U.S.I.

JOURNAL

INDIA'S OLDEST JOURNAL ON DEFENCE AFFAIRS

(Estd. 1870)

PRINCIPAL CONTENTS

USI LATEST PUBLICATIONS; 2022-2024

Pub Code	Type	Title of Publication and Author	Price (₹)	Year
OP-2/ 2024**	Occasional paper	'POLITICAL AND ECONOMIC INSTABILITY IN MYANMAR : IMPLICATIONS FOR INDIA'S 'ACT EAST' POLICY' By Mr Subir Bhaumik	250	2024
R-117**	Book	'THE VICTORIA CROSS ICON – VISION AND LEGACY' LT GEN PS BHAGAT, PVSM, VC) By Maj Gen Shashikant G Pitre (Retd)	1550	2024
Adm/SY B-24**	Year Book	'STRATEGIC YEAR BOOK 2024' Editor-in-Chief Maj Gen BK Sharma, AVSM, SM** (Retd), Edited by Maj Gen Sanjeev Chowdhry (Retd), Ms Komal Chaudhary, Mr Vinayak Sharma and Mr Mihir S.	2750	2024
Adm-1/ 2024	Book	'INDIA'S STRATEGIC THOUGHT AND MULTI-DOMAIN WARFARE PERSPECTIVES' Edited by Maj Gen Sanjeev Chowdhry (Retd), Ms Komal Chaudhary & Mr Vinayak Sharma (Pentagon Press)	995	2024
Adm-Mil Ops/ 2024**	Book	"MILITARY OPERATIONS – Legal Framework for Multi-Domain Warfare" By Wg Cdr Umesh Chandra Jha (Retd) & Mr Kishore Kumar Khera	1750	2024
P-39/ 2023**	National Security paper	"THE INDO-PACIFIC CONSTRUCT-INDIA'S MARITIME HIGHWAY TO GREAT POWER STATUS" by Vice Admiral Anil Kumar Chawla, PVSM, AVSM, NM,VSM, PhD(Retd)	395	2024
M-1/ 2024**	Monograph	"PRESENT AND EMERGING THREATS TO NATIONAL SECURITY IN DIGITAL AND CYBER SPACE – AN ANALYSIS OF SECURITY AND LEGAL ISSUES" by Lt Cdr Bharat Singh (Retd) & Gp Capt Raja Singh (Retd)	395	2024
OP-1/ 2024**	Occasional Paper	"OPTIMISATION OF PROFESSIONAL WARGAMING WITH BOARD AND TABLETOP WARGAMES WHICH REALLY ARE QUALITATIVE AGENT-BASED MODELS" by Lt Gen (Dr) SK Gadeock, AVSM(Retd) & Col Saikat K Bose	350	2024
M-1/ 2023**		"India Tibet Relations (1947-1962)" By Mr Claude Arpi	395	2023
OP-1/ 2023**		"The Ukrainian Conflict : Heavy Metal still Rocks the Charts" By Maj Gen Jagatbir Singh,VSM (Retd) & Maj Gen VK Singh,VSM (Retd)	250	2023
OP-2/ 2023**		"The Great Helmsman and the Generalissimo : A Personal Feud That Endures" by Col Sanjay Kannoth,VSM	250	2023
Adm-SYB/23**		"STRATEGIC YEAR BOOK 2023" Editor-in-Chief Maj Gen BK Sharma, AVSM, SM & Bar (Retd), and Edited by Lt Gen GS Katoch, PVSM,AVSM,VSM (Retd), Gp Capt Sharad Tewari, VM (Retd) & Dr Jyoti Yadav	2250	2023
OP-3/ 2023**		"Changing Operational Scenario and Evolving Rules of Engagement" By Wg Cdr UC Jha (Retd) and Gp Capt Kishore Kumar Khera (Retd)	250	2023
OP-4/ 2023**		"Empowering Commanders for Tomorrow" By Brig Pawan Bhardwaj	250	2023
R-115/ 2023**		"GREY ZONE WARFARE : WAY AHEAD FOR INDIA" By Lt Gen Dushyant Singh,PVSM,AVSM (Retd)	1450	2023
OP-5/ 2023**		"A Joint Concept of Operations" By Air Marshal (Dr) Diptendu Choudhury, PVSM,AVSM,VM,VSM (Retd)	250	2023
CS3/ R-116/ 2023**		"Comprehensive Development of the Northeast – Window to India's Act East Policy" By Mr Jitesh Khosla, IAS Officer	1250	2023
OP-6/ 2023**		"ORBAT & DECORATIONS FOR THE AZAD HIND FAUJ" By Shri Neelotpal Mishra	350	2023
OP-7/ 2023**		"Analysing the Indus Waters Treaty 1960 : Beyond The Hype, Hoopla and The Hyperbole" By Col Anurag Jyoti and Prof (Dr) Raj Kamal Kapur	250	2023
OP-8/ 2023**		First Lt Gen PS Bhagat Memorial Lecture "Legacy of Lt Gen Prem Bhagat – A Visionary and Strategic Leader" held at Manekshaw Centre on 14 June 2023. Compiled by Ms Tanya Jain	350	2023
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Adm-UNPO/2 023		"INDIA AND THE UN PEACE OPERATIONS-In Service of Humanity and Global Peace" By Col (Dr) Kulwant Kumar Sharma (Retd) M/s KW Publishers Pvt Ltd	1880	2023
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CMHCS-5		"History of Indian Air Defence Artillery 1940-1945" By Col Mandeep Singh (Retd M/s Manohar Publishers & Distributors	1495	2022
CMHCS-6*		"GALLIPOLI REVISITED" Edited by Sqn Ldr RTS Chhina,MBE, (Retd) and Amb Asoke Mukerji, IFS (Retd) Published by CMHCS	800	2022
Adm-5 (UNPO)/ 2022)**		"UN Peace Operations Part - V : Women, Peace & Security" Edited by Maj Gen AK Bardalai and Maj Gen PK Goswami,VSM (Retd)	350	2022

*Available at USI of India   ** Available at M/s Vij Books of India Pvt Ltd   *(contd. back inside cover page)*

U.S.I. JOURNAL

UNITED SERVICE INSTITUTION OF INDIA
for
the furtherance of interest and knowledge in the art, science and literature of National Security in general and of the defence services in particular

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1. 18% GST extra.

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The USI Journal has been digitised and can be accessed at www.usiofindia.org. Dispatch of hard copies to the members has been discontinued, however, Formation Headquarters, Units, Messes, Libraries and individuals can subscribe to the USI Journal at the rates as under:-

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DSSC (Navy)	First Week of Apr 2024	Jul 2025	-	Paper 1 – ₹ 3,000/-
DSSC (IAF)	Third Week of Jan 2025	Jul 2025	-	Correspondence Course • HH – ₹ 3,000/- • Current Affairs – ₹ 3,000/- Online Course • Current Affairs – ₹ 4,000/- • Refer to Prospectus available on USI website for other details
Part B	Second Week of Dec 2023 Registration open for 2024	Jun 2025 to Jul 2025	₹ 3000/-	Tactics, Current Affairs and Military History – ₹ 1,000/- Administration and Military law – Rs 800/-
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13. Prospectus and Form : Available on Website and from Course Section.

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See USI website : www.usiofindia.org for details and form			

$(For 3 years commending 01 Jan)   *(one year for one course only)

ARTICLES FOR USI JOURNAL

Style Sheet

- USI welcomes original researched articles pertaining to national security, defence matters and military history for publication in the USI Journal. Articles should preferably not exceed 3,000 words. Along with the article, the author should forward abstract of the article not exceeding ten per cent of the total words. These should be forwarded as a word document on e-mail to the Editor, United Service Institution of India, on direditorial@usiofindia.org. In the e-mail the author should state that "The article titled (Title of Article) has neither been previously published in print or online, nor has it been offered to any other agency for publication. The Editor reserves the right to make alterations".

- It is mandatory that the author furnishes complete details of the book/journal referred to in the article as end notes. A guide to writing endnotes is given on the next page. Besides endnotes, if the author so desires, a bibliography may also be included, though it is not mandatory.

- The article should be in Arial Font, size 12 and English (UK). Avoid use of symbols like %, & and so on unless unavoidable to explain a point. The date style should be 24 Jun 2020, except in the citations where it will be Jun 24, 2020. Abbreviations, if any, should be used in their expanded form the first time and indicated in brackets.

- The full name and address of the author along with a brief Curriculum Vitae should be given. Serving officers are advised to follow the prevailing Services instructions for publications of their articles.

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

- Refer to Publication Policy on USI Website for full details.

GUIDE TO WRITING ENDNOTES

- Endnotes are notes added to the main body of a paper or an article, in which the author directs readers to sources referred to or to add extra comments of his or her own. Endnotes are placed at the end of the paper/article. A superscript number (1,2,3,4) at the end of the sentence signals the reader to look for the corresponding endnote at the end of the article. The endnotes should be numbered consecutively, starting from '1'. Citations should include the author's name, title of the book (in italics), publishing information (in parenthesis) and pages consulted, all separated by commas. Citations should be in the Chicago Manual of Style (CMS) format. A quick reference is available at: https://www.chicagomanualofstyle.org/tools_citationguide/citation-guide-1.html.

- Some examples are given below:

[1] Michael Baxandall, Painting and Experience in Fifteenth-Century Italy : A Prime in the Social History of Pictorial Style, (Oxford University Press, London, 1988), p. 45.

[2] Lina Bolzoni and Pietri Coral, The Culture Memory, (Bologna : Societa editrice Il Mullno, 1992), p. 45.

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

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

[4] R Polrer, Learning Physics, (Academic, New York, 1993), p. 4.

[5] Ibid, p. 9.

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

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

[8] Ellot, op cit., p148.

[9] Ellot, loc, cit.

- Where websites have been used to access information, the complete web address of the website should be cited, followed by the date the website was accessed by the author e.g. Accessed Jun 24, 2020 from http://www.fordham.edu/halsall/mod/1947degana.html.

ADDITIONS TO THE USI LIBRARY FOR THE QUARTER ENDING JUN 2024

During this period a total of 44 new books have been added. Details of the new books are available on USI Website.

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Members interested in undertaking research projects may submit research proposals to USI (CS3/CMHCS). At present, ten Chairs of Excellence have been instituted in CS3; namely, Field Marshal KM Cariappa Chair, Admiral RD Katari Chair, Air Marshal Subroto Mukherjee Chair, Prof DS Kothari Chair, Ministry of External Affairs Chair, Flying Officer Amandeep Singh Gill Chair, General Bipin Rawat Chair, Lt Gen PS Bhagat Chair, Bhawanipur Education Society College Chair, Assam Rifles Chair and three Chairs in CMHCS namely; Maharana Pratap Chair, Chhatrapati Shivaji Chair and USI-War Wounded Foundation Chair. Copies of the Rules for Award of Fellowship Grants and Conduct of Research are available on the USI Website.

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During the period Apr–Jun 2024, 16 registered as New Life Members; 04 Ordinary Member renewed membership and 08 registered as new Ordinary Members.

COURSE MEMBERS

During Apr-Jun 2024, 163 Officers registered for Course Membership.

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Apr to Jun 2024

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USI RESIDENCY

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Generals and equivalent - Apartment stay

Room rent	₹ 7,500/- spouse stay is inclusive
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(x)

OBITUARY

"Death is certain for one who has been born, and rebirth is inevitable for one who has died. Therefore, you should not lament over the inevitable."

— Bhagwadgita 2.2

The USI of India mourns the loss of Subedar Raja Mani Singh, a cherished member of our organisation, who departed for his heavenly abode on 17th May 2024, leaving a void that cannot be filled. He was not merely an employee but an Institution unto himself and was recognised for his exceptional dedication. He demonstrated unwavering professionalism that inspired us all. His diligent approach to every task and commitment to integrity set a standard for us to follow.

Beyond his professional endeavours, he cultivated camaraderie and brought joy to our workplace. His presence left an indelible mark, and he will be sorely missed. His legacy, marked by the lives he touched and the positive impact he had, will endure.

The USI salutes the departed soul. May he rest in eternal peace.

Editorial

Dear Readers,

It gives me great pleasure to present to you the United Service Institution (USI) of India Journal for the 2nd quarter of 2024. For the past 151 years, the USI has been committed to providing strategic insights on national security and geopolitics to its readers. This issue features 13 well-researched articles on diverse topics, including Small Modular Nuclear Reactors, war crimes in modern armed conflicts, and check dams for Ladakh's water security. In addition, there are three China-centric articles, with the first focusing on Bhutan's border demarcation with China, the second on the Western media's portrayal of the 1962 Sino-Indian War, and the third analysing China's historical thought processes and their impact on its foreign policy. Following which there are two articles which focus on the military lessons to be gleaned from the conflicts around the world. and two contributions on the employment of helicopters and offensive air power. There are also submissions on India's peacekeeping ethos and the creation of a reliable national cybersecurity capability. The Journal concludes with the winner of the USI Gold Medal Essay Competition 2023 focusing on the critical examination of the Ukraine conflict.

The lead article, titled 'Bhutan's Border Demarcation with China' by Major General AK Bardalai, VSM (Retd), addresses the historical Indo-Bhutan relationship, the threat from the People's Liberation Army to the Siliguri corridor, and the need for Bhutan to resolve the border dispute swiftly. This is followed by Professor Amit Gupta's contribution titled 'The Lessons of Ukraine and Gaza' focusing on the teachings from the two wars. He argues that on a close inspection of the two conflicts several lessons have emerged. Though the wars are not the type to be conducted in the future, the takeaways from both are crucial and that they provide India with both opportunistic and cautionary notes for the future.

The third article titled 'Lessons Learnt from Ongoing Conflicts' by Major General Jagatbir Singh, VSM (Retd) and Major General VK Singh, VSM (Retd), delves into the wars in Ukraine and Gaza and the need to develop hard power as deterrence, importance of

weaning away from import dependency and oft-overlooked need for strategic communication using social, print and traditional electronic media. The fourth contribution is by Major General (Dr) RS Thakur (Retd) and Dr Beáta Biliková, titled 'Representation of the India-China War of 1962 in Indian Writing and the Western Media'. It covers how the American and British media represented and reflected upon the 1962 War and highlights certain publications that tried to influence readers to adopt a specific bias towards the conflicts.

Dr Roshan Khanijo's article, 'Can Small Modular Nuclear Reactors Provide Realistic Pathways for Clean Energy' explores the idea of using Small Modular Reactors (SMRs) as a sustainable solution for achieving 'Net Zero Emission' goals by 2050, as highlighted in the United Nations Climate Change Conference. She examines various SMR designs and their potential applications, ranging from land-based to marine environments. It concludes with emphasising the need for a holistic approach to address technical, operational, economic, and legal challenges for the successful commercialisation of SMRs and their integration into the global energy landscape. The sixth contribution authored by Wing Commander (Dr) UC Jha (Retd), 'War Crimes and Modern-day Conflicts' explores war crimes through contemporary and historical lenses, focusing on evolving legal frameworks and accountability. It covers conflicts like Israel-Hamas and Russia-Ukraine, tracing war crimes from the Leipzig Trials to the Rome Statute. The article also discusses key legal instruments, command responsibility, and integrating international standards into national systems for justice.

Colonel Vijay Kumar Goyat's article, 'Check Dams: Solution to the Increasing Water Crisis in Ladakh', highlights the geographical factors which result in low rainfall and, hence, the need for water management through the construction of easy to build and eco-friendly check dams to ensure that the sustainability and tourism needs of the cold desert are met. In the eighth entry by Air Commodore Shirish Dhakate, titled 'Elephant's Trumpet for Taming the Dragon', the author highlights China's historical strategic thought processes that have shaped its foreign policy and examines the linkages to shed light on the drivers behind Beijing's

engagements with its adversaries, neighbours and the world at large. He further brings out that the Indian leadership needs to learn to manage China deftly to defeat them at their own game.

Colonel (Dr) KK Sharma (Retd), in his contribution titled 'Local Community First: India's Enduring Peacekeeping Ethos' highlights the significant contributions of Indian peacekeepers to United Nations Peace Operations, noting their exceptional effectiveness due to strong camaraderie, discipline, and integrity. It also discusses how they support local communities in conflict zones by rebuilding lives and infrastructure through engineering, medical, and veterinary expertise. This is followed by Colonel Suraksh Vir's article, 'Atmanirbhar Bharat: Establishing Credible National Cyber Capability,' which explores the vulnerabilities of cyberspace and how Western nations dominate this realm by controlling systems, technology, services, and software. It also provides recommendations for establishing a credible national cyber capability infrastructure.

In the eleventh article 'Helicopter Operations in Tactical Battle Area', Group Captain Bibhudutta SK Jenamani, VM, examines the role of helicopters in modern warfare, particularly in mountainous regions. He addresses challenges like altitude, terrain, and weather, and discusses the importance of doctrinal clarity, resource availability, integrated operations, and advanced technologies. The article concludes with recommendations for enhancing the effectiveness of helicopter operations in future conflicts. In the penultimate article of this edition, titled 'Offensive Application of Airpower', Group Captain Nitin Nayal, VM, explores the integration of emerging airpower technologies and the coordination between different methods of force projection.

The final article, the winning entry of the USI Gold Medal Essay Competition 2023 by Commandant (JG) Gaurav Sharma (Coast Guard), is titled 'Ukraine War: Military Lessons for India'. It critically examines the military aspects of the Ukraine conflict, discusses its background and geopolitical causes, analyses military strategies, and offers recommendations for the Indian Armed Forces.

The Journal also includes reviews of several select publications:

- 'Bridging Borders: India-Nepal Relations in a Changing Geopolitical Landscape' by Lieutenant General Shokin Chauhan, PVSM, AVSM, YSM, SM, VSM, PhD; Reviewed by Colonel RC Patial, SM, FRGS, PhD.

- 'Grey Zone Warfare: Way Ahead for India' by Lieutenant General Dushyant Singh, PVSM, AVSM (Retd); Reviewed by Major General Jagatbir Singh, VSM (Retd).

- 'War Transformed: The Future of Twenty-First-Century Great Power Competition and Conflict' by Major General Mick Ryan (Australian Army); Reviewed by Colonel R Abhilash.

- 'India's Historic Battles: Imphal-Kohima, 1944' by Hemant Singh Katoch; Reviewed by Colonel RK Sharma (Retd).

- 'Geopolitical Shifts and Opportunities: New Horizons in India and Southeast Asia Relations, edited by Prabir De and Temjenmeren Ao; Reviewed by Ms Surbhi Chakraborty.

We look forward to your feedback and suggestions. The USI acknowledges the financial assistance received from the Indian Council of Social Science Research for the publication of this Journal.

Happy Reading!

Major General Sanjeev Chowdhry (Retd)
Director Editorial

Bhutan's Border Demarcation with China: Impact on Indo-Bhutan Strategic Partnership

Major General (Dr) AK Bardalai, VSM (Retd)[@]

Abstract

The legacy of the Indo-Bhutan relationship goes back by many centuries which has been only growing after India's independence. However, Bhutan getting closure to demarcating its disputed boundary with China is perceived in India as Bhutan compromising India's security despite their years of close relationship. This article argues that geopolitical and internal compulsions of Bhutan and India's obsession with the People's Liberation Army's threat to the Siliguri Corridor has brought both India and Bhutan into an irreversible situation leaving no option for India other than encouraging Bhutan to solve its boundary dispute as early as possible.

Introduction

The Indo-Bhutan relationship is the legacy of Bhutan's relations with Britain when Bhutan first clashed with the colonial power in 1865 and later when the British signed the Punakha Treaty in 1910. This treaty laid the foundation for the Indo-Bhutan strategic partnership which further evolved after India's independence in 1947.[1] Bhutan shares a 605 km border with India. But its 470 km border with China is disputed. Out of 764 sq km of disputed territory, 495 sq km is in the north and 269 sq km lies in the north-western sector near Chumbi Valley. Being glaciated, the northern border with China did not draw much attention until a few years back. However, the north-western boundary is of strategic importance to all three countries.

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Despite 25 rounds of talks, Bhutan's boundary with China is yet to be demarcated. Whenever there is a boundary talk and news of a possible solution, there is speculation in Indian media about its impact on India's security. Out of all its immediate neighbours, India's relationship with Bhutan has been at its best. However, the desire of the democratic government of Bhutan to solve the boundary problem permanently seems to hint that the strategic partnership between Bhutan and India has reached a crossroads. When King Jigme Khesar Namgyel Wangchuck of Bhutan visited India from 03 to 10 Nov 2023, a section of the Indian media portrayed it as Bhutan trying to mollify India on the eve of a possible border deal with China.[2] Bhutan's last Prime Minister (PM) Lotay Tshering's remarks that China and Bhutan were inching towards completing their three-step Roadmap earlier had created fear in the minds of the Indian population about a possible trade-off between Chinese claims in Doklam Plateau (located at the southern tip of Chumbi Valley inside Bhutan and nearby of the tri-junction between India, Bhutan and China) and ones in Northern Bhutan.[3] The comments of the Bhutanese PM to a Belgian newspaper that it was "Not up to Bhutan alone to solve the border problem. There are three of us" were perceived negatively by individuals distant from the truth. Until now, even though it will be logical to conclude that decisions taken by Bhutan on the boundary talks have been in consultation with India, Bhutan has never named India officially. At the same time, China claims that "India has always been the reason for the delay in negotiations on boundary issues between China and Bhutan".[4] Therefore, the Bhutanese PM's public acknowledgement of India's stake in the boundary demarcation should have drawn accolades instead of brickbats.

Such a fear, however, is not completely unfounded because firstly, crammed between two competing powers of Asia, Bhutan on one hand is strategically important to both Asian powers. On the other hand, being a small landlocked country devoid of natural resources, Bhutan's geopolitical location dictated its foreign relations and impacted India's security.[5] Therefore, its destiny is linked to its big neighbours, India and China. It is hence, a geopolitical challenge for Bhutan to delicately balance its position without compromising its sovereignty, while not drawing China's ire or jeopardising its bilateral relations with India, with the background of both these neighbours having fought each other in the past. The

1962 Sino-Indian War, the border clashes in Nathu La and Cho La in 1967, the 1987 Sumdorong Chu standoff, the Doklam standoff in 2017 and the 2020-2021 skirmishes in Galwan in Eastern Ladakh could have easily upset this balance. Secondly, China had offered to forgo its claim over the disputed area in the north in exchange for the Doklam Plateau. The Doklam area is as important to China as it is to India. Straddled by India and Bhutan on either side and the narrowest point is around 20 km, Chumbi Valley is China's 'Achilles Heel'. Any increase in the size of the valley will reduce the distance between the valley and the Siliguri Corridor and will help China's People's Liberation Army (PLA) compensate for its vulnerability to some extent. India and Bhutan have always protested and tried to resist the presence of the Chinese and the PLA outside the valley.

Eyebrows were raised again when India's PM paid a state visit to Bhutan on 22 and 23 Mar 2024 just before India's national elections. According to official statements, this visit was "Keeping with the tradition of regular high–level exchanges between India and Bhutan and the government's emphasis on its Neighbourhood First Policy".[6] Most other national media picked up the thread and followed the line. While a head of government visiting another country just before the all-important parliamentary elections unless it is a national emergency, is intriguing, the aim of this writing is not to find the reasons for the visit but to attach importance to the impact of the boundary demarcation on the strategic partnership between India and Bhutan. Understanding the dynamics of the Indo-Bhutan relationship will however not be complete without discussing the security concerns of India and how the common element – China, impacts this relationship.

China Factor

Bhutan's relationship with Tibet was never particularly good.[7] After its independence and post the India-China War in 1962, as India began to increase its influence in Bhutan, it caused worries for China. To dislodge India from its space in Bhutan, China evolved a strategy, that includes solving the boundary dispute to secure the south-western flank, establishing a diplomatic relationship, resorting to military and non-military activities like intrusion inside the disputed areas, and increasing the scope of bilateral trade with Bhutan.

Boundary discussions have been going on since 1984 and so far, 25 rounds of boundary talks have taken place without making much headway. Both sides came up with different claims and counter-claim lines. All the claim lines of China included the Doklam Plateau. When nothing moved forward, in 1996, China offered to barter its claim over the northern sector against the north-western sector. It also wanted to shift the trijunction from Batang La to Gemoychen. Interestingly, while the talks were on, China gradually encroached inside Bhutan. Encroachment in the northern sector by and large went unnoticed as these are outside the immediate area of influence of the Indian Army. China, however, moved cautiously when it came to Doklam. What happened in Jun 2017 is now history.[8] In the northern area, which is glaciated and difficult to access, China's offer of exchange of territory was not taken

Image 1

seriously. But when China added spiritual content to the not-so-important disputed areas in the Northern Sector, the matrix changed. It was done by illegally occupying the Beyul region in Northern Bhutan for the settlement of Chinese Tibetans.

A vivid description of the Chinese project in the disputed area can be found in the research report of Barnett.[9] Beyul means hidden valley and was concealed by legendary *Guru* (Spiritual Leader) Padmasambhava also known as *Guru* Rinpoche, who is considered the Second Buddha in Bhutan.[10] The legend further goes that the Beyuls are only discoverable by those with heightened spiritual powers. According to local legends, Beyuls are meant for the Bhutanese to take refuge when the world comes to an end. Besides, the father of the first King of Bhutan was born in the Beyul region. Being religious, cultural and for their emotional attachment to their kings, the Beyul region is an area that the Bhutanese are not going to give up.
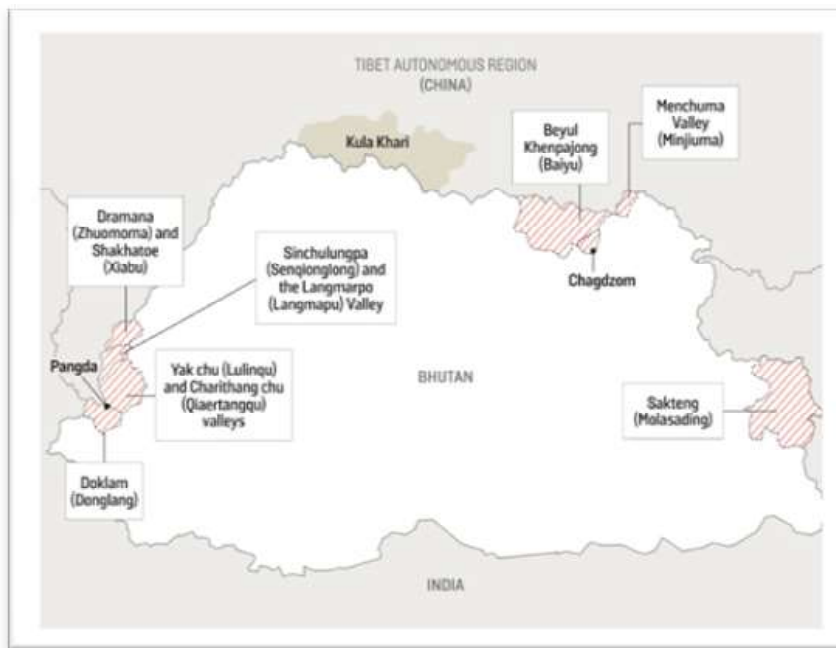

Image 2:

Source: https://foreignpolicy.com/2021/05/07/china-bhutan-border-villages-security-forces/

China claims this region as part of the Tibet Autonomous Region, even though it is inside Bhutan. According to Barnett, Project Gyalaphug or Beyul Khenpajong includes three new villages two already occupied, one under construction, new roads, a small hydropower station, two Communist Party administrative centres, a communications base, a disaster relief warehouse, five military or police outposts, a satellite receiving station, a military base, and up to six security sites and outposts. Incidentally, the work for this village began five years earlier than Pagda village, which came up along the Amouchu River inside Bhutanese territory after the Doklam standoff. By then, work in Gyalaphug was already more than halfway through.
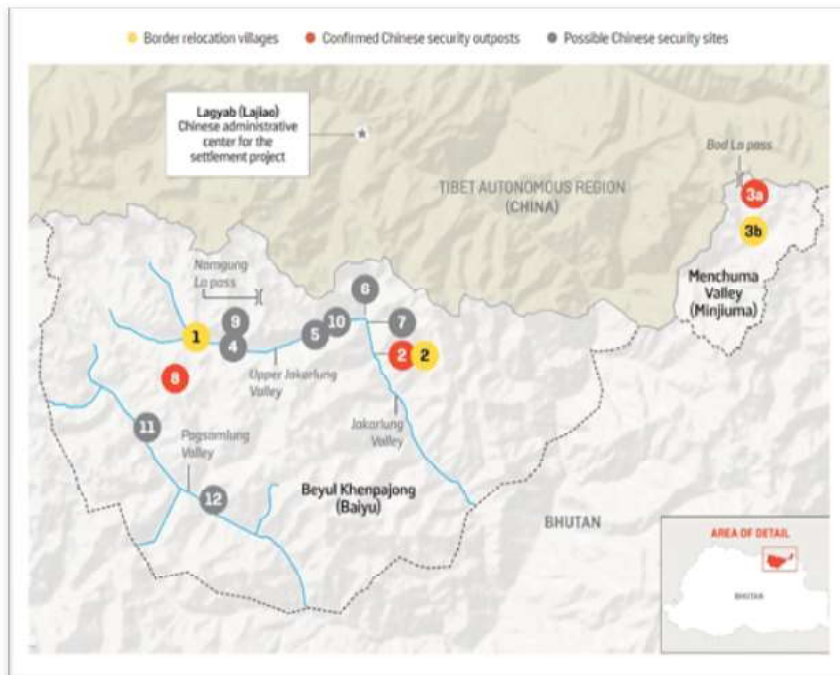

Image 3:

Source: https://foreignpolicy.com/2021/05/07/china-bhutan-border-villages-security-forces/

The second enclave for settlement by China in Northern Bhutan is in Menchuma Valley, around 2 km to the east of the Beyul Khenpajong. 19 square miles in size, this region is at an altitude of more than 14,700 ft and lies in the Lhuntse district. Until now,

it never had settlements, roads, or buildings. The third enclave of Chinese construction is Jakarlung Valley which is west of Beyul Khenpajong.

