks that the CDS has been entrusted with is preparation of strategy papers on military matters for consideration of the competent authority. The CDS will be able to do justice to his task if he is provided with written government's policy guidance, political and strategic hypotheses and assumptions, as is the practice in some of the matured democracies.

Change in Civil-Military Relations

The appointment of the CDS will change the nature of civil-military relations in India. As on date the Service HQ present the military's view points while the MoD negotiates from the standpoint of 'defence' or other sundry considerations. With the appointment of the CDS the RM will now have an important ally in him. MoD and RM will now be freed from the necessity of negotiating with the Service Chiefs. The debates will no longer be civil-military in nature as RM will no

longer confront the Chiefs alone. This will change the manner in which the services' viewpoints will be deliberated and decisions announced.

DMA

The DMA along with HQ IDS would assist the CDS in his functioning. The DMA should be capable of independent strategic planning and not compile and circulate the work of service HQ or any other agency. In order to do so the staffing of the DMA and its communication linkages, discussed earlier, would be important determinants of its capacity to form independent opinion.

COSC

The often repeated inadequacy of the COSC is that it is ineffective to resolve inter-service professional differences and more often than not it only works on issues where the Services do not have serious differences. Whenever the Services do have differences, they are mostly resolved at the level of the MoD, which has no expertise to do so. This also increases the reliance of the RM on civil bureaucracy. One of the reasons to appoint the CDS is to obviate the inherent weaknesses of the COSC system. The challenge before the CDS will be to make the COSC effective in resolving contentious issues and work towards enhancing jointness. The RM places great reliance on civil bureaucracy because COSC deals with non-contentious issues. For all other issues MoD arbitrates despite lack of expertise. Now CDS and COSC will have to come up with solutions to such issues. The CDS, as Permanent Chairman, will be expected to achieve consensus in the COSC, if not, then identify points of divergence and their consequences and present the whole spectrum of opinions along with his assessment which has been harmonised with the government's political objective.

One of the reasons to appoint the CDS is to obviate the inherent weaknesses of the COSC system. The challenge before the CDS will be to make the COSC effective in resolving contentious issues and work towards enhancing jointness.

Conclusion

Ever since the 1950s there has existed an understanding in the strategic community that the country's apex defence structure needed reforms. However, even a superficial study of defence reforms in major democracies will suggest that reforms of this nature have always been resisted by stakeholders for parochial reasons. It is only those countries where the government has instituted top driven approach have the reforms been implemented. It is worth taking note that studies conducted post implementation of the reforms have highlighted the advantages accrued because of them. This further strengthens the case for India's reforms.

In the complex security environment of today where the costs of defence equipment are exorbitant, defence management becomes an extremely complex task and cannot be reduced to normal bureaucratic process. Decision makers require the advice of 'specialists'. The CDS will be able to fill in the void which exists in the Indian HDO today. The GoM had also considered that the CDS was to be the first step in a series of structural reforms to be implemented incrementally. It is expected that the government will follow up with more reforms. Defence Secretary has an important role in the higher defence management. Recognizing this government has maintained the centrality of his role in the reformed HDO. The 'reforms committee' must, however, deliberate and define the functionality between the CDS and the Defence Secretary and bring greater clarity regarding their respective roles and the manner they will function in pursuance of the tasks for which both of them will be responsible collectively.

End Notes

1 The Government of India constituted a committee on 24 July 1999 to look into the episode of Pakistan's aggression in the Kargil Sector. The committee comprised of four members, namely K. Subrahmanyam (Chairman), Lieutenant General (retd.) K. K. Hazari, B.G. Verghese and Satish Chandra, Secretary, National Security Council Secretariat, Member Secretary.

2 The GoM consisted of L.K. Advani, Minister of Home Affairs, George Fernandes, Minister of Defence, Jaswant Singh, Minister of External Affairs, Yashwant Sinha, Minister of Finance. Brajesh Mishra, National Security Adviser, was Special Invitee for the meetings of the Group.