China had set its eyes on the Beyul region as early as the mid-1950s. There are stories about Tibetan yak herders moving to Bhutan's traditional grazing ground and later claiming the generally uninhabited lands. But one story, as learned from one of the author's reliable friends in Bhutan is slightly different from what Barnett had to state.[11] Four Bhutanese Tibetan families of the Beyul region were entrusted with looking after four yak herds belonging to the noble families. These families used to cross over to Tibet for grazing and were also involved in cattle rustling. Sometime later, two families or maybe all, stole the same herds, which were their responsibility to protect and moved to a village called Lagyab in Tibet. In 1995, the same herders were asked by their Chinese masters to cross over and to go and live year-round in the Beyul region along with their stolen yaks. Later, Chinese media applauded the four nomads' dedication to discovering their sacred land which had been hidden since ancient times.

The areas of the Beyul region under Chinese occupation are not very far from Bumthang, which is almost midway on Bhutan's west-east lateral and known as the cultural and religious heartland of Bhutan. Further slicing of the Bhutanese territory will present a new security threat to Arunachal Pradesh from the west. Other than the Doklam, all areas are outside the immediate area of direct influence of the Indian Army. Since Doklam has always been at the centre of discussions on the threat to the Siliguri Corridor, it needs some explanation.

Siliguri Corridor and the threat

PLA's threat to the Siliguri Corridor is not new. According to Claude Arpi, the French Tibetologist, way back in 1948, Harishwar Dayal the then political officer of India to Sikkim stated that Chumbi Valley was a threat to India's Siliguri Corridor and, hence, India must occupy the valley.[12] Because of its geographical location, the Chumbi Valley is vulnerable to military threats from a probable collusion between India and Bhutan. With his statement, Dayal made the PLA threat to the Siliguri Corridor and the Indian Army's threat to the Chumbi Valley public, creating fear and leaving room for varying interpretations of the threat. It is a military compulsion

for the PLA to enlarge the size of the valley as far as south as possible to reduce the threat from the Indian Army, which is currently occupying heights on the mountains that dominate the plateau. This is why Doklam was always part of all claims that China has made so far. As for India, shifting tri-junction is not negotiable. Was there a common point that all three countries could agree on? The author believes that there was, but the time has passed.

As for India, the closer the enemy the bigger the threat. However, since 1948, time has changed, and the gravity of the threat is not what it was earlier. On the contrary, the PLA on the plateau is vulnerable to the Indian Army. To mitigate this threat, China either moves further south to higher heights like the Jampheri Ridge (the watershed ridge bordering India and overlooks the Siliguri Corridor) or extracts assurances from India that there will be no military invasion of the valley by establishing a diplomatic relationship and demarcating the boundary along the line where the PLA is sitting now.

It is worthwhile to share what a common Indian citizen feels about the threat to the Siliguri Corridor. Sometime back, when the author was returning from North Bengal University, Bagdogra to catch his flight from Bagdogra airport, he engaged the cab driver in a casual conversation. The driver explained to the author about the new road from Kolkata and amplified the description by highlighting the importance of the Siliguri Corridor and China's threat to it. When asked what he thought about the threat, he stated, "*Aab woh time nahi raha* (the old time has changed)". The citizens have faith in the Indian Armed Forces to confront any remaining threat posed by the PLA. It is a matter of pride for the man in uniform to believe in it and acknowledge it publicly. Not believing in their capability and not admitting it may mean something else.

Option for India

Even though China's offer of exchange of territory is still open, after having invested economically and militarily in the occupied areas, such an option should not be taken seriously. Because, apart from the fact that Bhutan is not in a position to stand up to China, which has already built its military infrastructure on the Doklam Plateau. Therefore, there is no compulsion for China to follow through with the offer any more. What remains for Bhutan is to bargain for

something else in return for the Beyul region. Besides demarcating the boundary, China's conditions if it still wants to, can include anything from establishing a diplomatic relationship, increasing bilateral trade or even compelling Bhutan to be a part of the Belt and Road Initiative project.

By occupying the unauthorised territories in the north-western sector, in the northern sector, along the Amochu River, and staking a claim on Sakteng Life Sanctuary, China has now checkmated India.[13] The strategic pincer by China can be compared with using pressure points in the human body to either relieve pain or immobilise the body. Responding to China's strategic signal does not leave much choice to India other than preventing China from further encroachment. China has benefitted from the American playbook about strategic outmanoeuvring rather than challenging the enemy on the field.[14] If war is not an option, India must encourage Bhutan to demarcate the boundary with China to avoid further compromising India's security as early as possible.

Conclusion

India and Bhutan's relationship has grown over the past decades. Bhutan has always stood by India in its difficult times and held a strong position in support of India's security when it came to mending relations with China. The singular factor has been India's fear of the PLA threatening the Siliguri Corridor. India's security establishment's obsession with the threat to the Siliguri Corridor has trapped India and Bhutan in a non-retrievable situation. The presence of a threat factor helps to establish an appropriate response mechanism. But too much of it will impact the larger security interest of the country. Besides, war-fighting has changed. The need for the PLA to physically occupy Jampheri Ridge to threaten the Siliguri Corridor is no longer driven primarily by the aim of peering deep into Indian territory, as this can be done from a distance, using modern technology. It is more to mitigate the threat to the PLA troops positioned on the Doklam Plateau and Chumbi Valley from the Indian Army, and force Bhutan's hand to end the dispute by demarcating the boundary. Despite the irreversible situation of the Indo-Bhutan partnership is now at a crossroads, is it possible to pick up takeaways for the future? There can be many. But a few important ones are: firstly, no part of the territory or ground is not 'Strategically Not Important'. Creative use

of strategy can change a seemingly unimportant ground to strategically important ground; secondly, policy and strategy take years to evolve and hence must be pursued by successive institutions despite differences; thirdly, the formulation of such a strategy always factors in security inputs from the uniformed community. Therefore, the inputs must be based on larger security interests and not influenced by individual needs to survive and remain relevant. For this, the uniformed community must be well-informed and well-read. This will help them provide honest input; fourthly, as mentioned by Henry Kissinger in his book 'On China', 'Far better than challenging the enemy on the field of battle is manoeuvring him into an unfavourable position from which escape is impossible'; fifthly, if the demarcation of boundaries helps avoid war, boundaries should be demarcated provided it does not make one weaker. On the other hand, be mindful that if not demarcating the boundary makes one weaker, then demarcate the boundary post haste; sixthly, in the context of China and India military balance, there is a need to reassess the PLA threat to the Siliguri Corridor and recommend options for optimal utilisation of the Indian Army troops currently deployed in that sector; finally, the search question is, has India done enough to nurture and strengthen the bilateral relationship with India's immediate neighbours or does more need to be done?

India needs Bhutan more than Bhutan needs India!

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The Lessons of Ukraine and Gaza

Professor Amit Gupta[@]

Abstract

In the West, the Ukraine and Gaza Wars have been viewed by the power elite as a necessary extension of Western power politics. Viewing the progress of these wars, several lessons emerge about the conduct of future warfare. What this article argues is while some of the lessons of these conflicts are important, for economic reasons these two wars will not be typical of future conflicts. For scholars of modern warfare, therefore, these wars provide both opportunities and cautionary notes about what to do in future conflicts.

Introduction

Carl von Clausewitz is best remembered for writing that war is a continuation of policy by other means but in the case of both Ukraine and Gaza the more relevant quote may be that, "War has its own grammar but not its own logic". In the West, the Ukraine and Gaza Wars have been viewed by the power elite as a necessary extension of Western power politics. But, if India looks at how these wars have progressed, several lessons emerge about how to conduct a war in the new millennium. These lessons are important since these two wars are not necessarily the type of conflicts that will be typically conducted in the future but some takeaways from both conflicts are important. From an Indian perspective, do these wars provide both opportunities and cautionary notes about what to do in future conflicts?

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The High Cost of War

Both the Ukraine and Gaza Wars have been lavishly bankrolled by the West, particularly the United States (US). As the Kiel Institute for the World Economy's Ukraine support tracker points out, the country has received approximately USD 95.0 bn from the European Union and USD 71.5 bn from the US to fund its war effort.[1] These sums include military assistance, humanitarian aid, and assistance to pay the salaries of Ukrainian civil servants. Additionally, the US will give another USD 61.0 bn while the European Union is committed to providing another USD 87.3 bn in assistance to the Ukrainians. This does not cover the cost of future reconstruction which the World Bank has put at USD 486.0 bn and Ukrainian sources put closer to USD 700.0 bn. In other words, after Iraq and Afghanistan this is going to be the world's third trillion-dollar war.

In the case of the Gaza War, the costs have been equally high. Israeli sources claim that an Iron Dome missile, used to take out the Hamas rockets reportedly cost USD 60,000 per missile but some dispute this claim. In contrast, a Hamas rocket is estimated to cost USD 600, roughly one per cent the cost of an Iron Dome missile and Hamas was able to swamp the Israeli system by simply firing thousands of missiles at it, which led to some getting through.[2] Israel has also used drones and precision-guided munitions to inflict damage in Gaza and like Ukraine, it will benefit from American largesse. The US has approved a USD 26.0 bn aid package for Israel and this includes, supporting current US military operations in the region, replacing defence articles that were provided to Israel, reimbursing the Department of Defence for defence services and training provided to Israel; and procuring Israel's Iron Dome, David's Sling, and Iron Beam defence systems to counter short-range rocket threats.[3]

Very few nations in the world have the ability to sustain such an expensive war and instead, much like Ukraine and Israel, they will require substantial donations of weapons and funds from other countries. The question is, can the Europeans and the Americans provide such kinds of assistance to other nations or are they spent in terms of their ability to supply weapons to other nations? JD Vance, the American senator from Ohio, convincingly spelt out why this was not going to be possible.

Vance pointed out that the Ukrainians claimed to need between 4 to 7 million 155 mm artillery shells per year, but the US could only provide 3,60,000 shells per year—less than ten per cent of the Ukrainian requirement. Similarly, to counter the thousands of guided aerial bombs, drones, and missiles that Russia was launching at it, Ukraine required thousands of very expensive Patriot missiles (approximately USD 4.0 mn a piece) but the US annually produces only 550 missiles.[4]

The North Atlantic Treaty Organisation's production capabilities are worse than those of the US because for decades the European nations benefitted from the peace dividend and allowed their military production capabilities to decline. Today, Czechia is leading an initiative to produce a million artillery shells for Ukraine, but that would merely cover one hundred days of high-intensity war. Perhaps what was more laughable was the Danes announcing with great fanfare that they were giving 15,000 artillery shells to Ukraine, but these shells would only cover 36 hours of warfare for Kyiv. Wars of these types are hugely expensive and it is clear that the West does not have the wherewithal to logistically support such wars.

Stockpiles Matter

The second lesson from the two wars is that there is a need to have large stockpiles of weapons that can be used by the armed forces. Both the Russians and the Ukrainians have gone around the world buying weapons and ammunition from whoever can supply them and have paid inflated rates for these armaments. The Russians, who have a much larger military industrial base, had to go to North Korea for artillery and missiles and to Iran to get Medium Altitude Long Endurance (MALE) drones. Ukraine, similarly, got Turkish drones and through crowdfunding bought sizeable numbers of first-person view drones and in the initial phase of the war wreaked havoc with these cheap systems. Modern militaries, therefore, can no longer go with low stockpiles and, instead, will have to keep up to six months of munitions in reserve since they cannot depend on allies or the arms market to fulfil their requirements.

Revising Doctrine and Tactics

Ukraine and Gaza have shown that the old ideas of how to conduct warfare are being rapidly rewritten as drones, missiles, and glide bombs are dominating the landscape of modern wars. Despite having the Iron Dome, Israel could not stop the Hamas attack or take out all the cheap rockets that were launched from Gaza. Ukraine has shown that drones disrupt large formations and leave traditional instruments of land war, like tanks, particularly vulnerable—as can be seen in how the Russians have blown up both Leopard and Abrams tanks which had the reputation of being difficult to destroy. Further, the Houthis, Hezbollah, and Hamas have all shown how lethal drones can be because the West, Ukraine, and Israel have spent a fortune shooting down these relatively cheap weapons systems that are made with off-the-shelf components. Iran's attack on Israel was largely with slow-flying drones and old ballistic missiles. But it took 154 aircraft (American, British, and Israeli) firing expensive Sidewinder missiles to shoot down the bulk of these drones. As the American scientist Theodore Postel has written, an Iranian drone costs between USD 10,000 to USD 20,000 while a cruise missile may be around USD 1,00,000 but the Sidewinder Aim-9x is a USD 5,00,000 missile so the West and Israel probably spent between USD 2.0 to 3.0 bn to intercept the Iranian weaponry.[5] Poorer nations, therefore, are going to use weapons that are cheap to manufacture and cause headaches for national defences. Armies everywhere will, therefore, have to change their playbook to counter these systems.

Winning the Narrative

Unlike previous wars, Ukraine and Gaza have shown the vital importance of shaping the narrative to get global public opinion on one's side. Ukraine did a great job of doing this by using social media to successfully make the Ukrainian case to international public opinion. This was largely done by young Ukrainians who posted on social media platforms and were even able, for a while, to create urban myths like the Ghost of Kyiv fighter pilot who was shooting down Russian aircraft. It turned out that the Ghost was actually a video game.

In contrast, Israel was not able to determine the narrative in the Gaza War even though initially there was international sympathy for the Israelis. In the past, thanks to the support of the US, Israel

was able to prosecute its wars against the Arab states and the Palestinians largely on its own terms and with little interference from the rest of the world. In the past, an American veto in the United Nations, a friendly Western media that permitted the Israeli narrative to be the dominant one in the global press (where the issue was generally portrayed as Palestinian terrorism against innocent Israelis), and the fact that the Palestinians were unable to effectively voice their case, made it a situation where the coverage became one-sided and the Palestinians disappeared from the view of the international community.

In this war, however, the media monopoly of the West, which overwhelmingly supported Israel, failed as the Palestinians were able to convincingly make their case on social media like TikTok, Telegram, and YouTube. This along with a generational shift in the US on how to view Israel has created a situation where nearly 33.0 per cent of young people support an end to genocide and an immediate ceasefire and the world has seen protests in university campuses across the US. Further, in the international community, there was a willingness to appreciate the genocide perpetrated on the Palestinians—especially as graphic video emerged from Gaza of the deaths of women and children. This has led to global support for a cease-fire and a long-term solution to the problem, preferably a meaningful two-state solution. Future wars, therefore, will also require winning the hearts and minds of the international community and not through the traditional means of using mainstream media. Instead, it will require, as in the case of Ukraine, harnessing the skills of young people who are in tune with the latest social media tools and know, intuitively, how to work with the new media to get the best results.

War has its own Grammar but not its own logic

Clausewitz observed that while war may have its own grammar, it does not have its own logic. In international circles, the bulk of the discussion on the Ukraine and Gaza conflicts centres on how to conduct the wars. Very little has been written about war termination and what a future end state in Ukraine and Gaza should look like. Both the Ukrainian and Israeli governments need to spell out what they see as possible end states to the conflict that they can live with—and that would require moving away from maximalist positions that the other side will never agree to. Ukraine

must espouse a long-term solution for living with Russia and the West cannot go back to mouthing platitudes about a two-state solution for Israel and Palestine (Israel has already rejected this proposal).

In both cases, the fact is that without an end state not only can peace be negotiated, but it only means that either conflict could once again flare up with adverse consequences for both Ukraine and Israel. Since the war started, Ukraine's population has shrunk from around 43.0 to 35.0 million and one can only wonder how many of those who left the country will return to a war-ravaged economy with little prospects of employment. Similarly, in Israel where there is no concrete peace settlement one has to wonder if the hundreds of thousands of Israelis with dual nationality will continue to stay in a country where Israel's image of invincibility has taken a beating and instead, people are left to wonder when the next 07 Oct 2023 style attack will be repeated?

An Economic Shift?

Lastly, India is seeing the start of an economic shift in the global system brought about by the Ukraine War. Sanctions on multiple countries, the problem with using the Dollar to trade and make payments, and the confiscation of assets held in western banks are leading to preliminary action being taken to make countries less vulnerable to the Western-created international economic system. These measures include the move towards the association of Brazil, Russia, India, China, and South Africa currencies, the greater economic cooperation between Russia and China, and the fact that heavily sanctioned nations like Iran, North Korea, and Russia are increasingly working with each other and China to defy the West. Thus, despite all the sanctions on Russia its economy is growing and the Russian arms industry has seen a renaissance in its abilities.

Conclusion

For a country like India, these lessons are of great importance. In a future war, the country will not receive unrestricted aid and large stockpiles of weaponry from the West. And even if it does get some, the political cost may be too great for the Indian government to accept. Further, one cannot ignore the military lessons of these two wars. Ukraine is showing that while artillery, armour, and

even landmines matter, new tactics must be adopted. Part of this would include a coherent drone policy to buy both First Person View drones as well as MALE drones for all three services. The Hamas attack is probably being studied very carefully in Pakistan to try and see what is applicable to an India-Pakistan conflict. Lastly, starting a war without an endgame is something India cannot afford. Unlike Ukraine and Israel, it does not have a benefactor like the US or the European Union and will have to depend largely on itself. While this is acceptable, it does mean that realistic choices on war initiation, war continuation, and war termination will have to be made.

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The World Grapples with Ongoing Conflicts

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Abstract

As global tensions rise, countries need to draw appropriate lessons from the two ongoing conflicts. The wars in Ukraine and Gaza has some lessons applicable to the Indian context, and the article tries to draw some of these major takeaways for India, including the need to develop hard power as deterrence based on military capabilities to include weapon systems, backed by the resolve to use their military. The other major takeaway is that India needs to wean away from import dependency. While the pursuit to infuse technology in the war-fighting system indeed remains an enduring one, self-sufficiency in critical technologies and investment in research and development are inescapable strategic imperatives. Another dimension of the war is strategic communication, and there are various communication strategies for social media, print media, and traditional electronic media that are managed at the national level. India needs to develop them.

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Introduction

Following on the heels of the protracted Ukrainian War, the horrific attack by Hamas on 07 Oct 2023, and the subsequent Israeli retaliation has now changed the existing security architecture across the globe. Volatility, uncertainty and ambiguity now seems to be the norm, and this only appears to be multiplying with the looming threat of tensions in the South China Sea, with Taiwan casting its shadow on future landscape. In the Indian context, four years after the night of savagery in Galwan, relations with China remain strained, and troops remain deployed in a tense standoff, as the main issue regarding Chinese intrusions into territory under Indian control is yet to be resolved but also because the fallout of mutual suspicion is creating new cycles of tension.

After the dramatic swings in territorial control during 2022, when the Ukrainian military managed to recapture parts of the Kharkiv region and the city of Kherson, the war settled into a positional and attritional grind in 2023, with both the tempo of operations and the intensity reducing.

The Gaza war is also showing no signs of concluding, despite repeated calls for a ceasefire. The worldwide focus is now on the humanitarian crisis that Israeli actions have unleashed. Despite international pressure, the situation in Rafah is dire, with nearly a million Palestinians displaced and living in tent camps with limited access to basic necessities like food, water, and sanitation. The humanitarian crisis has been exacerbated by a significant decline in the delivery of essential supplies, including food, fuel, and other necessities, to the United Nations and other aid organisations. The Israeli military's offensive in Rafah has resulted in numerous fatalities and injuries, and the situation is heart-wrenching for the Palestinians living there.

However, these wars have brought out issues regarding great power conflict, and the capacity to wage protracted wars while pursuing a strategy focused on attrition. It was believed that an interconnected global world would not permit protracted conflicts, but an analysis of conflicts post-World War II including these two seems to disprove that theory.

In today's world of war-fighting, those physically fighting are probably the smallest players. Those standing on the sidelines are the bigger players, but those nowhere near the war zone, who are both the perpetrators and the beneficiaries, are the biggest players.[1] As global tensions rise increasingly, countries need to draw appropriate lessons from these conflicts. India has attempted to draw some lessons as applicable in its context but at no stage can this list be taken to be all encompassing.

The wars in Ukraine and Israel are different in multiple ways but yet share commonalities. The world is increasingly being confronted with both symmetrical and asymmetrical concerns that can escalate into serious challenges.

Lessons for India: Fighting a War of Attrition

The world is witnessing two 'Attrition Wars' fought with a 'Force-Centric' approach, unlike wars of manoeuvre which are 'Terrain-Focused'. They are rooted in massive industrial capacity to enable the replacement of losses, geographical depth to absorb a series of defeats, and technological conditions that prevent rapid ground movement. In these wars, military operations are shaped by a state's ability to replace losses and generate new forces, not tactical and operational manoeuvres.[2]

As conflict drags on, the war is won by economies, not armies. Economies that enable mass mobilisation and sustainability, backed by a strong military industrial complex will prevail.[3] This is because forces expand rapidly during such conflicts, requiring massive quantities of war-fighting hardware to include armoured vehicles and artillery, drones, electronic products, and other combat equipment. And two more prerequisites, a well-trained manpower and ammunition for all the assorted weaponry.

High-end weapons have exceptional performance but are difficult to manufacture and sustain, and they also require highly trained professional troops. Military operations in an attritional conflict are also distinct from those in a war of manoeuvre. Instead of a decisive battle achieved through rapid manoeuvre, attritional war focuses on destroying enemy forces and their ability to regenerate combat power, while preserving one's own.[4]

The Myth of Short and Localised Wars

The Ukraine War has upended many of the theories of war, including the one that states modern wars will be short, swift, and localised.[5] Why is this war dragging on? The fact is that the war has not reached its logical conclusion yet. Similarly, it is stated repeatedly that wars will be localised. Again, this too is a myth. Both Ukraine and Gaza have the capacity of sucking-in the whole region into the conflict if not more. Iran is already partially 'In'.

Many wars, of course, do last longer. There are many reasons why compromises fail to take place. These could range from public opinion against a compromise, to leaders thinking that a compromise is defeat, which could threaten their own position. Sometimes there could be a lack of understanding of one's own strength and that of the enemy, leading to underestimating the damaging consequences of the conflict. All these factors have kept the war going.

Of course, the above reasons are rooted in a situation where there is not a clash of ideologies such as communism versus capitalism and autocracies versus liberal democracies or on religious grounds. Peace is impossible if ideological barriers prevent negotiations. Such values and ideas will continue to play a leading role in the wars waged in the future.[6]

India fought a war in 1971, being a classic case of 'Manoeuvre' and a short and swift campaign achieving its desired objectives. On the obverse, there's a continued deployment and standoff, both on the Line of Control and the Line of Actual Control.[7]

Wars are not only fought with external enemies. They can also be fought with internal enemies. Kashmir is an example. Sri Lanka is another example. A small country, both economically and militarily weak, showed the world its moral strength. While the world called it genocide, every human rights organisation thundered with alarm bells, but the Sri Lankan Army stopped only after the last man standing had been taken care of. Such internal conflicts too, sometimes defeat timelines.

India cannot be bound by stereotypes. The era of long wars is back. Therefore, India must recognise the multiple implications and relook at all aspects, which vary from recruitment, and mobilisation, to force sustenance and developing war-fighting doctrines.

Need To Develop and Sustain Hard Power

At its core, war is about power, who has it, who does not, and who can effectively use it. General Manoj Pande, the Chief of the Army Staff, has clearly stated, "The current Russia-Ukraine conflict provides some very valuable pointers. The relevance of hard power stands reaffirmed with land continuing to be the decisive domain of warfare and the notion of victory still being land-centric". Countries need to develop hard power as deterrence based on their military capabilities to include weapon systems, backed by the resolve to use their military.[8]

Long-range precision strikes have proved that distances do not guarantee safety, and air is no longer dominated just by manned aircraft. There is so much more. Technology has emerged as a new strategic arena of geopolitical competition. However, come what may, the fact remains that an army needs boots and tracks on the ground.[9]

The very appearance of tanks over the horizon has a psychological impact on the enemy. Their employment is a fine art honed by meticulous planning and training. To seize and hold ground, you need armour and infantry. The war in Ukraine has not revealed anything fundamentally new about the tank. It has confirmed old lessons and reflected the challenges of armoured warfare. When there is peace the issue of armour getting redundant comes up time and again, but the moment there is war, countries want armour, as witnessed in Ukraine. The same is the case in Ladakh, where armour has been moved up, especially post-Galwan.[10]

Since the end of the Cold War and the advent of US-Russia arms control, the threat of nuclear weapons has become less salient. However, there has been certain signalling of nuclear weapons by Russia. US President Joe Biden also declared the risk of a nuclear armageddon to be at its highest level, bringing the nuclear issue firmly back to the forefront.[11] Are nuclear capabilities the ultimate guarantor of national security? India has two nuclear-armed neighbours, necessitating a constant vigil.

Globalisation and changes in technology have made it cheaper and easier for goods, services, and information to flow across borders and advance interconnectedness between countries,

relationships such as alliances and trade networks have become as important to any assessment of national power as capability-based measures.[12] Though interdependence can be a double-edged weapon, in today's world, when two states compete, the one with stronger and more robust relationships may retain the upper hand, even in the face of capability imbalances. Hence, relationships matter.

Self-Reliance Crucial to Sustaining and Winning Wars

One of the major takeaways is that India needs to wean away from import dependency. While the pursuit to infuse technology in the war-fighting system indeed remains an enduring one, the conclusion that we can draw is that self-sufficiency in critical technologies and investment in the Research and Development sector is an inescapable strategic imperative. The security of India cannot be outsourced.[13]

Inadequacies in military-industrial complexes have come to light. As per the reports, North Korea has transferred more artillery ammunition to Russia than the West has been able to supply Ukraine. Further, the monthly consumption of some munitions is much more than can be produced in a year.

Therefore, the reserves of ammunition are the greatest lesson one needs to learn from the Ukraine conflict. India has been cutting down the holding of reserves, this will need to be rethought. Not only are reserves required, but also the industrial base to produce more at a pace the war necessitates.

During the war, global supply chains are disrupted, and subcomponents may become difficult to obtain. Added to this is the lack of a skilled workforce with experience in a particular industry. The bottom line is that India must take a hard look at ensuring peacetime excess capacity in its military-industrial complex, or risk losing the next war.

Recently, the Army Chief stressed the importance of self-reliance in the defence sector and called for the infusion of technology into war-fighting systems. Under this endeavour, major initiatives are underway to transform the Indian Army into a modern, technology-driven, *Atmanirbhar* (Self-reliant) and battle-worthy force, so that India can execute its operational mandate more effectively.[14]

However, real *Atmanirbharta* will be achieved only when India can produce its own military requirements for the army, navy, and air force, in terms of hardware, software, arms, and ammunition. The Indian military support system must have a surge capability that can sustain military requirements even in a long-drawn conflict. Till that self-sufficiency is reached, India must enhance the war wastage reserves to a minimum of 60 days at an intense rate.

The Right to Precision

Precision is not only vastly more efficient in the effects it delivers but also allows a force to reduce its logistics tail and, thereby, makes it more survivable.

Precision weapons, however, are scarce and can be defeated by Electronic Warfare (EW). To enable kill chains to function at the speed of relevance, EW for attack, protection and direction finding is a critical element of modern combined arms operations. Sequencing fires to disrupt EW and create windows of opportunity for precision effects is critical and creates training requirements.[15]

The experience in Ukraine clarifies some of the critical effects of a contested Electro-Magnetic Spectrum (EMS). Military discourse has focused on the problem of EMS denial. The war provides a better canvas to assess the impact of EW on armies with appropriately resilient systems, tactics, techniques, and procedures.[16]

Denial can be achieved for a short period, or across a limited geographic area. However, any kind of targeted denial of bands of the EMS can be evaded by altering frequencies.

Left uncontested, EW slows kill chains and most importantly, degrades precision. The inability to determine accurate locations, let alone transmit timely data on target locations, or for munitions to achieve precise impacts against targets, all risk a force losing competitiveness against an opponent.[17]

As Lieutenant General Raj Shukla (Retd), the former Army Commander of Army Training Command said, "The Indian military needs to evaluate the entire challenge of precision weaponry and upgrade its capacities". However, for precision munitions to function properly, it is essential to actively contest the EMS.[18]

Requirement of Trained Manpower

Manpower costs are increasingly becoming unmanageable. Despite progressing from third to fourth-generation weapon technologies in the short span of about two decades, modern armed armies are still far from being able to effect substantive reductions in manpower. A case in point being the North Atlantic Treaty Organization armies downsizing at the end of the Cold War which has now exposed their hollowness.[19]

Military manpower is increasingly becoming more expensive to recruit, train and retain. Modern technology may enable industry to reduce manpower, but similar benefits cannot be applied to the armed forces, where 'Boots on the ground still matter'.[20] Some analysts fear that while Ukraine may not have trained soldiers to man the weapons received from the West. Training also has various levels ranging from individual, crew, sub-unit, unit, and formation level training. At the end of the day, weaponry is not everything, you need a man behind the weapon.

Strategic Communication

Strategic communication forms an important component of today's battlefield. Social media and digital manipulation are the new tools of misinformation. It is getting increasingly difficult to distinguish the 'Truth'. The very 'Rules of War' have changed. The role of non-military means of achieving political and strategic goals has grown, and, in many cases, they have exceeded the power of force.

A relevant lesson is that in conflicts, public support for the conflict often hinges more on perceptions of the campaign's success than it does on casualties and loss of territory. Non-state groups have also used this power. There must, therefore, be various communication strategies for social media, print media and traditional electronic media that are managed at the national level.[21]

Conclusion

Wars often do not end until both sides are convinced that they are better off coexisting with their enemies than confronting them. Countries need to be well-prepared to face the future. The ongoing wars have once again brought to the forefront deterrence by

developing hard power, backed by a strong military-industrial base to ensure a fair degree of self-reliance.

While India is faced with territorial disputes with two of its neighbours, the challenge lies in balancing the developmental and welfare needs with those required to be spent on security. The country, therefore, needs to balance the two requirements while building on its hard power which is reflected not only in troop strength but also technology, capability and operational readiness backed by doctrines and resolve. India cannot afford to lower its vigil.

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Representation of the 'India-China War of 1962' in Indian Writings and the Western Media

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Abstract

On 26 May 2023, the author delivered a talk on 'India-China War of 1962' during the Conference on 'Nationalism, War and Defeat' held at the University of Copenhagen. This article, an expansion of the above talk, is an outcome of the research carried out by the author jointly with Dr Beáta Biliková, Assistant Professor at the Faculty of Applied Languages, University of Economics in Bratislava. Dr Biliková with her expertise on applied linguistics, textual and critical discourse analysis, has covered how the American and the British media represented and reflected upon the war and highlighted some evaluative representations that tried to influence readers to adopt a specific bias towards the conflict. The 1962 India-China war is a significant event in Indian history, marking its only modern military defeat. Despite the importance of this conflict, key figures like Defence Minister VK Krishna Menon and military personnel did not leave behind memoirs. This article delves into Indian writings on the war and examines how Western media, particularly in the United States (US) and United Kingdom (UK), portrayed the conflict. Indian perspectives, ranging from military officers to historians, offer diverse insights into the war's

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causes and consequences, while Western media framed it within the broader context of the Cold War, emphasising ideological tensions and strategic interests. The US press focused on strategic gains, while the UK press highlighted moral and historical dimensions, reflecting complex narratives of politics, ideology, and colonial legacies. Overall, both Indian and Western perspectives underscored the war's long-term implications for Asian security.

Introduction

On 20 Oct 1962, India was taken by complete surprise politically, diplomatically and militarily and caught unprepared when China's Peoples' Liberation Army attacked Indian Army positions in the Ladakh sector. The war, which started with baffling suddenness and lasted for about a month, ended with equal swiftness on 21 Nov 1962, when China declared a unilateral ceasefire. The Indian Army suffered 9,743 casualties, including 1,423 killed, 3,078 wounded, 1,655 missing believed killed and 3,587 Prisoners of War (PoW). The country suffered its only military defeat in modern times and it impacted every Indian; from the Prime Minister to the common man.[1]

Numerous books, memoirs and articles have since been written by Indian historians, military men and academicians to describe various aspects of the 1962 war. Some bureaucrats, journalists and correspondents, associated with the war, have also written on it.

Indian Writings on the India-China War of 1962

Although a large number of books and other writings by Indians are available on the Indian defeat in 1962, strangely, some key functionaries of the war such as the then Defence Minister VK Krishna Menon, the Chief of Army Staff General Pran Nath Thapar and the Army Commander Eastern Command, Lieutenant General LP Sen did not pen down their experiences for posterity and lesson-learning.[2] However, some senior army officers have written books highlighting their views and experiences. These include Lieutenant General BM Kaul, Major General DK Palit, Brigadier JP Dalvi and Brigadier Darshan Khullar, who had taken part in the conflict. Lieutenant General BM Kaul, who was commanding 4

Corps during the conflict, and was much blamed for his failures, wrote 'The Untold Story' in 1967, which largely focused on covering his blunders while blaming others for the debacle against the Chinese.[3] Brigadier JP Dalvi, who was commanding the 7 Infantry Brigade and was taken as PoW, along with 26 other personnel, wrote the 'The Himalayan Blunder'. The Curtain Raiser to the Sino-Indian War of 1962. His book highlighted the bravery of Indian soldiers on one hand while criticising the political establishment of the time for overlooking the defence preparedness of the nation on the other.[4]

Many more authors, not directly associated with the conflict, have also written about this event. Sarvepalli Gopal has written that the then Indian President, Dr S Radhakrishnan, had a poor opinion of Krishna Menon and was instrumental in getting the latter removed from the Ministry of Defence in the course of the war.[5] Jaswant Singh was of the view that the decision of the Indian government to adopt a forward posture, based merely on the recommendation of the Intelligence Bureau, without taking the considered view of the Indian Army, was flawed and contributed to the miscommunication between India and China.[6] JN Sahani in his 'The Lid Off: Fifty Years of Indian Politics 1921-1971' writes that the reliance by Nehru to resolve issues of national security through diplomacy had proved fatal for India.[7] Another interesting book, '1962: The War That Wasn't' by Shiv Kunal Verma, gives a detailed account of outside interference in the postings and promotions of senior Indian Army officers, that severely undermined the professional competence of the field formations at the critical juncture.

Representation of the War in the Western Media

The representation of the India-China War of 1962 in the Western print media reflects a viewpoint relevant to India due to the political implications that derive from it.[8] The second part of the article aims to explore how individual components and tools of discourse contributed to the representation and/or reconstruction of events.[9]

The authentic material for the analysis of the war's coverage in the United States (US) and United Kingdom (UK) Press in 1962 was predominantly retrieved from 'Newspapers.com' which is the largest online archive of digitised newspapers giving access to more than 924 million pages of historical newspapers from around 24,600 newspapers published in the US and other countries.[10]

Representation of the War in the US Press

The US press tended to represent the India-China War either as a clash of 'Communist' and 'Neutral' ideologies or a clash between Indian and Chinese nationalism 'In an area of historically vague frontiers'. On 21 Oct 1962, 'The News and Observer' stressed that both the Eisenhower and Kennedy administrations conceived of the Cold War in Asia as determined by 'The rivalry between India and Communist China'.[11] On the other hand, the 'Statesman Journal' of 22 Oct 1962, pointed out it was simply 'The conflict of the Indians versus the Chinese rather than of Neutrals versus Communists'.[12]

However, a certain ideological element had been perceived as present no matter which of the two views was preferred. The ultimate aim of China, as the Statesman Journal believed, was 'To disrupt India's economic development'. At the same time, the Statesman observed that "No area is of vital interest to either country, in economic or population terms. But there is a nationalistic principle involved".[13] The ever-present ideological element is reflected in the fact that the toponym China is in the researched newspapers usually used in combination with the attributes 'Red' or 'Communist'. Some newspapers are more consistent than others in the use of phrases like 'Red China' or 'Communist China', but the high frequency of such expressions indicated the preoccupation of the US press with the significance of the war's ideological background.[14]

The main concerns of the then-US press were the fear of a big Asian war, a possible use of the 'Atom Bomb', the ambiguous role played by the Union of Soviet Socialist Republics (USSR) along with its motive, and the impact of the India-China war on the global political constellation. Americans seem to have considered the war in question, and their involvement in it, as one of the strategic moves in their global political game of chess. At the same time, it was not generally perceived as a major matter. The Des Moines Register of 21 Oct 1962, labelled it as one of 'the world's 'Pocket-Wars', albeit the one with 'By far the most explosive potential'.[15]

Contemplating the mistakes of India's administration, the 'Bayonne Times' of 25 Oct 1962, pointed out that what India naively considered to be a new China in fact 'Was very old'. For

'Nothing is more ancient than tyranny'. The article concluded its evaluation of the situation claiming that 'One can have massive sympathy for Nehru's desire not to become involved in war, cold or hot, but it is hard to admire blindness that persists when the enemy is within the gates'. The article employed a rather patronising attitude, one benefitting from the opportunity of hindsight which allowed the reporter to imply that the war was inescapable - of course, and everybody but India's leaders could see.[16] A similar critical note can be identified in 'Tallahassee Democrat' of 26 Oct 1962, which opined that 'Nehru's non-alignment policy and especially Defence Minister VK Krishna Menon's arrogance have not endeared them to many in the US'. Nevertheless, 'Her (India's, author's note) loss would engulf all Asia in Communism. India cannot afford to let China absorb India almost unopposed'.[17]

It appears that for ideological reasons the US felt obliged not to let India fail completely. However, they had no intention of helping India regain the territories lost in the struggle with China either. 'Rocky Mount Telegram' of 26 Oct 1962, for example, mused: '(…) one wonders what India hopes to gain by refusing a cease-fire (proposed by China[18], author's note)'. Here, again, a condescending tone can be heard, projecting India's stance as immature and irrational. The article considered the situation in India to be 'Critical' and the author claimed that it was 'particularly embarrassing because of (…) the statements (…) by Nehru that he was going to drive the Chinese Red troops out of Indian territory'. In conclusion, the author laconically underscored the presented analysis with the phrase: 'One thing is not difficult to predict: Nehru is in trouble'. Thus, indirectly, readers get to understand that some changes in the Government of India are imminent. Along with that, the article echoed the frequently discussed idea that the then USSR was a factor in the China–India conflict.

On 03 Dec 1962, 'Winston-Salem Journal' published an article 'Indian Nationalism Responded in Fight'. It described two traditions coexisting in India, one of Gandhi's nonviolence and the other of Subhash Chandra Bose's violent battle. The author of the article argued that the tradition of violence "Is now coming to the front as India faces China".[19] The country responded to the call of 'Nehru, the man of peace turned war leader at age 73'. The ironic transformation of Nehru into a war leader marked the personal tragedy of a man whose lifelong mission was turned upside down.

The 'Kansas City Times' of 10 Dec 1962, published W.R. Frye's article 'Dividends Accrue to West' in which he summed up the outcomes of the India-China War. His description started from the observation that the war was "One of the most important developments of the decade"[20] and then he gave an account of the positive outcomes of the India-China war. First of all, it was the fact that, despite remaining officially non-aligned, in Frye's view India "Is, in fact, emotionally, politically and militarily with the West".[21] The second positive side-effect of the war was an increased antagonism between China and Russia. The next one was a foreseeable settlement of the India–Pakistan 'Quarrel' over Kashmir. And finally, there was an ensuing joint pressure, including India, on the USSR to comply with a nuclear test ban. The article concluded the outline of the benefits brought about by the India-China War by saying that "The West has reaped rich dividends already from Red China's incredible stupidity and avarice in India. It stands to reap a lot more–if it acts with skill and subtlety".[22]

On the whole, the presentation of the India-China War of 1962 in the US press did not focus on the situation and motives of the two involved countries. The nature and effects of the war were rather projected in a much broader context of Asia, or even in the global context of ideological confrontation. Special emphasis was usually laid on the consequences of the war and their interplay with the US global political interests, i.e., boosting the democratic 'Front' opposing Communism.

Representation of the War in the British Media

The British press showed a great deal of concern with the India-China War. One of the fundamental messages was that India, being a Commonwealth country, deserved and would get humanitarian and military aid from Britain.

Compared to the US media, the British press laid emphasis on a different set of issues. One of the most complex articles concerning the India-China War was published on 26 Oct 1962, in the 'Daily Telegraph and Morning Post'. It was entitled 'India's Hour of Trial' which may be a distant echo of the darkest hour, a phrase associated with Winston Churchill and the British resistance against Germany in World War II. In the introduction, the article contemplated the unique paralleling of the Cuban Missile Crisis and the Himalayan conflict and remarked it almost looked as if the

two actions had been coordinated, aiming to divert the attention of the world from the Chinese invasion of India.[23] The effect 'Of the coincidence is to leave India for the moment isolated (…) from the instant and active preoccupation which her plight would otherwise evoke'. Next, the article criticised the outrageous ceasefire offer from China, with the terms humiliating to India, and appreciated Mr Nehru for 'Bravely Resisting' the proposal. 'All honour to him (…) it will be accorded no less sincerely by those who have felt him to be dangerously deluded in his attitude towards international communism and misguided in his neutralism'.

Another interesting view was presented by the 'Glamorgan Gazette' on 02 Nov 1962, in the article 'Reds' Attack on India Is a Menace to World Peace, says Ogmore MP. It claimed that it was a 'Real Tragedy' that the nuclear threat over Russian bases in Cuba distracted attention from the Chinese-Indian conflict which 'In the long run may prove to be more important for the future of humanity than the Cuban crisis'.[24]

Unlike the US press, the British newspapers generally did not condemn Nehru for his non-alignment policy and did not represent it as immature and naive, although they were critical of his neutralist attitude. Some newspapers even appreciated that he had acknowledged his fault. The 'Daily Telegraph' concluded that Mr Nehru was not a Churchill of his country, but he "Has nevertheless risen bravely and honestly, though belatedly, to meet his country's crisis".[25] The House of Lords debate reported on by the Guardian on 02 Nov 1962, included the speech of Lord Henderson who had condemned the Chinese aggression and proposed to give India full support.[26] A similar view had been presented by Lord Attlee who, nevertheless, included a critical remark too in respect of Mr Nehru finally 'Waking up to Realities'.[27]

On 01 Nov 1962, the 'Birmingham Post' offered a summary of opinions of Harold Wilson, a Socialist 'Shadow' Foreign Secretary who urged: 'There is no need to sneer about India's neutrality'. He appreciated India's part in promoting peace. Wilson even proposed to institute 'A massive programme of lend-lease' in order to provide India with sufficient military aid and solve the issue of the India-China boundary line by the International Court at the Hague.[28]

Occasionally though, there occurred articles disclosing the weak points jeopardising India's ability to fight China, e.g., the article by RHC Steed in the 'Daily Telegraph' on 01 Nov 1962. The article entitled 'India Criticism Rejected' informed that Mr Menon played havoc with service chiefs and armed services. Their ordnance departments are in a fantastic muddle. As it turns out Mr Nehru played his role in maintaining that chaos by appointing Mr Menon as Minister of Defence Production soon after Menon was dismissed from his post as Minister of Defence.[29] The Daily Telegraph and Morning Post of 20 Nov 1962 explained that senior staff officers had been talking about unpreparedness and preparing for the wrong war for years and mentioned Major General Habibullah and Major General Kulwant Singh as examples of the state policy critics.[30]

Conclusion

The India-China War of 1962 stands out as one of the most defining moments in the history of independent India. Unfortunately, the key functionaries of the war did not leave their memoirs and the war has not been as adequately covered as the subsequent conflicts with Pakistan. The coverage of the War in the Western media has brought out some significant facts, that are of relevance today. Both the US and the UK press showed concern and offered support to India, and realised the long-term implication of the war to the security of Asia in times to come.

The textual and discourse analysis of the collected research material indicates that there were significant differences between the representations of the India-China War in the US and the British print media. While the US press offered a markedly pragmatic portrayal of how the war fits the US strategic goals, frequently employing metaphors of business (dividends, gain, cannot afford, reap, etc.), the British press appears to have been more value-oriented in its representation of the war, often involving expressions such as 'Bravely Resisting', 'Honour', 'Accorded Sincerely', 'Justice', 'Risen Bravely' and 'Honestly to meet his country's crisis', etc. In addition, in the case of the British press media, the motif of the colonial past is not irrelevant. Some newspaper articles seem to be trying to come to terms with Britain's responsibility for the path taken by the relatively young independent India of 1962.

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Can Small Modular Nuclear Reactors Provide Realistic Pathways for Clean Energy?

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Abstract

The article discusses the potential of Small Modular Reactors (SMRs) as a sustainable solution for achieving 'Net Zero Emission' goals by 2050, as highlighted in the United Nations Climate Change Conference. SMRs, including 'Generation IV' Reactors, offer advantages such as cost-effectiveness, flexibility, and wider application beyond electricity generation. The article examines various SMR designs and their potential applications, ranging from land-based to marine environments, with countries like Russia and China leading in their development. While SMRs present advantages in terms of construction speed and flexibility, they also pose challenges, including regulatory, legal, and economic issues. Initiatives by organisations like the International Atomic Energy Agency aim to address these challenges and streamline the development of SMRs. India, aiming for clean energy and net-zero emissions by 2070, is considering SMRs as part of its nuclear energy strategy, with plans to involve the private sector in their development. However, the article emphasises the need for a holistic approach to address technical, operational, economic, and legal challenges for the successful commercialisation of SMRs and their integration into the global energy landscape.

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Introduction

Impacts of climate change have been a cause of concern globally, and in the United Nations Climate Change Conference (COP28), for the first-time nuclear energy, especially, the 'Generation IV' Reactors and Small Modular Reactors (SMRs), was discussed as a sustainable solution for achieving the goal of 'Net Zero Emission' by 2050. Already, there are about 440 nuclear power reactors operating in 32 countries plus Taiwan, with a combined capacity of about 390 Giga Watt electric (GWe), and in 2022 these provided 2545 Terra Watt hours about 10 per cent of the world's electricity.[1] Further, 90 power reactors with a total gross capacity of about 90 GWe are planned, and over 300 more are proposed, depending on addressing issues like funding, site proposal approvals, verification, etc, they will be operational in the next 15 years.[2] SMRs will further add to the tally, and increase the scope of nuclear energy, and SMRs will not be limited to electricity generation only, but will have a wider application in major industries.

Nuclear Energy Agency (NEA) Director General Mr Magwood in COP28 had stated that "Advancements in nuclear technology, including the development of SMRs and the launch of such initiatives as the NEA's accelerating SMRs for Net Zero provides realistic pathways to providing the clean energy that countries need to meet this goal".[3] SMRs can be the substitute for 'Diesel Generators'; for mining operations as well as high-temperature heat to replace fossil fuel cogeneration in heavy industries like fertilisers, and marine propulsion to replace heavy fuel oil for merchant shipping.[4] Further, these may become popular due to the flexibility they provide to the user for wider application, particularly, as an alternative to fossil fuel, hence, the construction of SMRs has gained momentum, and there are initiatives being taken globally, to plan the operationalisation of SMRs commercially, and decarbonisation is one of its goals.

What are SMRs?

SMRs are newer generation reactors designed to generate electric power typically up to 300 MW.[5] The name itself suggests that these reactors are small in size where capacity can be anywhere from 30 Mega Watt Electric (MWe) to 300 MWe, with modular facilities, where reactors are made in the factory and transported

to the site, and further, they can be installed as a single plant or having multiple modules. The reactor uses nuclear fission technology. Thus, SMRs enhance the range of operations as they can be installed in remote areas, due to their ease of fabrication and offsite transportation facilities, which are lacking in larger power plants.

More than 80 designs are being developed ranging from land-based water-cooled reactors like Pressurised Heavy Water Reactors (PHWRs), Light Water Reactors to Heavy Water Reactors and Boiling Water Reactors. Further, in the marine environment, the water-cooled reactors can also be used as floating units deployed on ships and barges. Russia is the pioneer in this technology and Russia's 'Akademik Lomonosov, the world's first Floating Nuclear Power Plant (FNPP) that began commercial operation in May 2020, is producing energy from two 35 MWe SMRs'.[6] The non-water reactors include the pebble-bed salt-cooled Reactor, molten-salt reactor, Fast Neutron Reactors, etc. The High-Temperature Gas Cooled Reactor Models can be used in industrial applications. World's first HTGR-Pebble-bed Module (HTR-PM) was developed by 'China, in Shandong Province, with the major purpose of HTR-PM, is to co-generate high-temperature steam up to 500! and electricity, making it cost-effective - and to supply steam and electricity for the petrochemical industry to substitute the burning of natural gas and coal'.[7] Further, Micro Reactors are also being developed which are 'Very small SMRs designed to generate electrical power typically up to 10 MW(e), where different types of coolant, including light water, helium, molten salt and liquid metal are adopted by microreactors'.[8] A number of countries are developing SMRs and some of the countries who are in the race are Russia, China, United States (US), Argentina, Canada, and South Korea. India is also considering building SMRs.

Advantages and Challenges

Firstly, SMRs will be cheaper and more cost-effective as it can reduce a nuclear plant owner's capital investment due to the lower plant capital cost and further, the Modular components and factory fabrication can reduce construction costs and duration.[9] Secondly, the flexibility it provides, by which these can be installed in remote areas, can help in widening the scope of nuclear energy, thereby, managing the depletion of fossil fuels, as well as emission

problems, of greenhouse gases. SMRs can help provide electricity to the remotest of villages, and also can be used in factories and industrial areas. The modular build is used in a number of different sectors including civil construction; shipbuilding; chemical process and oil and gas; aerospace; and automotive industries.[10] Thirdly, SMRs are easier to build as per the requirement of the grid and quicker as well. The construction time for larger nuclear plants is longer, compared to the speed with which SMRs can be constructed.

As far as challenges are concerned, there are technical, regulatory, legal and economic challenges. Considering, that there are a number of technologies that are being developed, hence, each design will require safety certifications, which may create regulatory challenges. Currently, most of the regulatory mechanisms including licensing, commissioning, operating issues, etc are customised for larger nuclear power plants and the same is lacking for SMRs. Further, if the nuclear reactors are exported, they may undergo liability issues, considering reactors are not included in the Convention on Nuclear Safety (CNS) Treaty, so in case of accidents, the aspect of insurance will become a sore point between the supplier and the user. Considering so many technologies are being developed, hence, reactor design becomes a significant issue for the safety of SMRs. Additionally, the CNS treaty also does not say anything about the FNPP. Therefore, legally, the CNS treaty needs to be amended, because according to this "Nuclear installation means for each Contracting Party any land-based civil nuclear power plant under its jurisdiction including such storage, handling and treatment facilities for radioactive materials as are on the same site and are directly related to the operation of the nuclear power plant".[11] It includes only land-based installations and is silent on marine installations. Another major challenge will be the disposal of spent fuel and proliferation issues. Thus, the SMR industry is yet to fully develop an operational fabrication facility for large-scale serial manufacturing of SMR components, which necessitates a very large investment, further, technology developers may have challenges in mobilising finance for technology development, licensing and construction of prototype plants.[12]

To address some of these challenges the Department of Nuclear Energy of the International Atomic Energy Agency (IAEA) has been undertaking initiatives from as early as 1990 when a 'Guidance document for preparing a User Requirements Document for SMRs and their application was published'.[13] Further, some of the initiatives included the 'Launch of the Nuclear Harmonisation and Standardisation Initiative in Jun 2022, and the IAEA organised in Aug 2022 a Technical Meeting on Generic User Requirements and Criteria (GURC) of Small Modular Reactor Technologies for Near Term Deployment… to develop high-level GURC'.[14] All these proposals will help streamline many preliminary glitches.

India's Roadmap to SMR

India's aspiration of having clean energy and achieving the goal of net zero by 2070 is through harnessing non-fossil fuel sources, and nuclear energy will become an integral part of this journey. Dr Jitendra Singh, Union Minister, had pointed out that "A number of measures have been taken to promote renewable energy in the country and India today stands at number four in the RE installed capacity across the world after China, Europe and the United States …. and nuclear in terms of baseload power can play a big role in the de-carbonisation strategy".[15] India's Nuclear Power Cooperation of India Limited (NPCIL) and Department of Atomic Energy (DAE) look after the aspects of nuclear power plants. India already has 22 operating reactors, with an installed capacity of 6780 MWe of which eighteen reactors are PHWRs and four are LWRs.[16] Dr Ajit Kumar Mohanty, Chairman, the Atomic Energy Commission and Secretary, DAE, gave a statement at the Nuclear Energy Summit, in Brussels in 2024, where he stated that apart from "Adding two indigenously designed 700 MW PHWR, the Kakrapar Atomic Power Project—— the 'Core Loading' also took place at the first Indigenous Fast Breeder Reactor (500 MWe) and India is also considering steps for the development of SMRs".[17] India has a robust plan for large-sized Nuclear Power plants; however, it can use SMR technology as an add-on to address industrial decarbonisation and achieve the goals of the 'Clean Energy' transition.

India is looking to develop 300 MW capacity SMRs. There were reports that "Indian Oil is reportedly in preliminary talks with Nuclear Power Corporation to build small nuclear units, seen as

a cost-effective alternative to larger plants".[18] This is basically to circumvent the delays faced in the construction of bigger power plants, as SMRs are easier to build. India is also mulling inviting the private sector in this field. "The government is in talks with at least five private firms including Reliance, Tata Power, Adani Power, and Vedanta to invest around $5.30 billion each".[19] All these are positive steps. Considering, India already has experience in constructing nuclear reactors ranging from the larger Kudankulam Nuclear Power Station-1 1000 MWe to the smaller one at 'Rajasthan Atomic Power Station Unit-1 with 100 MWe capacity'.[20] In the military domain, India also has nuclear-powered submarines where small nuclear reactors are used. Therefore, India has experience in constructing nuclear reactors. In order to prevent the overburdening of NPCIL, the route to involve the private sector is encouraging and a viable solution, provided the requisite ecosystem is created.

Ecosystem Required

As of now, NPCIL is responsible for not only designing, and commissioning of nuclear power plants but also all the operational aspects that are controlled and monitored by them. Therefore, for the private sector to get involved, one will require certain structural and legal changes. The nuclear power industry in India has been the forte of the Public Sector mainly the NPCIL, however, companies like Larsen & Toubro have been involved in the manufacturing of "Reactor vessels for PHWRs and Fast Breeder Reactors designed technology and critical equipment and systems for heavy water plants, fuel re-processing plants and plasma reactors".[21] For SMRs, one can also similarly invite the private sector, provided there is clarity as to their role and responsibilities. Whether the private sector will be required at the design, and construction stage or at the operational, stage. The question is how much one needs to decentralise without compromising nuclear safety and security standards. The most challenging issue will be managing the fuel and the disposal of the spent fuel. SMRs may increase the quantity of radioactive waste and the disposal requires well-thought-out processes. Hence, instead of total decentralisation, one option is to partially decentralise, whereby, keeping control of the fuel management, especially, disposal of spent fuel with the government, for security purposes and to prevent proliferation issues. Since this is a new technology for private regulators, hence,

they need to be trained in the safety requirements and efficient operational processes, so the whole ecosystem requires cooperation of public-private partnership at a holistic level. Training modules starting from educational institutions to industries are essential to obtain optimal technical manpower. Further, to succeed as a commercial venture regulatory support including licensing support and continuity in the supply chain is essential. Thus, the licensing, safety certification, and legal issues need to be relooked, which may be a long-drawn process. Also, management of public perception is an important aspect, as there are apprehensions about nuclear energy. Even during the construction of nuclear power plants, the initial processes require public awareness. By educating people about the safety mechanisms, local protests could be avoided. So, for SMRs, this requirement is more, as the scope is wider. Thus, it may be concluded that though the feasibility of SMRs is evident, it will take time for SMRs to fructify as a commercial venture, as the ecosystem needs to be developed.

Conclusion

SMRs have emerged as one of the viable tools in addressing the challenges of climate change and achieving the goal of 'Net Zero Emission', but the technology still needs to mature. The ecosystem, whether it is a legal framework, design construction, operational monitoring, waste management, or verification mechanisms are concerned, still needs to be developed in most countries, including India. IAEA on its part has already taken several steps to smoothen the initial glitches and this year also the Technical Meeting on GURC's objective is not only to assess the progress but to 'Present an IAEA's draft guidance document on top-tier GURC for SMR Technology that provides a framework to cover deployable SMR designs and could serve as a reference for utility organisations to develop more detailed GURC'.[22] Thus, for SMRs to succeed commercially, a holistic approach is required, both in terms of public-private partnership and in the creation of an ecosystem, whereby, all technical, operational, economic, and legal issues are addressed

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War Crimes and Modern-Day Armed Conflicts

Wing Commander (Dr) UC Jha (Retd)[@]

Abstract

This article explores the multifaceted nature of war crimes through contemporary and historical lenses, highlighting evolving legal frameworks and accountability mechanisms. It begins with the Israel-Hamas conflict and extends to the Russian-Ukrainian conflict, detailing atrocities and violations of International Humanitarian Law by both sides. The historical development of war crimes is traced from early definitions and the Leipzig Trials post-World War I to the expanded scope and individual accountability established by the Nuremberg and Tokyo Trials after World War II. Key legal instruments such as the Geneva Conventions of 1949 and the establishment of the International Criminal Tribunals for the former Yugoslavia and Rwanda are discussed, particularly their recognition of sexual violence as a war crime. The article analyses the Rome Statute of the International Criminal Court, its role in modern prosecutions, and challenges such as jurisdiction and the complementary role of national courts. It also examines command responsibility, emphasising the obligation of leaders to prevent and address war crimes by subordinates. The conclusion reflects on the evolving definitions of war crimes and the international legal framework's efforts to enforce

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accountability, stressing the importance of integrating these standards into national legal systems for comprehensive justice.