3 To facilitate its work, the GoM set up four Task Forces, one each on Intelligence Apparatus, Internal Security, Border Management and Management of Defence. In view of its comparatively more limited scope, the KRC naturally did not address matters concerning internal security. The GoM, however, considered it necessary to do so in the light of the problems posed by insurgencies, narco-terrorism, collapse of law and order machinery in certain states, violence by left-wing extremists, degradation of the efficacy of the Central Para Military Forces (CPMFs) and the State police forces etc. Accordingly, the GoM set up a separate Task Force for issues concerning Internal Security. See Ministry of Defence (2007), Government of India, *Review of Implementation Status of Group of Ministers (GoMs) Report on Reforming National Security System in Pursuance to Kargil Review Committee Report—A Special Reference to Management of Defence,* 17 July, pp 1-3.

4 Arun Singh, according to Adm Arun Prakash, "had a great deal of administrative experience, but also intimate knowledge of the armed forces, coupled with India's Higher Defence Organisation concern about the extant national security situation". See Prakash, Arun (2007), "India's Higher Defence Organisation: Implications for National Security and Jointness", *Journal of Defence Studies*, 1(1), [Online: web] Accessed 14 August 2012, URL: http://www.idsa.in/jds/1_1_2007_IndiasHigherDefenceOrganization_aprakash, pp. 20.

5 See Government of India (2000), *Report of the Group of Ministers on National Security,* New Delhi: Cabinet Secretariat, pp 97-99.

6 Government of India 2000, op. cit. pp. 97-99.

7 See Government of India 2000, ibid. pp. 100-103 and Prakash 2007, op.cit. 23-24.

8 The Ministry of Defence Report of 2007 mentions that the Chapter of GoM Report on Management of Defence contains 75 recommendations. By 2007 the MoD had completed action on 59 recommendations. Action on six recommendations was pending and ongoing on two recommendations. Eight recommendations of the chapter relating to the appointment of CDS were also pending for decision after consultation with political parties. See Ministry of Defence 2007, pp. 5.

9 Naresh Chandra was an Indian Civil Servant who has served as the Cabinet Secretary (1990–92), and the Indian Ambassador to the US (1996–2001). He was awarded India's second highest civil award, the Padma Vibhushan, for his service, in 2007.

10 While the precise reason for setting up this committee is, as yet, unclear however it can be assumed that it was created in response to criticism from many members of the strategic community. See B. D. Jayal (2012), "Management and Delivery of Joint Military Capabilities", in Anit Mukherjee (ed.) *A Call for Change: Higher Defence Management in India*, New Delhi: Institute for Defence Studies and Analyses.

11 Manoj Joshi, an eminent journalist and security analyst, was a member of the 2001 Task Force on Management of Defence and of the 2011 NCC.

12 See Nitin Gokhale (2013), "Supremacy of Civil Over Military: The Indian Version", *News Warrior*, Blogspot, 15 June 2013, [Online: web] Accessed 28 June 2013, URL:http://nitinagokhale.blogspot.in/2013/06/supremacy-of-civil-over-militaryindian.html. Also see Gurmeet Kanwal (2012), *Defense Reforms in India: Slow but Steady Progress*, Issue Perspective, Washington D.C.: Centre for Strategic and International Studies.

13 Nitin A. Gokhale (2019), "Explained: What Chief of Defence Staff Means to India", *Bharat Shakti*, 24 December 2019, [Online: web] Accessed 24 December 2019, URL: https://bharatshakti.in/explained-what-chief-of-defence-staff-means-to-india/.

14 General J. N. Chaudhuri while delivering the National Security Lecture organised by the USI, New Delhi informed the audience that he had obtained the sanction of the government for the war plans but neither he nor the RM informed the other two

Service Chiefs of this vital decision. It was only later when the crisis developed in the Chhamb sector that the COAS sought the RM's intervention to ensure that the Air Force provide assistance to the ground troops. Gen Chaudhuri further informed that after the Rann-of-Cutch skirmishes with Pakistani forces in the spring of 1965, he had held several discussions with the Prime Minister (Shastri) and the Defence Minister (Chavan) about the possibility of a full scale war with Pakistan – and the 'the necessary sanction was obtained', presumably meaning that he had obtained government's approval of war plans; but neither he nor the Minister thought to keep the other two service chiefs informed. Gen Chaudhuri by-passed the Chiefs of Staff Committee, the JPC and the JIC and decided to act entirely on his own.