Introduction

In the ongoing Israel-Hamas conflict, war crimes have been committed by all parties.[1] Hamas gunmen killed 1,200 people and captured 253 hostages, mostly civilians, in an attack on Israel in Oct 2023. Palestinian armed groups launching indiscriminate projectiles across Southern Israel and the holding of hostages also violated International Humanitarian Law (IHL).[2] The attack sparked an Israeli offensive in Hamas-run Gaza, in which more than 34,000 people have been killed during the offensive. Allegedly, weapons supplied by the United States (US) to Israel are being used in violation of the IHL.[3] A United Nations report has found continued evidence of war crimes and human rights violations committed by Russian authorities in Ukraine, including wilful killing, torture, rape and other sexual violence and the deportation of children. There were three occasions when Russian authorities transferred Ukrainian unaccompanied children from one area, they controlled in Ukraine to another or to the Russian Federation. Such transfers occurred in violation of the IHL and qualified as unlawful transfers or deportations, which is a war crime.[4] There are also reports of systematic war crimes committed by the Ukrainian armed and security forces.[5]

War Crimes

The term 'War Crime' has been difficult to define with precision. Put simply, a war crime is a violation of the law of war. However, all violations of the law of war do not qualify as war crimes. In 1872, war crime was used for the first time by German Johann Casper; who thought of it as military forces acting without orders during wartime, that was a war crime. The use of war crime has evolved since 1906, when Oppenheim coined the phrase in his influential treatise International Law.[6] However, the first systematic attempt to define a broad range of crimes during the Civil War was made on the 'Instructions for the Government of Armies of the US in the Field' (Lieber Code), drafted by Francis Lieber, which was issued by US President Abraham Lincoln during the American Civil War in 1863.[7]

The Leipzig Trials

After the conclusion of World War 1 (WW I), Allied leaders developed a concept to try enemy leaders criminally for the international law violations they committed during the war. Articles 227 to 230 of the Treaty of Versailles stipulated the arrest and trial of German officials for 'Supreme offence against international morality and the sanctity of the treaty' and 'accused of having committed acts in violation of the laws and customs of war'. The legacy of the Leipzig trial is that it was the first attempt to develop a comprehensive approach and system for prosecuting international law violations in wartime. These prosecutions resulted in few convictions, with most sentences ranging from a few months to four years in prison.

The Nuremberg and Tokyo Trials

The next major attempt to prosecute war criminals occurred in Europe and Asia after World War 2 (WW II).[8] At the conclusion of the war, the US, the United Kingdom, the Soviet Union, and France signed the London Agreement, which provided for an international military tribunal to try major Axis war criminals whose offences did not take place in specific geographic locations. This agreement was supported by 19 other governments, establishing the Nuremberg Tribunal. The charter listed three categories of crime: crimes against peace, which involved the preparation and initiation of a war of aggression, war crimes, and crimes against humanity. The war crimes included murder, rape, refusal of quarter, torture and ill-treatment, wanton devastation or destruction of property, attack on hospital ships, pillage and plunder, and deportation, etc. Nearly every act on this list was charged as a war crime against Japanese and German defendants after WW II. The trial of Japanese General Yamashita affirmed the principle of individual accountability for crimes against international law. The gist of the charge was that the petitioner had failed in his duty as an army commander to control the operations of his troops, 'Permitting them to commit' specified atrocities against the civilian population and prisoners of war. Yamashita was found guilty, and sentenced to death.[9]

The Geneva Conventions of 1949

The four Geneva Conventions, adopted in 1949, provided for the protection of wounded, sick, and shipwrecked military personnel, prisoners of war, and civilians. The Geneva Conventions contain stringent rules to deal with what are known as 'Grave Breaches'. Those responsible for grave breaches must be sought, tried or extradited, whatever nationality they may hold. Grave breaches specified in the four 1949 Geneva Conventions are wilful killing; torture or inhuman treatment; biological experiments; wilfully causing great suffering; causing serious injury to body or health; extensive destruction and appropriation of property, not justified by military necessity and carried out unlawfully and wantonly; compelling a prisoner of war/protected person to serve in the forces of hostile power, or wilfully depriving a prisoner of war of the right of fair trial. A number of grave breaches have been specified in Articles 11 and 85 of the 1977 Additional Protocol I to the Geneva Conventions. In addition, the Hague Conventions of 1899 and 1907, deal with the means and methods of war and forbid the use of expanding bullets, poison or poisonous weapons, the use of weapons calculated to cause unnecessary suffering, pillage, and bombardment of undefended buildings, villages, or towns, among other limitations. While these conventions themselves did not identify the above acts as war crimes they did create a penal system through which grave breaches could be prosecuted. States party to the conventions were obliged to adopt domestic laws criminalising the ordering or perpetration of such acts.

International Criminal Tribunal for the former Yugoslavia (ICTY) and the International Criminal Tribunal for Rwanda (ICTR)

More recently, definitions of war crimes have been codified in international statutes, such as the war crimes in the ICTY,[10] and ICTR, and the Rome Statute of the International Criminal Court (ICC). The governing statutes of the ICTY and ICTR defined war crimes broadly. The ICTY was given jurisdiction over four categories of crime: grave breaches of the Geneva Conventions, violations of the laws or customs of war, genocide, and crimes against humanity. In both tribunals rape, murder, torture, deportation, and enslavement were subject to prosecution. The ICTY and ICTR

were the first international bodies to recognise sexual violence formally as a war crime.

The Rome Statute of the ICC

The Article 8 of the Rome Statute categorises war crimes as follows:

- Grave breaches of the 1949 Geneva Conventions, related to international armed conflict.

- Other serious violations of the laws and customs applicable in international armed conflict.

- Serious violations of Article 3 common to the four 1949 Geneva Conventions, related to Non-International Armed Conflicts (NIAC).

- Other serious violations of the laws and customs applicable in NIAC.[11]

What constitutes a war crime may differ, depending on whether an armed conflict is international or non-international. Therefore, war crimes are those violations of IHL (treaty or customary law) that incur individual criminal responsibility under international law. War crimes contain two main elements: a contextual element: the conduct took place in the context of and was associated with an international/non-international armed conflict; and a mental element: intent and knowledge both with regards to the individual act and the contextual element. From a more substantive perspective, war crimes could be divided into: war crimes against persons requiring particular protection; war crimes against those providing humanitarian assistance and peacekeeping operations; war crimes against property and other rights; prohibited methods of warfare; and prohibited means of warfare. Some examples of prohibited acts include: murder; mutilation, cruel treatment and torture; taking of hostages; intentionally directing attacks against the civilian population; intentionally directing attacks against buildings dedicated to religion, education, art, science or charitable purposes, historical monuments or hospitals; pillaging; rape, sexual slavery, forced pregnancy or any other form of sexual violence; conscripting or enlisting children under the age of 15 years into armed forces or groups or using them to participate actively in hostilities.

War Crime Trials under ICC

The ICC passed its first judgment in 2012 and since then has prosecuted several individuals who were accused of war crimes. These war crimes include: enlisting and conscripting children under the age of fifteen and using them to participate actively in hostilities; murder, attacking a civilian population, destruction of property and pillaging; abducting boys and girls under the age of 15 and forcing them to fight in a war; and intentionally directing attacks against religious and historic buildings. A few cases are still under progress at the ICC.

On 17 Mar 2023, ICC Pre-trial Chamber II issued warrants of arrest for Russian President Putin and Maria Lvova-Belova, Commissioner for Children's Rights in the Office of the President of the Russian Federation. This was based on the applications by the ICC Prosecutor, Kareem Khan KC, on 22 Feb 2023. The Pre-trial Chamber concluded that there are reasonable grounds to believe that each bears responsibility for the war crime of unlawful deportation of population (children) and unlawful transfer of population (children) from occupied areas of Ukraine to the Russian Federation, to the prejudice of Ukrainian children.

Under Article 8(2)(a) of the Rome Statute of ICC, conscripting or enlisting children under the age of 15 years into armed forces or groups or using them to participate actively in hostilities; or ordering the displacement of the civilian population for reasons related to the conflict, unless the security of the civilians involved or imperative military reasons so demand, is a war crime. The head of a state can be prosecuted for such war crimes by the ICC.[12] Russia being a permanent member of the Security Council; the possibility of Putin's trial by the ICC for war crimes is nearly impossible.

Indian Military Law

The ICC was established as a court of last resort to prosecute the most heinous offences in cases where national courts fail to act. The jurisdiction of the ICC is complementary to the national courts. In the case of India and a number of other states like the US,[13] Israel, and China, the domestic laws are considered adequate to prosecute a national accused of war crime during an armed conflict.[14] A number of European states have updated their domestic

criminal codes to include war crimes as contained in the Rome Statute.[15] The military legal system of India is not compatible with the provisions of the Rome Statute. The *Bharatiya Nyaya Sanhita*, *2023* (New penal code of the country), defines certain crimes and provides for universal jurisdiction over such crimes.[16] Military personnel accused of breaches in the nature of torture, inhumane and degrading treatment, destruction of property, destruction of places of worship, etc., can be tried under different provisions of the Army Act. For serious criminal offences like murder, rape, etc., military accused can be tried under Section 69 of the Army Act. If one the claim is that the armed forces support the rule of law, the Indian military manuals should ensure compatibility with the Rome Statute in relation to crimes, the rights of an accused during trial, and the internationally accepted standards of command responsibility.

Command Responsibility for Subordinates' War Crimes

The war crimes trials held immediately after the conclusion of WW II marked a clear recognition by the international community that all members of the chain of command who participate or acquiesce in war crimes must bear individual criminal responsibility.[17] The German and Japanese commanders were tried for war crimes in international tribunals at Nuremberg and Tokyo. Some of these commanders were tried for war crimes they ordered their troops to commit, but other commanders were tried for war crimes they merely failed to prevent. The Rome Statute provides that a military commander can be held liable for the war crimes or other crimes of his subordinates, over whom he has effective command and control, even though he has not directly participated in the crime or encouraged it in any shape or form.[18] A military commander has a positive duty to take all necessary measures to stop or prevent the unlawful conduct, and if he does not, he is deemed to have aided and abetted the commission of the offence and is as responsible for the crime as those who commit it.

In modern times, command is not restricted to military commanders. Command can be both military and civil, and includes the heads of state, high-ranking government officials, civilian ministers, and joint chiefs of staff. The determining factor is not rank but subordination. The aim of this provision is to encourage

commanders and superiors to effectively prevent the perpetration of crimes by their forces.

Conclusion

Stories of war crimes have become an almost daily occurrence in the ongoing armed conflicts. The most common approach to defining a war crime has been to identify it as a violation of the IHL that has been 'Criminalised'. Treaties, including the Hague and Geneva Conventions, did not establish international war crimes in their present iteration. The rules governing the conduct of war have existed since long, the modern concept of war crime and the use of international courts to try war criminals is a modern practice. The shift in the understanding of war crime can be traced to changes that took place in the period between WW I and WW II. The 1949 Geneva Conventions offered an opportunity to clarify the scope of war crimes. They did not use the term international war crimes and obligated state parties to enact any legislation necessary to provide effective penal sanctions for persons committing, or ordering to be committed, any of the grave breaches of the convention. Finally, the Rome Statute envisioned a universal, and precise rendering of war crimes, integrated into the criminal law of national legal systems.

Today, the reliance on 'Criminalisation' as a defining characteristic of a war crime is widespread. Thus, war crimes are violations of the IHL that are criminalised under international law. The states have an obligation to search for persons alleged to have committed, or to have ordered to be committed grave breaches of the convention, regardless of their nationality. A military commander can be held liable for the war crimes committed by his subordinates, even though he has not directly participated in the crime.

Endnotes

[1] Gabrielle Tétrault-Farber, UN rights chief, Reuters, 29 Feb 2024.

[2] IHL is a combination of international treaties and customary international law. The Hague Convention of 1907 and various weapon ban treaties generally prescribes rules of conduct for armed forces, while the Geneva Conventions of 1949 and Additional Protocol I of 1977 address the rights of protected persons, such as civilians and prisoners of war, in an international armed conflict. Non-international armed conflicts are governed

by Article 3 Common to the Geneva Conventions and the Additional Protocol II of 1977.

[3] Pamuk Humeyra, Exclusive: Some US officials say in an internal memo Israel may be violating international law in Gaza, Reuters, 28 Apr 2024.

[4] The collected evidence shows that Russian authorities have committed the war crimes of wilful killing, torture, rape and other sexual violence, and the deportation of children to the Russian Federation. The Commission's investigations confirmed its previous finding that Russian authorities have used torture in a widespread and systematic way in various types of detention facilities which they maintained. Independent International Commission of Inquiry on Ukraine, UN HRC report A/78/540 dated 19 Oct 2023. Available at:
https://www.ohchr.org/sites/default/files/documents/hrbodies/hrcouncil/coiukraine/A-78-540-AEV.pdf.

[5] As reported, the Russian prisoners of war were electrocuted, beaten cruelly and for multiple days in a row with different objects (iron bars, baseball bats, sticks, rifle butts, bayonet knives, rubber batons). Techniques widely used by the Ukrainian armed forces and security forces include waterboarding, strangling with a 'Banderist garrotte' and other types of strangling. Other torture methods used by the Ukrainian armed forces and security forces include bone-crashing, stabbing and cutting with a knife, branding with red-hot objects, shooting different body parts with small arms. The prisoners taken captive by the Ukrainian armed forces and security forces were kept for days at freezing temperatures, with no access to food or medical assistance, and are often forced to take psychotropic substances that cause agony. An absolute majority of prisoners are put through mock firing squads and suffer death and rape threats to their families. Evidence of Ukrainian War Crimes in Donbass, 16 Mar 2023, available at:
https://www.osce.org/files/f/documents/b/2/540581.pdf.

[6] Oppenheim defined four different kinds of war crime: (i) violations of recognized rules of warfare by enemy armed forces, if carried out without orders; (ii) hostilities committed by individuals not members of the enemy armed forces; (iii) espionage and war treason; and (iv) marauding acts. Oppenheim L., *International Law: A Treatise* (Longmans, Green & Co. 1906), p. 263-270.

[7] For example, the Lieber Code held that it was a "serious breach of the law of war to force the subjects of the enemy into service for the victorious government" and prohibited "wanton violence committed against persons in the invaded country," including rape, maiming, and murder. Punishment for these crimes was 'death'.

[8] Throughout the war, the Allies had cited atrocities committed by the Nazi regime of Adolf Hitler and announced their intention to punish those guilty of war crimes. The Moscow Declaration of 1943, and the Potsdam Declaration of 1945, issued by the US, the UK, and China (and later adhered to by the Soviet Union), addressed the issue of punishing war crimes committed by the German and Japanese governments, respectively.

[9] From their outset, the war crimes trials after WWII were dismissed by critics merely as "victor's justice," because: (i) Only individuals from defeated countries were prosecuted, and (ii) The defendants were charged with acts that allegedly had not been criminal when committed. The main criticism against these trials was that the Allies were engaging in victor's justice.

[10] The armed conflict in the former Yugoslavia were marked by many war crimes, including ethnic cleansing, genocide and rape. It resulted in the death of 140,000 people. Serb forces deported about 100,000 Croats in Croatia in 1991–92 and at least 700,000 Albanians in Kosovo in 1999. In addition, the Serb forces drove at least 700,000 Bosnian Muslims from the area of Bosnia under their control. It has been estimated that during the conflict in Kosovo as many as 20,000 Kosovo women were raped. Not only women were victims of sexual violence during this conflict, men were subjected to sexual violence as well. Many of the Serbs acted on official orders to rape women as sexual violence was strategically used as an instrument of war and a weapon of terror during the conflict.

[11] Eleven crimes constitute grave breaches of the Geneva Conventions and apply only to international armed conflicts: willful killing; torture; Inhumane treatment; biological experiments; willfully causing great suffering; destruction and appropriation of property; compelling service in hostile forces; denying a fair trial; unlawful deportation and transfer; unlawful confinement; and taking hostages. Seven crimes constitute serious violations of article 3 common to the Geneva Conventions and apply only to non-international armed conflicts: murder; mutilation; cruel treatment; torture; outrages upon personal dignity; taking hostages; and sentencing or execution without due process. Another 56 crimes defined by article 8: 35 apply to international armed conflicts and 21 to non-international armed conflicts. Such crimes include attacking civilians or civilian objects, attacking peacekeepers, causing excessive incidental death or damage, transferring populations into occupied territories, treacherously killing or wounding, denying quarter, pillaging, employing poison, using expanding bullets, rape and other forms of sexual violence, and conscripting or using child soldiers.

[12] Article 27 of the Rome Statute provides jurisdiction to ICC over heads of State: (1) This Statute shall apply equally to all persons without any distinction based on official capacity. In particular, official capacity as a Head of State or Government, a member of a Government or parliament, an elected representative or a government official shall in no case exempt a person from criminal responsibility under this Statute, nor shall it, in and of itself, constitute a ground for reduction of sentence. (2) Immunities or special procedural rules which may attach to the official capacity of a person, whether under national or international law, shall not bar the Court from exercising its jurisdiction over such a person.

[13] The 1996 War Crimes Act sets forth conduct the United States punishes as war crimes. Previously, only when US nationals were involved as either perpetrator or victim would the conduct potentially fall under these provisions. Congress amended the provision in January 2023 to provide courts' jurisdiction over foreign nationals who are found in the United States and suspected of having committed war crimes anywhere.

[14] For instance, in May 2022, a court in Ukraine sentenced a 21-year-old Russian soldier, Vadim Shishimarin, to life imprisonment for the war crime of premeditated murder of a civilian, 62-years-old Oleksandr Shelipov. According to the prosecution, Vadim, a tank commander, has captured and shot a man walking his bicycle near his home in the Sumy region because he had a cell phone to his ear and could alert authorities to the Russian presence. In announcing the original sentence, the Judge pronounced Sergeant Vadim guilty of violating the laws and customs of war and of committing premeditated murder. The Kyiv Court of Appeals reduced his sentence to 15 years. The case was the first successful conviction of a Russian soldier accused of a war crime. Dan Bilefsky, A Ukrainian appeals court reduces the life sentence of a Russian soldier tried for war crimes, The New York Times, 29 July 2022.

[15] Hathaway Oona A., Paul K. Strauch, Beatrice A. Walton, and Zoe A. Y. Weinberg, What is a War Crime? The Yale Journal of International Law, Vol.44, No.1, 2019, pp. 53-113.

[16] The Bharatiya Nyaya Sanhita, 2023 (earlier the Indian Penal Code, 1860), contains few provisions under Chapter VI, for which a military person can be prosecuted under Section 69 of the Army Act, 1950.

[17] Mitchell Andrew, Failure to Halt, Prevent or Punish: The Doctrine of Command Responsibility for War Crimes, Sydney Law Review, 2000, Vol.22. pp. 381-410.

[18] Article 28 of the Rome Statute dealing with the "Responsibility of commanders and other superiors", provides: In addition to other grounds of criminal responsibility under this Statute for crimes within the jurisdiction

of the Court: (a) A military commander or person effectively acting as a military commander shall be criminally responsible for crimes within the jurisdiction of the Court committed by forces under his or her effective command and control, or effective authority and control as the case may be, as a result of his or her failure to exercise control properly over such forces, where: (i) That military commander or person either knew or, owing to the circumstances at the time, should have known that the forces were committing or about to commit such crimes; and (ii) That military commander or person failed to take all necessary and reasonable measures within his or her power to prevent or repress their commission or to submit the matter to the competent authorities for investigation and prosecution.

Check Dams: Solution to the Increasing Water Crisis in Ladakh

Colonel Vijay Kumar Goyat@

Abstract

Ladakh, a high-altitude desert with extremely low precipitation, a popular tourist destination and a unique geographical heritage. It is also at the centre of Indo–China boundary dispute. The challenges of water management in the region are low rainfall, high influx of tourists, increasing infrastructure, and heavy dependence on groundwater without adequate replenishment. Thus, water storage is essential and certain eco-friendly methods such as artificial glaciers or ice stupas have been tried. These methods are manpower intensive, less efficient and need recurring annual effort. Very small-scale check dams on various streams can be an effective means to store water and will automatically freeze in winter. The check dams are fairly easy to construct with a simple design and low water height along with adequate pondage. These check dams will help meet water requirements in an efficient and eco-friendly manner as well as facilitate groundwater recharge, besides being suitable sites for winter skiing and potential tourist spots. The approximate cost of one such check dam is likely to be INR 8.10 Cr.

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Introduction

Ladakh lies in a high-altitude desert with extremely low precipitation and scanty vegetation. This has led to a unique climate and geomorphological evolution. The vast and barren landscape, interspersed with turquoise blue rivers and pristine lakes, blessed by the Llamas and their various monasteries is the new haven for tourists from India and abroad alike. The region is home to around four lakh people[1], but it now hosts approximately one lakh people as tourists on an annual basis.[2] That figure is likely to grow, as movies make the picturesque Nubra Valley and Pangong Tso more popular and the Indian middle class has more money to splurge. Most of the SUV buyers head to Ladakh immediately on buying and a selfie on a motorbike on roads along the Indus is fast becoming much desired.

In addition, the situation on the Line of Actual Control has mandated an increase in the deployment of security forces in the region. While the security forces always had a role to play in the region, the numbers have only gone up in the last two years.[3]

Increasing Water Shortage in Ladakh

While the increasing number of tourists is a good and welcome sign for the local economy, it has put a severe strain on the water resources in this cold desert. The average precipitation in Ladakh is less than 100 millimetres (mm) and in several places, it is less than 50 mm. The monthly mean of rainfall is shown below.[4]

The per capita consumption of water by a tourist is generally higher than a local Ladakhi and the numbers make the demand for water an alarming issue.[5] Hence, there is an acute shortage of water for various daily needs, and it becomes even more critical as tourism increases. The increased groundwater requirement is being met by the various borewells that have sprung up in Leh and nearby areas. These borewells are pumping water from aquifers that have been recharged over hundreds and thousands of years but are depleting fast.
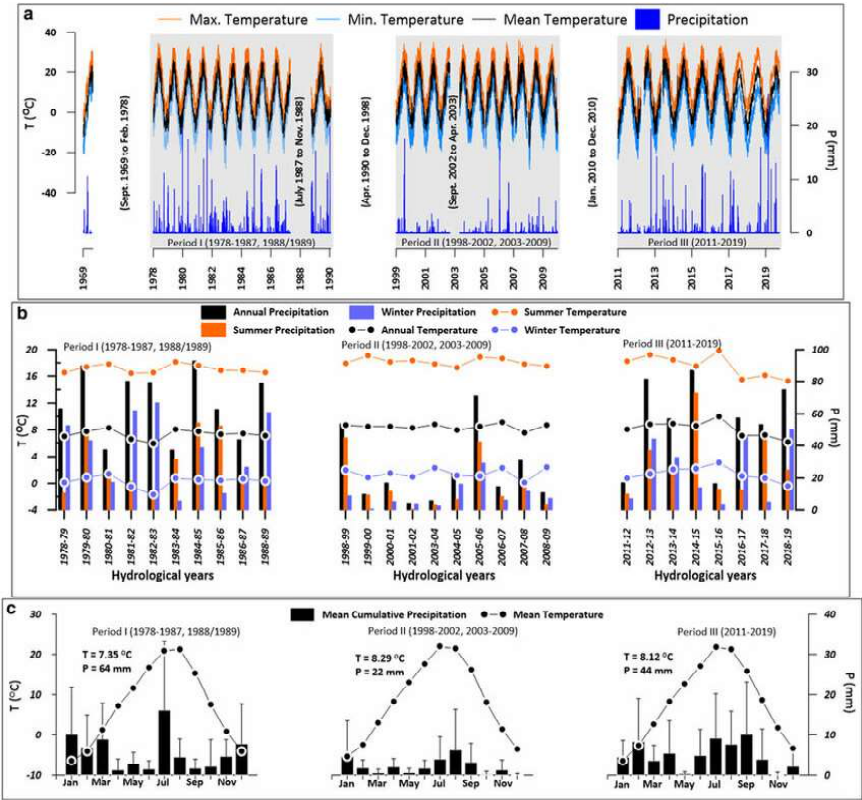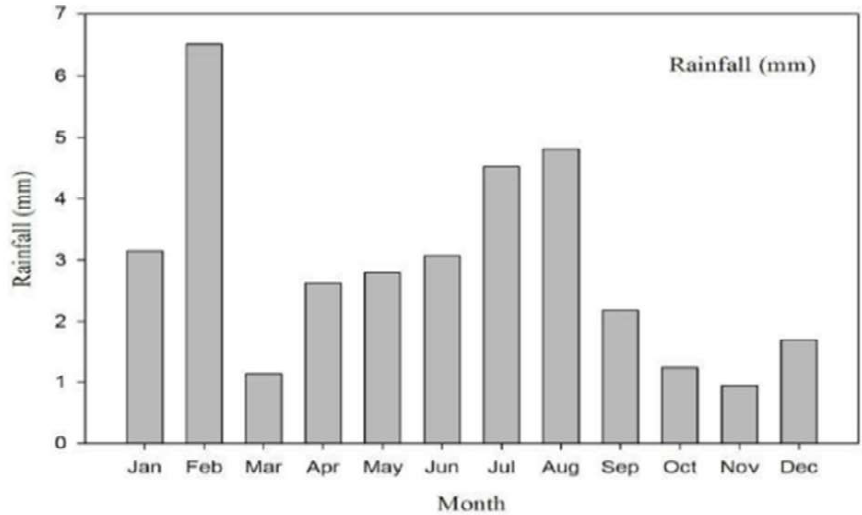
Figure 1

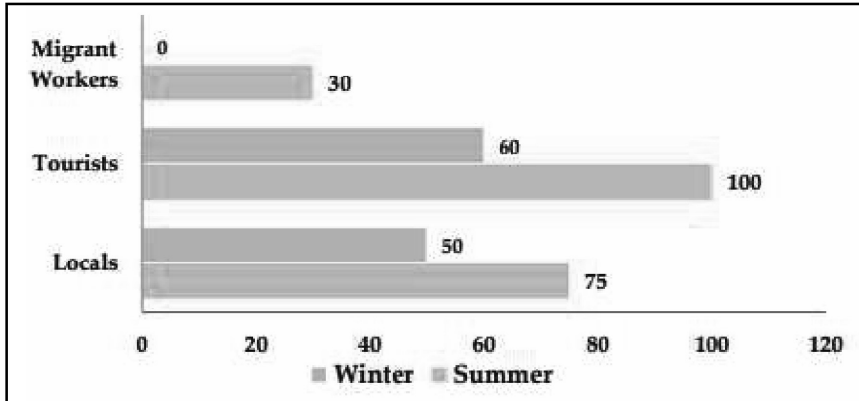**Figure 2: Monthly mean of rainfall during 2000-2013**

Figure 3: Comparison of Water Usage in Ladakh Across Users and Seasons (Source: Niti Ayog[5])

At the same time, it is a stated government goal to provide tap water to every citizen across India, including Ladakh. Water is the essence of life. Thus, water management in Ladakh becomes a priority to ensure that this precious resource is optimally utilised and does not lead to over-exploitation of the groundwater while meeting the aspirations of the locals as well as the tourists who throng this beautiful place.

The challenges of water management in Leh can be summarised as low rainfall, high influx of tourists, increasing hotels and other infrastructure, and heavy dependence on groundwater without adequate replenishment.

The region gets water in the form of snowfall in the winter seasons and the snow-melted water is the source of water in the summers. Since it does not rain for a very large part of the year, water storage is essential.

Traditional and Current Water Storage Methods

Traditionally, water requirements have been met by the populace of Ladakh from the natural streams, *nalas* (streams) and rivers. Thus, most of the habitation has come up along these areas. As the population grew, and alongside the water demand, various measures have been taken by the locals to preserve water. A unique method in Hunder Village is separating the drinking water stream from the other water streams and ensuring its hygiene and free flow almost throughout the year. There are various signboards

along this stream that advise locals on its utility and the need to protect the stream.

Also, certain eco-friendly methods of water conservation, such as artificial glaciers or ice stupas have been propagated in the region.[6] Artificial glaciers are a remarkable innovation to address water scarcity in the region. These artificial glaciers are created using a simple yet effective technique. The process involves diverting water from streams into shaded areas, typically valleys or depressions, where it freezes during the winter months. By controlling the flow of water and strategically designing the location and shape of these ice structures, water is stored in the form of ice during the winter, which gradually melts during the spring and summer months, providing a vital water source for irrigation and drinking water.

This ingenious solution has helped alleviate water shortages in the Leh region, particularly during the critical agricultural season, when water is in high demand. Additionally, it reduces reliance on unpredictable glacier melt water and provides a sustainable alternative for water storage and management in the region. Hence, these methods have their own utility.

However, there are certain drawbacks. These artificial glaciers or ice stupas need to be made from the natural snow on a yearly basis. Artificial glaciers can only provide water to areas located within their vicinity. This means they may not address water scarcity issues in regions far from their location. This activity needs to be done on a large enough scale to merit due benefits of water storage. Also, the activity has to be done in winter per force and needs manual effort. There is a need to look for better solutions to manage water and its storage on a recurring basis in Ladakh.

Check Dams as a Water Storage Solution: A Permanent Water Stupa

One such solution can be the construction of very small-scale check dams on the various streams and *nalas*. Currently, these *nalas* run at full capacity during summers but dry up in winter. Once check dams are made in phases, water can be stored for use around the year. These check dams can store water and will automatically freeze in winter and act as a reservoir and there will be no need to create artificial glaciers or ice stupas. In addition,

due to the peculiarity of the terrain, there is a need to construct these check dams at various heights along one stream. This height difference between various check dams will ensure that the highest one will freeze first in winter and melt last in summer. It will, therefore, ensure a perennial supply of water in these *nalas*.

Another advantage of constructing these check dams will be to boost tourism. Leh is renowned for its stunning landscapes and adventurous activities. However, due to its high altitude and relatively warmer climate in the summer months, finding ice skating sites directly in Leh can be challenging. During the winter months when temperatures drop significantly, natural frozen lakes and ponds offer opportunities for ice skating. Currently, a small pond along the Leh Kargil route along the Indus River is used by locals for ice skating. Also, this site is used by Ice Hockey teams of the army and locals to practice. There is no other suitable site in the town of Leh for ice skating. A series of check dams along a *nala* will provide a suitable location for ice skating in winter and a photogenic background to tourists in summer.

The check dams are fairly easy to construct. A simple design that ensures no leakages and low water height along with adequate pondage at the selected site will meet the requirement. The design will have to factor in the seismic threat in the region and hence, it is deliberately kept at a low height. Also, the construction, operation and maintenance of these will also provide job opportunities to the locals. The operation of the check dams will involve maintenance of sluice gates and de-silting on a required basis, mostly annually in the lean season.

Case Study: Check Dams in Leh Town

The methodology of construction of these check dams can be easily implemented in various places, however, to understand the concept a case study of Leh is being presented here. The natural water source for Leh is the Khardung *Nala* which streams down from the snowcapped Khardungla range. This water source freezes during winter and is a gushing stream for a few days in summer. In 2023, this *nala* overflowed and led to a minor flood situation due to a cloud burst. It is proposed that a series of check dams be made on this *nala* at different elevations to better manage the flow of this water.

Image 1: Leh Valley Between Zanskar and Ladakh Range

Water Requirements v/s Availability for Leh Town.

Leh, the largest town in the Ladakh region of the Union Territory of Ladakh, experiences very low annual precipitation due to its high-altitude desert climate. The annual rainfall is typically less than 100 mm (around 4 inches). The bulk of the rainfall occurs during the summer months, from Jun to Aug, although even during this time, rainfall is minimal compared to other regions. The rainfall can vary from year to year, with some years experiencing even less precipitation than others. Leh's climate is characterised by cold winters and mild summers, with most of its precipitation falling as snow during the winter months. The snowfall in Leh typically occurs from late Nov to early Mar, with the peak of the snowfall usually happening in Dec and Jan.

Image 2: Catchment Area for Leh Town

The average annual precipitation in Leh is 100 mm as per data provided by the Defence Institute of High-Altitude Research. The catchment area north of Leh town is approximately 60 sq km, which lies on the ridge line to South Pullu.

One mm of rainfall provides approximately one litre of water per square meter. Out of this, approximately 50 per cent will be available for storage in check dams. Hence, the total volume available annually is likely to be 30 lakh Kilolitres (Kl). Leh has a local population of approximately 45,000. In addition, about 5,000 government servants and approximately 5,000 tourists (on a daily maximum basis in summer) are also located in Leh. Hence, the peak water requirement of Leh town (@100 litre per person) is 5,500 Kl/day. The annual availability in the check dams is likely to be 30 Lakh Kl against a requirement of 20 Lakh Kl.

Proposed Solution for Leh.

Proper storage and use of surface runoff can meet the water requirements of Leh in an efficient and eco-friendly manner. One of the efficient storage options is multiple small check dams constructed at various elevations across the Khardung *Nala*. These small check dams will freeze sequentially in winter and allow better stage-wise storage. In summer, the thawing will also be sequential and gradual based on altitude and hence, will meet the requirements of the users downstream, one check dam at a time. As one check dam melts, the water will be available for use while the check dam which is at a higher altitude will remain frozen and act as a reservoir for a later date. Thus, 8 to 10 small check dams can meet the total requirements for a sustained flow.

To achieve 30 Lakh Kl storage, an average height of 3 m, an average span of 300 m and a pondage of 333 m may be considered. However, a detailed ground survey will be required for detailed and adequate design. The construction can be carried out in phases based on the success of one check dam. The dimensions are only for preliminary planning purposes based on the author's visit to the site.

Within Leh Town, a near perennial *nala* runs from north to south. Steps should be created in this *nala* using local stones. This will help to slow down surface runoff, beautify the place and increase water availability as well as better groundwater recharge.
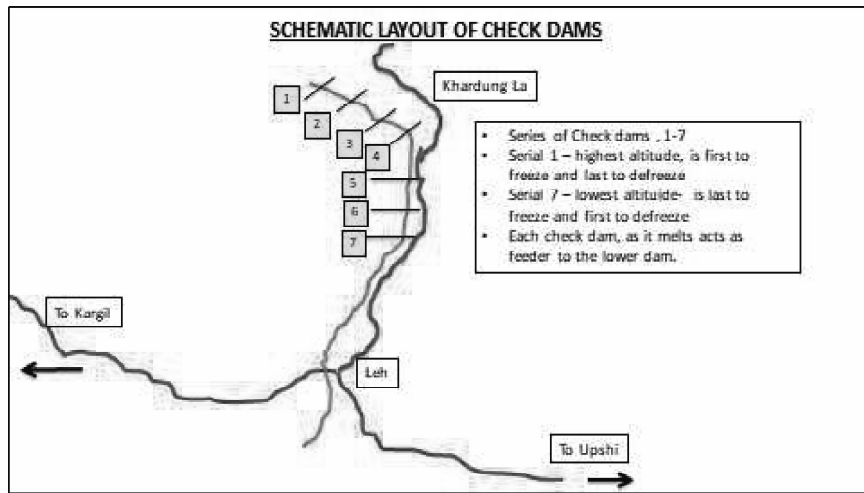
Figure 4

These check dams will help meet water requirements in an efficient and eco-friendly manner as well as facilitate groundwater recharge. If properly planned, these can become suitable sites for winter skiing and potential tourist spots and generate local employment. These can also act as short-duration storage in case of cloud bursts, thus, acting as trip wires for early information. There will be a boost to ice skating and these sites can act as micro-tourism sites.

Past experiences with various types of water storage mechanisms employed in Ladakh show that check dams could be the real solution. One such system is functional in Nang Village.[7] The system was built with funds from Tata Trust. However, suitable design modifications need to be carried out as per site requirements and geological conditions. In flow artificial glaciers have also been made at Alchi, Phuksey, Igu, and Nang. A better design with a more comprehensive approach is likely to be an effective solution. The efficacy of the entire check dam-based solution lies in comprehensive planning, sound design and the involvement of various stakeholders including locals, the water and tourism departments, etc.

Image 3: Improvised check dams at Nang Village

(Image courtesy @Sierra Gladfelter Fulbright-Nehru Student Research Scholar[7])

Recommended Way Ahead

Preliminary estimates suggest that the approximate cost of one such check dam is likely to be INR 8.10 cr. However, a detailed project report can be made before implementing the project in Leh. If the pilot project is successful, it will pave the way for large-scale implementation of these small check dams and will go a long way in mitigating the water shortage in Ladakh. Other government organisations and security forces may adopt a similar model on a smaller scale for various detachments spread along the vast landscape of the union territory.

The check dam project has the potential to benefit the locals in terms of water availability as well as job creation, both during construction and later as a tourist site. It can also actively boost ice skating sports in the region. If implemented and maintained properly, this simple solution can prove to be an eco-friendly solution to the water crisis in Ladakh. It will also ensure that awareness is raised about the need to conserve water among locals and tourists.

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The Elephant's Trumpet for Taming the Dragon

Air Commodore Shirish Dhakate@

*"There cannot be two suns in the sky,
Nor two emperors on the earth"*

-Confucius

Abstract

China's strategic historical thought processes and military culture have played pivotal roles in shaping its foreign policy and international relations. To understand the dynamics between the two Asian giants. China and India, it is essential to dissect China's historical beliefs, military philosophy, and how these factors influence its interactions with India, with the resulting impact on Sino-Indian relations and the implications for India. The historical palette of ancient China, where dynasties rose and fell, where the hues of internal politics changed with seasons; has left an indelible imprint on the country's strategic thinking. It would be highly instructive to examine the historical linkages in depth so as to understand the driver behind all Chinese engagements with their neighbours, adversaries and the world in general. It is also informative to note that China does not believe in friends since it eyes all other nations as subservient. The Indian leadership needs to learn to manage China deftly and defeat them in their own game. The second part delves into the modern trends, the future of Sino-Indian relations, and the way ahead concluding with the key proposals for India's China policy.

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Introduction

China, with its millennia-old civilisation, has a strategic culture and military stratagem deeply rooted in history, philosophy, and the Art of War. This article embarks on an exploration of the intricate shades of Chinese strategic culture, delving into its historical origins, the philosophical influences that shape it, and how it manifests in the military concepts employed by the People's Liberation Army (PLA) and the other arms of the Chinese Communist Party (CCP) and Central Military Commission (CMC). It is essential to unravel the nuances of China's approach to strategy, avoiding the pitfalls of clichés and delving into the depths of its unique strategic ethos.

China's strategic historical thought process and military culture have played pivotal roles in shaping its foreign policy and international relations. This is particularly evident in its complex relationship with India. To understand the dynamics between the two Asian giants, it is essential to dissect China's historical beliefs and military philosophy, and how these factors influence its interactions with India, with the resulting impact on Sino-Indian relations and the implications for India.[1] The article has been formulated in two parts, with this part featuring historical beliefs and philosophical developments over the ages till recent times.

Historical Beliefs

Historical Foundations: The Canvas of Ancient China.

● The historical palette of ancient China, where dynasties rose and fell, where the hues of internal politics changed with seasons; has left an indelible imprint on the country's strategic thinking. The concept of the 'Mandate of Heaven' asserting the divine sanction of rulership, has historically guided the governance and military endeavours of the Chinese. It represents a moral framework, emphasising the legitimacy of power and the duty of rulers to maintain harmony.

● "From the emergence of China as a unified state in the 3rd century BC until the collapse of the Qing dynasty in 1912, China stood at the centre of an East Asian international system of remarkable durability. China called itself *Zhongguo* (Central state or states) - The Middle Kingdom. A special feature of the Chinese civilisation is that it seems to have no

beginning. It appears in history less as a conventional nation-state than a permanent natural phenomenon. In the tale of the Yellow Emperor, revered by many Chinese as a legendary founding ruler, China seems to already exist. After each collapse, the Chinese state reconstituted itself as if by some immutable law of nature".[2]

● As dynasties shifted, so did the font of Chinese military stratagem. From the grand strategies of empires to the tactical brilliance of commanders like Sun Tzu, history laid the groundwork for a strategic culture that balances continuity with adaptation.

● The Chinese order believed that the Emperor was a figure with no parallels in the world and he combined the spiritual as well as secular prerogatives, being the political ruler as well as bigger than life concept. The emperor was considered as mankind's supreme sovereign, the Emperor of humanity. The Chinese protocol insisted on recognising his overlordship through the act of complete prostration, with the forehead touching the ground three times on each prostration.[3]

● "The Chinese believe that the neighbouring countries benefited from contact with China and civilisation so long as they acknowledged the suzerainty of the Chinese government. Those who did not were termed 'Barbarians'. Subservience to the emperor and observance of imperial rituals was the core of their culture. Chinese statesman relied on a rich array of diplomatic and economic instruments to draw potentially hostile foreigners into relationships the Chinese could manage. China exploited divisions amongst the barbarians, famously using barbarians to check barbarians and when necessary, using barbarians to attack barbarians".[4] This implies that the Chinese were adept at wily statecraft, where they exploited one adversary against the other to gain an advantage.

● "The five baits as practised by the Hun dynasty were used with guile to befuddle the opponent. To give them elaborate clothes and carriages in order to corrupt their eyes. To give them fine food in order to corrupt their mouths. To give them music and women in order to corrupt their ears. To give them lofty buildings, granaries and slaves in order to

corrupt their stomachs. For those who come to surrender, the emperor should show them favour by honouring them with an imperial reception party in which the emperor would personally serve them wine and food so as to corrupt their mind".[5] The Chinese have been using these in modified forms in modern times, wherein, they use these forms of corruption to mislead their adversaries into believing their charade and inducing a sense of complacency. Negotiations post the Galwan Crisis with the Chinese have been proving to be a game of statecraft, guile, unverifiable promises, nebulous steps, delay tactics and a vague future, all aimed at psychological dominance.

● "China's exceptionalism is cultural; it does not proselytise like the Christian or Muslim faiths or the American exceptionalism which wants to spread its values to every part of the world".[6] It does not claim that its contemporary institutions are relevant for others outside China. It considers itself a heir of the Middle Kingdom tradition, which formally graded all other states as various levels of tributaries based on their approximation to Chinese cultural and political forms; in other words, a kind of cultural universality.

● In statecraft, the Chinese stress subtility, indirection and the patient accumulation of relative advantage. "China's most enduring game is *Wei Qi* (Go) that is a game of surrounding pieces and implies a concept of strategic encirclement. *Wei Qi* is about the protracted campaign where the player seeks relative advantage and aims to encircle the enemy".[7] The game is also known as 'Go' is a game of encirclement and capture, that takes place on a board of 361 squares. "The object of Go is not to capture the opponent's actual pieces but rather to surround empty territory on the board. This is done by building encircling 'Walls' around these empty spaces. The game is played by two people, with a black and white set of pieces, just as in chess. Wei Qi generates strategic flexibility".[8] Chinese thinkers like Sun Tzu placed a premium on victory through psychological advantage and preached the avoidance of direct conflict. "The Chinese thinking as against Western philosophy is based on the prominence of psychological and political elements, compared to the purely military".[9]

Philosophical Palette: Confucianism, Daoism, and Legalism.

● The rich philosophical palette comprising of the colours of Confucianism, Daoism, and Legalism painted the mosaic of the strategic culture of China, giving various hues to its military doctrines and national ethos. Confucian ideals of benevolence, righteousness, and propriety extend to the realm of warfare, emphasising the ethical conduct of military operations, and providing the underlying base to the strategic canvas.

● Daoism's influence provides the flow and mix of colours to the overlying strategic creation, introducing the concept of *Wu Wei*, or 'Effortless Action'. This concept believes in a flexible and adaptive approach to strategy, echoing the importance of aligning with the natural flow of events.

● On the contrary, legalism, with its pragmatic emphasis on strict laws and state control, contributes to the realpolitik aspect of Chinese strategy, providing the definition to the characters on the canvas. It underscores the necessity of a powerful state apparatus to ensure order and stability, reflected in the centralised command structure of the PLA. This is visibly evident in the centralised control exercised by the CPC and the CMC.

The Art of War: Sun Tzu's Enduring Legacy.

● At the heart of Chinese military stratagem lies the timeless wisdom encapsulated in Sun Tzu's 'The Art of War'. Far from a mere treatise on battlefield tactics, Sun Tzu's work explores the psychology of conflict, the technique of strategic ruse, and the importance of understanding both self and adversary. As the master Sun Tzu said, "Ultimate excellence lies not in winning every battle, but in defeating the enemy without ever fighting".[10]

● Sun Tzu's aphorisms, such as "All warfare is based on deception" and "Supreme excellence consists of breaking the enemy's resistance without fighting" reverberate through the corridors of military academies and strategy chambers worldwide. The enduring relevance of Sun Tzu's insights attests to the perennial wisdom encapsulated in his words.

- Sun Tzu gave an important insight into the word *Shi*, which connotes the strategic trend or potential energy of a developing situation, or the power inherent in the particular arrangement of elements and its developmental tendency. For Sun Tzu, mastering *shi* is akin to water flowing downhill automatically finding the swiftest and easiest course along the path of least resistance.

As the Dragon Rises

The Century of Humiliation and National Rejuvenation.

- "The 19th and early 20th Centuries, known as the 'Century of Humiliation', marked a tumultuous period in Chinese history. Foreign invasions, internal strife, and economic exploitation left a lasting impact on the Chinese psyche. Century of Humiliation or 'Hundred Years of National Humiliation' describes the period of intervention, and subjugation of the Qing dynasty and China by Western powers and Japan from the First Opium War (1839–1842) to the People's Republic winning the Civil War in 1949".[11]

- The use of the term *Quru* or Humiliation arose in the atmosphere of rising Chinese nationalism opposing the 'Twenty-One Demands' made by the Japanese government in 1915 and grew with protests against China's treatment in the Treaty of Versailles in 1919. The Kuomintang (Chinese Nationalist Party) and Chinese Communist Party popularised the characterisation in the 1920s, protesting the unequal treaties and loss of territory. In the 1930s and 1940s, it became common to refer to 'A Century of Humiliation'. Although the formal treaty provisions were ended, the idea remains a central concept in Chinese nationalism, widely used in both political and popular culture.[12]

Mao's era.

- Mao Zedong, as the leader of the new Communist China after the Great Revolution, unleashed wave after wave of struggle and did not permit the Chinese people to rest on their accomplishments. Mao was the first leader since the unification of China to tear apart Chinese traditions as a deliberate act of state policy. He believed that the only way for China to grow and break from its past was to rejuvenate China by dismantling, at times brutally, its ancient legacy.

●   Mao articulated the canons of unending upheaval, but when the Chinese national interests required it, he could be patient and take a distant view. The manipulation of contradictions was his stated strategy. Yet it was in the service of an ultimate goal, drawn from the confusing concept of *Da tong* or the Great Harmony.

●   The Great Leap Forward was a period of extreme sacrifices. It was a five-year economic plan executed by Mao Zedong and the CCP, begun in 1958 and abandoned in 1961. The goal was to modernise the country's agricultural sector using communist economic ideologies. Instead of stimulating the country's economy, the Great Leap Forward resulted in mass starvation and famine. It is estimated that between 30 and 45 million Chinese citizens died due to famine, execution, and forced labour, along with massive economic and environmental destruction. "The Great Leap Forward remains the largest episode of non-wartime mass killing in human history, and a clear example of the failures of socialism and economic central planning".[13] However, this episode strengthened the resolve of the CCP to pursue other means of national rejuvenation. The memory of this era has become a powerful driver of contemporary Chinese nationalism and the pursuit of national rejuvenation.

●   "Mao dealt with this endemic state of affairs by pretending it did not exist. He claimed to be impervious to nuclear threats. Indeed, he developed a public posture of being willing to accept hundreds of millions of casualties, even welcoming it as a guarantee for the more rapid victory of communist ideology. He succeeded in making the rest of the world believe that he meant it - an ultimate test of credibility".[14]

●   Mao, like several founders of dynasties before him, claimed the frontiers of China that the Empire had established at its maximum historic extent. The territories Mao considered part of historic China were Taiwan, Tibet, Xinjiang, Mongolia and border regions in the Himalayas.

●   The melange of contradictions in Chinese society in the late 1950s and early 1960s, the struggle to keep the society on the path to progress through continued sacrifices and struggle and its stoic resilience are an ode to Mao as the people's leader. It is to his credit that despite all the pressures

and isolation in the world, he managed to foresee the Indian reluctance to kowtow to their requests and led a military campaign that further proved his mettle as a leader and visionary. Nehru was faced with all-round opprobrium for his unrealistic hubris, not just within the country but across the world and he never could rise from this affront.

The Handshake of the Eagle and the Dragon.

● Henry Kissinger, one of the most erudite and egregious diplomats on China, unveiled an unequivocal narrative on Chinese historical culture involving its strategic thought process and worldview. He was responsible for the Nixon-Mao meeting in 1972, which opened the doors of Western technology for a beleaguered China. This was the impetus desperately needed by the Chinese to leap forward. Little did Kissinger know that the dragon he nurtured as a friend and helped grow, would one day spew fire at the United States (US) itself. An old adage goes, 'You create a tiger, tiger will eat you in the end'.

● Deng Xiaoping chose a method from Chinese classical history and gave the classical 24-character instruction and a 12-character explanation, which was restricted to high officials. The 21-character instruction read, "Observe carefully, secure our position, cope with affairs calmly, hide our capacities and bide our time. Be good at maintaining a low profile and never claim leadership".[15] The 12-character policy explanation followed with an even more restricted circulation among the leaders which read, "Enemy troops are outside the walls, they are stronger than we; we should be mainly on the defensive".

● "The resilience, capabilities and cohesion of the Chinese people, are the strengths on which the Chinese leadership rest their strategy. Chinese leaders have a profound faith in the Chinese people's ability to retain the essence amidst all vicissitudes".[16] Even today, the Chinese people are willing to live in isolation and insulation from the world within their so-called Middle Kingdom, insulated on social media, because of their faith in the leadership. They believe that with nothing to lose, you are ever stronger. China has always been the lone wolf and never cared for anyone else's concerns. China's determination to regain its historical status as a major global

power is evident in its current national strategy. China embraced the model of capitalism in the late 1980s, and liberal thought to an extent. But traditional centralised control and autocratic model of governance continued. The emphasis on economic development, military modernisation, and technological advancement aligns with the goal of restoring China to its perceived historical glory.

Start of an Era. Under the eagle's (US) sharp gaze, the dragon started growing, strengthening its wings, sharpening its claws and developing its fiery breath. The real economic development was propelled by the US technological assistance and funding, which suited both of these giants. For the US, they saw China as a hedge against the Union of Soviet Socialist Republics with whom the Han's relations were going downhill. The resilience and hard work of the Chinese peasant population, driven hard under a focused leadership of the CCP made progressive leaps and became the factory for the world. The sustained economic growth spurred Chinese forays into the military, technology, science and space domains further cementing its standing in the world. In the next part, the article explores the modern dynamics and the future developments.

"The opportunity to secure ourselves against defeat lies in our own hands, but the opportunity of defeating the enemy is provided by the enemy himself".

- Sun Tzu

Conclusion

History has proven time and again that the primary guarantor of a nation's sovereignty is its military power. Investment in developing a future-ready and strong military may not appear to pay dividends in the short term but it adds immense value to the country's progress by ensuring its growth and survival. The gestation period for developing any military capability is nearly a decade and a half.

The dragon is likely to start flapping its wings in the later part of this decade as it starts matching US capability for capability, then would start growling to dictate terms by early next decade, roar to threaten enemies by the end of next decade and finally breathe fire to destroy its enemies in the decade starting 2040 to realise the master's dream of 2049. Therefore, if India has to be prepared for the Dragon's roar which may come close to the end

of the next decade and avoid its breath of fire, there is a need to put in motion the processes to step up military capabilities in this decade itself.

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Local Community First: India's Enduring Peacekeeping Ethos

Colonel (Dr) KK Sharma (Retd)[@]

If thou hast no sympathy for the troubles of others
Thou art unworthy to be called by the name of a human.[1]

Abstract

India's peacekeepers' contributions to the United Nations Peace Operations (UNPOs) are well recognised due to their professionalism, time-tested ethos of openness, respect for diversity, coexistence, and cooperation. The core ethics of the Indian Army rest on three pillars, viz; spirit of comradeship regardless of caste, creed, or religion; 'One for all and all for one' with no discrimination; and discipline and integrity under all circumstances. Indian peacekeepers at all levels have negotiated peace with the trust and respect of the local communities by making them equal partners in their endeavours, provided extensive medical and veterinary assistance and worked tirelessly to restore damaged infrastructure in the host countries. The reputation of the Indian soldier as a motivated peacekeeper has been amply established in the last 49 UNPOs, where they have excelled in working for the local communities, even when they were under shelling due to an ongoing conflict. They have

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helped local communities in conflict zones, by building their lives and infrastructure, through engineering, medical and veterinary support. In the UNPO environment, every Indian peacekeeper believes in the 'Local Community First' principle, because it flows out of India's enduring peacekeeping ethos.

Introduction

India is proud of its long-standing contributions to the United Nations Peace Operations (UNPOs), which commenced with the United Nations (UN)-mandated Neutral Nations' Repatriation Commission (NNRC) in Korea in 1953. It has grown to more than 2,80,000 troops by Jun 2024, deploying in more than 49 UN missions[2] out of 71. As many as 179 Indian peacekeepers have made the supreme sacrifice while serving in these missions. Indian diplomats, soldiers from the armed forces, police personnel and civilian peacekeepers have taken part in some of the most complex and intractable operations spanning the four continents. The ancient Indian wisdom of *Vasudhaiva Kutumbakam* or 'World is One Family', echoes in these endeavours, with its time-tested ethos of openness, respect for diversity, coexistence, and cooperation.

India's approach to peacekeeping is characterised by its emphasis on impartiality and non-use of force except in self-defence or defence of the mandate. The bedrock of operations remains respect for the culture, sovereignty and territorial integrity of the host country. India has also provided humanitarian assistance operations where India's teams of rescuers, doctors, and para-medicos continued to save lives.

The motto of India's first UNPO was 'For the Honours of India', given by General KS Thimayya, the Chairman of the NNRC in 1953. Indian contingents on various UNPOs are at the forefront of rescue operations in even in any natural disaster. When Mount Nyiragongo erupted in Eastern Congo in May 2021, Indian peacekeepers from the 301 Infantry Brigade were the first responders to saving thousands of lives. Similarly, the role of army doctors during the COVID-19 and Ebola crises was recognised by the international community in South Sudan and the Democratic Republic of Congo (DRC). Since Jul 2022, an estimated one million people have been affected by severe flooding

in 36 counties across South Sudan and Indian battalions were at the forefront to save the civilians from the ravages. Indian engineers and humanitarian partners managed to repair flooding-induced breaches in Bentiu, the capital of Unity State.[3] The core ethics of the Indian Army[4] rest on the following three pillars:

- The spirit of comradeship and brotherhood of the brave, regardless of caste, creed, or religion.

- The motto 'One for all and all for one' with no discrimination on account of caste, race, creed, or religion where each one is a soldier first and anything else later.

- Discipline and integrity impart the feeling of patriotism, honesty, and courage under all circumstances, however strong the provocation otherwise.

The article brings together varied experiences and applications of humanitarian actions by the Indian peacekeepers in the past 73 years of commitment to the UNPOs. This paper is a review-based collation and analyses of different UN missions, with direct or indirect impacts on the local communities. It is based on the open-source literature and personal experiences of many Indian peacekeepers. The limited scope of the paper is as follows:

- Negotiations with trust and respect.

- Community outreach.

- Medical and veterinary assistance.

- Restoration of infrastructure.

Negotiations with Trust and Respect

India has extensive experience in using dialogue to manage and resolve conflicts internally, regionally and internationally. While Indian diplomats have excelled at the multilateral levels, military leaders have been equally articulate and doused many a fire in their assignments across the globe. As an example, the Custodian Force from India (CFI) in Korea was holding Chinese and North Korean prisoners of war for their repatriation.[5] Some of the Chinese soldiers did not want to go back to China, creating an agitation in a camp. In one such event, the tense atmosphere prompted Major General SPP Thorat, Commander CFI, with a small party to visit the camp and as they were returning, one of the Indian officers

was surrounded and held back by the Chinese prisoners. Not ready to leave a brother officer behind, the Commander and a few soldiers went back to negotiate. The CFI Commander engaged with one of the prisoners who spoke some English. After some time, he took out his cigarette case and asked that prisoner, "What sort of Chinese are you? I and my men have been your guests for almost an hour but you have not seen it fit to offer a cup of tea or even a cigarette. Where is your traditional hospitality and where are your good manners for which your race is renowned"?[6] A true exhibition of patience and a simple approach in a tense situation amazed the prisoners and compelled them to bring tea and cigarettes. Much can be achieved even in a tense situation with the presence of mind, rather than the brutal use of force.

After the elections in Cambodia [United Nations Transitional Authority in Cambodia (UNTAC), 1992-93], the results of the elections declared on 10 Jun 1993 were contested by a splinter group, under Prince Norodom Chakrapong, the governor of Kampong Cham and the stepson of Prince Sihanouk. He declared an autonomous zone comprising the provinces east of the Mekong River and asked the UN forces to vacate the areas. All three provinces were part of the Indian battalion area. Colonel AN Bahuguna, the sector commander negotiated with the governor and informed him about the inherent capacity of the UN contingent to act in self-defence. Lieutenant General John Sanderson spoke about the secession and Indian response. Colonel Bahuguna told him that he was afraid that he might have to arrest the governors and take forceful actions in the capitals of all three provinces. In the end, all governors relented their move. Peacekeeping operations can be moved forward by a determined exposition of intent to the spoilers – something which the Indian battalion did at this crucial juncture and changed the course of events for UNTAC.[7]

India's defence and police leaders have played their part in the strategic leadership role at the United Nations Headquarters (UN HQ). After NNRC, the roles of General KS Thimayya, Lieutenant General PS Gyani, and Lieutenant General Dewan Prem Chand in Cyprus and the Middle East stand out as true negotiators of peace. Major General Indarjit Rikhye and Lieutenant General Dewan Prem Chand negotiated many critical moments in several UN missions and brought peace to those areas. India has

provided numerous senior officials for the UN HQ and UNPOs, where they continue to negotiate peace with all the stakeholders. They were either diplomat negotiators or military diplomats engaged in intense negotiations and peacekeeping at the strategic and operational levels of UNPOs.

Community Outreach

The Indian Army's cultural sensitivity to the local communities is respected all over the country. Keeping community first with utmost respect for the local traditions, Indian peacekeepers have provided medical services, veterinary support and engineering services required by the local communities. These activities have contributed to sustaining the livelihood of conflict-impacted areas and acted as a catalyst, thus initiating peace-building in the strife-torn areas.[8]

India with its varied weather patterns, vast extent and rugged terrain, continuously faces many natural disasters. Indian Armed Forces are invariably the first responders. Therefore, working in the UNPOs is usually a replication of the home situations. When the First UN Emergency Force was deployed in Gaza during 1956-57, the locals welcomed the Indian peacekeepers with open arms. The units over the next 11 years, till Jun 1967, displayed a community-first attitude and took many initiatives by involving local youths in various productive and positive activities. The Indian contingent took up positions in various population centres and was constantly involved in assisting local administration.

While the 99 (Independent) Brigade Group in Congo (UN Operation in the Congo, 1960-64) was primarily involved in the operational missions, it still looked after the civil population around its locations and had a limited policy on the protection of civilians. Nearly 30 years later, 66 (Independent) Infantry Brigade Group was deployed in Somalia (UN Operations in Somalia-II, 1993-95). The brigade laid down the basic fundamentals for all peacekeepers - local traditions and customs must be scrupulously respected. To evolve the community-first approach, a civil affairs cell was set up to collate the humanitarian needs of the locals. As a novel experiment, the cordon and search operations were conducted transparently by involving village elders and the local police. This innovative *modus operandi* (method) of conducting operations in front of the village elders and clan chiefs paid rich dividends as the locals became the prime stakeholders in their security. The

brigade had identified humanitarian actions as one of the most important components of its operational activity.[9]

After ten years, the 301 (Independent) Brigade Group was deployed to the UN Mission in the DRC in 2005 and continued to operate for the next mission – the United Nations Organisation Stabilisation Mission in the Democratic Republic of the Congo (MONUSCO). The brigade has been involved in some of the most complex operations against many rebel groups. Despite the major focus being on the maintenance of peace and protection of civilians, the units of the brigade did not lose sight of the community welfare. The activities of the brigade related to winning the hearts and minds have been well-recorded over the last 19 years. All units have their strategies for Quick Impact Projects (QIPs) affecting the local population.

At the Indian contingents (Battalion) level, the emphasis has always been on the secondary mission of humanitarian activities. The battalions deployed in Gaza in 1956-67, Cambodia in 1992-93, Rwanda in 1994, Angola in 1995, Sierra Leone in 1999 and all other components, prepared community-first policies for their operations. India deployed its first contingent (2/4 GORKHA RIFFLES) in Lebanon (UN Interim Force in Lebanon, 1978-TD) in Sep 1999 and made a conscious effort to bring normality to peacekeepers' dealings with the Lebanese citizens. Checkpoints were remodelled where women teachers and children going to schools were subjected to only random checks in a separate queue.[10] During the 34-day operation by Israeli Defence Forces in Lebanon in 2006, Indian Battalion, 4 SIKH stayed put at the blueline and looked after hundreds of civilians. Exceptional humanitarian assistance was provided even when shells were landing all around.

Similarly, immediately after their induction in 2004, the Indian battalions of the UN Mission in Ethiopia-Eriteria (2000-2008) developed a comprehensive policy on the secondary tasks of Civil-Military Coordination and Cooperation (CIMIC) activities. This policy formed the basis of all CIMIC activities in the Indian Sector. The guiding principles as per the policy included community consent, impartiality in dealing; improving community relations with the peacekeepers; executing QIPs; and helping civil administration to bring back normalcy.

Medical and Veterinary Assistance

Intra-state conflicts or civil wars bring untold miseries to the hapless civil population, which is uprooted from its villages and made to stay in temporary shelters. Besides food and shelter, they need medical attention on priority. Indian Army's medical contribution to the international cause started on 20 Nov 1950, with the landing of 60 Para Field Ambulance unit in the Port of Pusan, on the southern tip of Korea. Lieutenant Colonel AG Rangaraj and his paratroopers served in the battle zone with the Commonwealth troops, while a part of the unit under Major NB Banerjee worked in the field hospitals in Taegu. They also trained local doctors and nurses so that they could take care of the wounded soldiers.[11] Thus, the very start of the Indian participation in UN-mandated operations and UNPOs was with the medical services and relief to the affected people.

Indian field ambulance units, hospitals and medical personnel with the units on UNPO duty have treated the local population with great care and without any hesitation. The bigger medical contributions came in the form of these units. A decade after the Korean experience, 152 General Hospital was diverted from Leh for the UN peacekeeping duty in Congo. Lieutenant Colonel NB Banerjee of Korean fame used his experience to set up medical facilities under the most adverse situations. The Indian UN Hospital was set up in Leopoldville (now Kinshasa) in Sep 1960. Two other medical facilities were also set up in Lulubourg (Kananga) and Coquilhatville (Mbandaka). The hospital provided the medical facility to 20 countries and also treated several local Congolese.

After 30 years of Congo experience, a reinforced 402 Field Ambulance proved a valuable asset to the UN Mission and local community in Cambodia in 1992. It also provided two smaller hospitals in Siem Riep and on the Vietnamese border at Mandolkiri. As a humanitarian gesture, the Field Ambulance provided medical relief to thousands of civilians around their location. 320 Field Ambulance Unit under the Indian 66 (I) Brigade Group in Somalia proved to be one of the most important components. It not only provided medical cover to the Infantry Brigade but also carried out many humanitarian activities. Over two lakh patients were treated during its one-year stay in Somalia. An Indian Field Hospital was inducted in Sierra Leone (UN Mission in Sierra Leone, 1999-2005)

in the building of Chatham Memorial Trust Hospital. Medical assistance was provided to the patients admitted to the hospital and locals of Kailahun. The Indian battalions organised a 'Kick Polio out of Sierra Leone' campaign in Daru and Kailahun. A free medical clinic was opened at Daru by the battalion to provide medical aid to the poor and needy.

In DRC (MONUC/MONUSCO, 1999-TD), India deployed a Level-II hospital at Goma in Jan 2005 and handled many civilian cases ranging from malaria to gunshot wounds and even treated airline passengers for severe stress and injuries after their Congolese carrier over-shot the runway at Goma International Airport.[12] In 2020, on UN request the hospitals were scaled up to Level III to mitigate and contain the COVID-19 outbreak.[13] Similarly, South Sudan (UN Mission in South Sudan, 2005-TD) has Level I, II and II Plus Indian Field hospitals located in different sectors. After the fighting in Dec 2013, the hospitals also treated internally displaced persons living at the nearby sites and residents of the larger community.

While the larger Indian peacekeeping forces have been deployed with well-equipped medical hospitals, Indian contingents of battalion size have also been running medical facilities with their inherent medical resources. Indian women doctors have been very effective for the locals, as local women in traditional societies are not comfortable with the male doctors.[14]

The local economy of the rural countryside is highly dependent on the well-being of their animals. The Indian brigade group deployed in Somalia was the first to deploy medical teams with veterinarian doctors. Livestock remains the backbone of the Somali and most other African economies. The veterinary detachments of Indian peacekeeping contingents have provided services to revive the livestock, badly affected due to civil wars. The veterinary personnel also train locals in rendering basic veterinary treatment. All units deployed in Lebanon since 1999, have provided the services of vet teams. Similarly, the veterinary support in South Sudan was very rewarding for the local communities. A veterinarian doctor was assigned with a dedicated office and support team to cater to the 'Wealth in Cattle' that is a reality in South Sudan.[15] The Indian contingent is well known and respected for their frequent mobile veterinary clinics in different parts of Upper Nile State.

Restoration of Infrastructure

When 66 (I) Infantry Brigade Group started its QIPs, then called humanitarian activities, much resistance came from the international Non-Governmental Organisations and humanitarian agencies, as they considered it stepping onto their exclusive turfs. Ironically, the UN has accepted the same term as a best practice now, and all present missions have QIPs in the areas of deployment. Besides the Indian battalions doing their bit for the local communities from their resources, the Indian Field Engineer companies in Somalia, Angola, Rwanda, Eritrea, Sierra Leone, South Sudan and DRC played a major role. The field engineers have worked tirelessly and proved to be one of the most productive and effective elements in the execution of humanitarian operations. One of the major tasks performed by the engineers in all missions was to enhance mobility by improving, repairing and even laying new roads and repairing broken bridges in the countryside.

Restoration of drinking water facilities has been a much-admired effort by Indian peacekeepers in the parched landscapes of Somalia, Eritrea, Mozambique and Angola. The installation of hand pumps in the Wajid and Oddur areas of Somalia touched the very hearts of every citizen. Water management by digging hundreds of shallow and deep wells was exceptional work done by the Corps of Engineers in Eritrea. A longstanding project of a water pipeline to the village of Bulele was revived and executed in record time. In Lebanon, a project to supply water to a dozen villages by lifting water from the Litani River was achieved by the engineer platoon of an Indian battalion in 2000.

The Field Company (Engineers) have played a pivotal role in giving shape to Sector III in South Sudan. The sappers created ablution units, laid pipelines for water supply, electrified the camps, arranged sewage disposal, erected prefabricated shelters, constructed roads for access and managed water supply. In Rwanda, the Indian battalion had carried out well-coordinated humanitarian aid programmes with its limited resources. Force Commander Major General G C Tousignant of Canada visited the Battalion headquarters and in his farewell address, paid rich tributes to the Indian contingent: "You brought to UNAMIR, to the UN, to Rwanda a sense of pride…. You came in and you demonstrated what it is to be a good soldier and you brought respectability to the mission. You brought also a sense of professionalism in

everything that we have to do for the Rwandese. I say this without any reservation; you are probably one of the best soldiers in the world at this time".

Activities of successive Indian battalions of 301(I) Brigade in DRC have also centred on youth development, public awareness, public welfare and QIPs. Youth exchange programs included sports and cultural activities. The peacekeeping contingents in Lebanon, South Sudan and Abeyi continue with their humanitarian activities which include public awareness, symposia, seminars, vocational training workshops, public development programs, medical care, construction of roads and bridges, ensuring water supply and various other programs. The successful completion of many projects generated a great deal of goodwill and trust among the local population towards the Indian contingent and the UN mission.[16]

Conclusion

The Indian troops in the Mozambique UN mission in 1993-1995 conducted many humanitarian and construction activities by keeping the requirements of the local communities in mind. The then UN Secretary-General Mr Boutros Boutros Ghali, applauded their role and in an interview with BBC, he acknowledged the untiring efforts and dedication of Indian Army officers and troops. He said, "The Indian troops, by their superior training and high standard of discipline and sense of responsibility, have had a significant contribution in ensuring the early return of peace in Mozambique".[17]

The reputation of the Indian soldier as a motivated and fearsome fighter was amply established by the end of World War II. It was only after the Independence that the Indian soldier came to be recognised as a peacekeeper or peacemaker. Participation in over 49 UNPOs has reinforced this reputation of an Indian peacekeeper. "Give me an Indian battalion…", "I wish all my battalions were from the Indian Army …" or "Get me more Indian officers…" are requests often heard from the UN mission commanders of other countries. The obvious reason for this high acceptance remains - the ethos of the armed forces, the plural nature of India, and growing up in a multicultural society. In the UNPO environment, every Indian peacekeeper believes in the 'Local community first' principle, because it flows out of India's enduring peacekeeping ethos.

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Atmanirbhar Bharat: Establishing Credible National Cyber Capability

Colonel Suraksh Vir@

Abstract

Cyberspace is a man-made construct, thus, imperfect, and hence vulnerable. Vulnerabilities enable nation-states to exploit cyberspace for further national aims. Exploitation exists due to Western dominance in cyberspace systems, technology, services and software. Atmanirbharta (Self-reliance) and a few optimisations in cyber defence, exploitation and offensive capabilities shall enable credible cyber deterrence for a nation.

Introduction

With the advancement of networks and digitisation 'Cyberspace' has harnessed an independent construct and a domain for itself. At present, there are 14.4 billion connected devices globally compared to the roughly 8.1 billion population of the world. According to Cisco's new Annual Internet Report Forecast[1], by 2024, there will be more than three times more networked devices on Earth than humans. The ubiquitous and inescapable requirement of networks has opened an extra dimension of warfare/vulnerability for nation-states.

Vulnerability is the driving force in the cyber domain. They arise due to the gap between theory, practice and capabilities. The growing reliability of nations on digital networks, globalisation and accessibility from outside, make these vulnerabilities exploitable. Cyber offensive requires the targets to be accessible

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and possess vulnerabilities at the required time of engagement. The major impact of a cyber offensive is to create temporary confusion and frustration among the enemy.

Tenets of Information and Cyber Operations

In the era of an always connected, unregulated web environment (the majority being deep and dark web), it is impossible to remain unaffected by perceptions created for furthering national and international aims by nation-states. The advancement of the internet and networks has given birth to the 5th dimension of warfare in terms of Information Operations (IO). Thus, every nation shall endeavour to enhance its capabilities to achieve information superiority as a whole, wherein, cyberspace forms an integral and potent role.

Overt IO are the ones, wherein, the initiator takes ownership of such operations and seeks a visible advantage e.g., government advertisements promoting its policies or operations against cybercriminals etc. Covert IO are those where in the nation-state sponsorship is denied once exposed. Due to the convenient anonymity offered by cyberspace, it presents itself as an ideal choice for conducting covert IO and creates a viable cyber operations capability for a state. Accordingly, the capability enhancement in cyberspace has to be worked out in synergy with other verticals of IO and aims to achieve desired information supremacy.
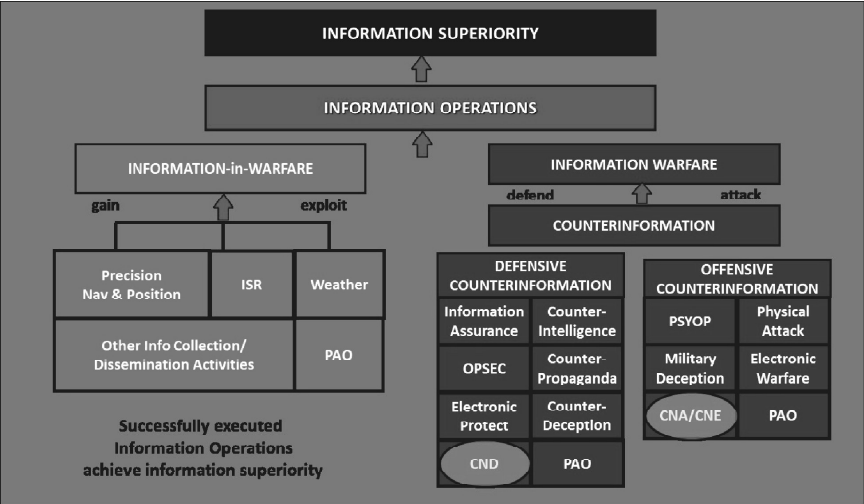

Figure: Tenets of Information Superiority [2]

Cyber deterrence refers to a nation's capability to dissuade potential adversaries from engaging in Cyber Network Exploitation (CNE) or Cyber Network Offensive (CNO) operations against its interests, while also enhancing its own Electronic Warfare (EW), kinetic, and satellite operations both strategically and tactically. It is achieved by presenting a credible demonstrated capability of severe counteraction and conveying to the adversary that the cost of all such actions shall outweigh its perceived gains. Cyber deterrence operations being a covert IO, come with a rider of appropriate countermeasures by adversaries, either physically or in the cyber domain. The ability of a nation to manoeuvre such IO and countermeasures to its advantage defines the cyber reliability and capability of the nation. Integrated cyber deterrence has emerged as an enabler in the overall deterrence capability of a nation.

The ability to create, identify and weaponise a particular vulnerability defines the cutting-edge potency of IO of the country. Thus, achieving self-reliance in the domain is a must for denying equal opportunity to adversaries and ensuring stable and robust cyber defence for one's own state.

Historical Perspective and Vulnerability Analysis: Western Dominance of Cyberspace

Due to the long occupation of India by the British and other European countries, as well as their global presence, the globe was left around to follow a Western legacy and align with Western systems and services. It was imperative and necessary at that point in time to follow suit due to inherent economic conditions and security issues. They left India with an education system which was primarily biased towards the West and the progress depended upon the utilisation of the systems and services offered accordingly.

The present-day internet comprises of networks and applications that are deployed and operated majorly by Western countries. Microsoft Windows, the world's most used Operating System (OS) with a global market fixed at approximately 65.0 per cent is based in Washington. Google, Gmail and Android have a maximum global presence with Headquarters (HQs) in California. Cisco Systems, Inc., and Juniper, the major world leaders in routers and networking, have HQs in San Jose and Sunnyvale,

respectively. Starlink, the pioneer in satellite-based Internet Service Provider is American. Though, these companies are private and commercial in nature, but their dependency at the time of conflict cannot be guaranteed due to political or nationalistic interests.

A recent example is the ongoing Russia-Ukraine conflict where Microsoft ensured a special release of Windows OS patches for Ukraine's Information and Communication Technology (ICT) systems. This was aimed at denying any advantage to Russian state hackers to unleash potent cyber-attacks. Another example is the free provision of Starlink-based internet to Ukraine.[3] The technology was instrumental in guiding Ukraine's drone strikes on Russian tanks and positions. Though later on the services were discontinued but such possibilities exist.

Maximum social media platforms with a global presence like WhatsApp, Facebook (Meta), X (Former Twitter) etc., are owned and located in the United States (US). It has to be granted to Western countries' vision in understanding and creating control on such platforms, even if it requires paying hefty prices. The purchase of Hotmail, the first web-based Email platform, co-developed by Mr Sabir Bhatia[4] (Indian) for USD 400.0 mn by Microsoft in 1997 and the recent takeover of Twitter by Elon Musk for USD 43.2 bn[5] in Oct 2022, etc., should not be viewed only as commercial ventures. The power of social media and email platforms in creating world perceptions and as a potent tool for hybrid/grey warfare and cyber exploitation is known to all.

However, now after 75 years of Independence and having established the foundation, as the 5th largest and evolving economy along with an inherent young, energetic demographic profile, Bharat is at the cusp of revolution in cyberspace. Bharat is an evolving nation with the second largest (800 million) digital population in the world. Bharat's tremendous success in the digital economy has been appreciated globally. It is with pride that CEOs of leading global Information Technology (IT) businesses (Microsoft, Google, Twitter till recently etc.,) are being headed and driven by Bharat nationals. Bharat's developer community is on an exponential rise, with the second largest developer community (13.2 million developers) presence on GitHub (a renowned online software developer platform)[6] and set to take over the US by 2027.

Developing nations, like Bharat, presently have to rely heavily on services, applications and systems offered by developed nations and, hence, the inherent vulnerability exists. In order to achieve true potential for creating a reliable cyber capability, it is imperative to have indigenous systems and software that can be fully relied upon and are free from any supply chain and propriety issues. It is an opportune time for Bharat to come forward and establish *Atmanirbharta* (Self-reliance) in software industry and systems in order to become a force to be reckoned with in the cyber domain and diplomacy, a vision it can easily achieve.

Need for *Atmanirbharta*

Viable and strong cyber capability stems from two inherent cyberspace components. First to have knowledge of the systems and services of adversaries with the capability to exploit their vulnerabilities at the time and effect of own choosing, and second, to have ownership and control of their own systems and services to be able to minimise damages in case of any offensive/counter-offensive by adversaries.

Except for China[7], (whose vision to stay untouched by Western influence and develop its own systems and services has paid rich dividends albeit at the cost of the privacy of its citizens), most of the Indian adversaries are on similar Western platforms and thus share similar vulnerabilities. Hence, it creates a level playing field for Bharat and a comprehensive and synergised approach to Cyber Network Defence (CND), CNE and CNO can achieve the required national cyber deterrence aims.

In order to achieve the same multiple measures need to be initiated by Bharat to optimise existing resources and expedite additional reforms. A case example is the development of Bharat's own GPS system, Navigation of Indian Constellation. The necessity arose due to the experience in the 1999 Kargil (Indo-Pak) conflict when US-based GPS data was denied to Bharat exposing the vulnerabilities of depending on foreign technologies and services. Accordingly, a few suggestions for achieving *Atmanirbharta* in cyberspace (CND, CNE and CNO) are as enumerated in the succeeding paragraphs.

Proposed *Atmanirbhar* Optimisations for Enhancing National Cyber Capability

Cyber Network Defence. A lot of improvement in CND has been achieved in the last five years with Bharat reaching among the top ten countries in the Cyber Security Index. However, with an exponential rise in technology and Artificial Intelligence (AI), a lot needs to be covered by the People, Process and Policy trident approach (especially with respect to awareness and education of people being the weakest link in the chain). The recent example being, the hacking of Microsoft Executive accounts by Russia, hacking of Las Vegas-based Caesars (a Casino giant) and Metro-Goldwyn-Mayer Resorts secure networks, made possible, due to simple social engineering exploits.

Own OS and Software. There is an urgent need to develop completely owned systems and services, especially for the Critical Information Infrastructure (CII) and defence services. In this regard, there is a pressing need to develop independent and hardened OS meeting the desired operational requirements. This shall avoid any dependence/ control by Western products through licensing issues or hidden bugs (which could be launched by the release of updates when required). The development of Bharat Operating System Solutions OS for e-procurement for defence is a beginner's step that requires further improvement and hardening to meet national aims. The in-house developed software and services shall also deny a level playing field to India's adversaries and further enhance the Cyber Security Index globally.

Addressing Supply Chain Issues. Bharat needs to develop indigenous capability for manufacturing its own hardware systems in order to avoid vulnerable supply chain issues. The gap in semiconductor and hardware manufacturing in the interim can be met by hiring such facilities in friendly developed countries by utilising positive diplomacy.[8] This requirement is immediate and urgent to deny a level playing field to any adversary and have a robust critical management plan. for example, the blacklisting of Huawei hardware by the US Government citing security concerns and its closeness to the Chinese government. In Aug 2023, US President Joe Biden passed an executive order that limits American investment in the Chinese semiconductor industry and AI companies to reduce its presence amidst the new anti-spying policy of China.

Enhanced Civil-Military Cooperation. Bharat's defence, technologists, business and corporates will have to collaborate, cooperate and create a comprehensive ecosystem for tackling technology-driven threats. These concerns were voiced in Singapore Cyber Week 2023, held in Oct 2023. There is a professional need for enhanced civil-military involvement as relying on half-baked in-house innovated software products is not only inefficient but also not in sync with the latest developments in the field. The task of experts and industry professional standards should be left to the same but with due diligence of requirements duly moderated by user department(s). The system integrators and manufacturers must be made equal partners through well-drawn contracts and legal frameworks and should be held accountable for the 'Availability' of systems. In this regard, the planning and establishment of the Centre for Cyber Operations and Security, a joint civil-military set-up, is a welcome step towards revolutionising the nation's approach towards addressing the emerging and exponentially increasing cyber threats.

Cyber Deception. Cyber Deception should be incorporated as part of active cyber defence. Presently, India's capability of cyber deception is in the initial stage, with negligible presence, thus, not much effective in support of credible cyber defence. There is a need to learn the craft and exploit it to the fullest in order to diffuse the attempts of adversaries before they even reach the CII.

Integrating AI in Cyber Defence. AI is emerging as a game changer in many fields and so are its advantages in cyberspace. The ability of AI to address things in real-time compared to human skill is a major advantage. The efficient AI probabilistic models and ability to compare the behaviour of the program contrary to its intended behaviour and creating depth in defence and controlling impact against an effective cyber breach shall act as revolutionary for all fields of cyberspace (CND, CNE and CNO).[9]

Old Inventory (Vintage Revival). A large IT inventory of the nation, especially defence services, is of old vintage with a lack of inventory management and rotation at formation levels. There is a serious need to review the active life of IT systems and their constant upgrades with the latest OS and other software to contain the breach and efficacy of information. Old vintage IT assets and

unsupported OS/software remain vulnerable to old and cheap exploits, which come in handy to any adversary in breaching the system at a low cost. Thus, moderation of the lifespan of IT assets shall dissuade adversaries from applying outdated low-cost exploits on Indian systems resulting in strong cyber defence.

Cyber Network Exploitation.

●   The most useful and maximum utilised domain in cyberspace is CNE. It is predominantly passive in nature. The aim is to maintain a foothold in the compromised system and regularly gather intelligence or become a pivot for the furtherance of CNO/deterrence operations when desired. Due to the large data storage capacity of systems and mobiles, the compromise of these assets has assumed primary importance for carrying out any furtherance to Human Intelligence (HUMINT) operations in the overall canvas of espionage.

●   Effective CNE capability keeps you abreast and competent to adversaries' vision/approach, thus, providing impetus to national and international diplomacy. The involvement of state and non-state actors (Civil Cyber Professionals [CCP]) in the field is no longer hidden. Having self-reliance in state-owned hardware, software and services minimises these risks. Though all nations follow sound practices, having a coordinated and synchronised effort acts as a force multiplier and minimises cyber fratricide along with the optimised cost to the state.

●   Thus, there is an exigent need to identify the departments and agencies involved in similar tasks and efforts optimised by clubbing these agencies under a singular or a smaller number of disjointed efforts, meeting the aspiration of the nation at first and organisations at second. This shall also optimise the cost to the state and lead to the development/ procurement of better and more costly exploits and solutions leading to reduced cyber fratricide, improved utilisation of a limited talent pool, continuous cyber intelligence and better efficiency in line with national requirements.

Cyber Network Offensive/Deterrence.

●   Cyber Offensive/Deterrence is the capability of a nation to execute a cyber-attack at its own will and time of engagement achieving the desired result with enough resilience to withhold or retaliate a counter-offensive by adversary, if any. Such actions are mostly covert in nature with non-repudiation, if exposed. The CNO is generally kept at a threshold in a manner so as not to escalate it to a level of physical retaliation by an adversary. CNO operations may also be incorporated and act as force multipliers along with EW and Kinetic operations during active war/counter-insurgency/counter-terrorism operations. A recent example being Israel, where it was put under a heavy cyber siege by Islamic hacktivist groups in the midst of Hamas rocket attacks.

●   Such operations are largely preceded by CNE operations, thus the craft of successful CNE operations takes primary importance in the overall canvas of cyberspace. The primary targets of CNO are strategic in nature viz., industrial systems, large business centres, stock exchanges, power or nuclear grids, dams, hospitals, subways, banking systems, etc. Such attacks may lead to physical casualties also.

●   Unlike CNE, in CNO operations the adversary gets first-hand information of such an attack and the vulnerability in the system is exposed. The adversary immediately reacts with precautionary and remedial measures in identifying and plugging of vulnerability. However, once identified, if feasible, the adversary may employ its own deterrence policy and launch a physical or cyber counterattack, if required. This also signifies the need for constant hopping and reconfiguration of IT assets employed for CNO.

Immediate Measures for Enhancing CNE/CNO Capability

Capacity and Policy Building.

●   Develop standard operating procedures and escalation matrix for executing a cyber war.[10]

●   Establish the required presence and resources in the deep and dark web and exploit the same for deception and intelligence.

● Establish a civil-military joint set-up by hiring appropriate and loyal non-state actors/CCPs to craft a transparent and equal playing dynamic cyber eco-system. Specialist CCP should be hired with assured career goals and remunerations to enhance the cutting edge in cyberspace. Few operations can also be outsourced selectively with due monitoring. Due checks and balances while integrating civilians should be given the highest priority in order to avoid the pilferage of critical and sensitive information by the likes of Edward Snowden and Yuri Bezmenov etc.

● Create and upskill indigenous capabilities in language, big data, analytics, AI, cryptology, network survivability and availability.

● Integrate CNE and CNO operations to address the challenge of limited availability of cyber-trained and capable personnel in defence, enhancing overall efficiency. The dispersion of cyber capabilities across various defence and civil agencies leads to competition for top talent among these organisations, causing friction and inefficiencies.

● Maintain readiness and dominance in an ever-changing information environment which will remain a major challenge. The integration across various elements is the key solution to achieve this aim. First and foremost there is a need to merge espionage and offensive disciplines across cyber, electronic and space warfare. The present arrangement ignores that these disciplines are heavily intertwined, utilise common resources, and shared reconnaissance and if left uncoordinated shall lead to serious cases of fratricides and conflicting objectives. Secondly, by integrating the peacetime-wartime build and creating a seamless continuing construct, enables better intelligence and builds capabilities suited to the realities of conflict.

● Establish a National Cyber Command (NCC) for efficient cyberspace management to develop capabilities and work to evolve towards pioneering full spectrum information superiority operations.

●   Coordinate, synergise and centralise all existing military and civil cyber efforts of Defence Cyber Agency (DCyA), Signal Intelligence (SI), Military Intelligence (MI), Electronic Intelligence, HUMINT, Army Cyber Group, Additional Directorate General Strategic Communication, Defence Research and Development Organisation (DRDO), National Technical Research Organisation, Research and Analysis Wing, National Investigation Agency and operational security under NCC for a comprehensive threat analysis and coordinated response.

●   Upgrade of DCyA to a full-fledged Defence Cyber Command with requisite formations at the regional level.

●   Aim towards active and AI-enabled Cyber Defence and Deception at Cyber Military Command and Corps, whereas CNE and CNO are to be controlled, coordinated and executed as a centralised function under DCyA and NCC due to reasons as explained above.

●   Integrate cyber power with EW, satellites and space creating exponential capabilities in generating desired effects. The defence forces coordinate for synergised application of cyber in the digital battlefield by initiating and developing Cyber and Electromagnetic Activities capabilities.[11]

Training and Human Resources (HR)

●   Establish national-level programmes, state and national-level hackathons and conduct Black/Red HAT conferences/seminars in identifying young talent and nurturing the same for a secured career and cadre.

●   Outsource national and international training of selected defence and civil candidates for incorporating system integration of cyber with EW, information warfare and kinetic energy assets.

●   Improve HR policies since CNE/CNO operations have no defined working hours (365 days, 24/7), thus, compassionate ground and marital discord postings should not be allowed in such units.

● Postings to such units be considered as probations and finalised only if the trainability and usability of the individuals are confirmed by the Cyber Unit.

● Make provisions for extended tenures and grant adequately exercised/long course/posting profile waivers for handpicked manpower to be incorporated in policies.

● Establish world-class training facilities along with industry and academia with highly qualified faculty.[12] Indian Institute of Technology to be made centre of excellence and collaborate with Centre for Intelligence Research and Analyses, DRDO for identification and development of vulnerabilities and their weaponisation for central cyber agencies.

● Establish an independent tri-service institute 'Military Institute of Information Superiority' for cyber training of all SI, MI, Cyber Commands/DCyA etc. This shall accrue a common understanding of cyber requirements under a single roof and achieve synchronised development of strategy also enabling talent spotting and cadre management.

Conclusion

With the advent of the digital platform as the 5th dimension of warfare, with the capability to reach and affect the global population instantaneously in real-time, there is an urgent need to develop self-reliance in establishing credible cyber deterrence and defence competency. The dimension is presently dominated by Western developed countries due to the inherent lead in establishing a global network of systems, services and applications due to the subjugation of Global South countries during the colonial era. Now, Bharat is at the cusp of dominating this dimension with the world's largest young demographic profile with an acumen pioneering in the field of ICT world across the world. Bharat needs to take the initiative and set in motion various checks and balances to be *Atmanirbhar*, master the trade and lead the globe in the art of information superiority.

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Helicopter Operations in Tactical Battle Area

Group Captain Bibhudutta SK Jenamani VM@

"The helicopter is probably the most versatile instrument ever invented by man. It approaches closer than any other to fulfilment of mankind's ancient dreams of the flying horse and the magic carpet".

-Igor Sikorsky

Abstract

The article explores the significance of helicopters in modern warfare, emphasising their adaptability and widespread use in various roles, including combat and civil aid missions, particularly in mountainous regions. It delves into the complexities of operating helicopters in such terrains, highlighting challenges like high altitudes, rugged landscapes, and adverse weather conditions. Despite these challenges, helicopters play a crucial role in shaping the battlefield and supporting ground forces. The article discusses employment considerations such as doctrinal clarity, resource availability, integrated operations, and the utilisation of advanced technologies like night vision goggles and unmanned aerial vehicles. It concludes with recommendations aimed at enhancing survivability, infrastructure, network integration, coordination with ground forces, and training programs to optimise helicopter operations in mountainous terrain, ensuring their effectiveness in future conflicts.

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Introduction

Helicopter due to their flexibility and versatility has the capability to be employed in multiple roles in varied terrains. Due to which, today, the helicopter is omnipresent across a large spectrum of combat missions as well as in aid to civil authority. Major global military conflicts from the Vietnam War in the 20th Century to the operations by United States (US) and North Atlantic Treaty Organisation forces in Iraq and Afghanistan have seen helicopters play a major role. They have become a major component of land, maritime and air operations. As they come of age, they now possess the offensive capability to be deployed across the spectrum of conflict to achieve military objectives. Helicopters are potent weapons that have the capability to shape the battlefield. They provide military commanders with the flexibility and the concentration of firepower to win wars. With the induction of modern platforms into the Indian arsenal, a need arises to review the present employment philosophy of helicopters in the Tactical Battle Area (TBA) in the hills.

The age-old belief of the infallibility of the Himalayan ranges diminishes with technological advances in sensors enabling surveillance over these ranges. Coupled with current politico-military developments and the multiple flashpoints on a 2100-mile-long disputed border is the beginning of an assured two-front war, with varying permutations and combinations.[1]

Challenges for Present Helicopter Operations in Hills

The rugged mountainous nature of India's borders presents the Indian Air Force (IAF) with the mandate of sustained operations at high altitudes. High altitude presents a unique set of challenges and opportunities; it demands specialised training, equipment and strategies to ensure the success of military missions.

The rarefied atmosphere that comes with high altitude greatly reduces thrust, which in turn reduces payload capacity, which translates into fewer weapons and troop-carrying capacity. With a marked reduction in power margins, sluggish control response and an unpressurised cockpit, the efficiency of the crew is greatly reduced. The reduction in air density leads to lower thrust availability and increases the chances of engine surge leading to engine failure. Post-Kargil conflict, the primary debate on the

application of airpower has focused on the adverse implications of altitude and terrain on the effectiveness of airpower. Due to altitude limitations, the IAF could not employ MI-35 attack helicopters and had to press armed helicopters into the fight.[2] At the same time, lower density also leads to reduced responsiveness and controllability in aircraft. As a result, aircraft subscribe to larger radii of turn in the horizontal as well as vertical plane while manoeuvring endangering operational safety due to terrain proximity in narrow valleys. The air-to-ground weapon characteristic is also adversely affected by an increase in employment altitude resulting in unexpected errors.

Flying in the shadow of ridges leads to drastic changes in the ambient light, a phenomenon more pronounced while carrying out Night Vision Goggles (NVG) operations. This may lead to disorientation. Operations in snow-covered ridges may lead to obscure visions due to extreme glare. Flying in mountains is further complicated by weather phenomena. On mountains, especially in the Eastern Himalayan ranges, there is rapid and unpredictable deterioration in weather conditions. Additionally, early mornings are often characterised by the presence of radiation fog. These factors make it difficult to navigate in narrow valleys and acquire targets visually. In the plains, improving infrastructure allows faster mobility and logistics support. However, in mountainous terrain, helicopters have been the mainstay of air mobility through inter-valley troop transfer and logistics operations. Heli-lifting is the swiftest and safest option for heavy weapons and sensitive equipment in areas not connected to wide roads in the hilly terrain.

The inability to fly high and fast forces the helicopters to fly through valleys, leading to predictable routings. Airborne platforms are vulnerable to enemy Air Defence (AD) while operating in hills. In the context of the IAF, both the prospective adversaries boast of a robust and effective AD setup. In mountains, AD sensors and weapons are likely to suffer from the limitations of a limited line of sight, weather and terrain impediments to mobility and sitting. However, once they engage the target, there is no reduction in lethality. In fact, for infrared homing missiles, the cold ambient temperature and rare atmosphere are likely to improve sensor and aerodynamic performance. The potency of shoulder-fired surface-to-air missiles and anti-aircraft guns in mountains can be gauged by the estimated loss of 'More than one hundred ground-

attack aircraft and three hundred helicopters' suffered by the erstwhile Soviet Military in its 10 years long campaign in Afghanistan.[3] In Op Safed Sagar, the IAF lost two aircraft to enemy surface-to-air weapons.

Owing to reduced power margins, helicopter operators are faced with the challenging task of compromising between fuel and payload based on the mission requirements. Reduced endurance and range entail frequent refuelling or resupply for sortie generation. The operating areas in mountainous areas are often unique and challenging owing to their location, elevation, gradient, length, surface, and weather conditions. Some of them are unpaved, unlighted, uneven, or surrounded by obstacles mostly suitable for visual flight rules operations, limiting their operational employability. The harsh environmental conditions at high altitudes increase the wear and tear on the aircraft, requiring more frequent maintenance and support. The terrain poses serious challenges to effective and reliable communications owing to line-of-sight restrictions. The whole working of command, control, communications, and intelligence setup is severely compromised entailing delayed information and decision-making.

Employment Considerations

Despite multi-faceted challenges, the helicopter is obliged to face phases of adaptation. However, the uncertainty pertaining to strategic context does not diminish its utility, as confirmed by its large-scale utilisation and challenges thereof. Hence, it is imperative to ensure realistic employment methods, and fleet management in a way that allows these adaptations and responds to new emerging requirements from recent operations:

- **Doctrinal Clarity**. Clarity on evolving concepts must be provided to tactical commanders at field units for streamlining the operations and the consequent training of crew. This should be based on the study and analysis of data pertaining to terrain, type of helicopters, weather, AD threats and performance considerations in high altitudes of one's own forces and those of the adversary.

  - Utilisation of helicopter platforms to undertake deep attack missions beyond the forward edge of the battle area or prefer air-ground integrated missions within TBA in close support of own troops as concept of operations.

■ The operational relevance of airborne fighter air controllers, anti-Unmanned Aerial Vehicle (UAV)/drone missions in the modern battlefields must be deliberated and clarity on its envisaged conduct must be provided.

■ Feasibility of the conduct of air assault to seize vulnerable areas/vulnerable points, and flank manoeuvre against armoured divisions considering the limitations of frontage in the mountains and the limited availability of mechanised equipment at those altitudes. The assessment must include the high-altitude weapon effectiveness and the type of weapon being carried by the helicopter.

■ Predictable routing of helicopters in hills poses inherent dangers on combat search and rescue, tactical insertion/extrication missions from Man-Portable Air-Defence Systems even when operating with adequate control of air. Clarity on the conduct of such missions inside enemy territory must be laid down.

● **Availability of resources**. The requirement of helipads, fuel, weapon storage areas, communication nodes etc., in proximity to TBA must be factored in for doctrinal derivatives. The mountainous terrain provides a substantial certainty on the nature of the battlefield and the longevity of doctrinal concepts. Doctrinal clarity is the foundation of a well-laid-out strategy and seamless integration of plans from preparation to end objective between commanders, planners and executors.

● **Integrated Operations**. Seamless integration is imperative in future conflicts and necessitates understanding other's limitations more than their strengths. Differences in operating procedures and communication channels are a perennial source of ambiguity in airspace management in the hills. From an air war perspective, certain suggested measures are as under:

■ Synergistic usage of intelligence, surveillance, and reconnaissance assets and interoperability between sensors and communication network.

■   Adaptation to common standard operating procedures in the operating area, ratified by the operating authority of all users. Optimisation between resources, limitations and target wise 'Required' effort rather than 'Desired'.

■   A realistic evaluation of capabilities based on participating forces. Upon completion of the planning process, the plan must undergo real-time validation during joint exercises.

■   Regular interaction at all levels during the planning phase and more importantly between on-field operators entailed better coordination and utilisation of available resources for successful outcomes. A week-long integrated planning between the participating forces prior to the commencement of the exercise would enable better coordination and planning.

■   AD in TBA in a dense AD environment is a necessary evil and poses a credible contribution to the outcome of any conflict. Hence, integration of AD assets in TBA must be ensured at all costs.

●   **NVG Operations**. NVG offers a paradigm shift towards operational employment despite the limitations of hills. This domain needs to be critically analysed with the objectives and targets in the area of responsibility versus the threats/limitations. The operational window for night missions must be exploited with compatible platforms. Though a very stealthy option to operate in hills, it poses challenges of non-availability of weather and the inability of helicopters to climb and operate above the ridge line.

●   **Unmanned Aerial Vehicle/Remotely Piloted Vehicles (RPAs)/Drones**. With increasing endurance, payload (capacity and types) and altitude op operations, UAVs are the most potent sensors for reconnaissance, intelligence and information sharing. However, the operational exploitation at the field level is limited and the same transcends into the operational planning. While the impetus for the operation of UAVs has gained momentum, the problem lies in integration and information sharing with the rotary wing platform. Based

on the US Marine Doctrine for effective Close Air Support for increasing the responsiveness and effectiveness of a close aerial reconnaissance system, some recommended measures are as under:

■   Increased availability of aerial assets at the lowest possible tactical level.

■   Place the aerial asset in connection with the forward operating base or a location near the operational area but within the radio communication range of the reconnaissance unit.

■   Delegate the decision-making to the on-field commander and if needed in direct coordination with the reconnaissance unit as far as practicable.

■   Enable flexible re-tasking of the UAVs in response to Point of Interest (POI) updates and higher priority emerging POIs.

■   Delegate payload control authority to the local commander but leave the advanced UAV control to a UAV commander.

This will not only enhance battle field transparency and effective airspace utilisation but also reduce the sensor-to-shooter time and mitigate threats in the TBA.

●   **Heli-vs-Heli Capability**. Limited effectiveness owing to reduced performance at high altitude and payload. Fully armed aircraft will have a very low radius of action limiting the combat capability. A potential threat to combat in hills is reduced endurance and reduced payload with sluggishness of controls resulting in reduced manoeuvrability. This along with reduced speeds limits the weapon launch capability. Most of the armed helicopters are equipped with area weapons whereas the requirement is precision weapons.

●   **Airborne Command Post**. A strategic link, it provides information and tactical superiority accelerating the pace of operation and real-time decision-making to the military commanders. The US Army has developed a system of Army Airborne Command and Control System (A2C2S) mounted

inside a UH-60 Black Hawk. The centre features an integrated command and control system hosting an extensive communication suite and five fully automated workstations linked to a central computer that can operate a variety of battlefield software. A2C2S will provide military commanders with a highly mobile decision-making centre that can filter and relay real-time data while on the move. However, the inherent challenges of reduced communication ranges, endurance, on-board countermeasures and increased susceptibility to a ground threat. Despite these disadvantages, airborne command posts can still be deployed in mountainous regions with proper planning, training and adaptation to terrain challenges.

● **Anti-drone operation**. For a helicopter to be effectively utilised in anti-drone operation, it is necessary to equip the aircraft with sensors to detect and track drones in the area. Reduced radar cover available in hills necessitates the availability of on-board sensors. The operating envelope of UAVs, over the years, has increased as compared to helicopters, therefore a UAV operating at 20000 to 25000 ft is beyond the ceiling of most of the attack helicopters. Since UAVs in the Indian context will be picked up by the radar, guidance towards the target by a controller at many times will have to be on mental dead reckoning with restricted/no communications in the hills; the effectiveness of such operations needs to be validated.

● **Cost versus Benefits**. The future battles of India will be predominantly fought in the Himalayas and the helicopter platform will play a considerably significant role in the outcome of this war. With this inescapable reality, the planners and executors have an arduous task of contemplating objectives vis-a-vis risks. Unarguably, the machines are costly and pose a serious challenge to capacity building with their losses, but it is imperative to assess the risks and mitigate them as far as practicable. However, if the objective outweighs the risks, the planners and executors alike should be absolutely clear in their minds to the extent of risks acceptable. Presently, helicopter tasking does not permit realistic training for the threats posed by envisaged conflicts. The focus is mainly on

flying below the crest line, low altitude terrain flight for masking and routine tasks. The planners in coordination with the ground forces must study the expected approach axis for enemy thrusts, probable friction points and altitude bands. The altitude will decide the performance of the enemy's assets, the weight of an attack and the response to safeguard objectives. The nonlinearity of performance reduction with increased altitude has a direct bearing on all up weight, airspeed and manoeuvrability of helicopters and should therefore be factored in calculating the required versus desired employment. A Medium-Lift Helicopter faces significant limitations in payload capability beyond 3 km. So necessary trade-off between safety equipment (armoured plates, heat shields, Missile Approach Warning System (MAWS), Radar Warning Receiver (RWR) and payload capability in realistic terms must be discussed at least during peacetime exercises and should not be considered as a taboo/unsafe operation. It is pertinent to share this data with the ground troops in whose support these missions would be flown. This consideration would be significant as has been observed from the Kargil conflict wherein, a very potent platform could not be utilised owing to payload limitations.

Recommendations

"Owing to the development of aviation war has altered in character. Hitherto primarily an affair of 'Fronts', it will henceforth be primarily an affair of 'Areas'".

- Brigadier General PRC Groves, Royal Air Force, 1922

The Government of India's initiative of *Atmanirbhar Bharat* (Self-Reliant India) has put a strong impetus on indigenous production of military equipment. Enhanced and dedicated focus on indigenous equipment to reduce dependability on imports as well as building up its own capability of generating and enhancing platform and weapon inventory will go a long way in sustaining operations in hostilities. Some recommended measures are as under:

● **Aircraft Survivability**. Platform survivability can be ensured by either avoiding enemy AD or defeating them by means of passive or active measures. To avoid this, one

must be able to detect the presence of AD weapons in the area of operation. While it is possible to detect radar emissions using an onboard RWR or through dedicated electronic intelligence missions, it is practically impossible to detect a shoulder-fired missile before it is launched, and then too if one has been able to see the plume. An AD system with associated radar may be targeted by an anti-radiation missile-equipped aircraft of the composite package. An integrated aircraft survivability system including MAWS coupled with automatic dispensation of countermeasures will reduce the pilot's workload of constantly scanning for missiles. However, for any other type of air-to-ground weapon to be employed, all the problems discussed in the preceding paragraphs remain unsolved.

- **Aviation Support Infrastructure at Forward Military Bases**. To ensure rapid re-arming and refuelling of helicopters and quick turn-around of platforms, the aviation support infrastructure at forward bases needs to be upgraded to cater for future requirements including servicing facilities and weapon storage areas capable of housing all types of weapons envisaged.

- **Network Integration**. The future of network-centric warfare is here, and in today's battle scenario no aircraft can accomplish a mission on its own, it has to continuously communicate with other systems like RPAs, Airborne Warning and Control Systems and fighters for better synergy and optimum utilisation of effort. The *Akashteer* network in place allows the Integrated Air Command and Control System nodes to effectively see the picture of the army sensors, but the inability of controllers to provide any assistance to the low-flying aircraft hampers the situational awareness of the pilot, who is solely dependent on his timelines and the availability and assistance from a Forward Air Controller. Real-time information sharing through datalink/satellites would reduce sensor-to-shooter timings.

- **Coordination with Ground Forces**. The highest level of coordination is required with ground forces while operating in Counter Surface Force Operation roles in TBA to cater for de-confliction and negate fratricide. Towards this, there is a

need to participate in the joint exercises carried out for offensive roles as well in which near real-time Battlefield Air Strike missions, while the simulated ground war is progressing.

● **Training**. War in the hills is a specialised job and needs to be handled by a well-trained crew for maximum effectiveness. Crew involved in hill operations need to be adequately trained so that they are capable of undertaking offensive tasks along with the peacetime role of air logistics. Towards this, the firing ranges in the Toshe Maidan and the Kalith Field Firing Range in the northern sector and the Sikkim-B range in the Sikkim area of responsibility need to be made active and usable so as to have an effective practice of armament delivery. The feasibility of undertaking high-altitude armament on NVG must be explored as part of crew training.

● **Secure Communication Between Platforms and Joint Operations Centre**. To ensure the confidentiality of communication in the TBA between helicopters and ground forces, the communication needs to be secured. With the introduction of modern platforms like Apache, Light Combat Helicopter and Advanced Light Helicopter Mk-IV, secure communication between helicopters can be achieved but the same between airborne assets and ground forces needs to be focussed upon.

Conclusion

Helicopters, at one time, were considered the future of land warfare post a rather humble beginning. The battlefield commanders equated it to a decisive weapon replacing the battle tank, operating deep behind enemy lines. The dynamic of TBA in hills and flexible roles constitutes a good argument for maintaining mixed fleets combining several types and generations of machines. This is considerably the most probable way that helicopters would be able to respond to numerous demands that are being and continue to be made in TBA in the hills.

While there is no doubt pertaining to the need for helicopters, what remains to be answered is the capacity and employment philosophy to meet those challenges. It is also pertinent to understand the specificities linked to military helicopter operations in hills. With the evolving challenges of warfighting in the hills,

there is a need to find a response to the most relevant lessons learned from the past, upgrade the existing platforms to extend their operational employment, optimise resources to enable enhanced usage and lastly seamless integration with the end users. This understanding would lead to the interoperability of resources and easier maintenance of these platforms.

A potentially autonomous weapon will pay enormous dividends to the users who not only ensure their integration into land manoeuvres but also take full advantage of real-time technological advances, in cooperation with UAVs or the conduct of joint operations.

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Offensive Application of Airpower

Group Captain Nitin Nayal, VM[@]

Abstract

Airpower leverages speed, range, and flexibility to provide calibrated force application options. The propensity for offensive application of this force leans on a nation's psyche. In this regard, Israel's aggressive use of airpower has been consistent. In the past, doctrines and, thereof, the strategies for offensive airpower were mainly centred on fighter aircraft and bombers. Offensive power projection now includes unmanned platforms, commercial drones, and better air defence systems. These emergent 'Means' of force projection do not supplant but complement the existing airpower capacities. The future of airpower lies in the integration of emerging technologies and the collaboration between various means.

Introduction

Anew dimension of possibilities was realised when Ferdinand von Zeppelin applied for a United States (US) patent for his 'Navigable Balloon' in 1897. By 1899, the fear of exploitation of the third dimension led to a prohibition on the 'Launching of projectiles and explosives from balloons or by other similar new methods'.[1] The prospects with airpower were such that it was quickly adapted to be launched from ships and barges. World War I saw airpower become an offensive capability that overcame surface friction and delivered national resolve to earlier considered safe spaces. By World War II (WWII), the offensive use of airpower was vital, independently and for land and maritime forces. Post-

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WWII, decades of conflicts across Asia, the Middle East and even Europe saw extensive air campaigns holding the centre stage of strategies.

Airpower and Offensive Action

The unique characteristics of airpower since its 'First Military Specifications' in 1907 were, 'Speed to compress factor of time' 'Elevation to fly over obstacles and overcome surface friction' 'Flexibility and responsiveness to concentrate force at the point of decision' and 'Reach across land and maritime spaces giving it trans-domain operational capability'.[2] These key characteristics of airpower foster the belief in an airman that 'Offensive Action'[3] is the way for airpower application.

Offensive Airpower and National Consciousness

An airman's doctrinal belief would meet fruition when it transcribes itself into a nation's security strategy. In this regard, one has to consider the nation of Israel and its response to existential and persistent threats.

Offensive airpower is Israel's go-to for national security. Backed by national resolve, the Israeli Air Force (IAF) plays a vital role within the Israel Defence Forces (IDF), deterring terrorism and upholding Israel's strategic advantage in times of war.[4] The operational doctrine of the IDF is based on the principle that the best defence is in a good offence. It lays emphasis on the need to fight short, violent wars that result in the enemy's annihilation.[5] During the 1956 Suez crisis, Israel successfully tested this doctrine. In the '1967 Six-day War'[6] it was executed to perfection, resulting in a resounding victory and gain of considerable territory. In 1973, Israel was surprised onto the defensive, resulting in substantial losses for the IAF.[7] A fightback from a purportedly nuclear threshold drove home the point that offensive action was key to Israel's survival. In 1982, Bekka Valley operations and achievement of air dominance paved the way for a siege on Beirut.[8] In 2006, during Operation Specific Weight against Hezbollah, the IAF conducted over 12,000[9] missions in an urban battlefield. Israel's retribution for the 07 Oct 2023 Hamas attack was three weeks of aerial targeting before the ground invasion was launched. The IAF leading a response is consistent with the doctrine of IDF. Israeli response led by airpower is consistent with the doctrine of IDF. It has consistently displayed that airpower is a powerful and flexible tool of national security and statecraft.

Airpower Strategies and Emergent Means of Force Projection

Each conflict influenced by technological adaptations, tactics, and strategies, develops its own character.[10] In recent conflicts missiles, unmanned platforms, and commercial drones have been used across domains to project force. These emergent means have cast aspersions on offensive airpower strategies and traditional means. These debates need a reference frame of military history to allow enduring inferences to be drawn.

Long Range Fires as Substitute to Offensive Platforms.

- The long-range fires had humble beginnings as rockets, centuries ago. In contemporary warfare, during WWII Germany launched 1,100 V-2 rockets at Great Britain, causing nearly 5,000 deaths.[11] During the Cold War period, rockets not only advanced space exploration but also became ballistic missiles. With an increase in precision, the nuclear warheads were swapped for conventional warheads, often creating strategic ambiguity.

- A 2012 RAND study determined that using disposable missiles is cost-effective for short wars, and reusable platforms in longer conflicts.[12] In the Indian context, the 1947-48 War lasted fourteen months and the 1962 War in two phases across two months. In the wars that saw extensive use of platforms, in 1965 a three-phased conflict included a 22-day war in Sep in which nearly 4,000[13] sorties were flown. The shortest war was the fourteen-day 1971 war in which the Indian Air Force flew around 7,346[14] sorties on two fronts. The Kargil conflict of 1999, despite the nuclear overhang, lasted three months and 7,631[15] sorties were flown. When plotted on the base chart (Figure 1), 1947-48 and 1971 favour reusable platforms over expendable ones, while 1965 and 1999 fall on the equal cost line.

Ballistic Missiles. Ballistic missiles have a vital role in strategic deterrence, while long-range fires have crucial tactical and operational roles. Platforms, on the other hand, offer flexibility and adapt responses to various levels of conflict. Among the thirty-one countries with ballistic missiles, the US, China, Russia, India, Pakistan, Israel, France, North Korea, and Iran stand out in terms of capacity.[16] Besides North Korea, these nations also have the

Figure1: Reusable versus Expendable costs
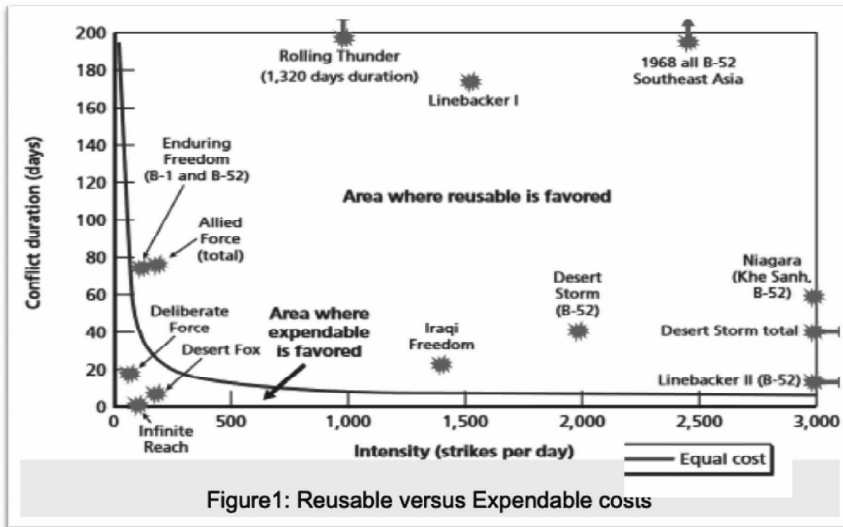
largest air forces with potent platforms for offensive power projection. Thus, despite their offensive capability, a rocket force replacing reusable platforms is improbable. Ballistic missiles, long-range vectors, and platforms, each serve their purpose. They complement each other across the spectrum of conflict and are not a substitute for each other.

Unmanned Versus Manned.

● Unmanned platforms for military purposes have been around for a century.[17] However, it was the out-of-proportion effect of the attack on the 'Oil processing facilities at Abqaiq and Khurais'[18] that catapulted them to prominence. The Russia-Ukraine war has left a lasting impression with images of drones destroying armour, and artillery and accepting surrenders. Unmanned platforms and munitions have been successful in destroying battleships, aircraft, and important infrastructures.[19] Thirty-five different drones and loiter munitions have been used in the Russia-Ukraine conflict so far.[20] In the contest between unmanned and Air Defence (AD), Russian Radio-Electronic Warfare and AD systems till 18 Apr 2024 have claimed 21,734[21] unmanned aerial vehicles while Ukraine claims 9311 tactical UAVs and 2096 cruise missiles.[22] Despite losses, Douhet's vindication lies in the inevitability of offensive airpower surpassing AD.

● Small drones have offensive roles in tactical battle areas. Large drones and remotely piloted vehicles have roles in a relatively benign AD environment and un-contested airspaces. However, at present, they have a long way to go before replacing manned offensive platforms as much as they are from replacing battleships, submarines, and artillery. The assessment of the effect of drones by Eado Hecht is perhaps the most succinct one. He says, "A tactical revolution is not in the offing; however, a strategic revolution is. It comes not from the tactical capabilities of the drones, but from their cheapness, simplicity and availability compared to manned aircraft. For states with large, advanced air forces of manned aircraft, the drones are an incremental, albeit useful, improvement".[23]

AD vis-a-vis Offensive.

● In air warfare, means of offence and defence have been contesting each other forever. In the beginning, the zeppelins seemed invincible as they could cross defensive lines at will, float high above a city, and rain down bombs with impunity.[24] "Thousands were killed by Zeppelin raids and cities were razed, but by 1917, the anti-airship defence had downed 77 out of 115 Zeppelins".[25] By the end of World War I, there were over 239 different types of aircraft and the zeppelins had been replaced with specialist ground attack aircraft like the Gotha bomber.[26] In WWII, the aeroplane played a crucial part in leading successful charges across Europe, Africa, Russia, the Middle East, and later the Pacific, either in a supporting or supported role. During the Battle of Britain, AD rose to the occasion with radar and observation flights as its eyes and ears. Ack-ack and balloon barrages forced enemy tactics while Hurricane and Spitfire took them on in the skies. The Luftwaffe suffered heavy losses, while Britain endured significant civilian casualties.[27]

● Post-WWII, the contest moved to bombers and ballistic missiles versus AD systems and interceptors. As AD capabilities expanded, so did the range and precision of airborne weapons. When radars became efficient, anti-radiation weapons and electronic warfare became potent. This game of one trumping the other passed through the crucibles of Korea, Vietnam, the Yom Kippur War of 1973,

Afghanistan (gunship versus man-portable AD systems), 1982 Bekka Valley ops and Gulf War (Scuds versus Patriot), In Serbia, a stealth F117 was tracked by outdated radar and downed by an obsolete Pechora. In this century, it is Katyusha versus Arrow-2,3, David's Sling and Iron Dome to missile-drone strikes penetrating Aramco AD. In Syria, Russian electronic warfare and AD systems battled and often bested Chinese and Turkish unmanned combat aerial vehicles. Whenever defence gains an edge, an innovation will emerge to counter it, mirroring the perpetual struggle between offence and defence in air warfare.

Complementarity of Offensive and Defensive Means. In the face of an Iranian missile-drone barrage on 13 and 14 Apr 2024, the multi-layered Israeli AD systems and airborne platforms were fairly successful in intercepting the onslaught mostly outside its sovereign airspace. In doing so, the 'Means' of offence and defence complimented each other. Today, offensive operations perpetually take place under an AD umbrella while the offensive intent of AD is projected by the integration of AD systems and aircraft.

Decision Dominance and Strategies for Offensive Application of Airpower

Advancements in military technology have altered the nature of conflicts and reshaped air strategies. These innovations span hardware, sensors, and information-communication systems. They enable interoperability and transparency in the battle space. These empower commanders to sense, understand, assess, decide, and act more swiftly and effectively than their adversaries.[28,29] Decision dominance hinges on the attributes of speed, range, and convergence.[30] Airpower due to its inherent characteristics of speed, range and flexibility, is uniquely positioned to fuse physical domains while controlling force, time, and space.

The strategies for offensive application of airpower across domains emanate from two basic concepts: the threat of use of force and the actual use of force. When force is aligned with precise timing, tempo, and strategic choices, it becomes a powerful tool for shaping and dominating the decisions made by adversaries. The strategy for offensive airpower will be to orchestrate multi-domain operations that are synchronised in time, timing, and tempo, to beat the adversary 'Observe, Orient, Decide, and Act Loops'.[31]

Conclusion

The character of air war is changing, and air forces are adapting. Technology has made sensors resilient and shooters potent and diverse. AD is now lethal and inherently offensive. Aerospace feeds off the same technical pool to enhance platform survival while delivering precision from larger ranges. Technology, to an extent, compensates for quantity and the cost of it further forces leaner inductions. In such times, there is a shift from threat-based to capability-based force structure.[32] The draw down in numbers towards fewer but capable platforms is visible across air forces.[33] The infusion of the unique characteristics of airpower since its 'First Military Specifications' in 1907 were, 'Speed to compress factor of time; elevation to fly over obstacles and overcome surface friction; flexibility and responsiveness to concentrate force at the point of decision; and reach across land and maritime spaces giving is visible as the next generation air dominance aircraft is planned with a crewed penetrating counter-air and an un-crewed collaborative combat aircraft acting as a loyal wingman.[34]

In the words of Air Chief Marshal VR Chaudhuri, "The impact of emerging technologies and the appreciation that machines and humans have to work in a symbiotic way has to be seen as a requirement".[35] In this process of evolution, airpower will remain crucial to multi-domain operations and will be the most sought-after even by other domains.

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Ukraine War: Military Lessons for India

Commandant (JG) Gaurav Sharma@

"No one in this room can accurately predict the future, least of all me. The nature of war is never going to change. But the character of war is changing before our eyes—with the introduction of a lot of technology, a lot of societal changes with urbanisation and a variety of other factors".

- General Mark Milley at the Association of the US Army Convention, 2017

Abstract

The ongoing conflict between Russia and Ukraine has its roots in Putin's concerns over the North Atlantic Treaty Organisation's (NATO) eastward expansion, leading to Ukraine's desire to join NATO and the European Union. This essay delves into the military dynamics of the conflict, analysing strategies, operations, and technology usage by both sides. The conflict's backdrop, including historical and geopolitical factors, is examined to understand its complexities. The military campaign is scrutinised, focusing on the Northern, Eastern, and Southern thrust lines employed by Russian forces. Lessons learned from the conflict are distilled, offering recommendations and a roadmap for the Indian military. These include insights on tank warfare, integration of technology, logistics planning, indigenisation efforts, and the importance of

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narrative warfare and cyber capabilities. The essay concludes by emphasising the need for strategic adaptation and the incorporation of disruptive technologies in future military planning.

Introduction

The ongoing Russia-Ukraine conflict is the offshoot of Putin's sense of insecurity emanating from the eastward expansion of the North Atlantic Treaty Organisation (NATO). In 1991, NATO boundaries stood along the borders of Germany. In decades after that, Poland, Hungary, the Czech Republic, Bulgaria, Romania and the Baltic states of Estonia, Latvia and Lithuania were all co-opted in the alliance.[1] NATO's border touched Russia in its Northern area for the first time in 2004 when Estonia and Latvia joined it.[2] Had Ukraine joined NATO, NATO would be at Russia's doorstep.

Putin has always been impervious to the historical disintegration of the Union of Soviet Socialist Republics (USSR) into 14 countries and holds a profound desire to bring the clock back to 1990.[3] How would he digest Ukraine's fervent desire to join NATO and the European Union (EU)?

The United States' (US) untiring support to Ukraine raised Russia's hackles. Presumably, this conflict is a proxy war being waged by the US against Russia to demagnetise its influence.[4] The Crimean annexation in Mar 2014 and support to separatists in the Donbas region by Russia aimed to prevent Ukraine from joining NATO because countries are not permitted to join its alliance if they have an unresolved territorial dispute.[5]

Aim of the Essay

This essay aims to undertake a clinical analysis of the ongoing conflict strictly restricting its scope to military aspects. The military lessons will be extracted after a guileless analysis of military operations by both Russia and Ukraine. The rationale behind the following aspects will be ferret out:

- Background and geopolitical causes of conflict.

- Analysis of the nature of the military campaign with emphasis on military strategy, employment philosophy, conduct of operations, use of niche and disruptive technology and battle of narrative.

- Road Map and recommendation for the Indian Military.

Backdrop to Ukraine Conflict

The *Casus Belli* (an act or an event that either provokes or is used to justify a war) of Putin's special military operations against Ukraine is linked to historical and geopolitical reasons. The geography of Ukraine confers to it, an ominous position that acts as a chessboard for Russia and Western Europe. Moreover, its rich fertile soil for the production of wheat and corn guarantees food security to Russia.

- **Historical Aspects**. Russian association with Ukraine is driven by the historical coherence between them which goes back to the 10th Century when Ukraine, Russia and Belarus were all part of a region called 'Kievan Rus'. With the subsequent formal annexation of Ukraine by Russia in 1783, these cultural and historical ties were further strengthened. The Russian Empire traditionally regarded Ukrainians as ethnically Russian and referred to them as 'Little Russians'.[6] Ukraine continued to enjoy the title of being the bread basket of the Soviet Union after the formation of the USSR in 1922. But haunting memories of the 'Holodomor Famine' of 1932-33 still looms large in Ukrainians' minds which was an offshoot of Stalin's duplicitous policy of privatisation of agricultural land to promote industrialisation.[7]

- **Geopolitical Reasons**. Russia continued to assert its autonomy over Ukraine as 'Big Brother' even after the implosion of the Soviet Union in 1991.[8] Russia has always been asserting its decisions in Ukraine's internal affairs. However, in the new millennium, the tide began to turn, and Ukraine started to subtly shift towards Europe, with the intention of joining the EU. Such a move would have diminished Russian influence.[9]

    - The fierce protests by Ukrainians against pro-Russian President Viktor Yanukovych for his decision against association agreement towards the EU in 2013 signalled Ukraine's evolving mindset. The fervent nationalist approach by Ukrainians (Ukrainian Revolution) effectuated his removal from power in 2014. This event triggered an intense military invasion by Russian forces using a hybrid warfare model in Crimea. Crimea was concomitantly annexed by Russia through a referendum.[10]

■   Subsequently, in 2019, things again spiced up when President Volodymyr Zelenskyy announced the will to join NATO and the EU. He went on to approve Ukraine's new National Security Strategy, which included 'A distinctive partnership with NATO, with the aim of membership' on 14 Sep 2020 which stirred up a strong reaction from Russia. Meanwhile, an amendment in the Ukrainian constitution which succinctly enshrined its decision to join the EU and NATO further added fuel to the fire.[11]

●   **Why is Russia against Ukraine Joining NATO and the EU?**

"Not an inch of NATO's present military jurisdiction will spread in an eastern direction. Not one inch"

- US Secretary of State, James Baker to Mikhail Gorbachev, 1990
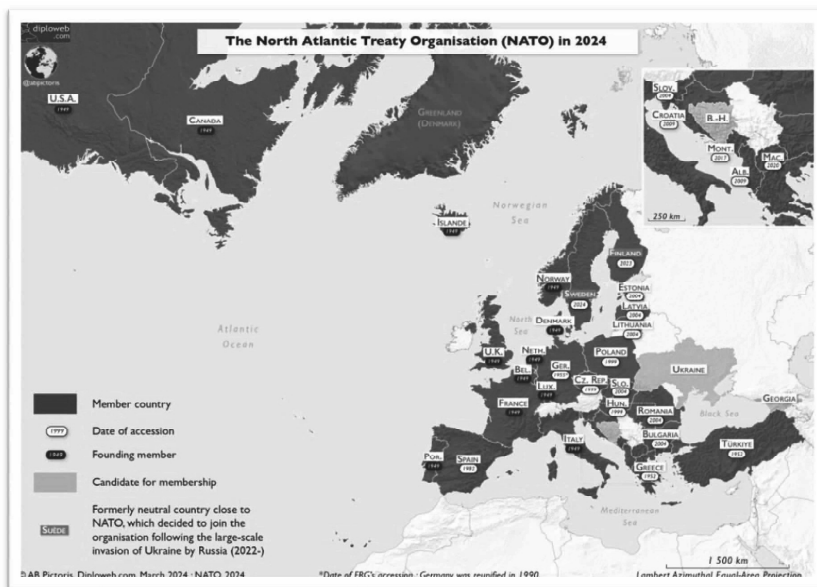
**Figure 1: NATO Countries in Europe,
Source: Lambert/AB Pictoris**

The US assured Russia back in 1990 that there would not be any eastward expansion of NATO. But that assurance was short-lived as slow eastward incursion began soon after the breakdown of the Soviet Union. The US seized the opportunity to absorb

recently freed nations into NATO to enhance its sphere of influence. This was a worrisome scenario for Russian security. Putin's worry that if Ukraine enters NATO, offensive weaponry will be placed closer to the Russian border, as is already being done in Romania and Poland was heuristically sound.[12] This judgement formed the basis for Putin's continuous efforts to defuse the crisis by demanding the denial of NATO membership to Ukraine.[13] Talks were held to de-escalate the tension in which delegates from all 30 NATO countries and Russian representatives participated. But lines were clearly drawn by declaring that "Russia does not have a veto on whether Ukraine can become a NATO member. It has to be NATO and Ukraine that decide on membership".[14] Moreover, the mobilisation of troops by NATO to Poland, Germany and Romania stringently signalled NATO's intent to support Ukraine.[15] Putin recognised the breakaway provinces of Donetsk and Luhansk in a clear escalatory move and activated a hybrid warfare regime through separatists.[16] Putin's special military operation finally commenced with an objective to demilitarise and de-Nazify Ukraine.

Analysis of Military Campaign.

Delving deep into the clinical analysis of the military campaign, the figures below indicate the disposition of Russian forces as of 16 Feb 2022.

**Figure 2: Russian Military positions as of 16 Feb 2022,
Source: Russian Positions from Rochan Consulting
The New York Times**

The Russian offensive was planned along three thrust lines covering a wide frontage of 1400 km long. The thrust lines were:

- **The Northern Front**. Directed towards Kyiv, it was subdivided into two prongs viz., northern and northeastern thrusts to isolate and invest the town.

- **The Eastern Front**. Aimed to capture Kharkiv for subsequent linking up with the northern thrust. This thrust had two components viz., northeastern thrust towards Kharkiv and southeastern thrust from Donbas.

- **The Southern Front**. This was launched from Crimea with the objective of capturing the coastal area and the port towns of Odessa, Mariupol, Melitopol and Kherson.[17]
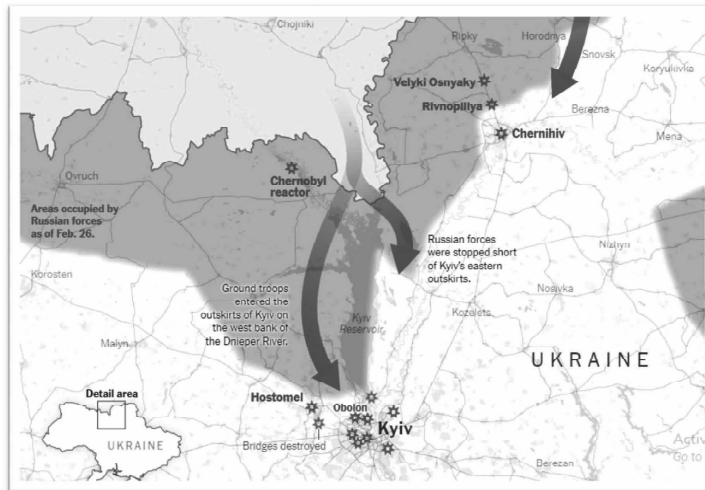

Figure 3: Russian forces' Thrusts,
Source: New York Times reporting; Institute for the Study of War (Russian-occupied areas). Data as of 4 pm Eastern on 27 Feb The New York Times

**Analysis of Northern Thrust Line**.

"I don't need a ride. I need ammunition"

- President Zelenskyy when offered a helicopter to leave Kyiv

This thrust emanated from Belarus where the troops were poised well in advance and were directed to invest and isolate Kyviv, being capital city. Two thrust lines viz., northern (west of Dnieper) and northeastern (east of Dnieper through Kharkiv) were planned for linking up at Kyviv in a swift and ephemeral move.[18] Ironically, being poorly and parochially planned, this thrust had to be called off under the pretence of Deception Operation and to 'Focus on the original aim of the campaign, Donbas in the East'.[19] The following factors are worth analysing to draw lessons:

**Figure 4: Northern Thrust of Russian forces,
Source: The New York Times**
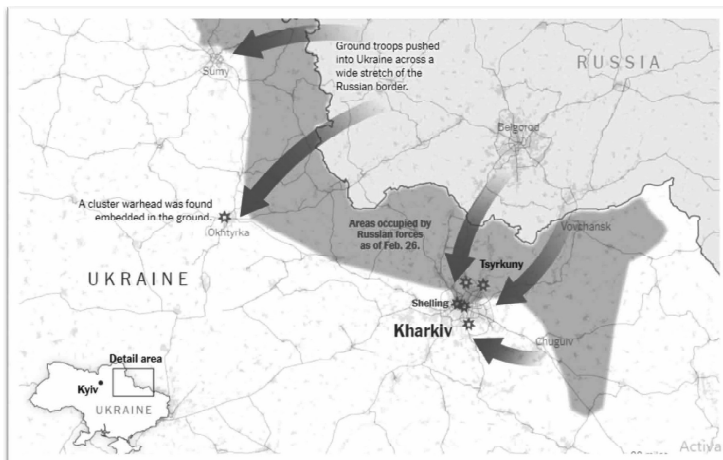
**Figure 5: Northeastern Thrust through Kharkiv,
Source: New York Times reporting; Ukrainian officials;
Institute for the Study of War**

Scant Regard for Climatic Conditions. The demonstration of a nonchalant approach towards considering the spring thaw effect did not auger well for Russians. 65 km long convoy of tanks was rendered unmanoeuvrable due to mud and slush along the route.[20] The entire convoy became dangerously vulnerable to attack. The prevalence of dense forests and marshlands in this sector made attacks using guerrilla tactics easy for Ukrainians.

Figure 6: Photos of a 40-mile-long Russian military convoy taken on Monday, 28 Feb 2022, Source: Satellite Image ©2022 Maxar Technologies

Lack of Situational Awareness. The lack of credible intelligence and situational awareness about Ukrainian defences in depth surfaced unambiguously. Russians were taken aback by the use of Javelin Anti-Tank Guided Missiles and Stinger Surface to Air Missile upon stuck-up tanks. Russia's visceral expectation about the replication of Georgia (2008) and Crimea (2014) easy fight scenarios boomeranged.[21]

●   **Inadequate Use of Air Power**. Suppression of Enemy Air Defences (SEAD) and Destruction of Enemy Air Defences (DEAD) facilitate unobstructed advance of ground forces. Russian forces were successful in taking over control of Hosmotel airport through the use of an attack helicopter and the landing of the Spetsnaz Special Forces.[22] However, swift counter from Ukrainians using tanks and infantry to decimate

pathfinders stalled the advance of the main force which was banking on the success of pathfinders. Surprisingly, Russian sortie generation rate was confined to 250-300 per day.[23] The reluctance to use air power by Russians is still a subject of debate and discussion and may be ascribed to too much reliance on the Air Defence (AD) bubble of S-400 missiles positioned in Belarus. Extensive SEAD and DEAD operations prior to the landing of forces would have changed the course and outcome of the entire scenario.
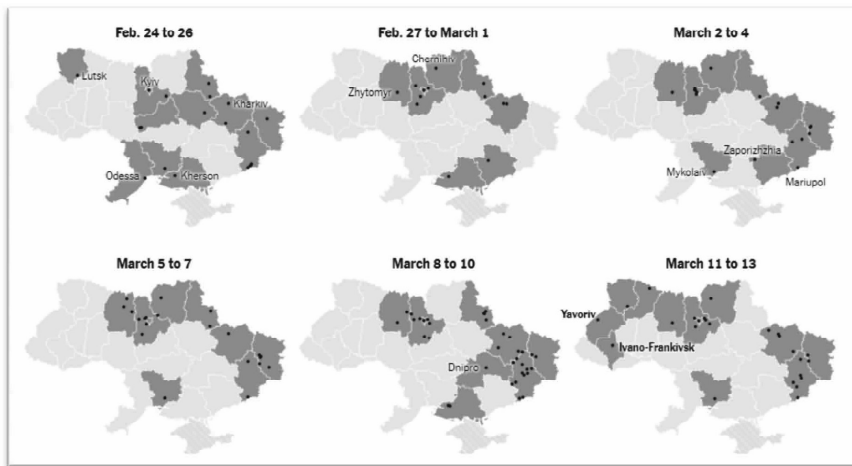

Figure 7: Timelines and location of Aerial Attack by Russians, Source: The New York Times

●   **Lack of Coordination**. The northern and northeastern thrust lines (from Kharkiv) could not link up as planned ostensibly due to a lack of coordination and communication. Both thrusts encountered different operational scenarios. For example, the blowing up of bridges over the Dnieper River and flooding of Nova Kakhovka dams by Ukrainians posed profound resistance to northeastern thrust.[24] Concomitantly, the northern advance had been initiated earlier, necessitating a brief delay before its cessation. Effective communication between these two prongs would have ensured timely speed adjustment to reach the point of impact simultaneously, thereby, effectuating the concentration of forces at Kyiv.

Analysis of Eastern Thrust Line

"The Donbas has been frothing and fermenting since 2014.
But this is unlike anything I have seen before"

- Unknown Ukrainian Soldier

Figure 8: Eastern Thrust Disposition,
Source: The New York Times

Figure 9: Area of Operation for Eastern Thrust,
Source: The New York Times

This thrust line primarily erupted in Donbas which had earned the moniker 'The Cauldron'. Donbas has been a hot spot of events since 2014.[25] A virtual Maginot line of trenches in three tiers had been constructed here and nonstop exchanges of artillery and mortar fire had become the order of the day.[26] The coordinated actions by the Russian army and separatist groups (hybrid warfare) had given an enormous punch to Ukrainians. Russia had a strong numerical superiority and could concentrate force at the point of impact. It has a 10:1 superiority in guns and almost 40:1 superiority in ammunition.[27] The efficient use of German's 'Cauldron Tactics' followed by Mongol's 'Golden Gate Tactics' paid huge dividends to Russians.[28] Firepower played an epochal role wherein polish T-72 and older T-64 and T-80 tanks were used to ablaze Ukrainian defences. Although Ukrainian counter offensive in driblets could regain some territory but the overall stratagem careened in favour of Russia.

● **Artillery as God of War.** It was absolute firepower superiority with Russians that effectuated surprise effect and mopping up of Ukrainian defences. Ukrainians also realised the same and so called upon westerners to provide medium calibre guns.

● **The Gerasimov Doctrine of Hybrid Warfare.** This theory propounds the use of separatist insurgents in Donbas region by Russians.[29] The probing attacks by the separatists incited retaliatory firing by Ukrainians which compromised the location of their defensive batteries. Russian artillery, thereafter, could pin pointedly savage Ukrainian defences.

● **Over Stretched Lines of Communication.** Ukrainian defence in depth sucked Russian forces in depth to operate with elongated and stretched lines of communication. The disruption of logistics supply by knocking off rear bridges over the rivers by Ukrainians intensified Russians' combat fatigue manifold.

Analysis of Southern Thrust Line.

"It is not just a battle for the coast; it is a battle for Ukraine's future"

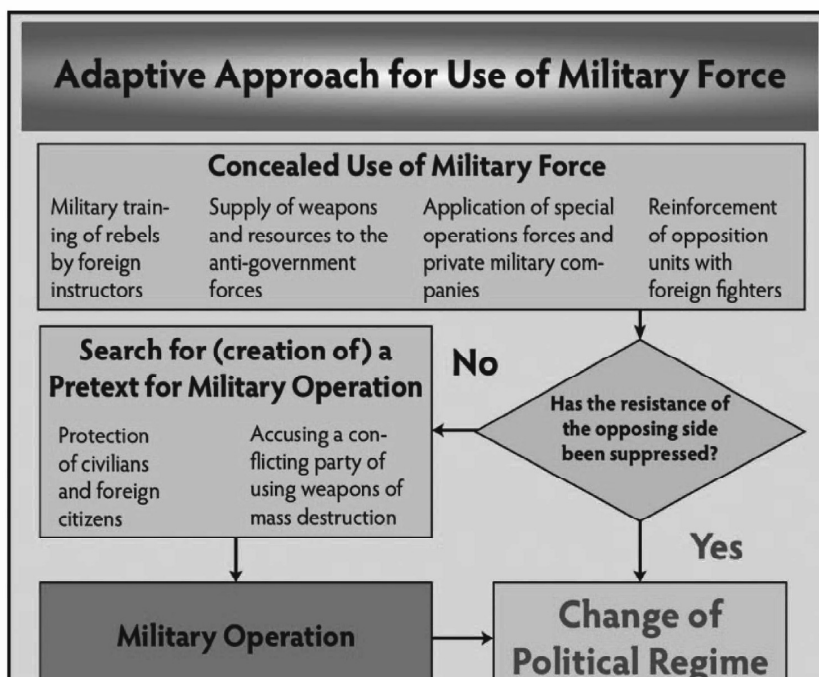-Oleksiy Reznikov, Ukrainian Minister of Defence

Figure 10: Extract from a briefing given by General Valery Gerasimov during the Russian Ministry of Defence's Third Moscow Conference on International Security 13, Source: https://www.researchgate.net/figure

This thrust aimed to seize the entire coastline, right from Mariupol in the east to Odesa in the west a swath of over 400 km.[30] Accordingly, the southern offensive moved upwards in three prongs. One moved eastward towards Mariupol which was reinforced by the detachment of troops from Donetsk. Another thrust line moved northward towards
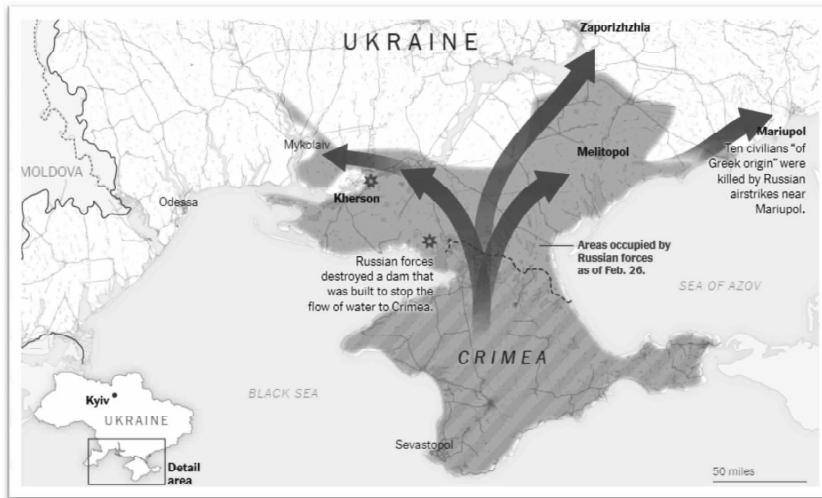
Figure 11: Southern Thrust Disposition,
Source: New York Times reporting; Ukrainian officials;
Institute for the Study of War

Melitopol and then to Zaporizhzhia, the site of Ukraine's largest nuclear power plant. The third thrust moved westwards towards the port towns of Kherson and Mykolaiv. Taken together, the southern offensive would have carved a swathe of land over 200 km deep all along the coast and seized the entire coastline along the Sea of Azov and the Black Sea along with its vital ports.[31] Russian marines and the army made grandiose gains here and almost cut off Ukraine from the sea, thereby, making it a virtual landlocked state. The relevant facts bringing out analysis of the southern offensive are as follows:

● **Russian Style Offensive**. The operation in the southern sector demonstrated a characteristic Russian-style offensive with heavy artillery bombardments and scant concern for civilian casualties and collateral damage. Russians made the most impressive gains here. Unrestricted employment of firepower over the numerically disadvantageous enemy is Russia's hallmark.

● **Ukrainian Counter Offensive**. The Ukrainians used a High Mobility Artillery Rocket System which allowed them to strike deep on the rear of Russian positions like Saky airbase, in the city of Nevofedorivkaa, around 100 km deep inside

Crimea. Moreover, the sinking of the flagship of Russia's fleet, the MOSKVA by two Neptune anti-ship missiles proved to be a major breakthrough for Ukrainians.[32]

Total Battlefield Transparency. The unprecedented access to US intelligence gathering systems and spy satellites erased surprise from the Russian operational lexicon. The operation of high/medium altitude long endurance Unmanned Aerial Vehicle, Airborne Warning and Control Systems and Joint Surveillance Tracking and Reconnaissance Systems over Poland, Romania and other neighbouring countries made the battlefield an absolute fishbowl for Ukraine.[33] The radio and mobile networks of the Russians were being monitored. The leveraging of Starlink Terminals provided by Elon Musk helped Ukrainians to adroitly undertake drone strikes against the Russian inventory and also facilitated the connection of thermal vision devices atop the drones for target designation with artillery.[34]

Battle of Narratives. The alacrity with which the battle of narratives has been used in this war is marvellous. This soft power profoundly impacted battle on the ground. US-controlled media channelised the world's opinion in favour of Ukraine with gentility. Russia's display of scant regard towards humanitarian aspects and effecting colossal civilian damage and casualty was advertised vociferously. The counter-offensive by Ukraine was telecasted as full of bravado which attracted ovation across the world. The strategic communication, therefore, immensely contributed to Ukraine's success in the domain of Information Warfare and Psychological Operations.

**Figure 12: The Washington Post Newspaper,
Source: aljazeera.com**

Use of Drones. The use of drones by Ukrainians has been spectacular with telling effects on the ground. The drones operated with impunity undetected by the S-300 AD system. Ukrainians used a combination of cheap, locally made Spectre and Punisher drones which could bring down attacks with pinpointed precision. The Spectre drones acted as observers by loitering over the battlefield, observing and relaying the images and coordinates whereas the Punisher drone would then be launched armed with bombs or missiles which fire from long ranges. Moreover, the use of Turkish-made Bayraktar drones which have four anti-tank missiles also proved to be promising.[35]

Figure 13: A Ukrainian military on 18 Apr 2023,
Source: Open Online Source

Recommendations and Roadmap for India; Military Lessons

The Russia-Ukraine conflict posits that future wars will not simply be conventional but will follow a multi-domain template. The amalgamation of hybrid warfare and conventional warfare to gain ascendency over the adversary seems to be a widely accepted strategy. The die is cast to remodel military strategy, doctrines, employment philosophy and organisational structure to effectively resonate with evolving scenarios. The fusion of technologies like machine learning, Artificial Intelligence (AI), robotics, automation and space-based surveillance substantiates military superiority. This war has numerous lessons to offer which should be drawn heuristically. Following lessons have been drawn and responses from mid-seniority level officers (15 to 20 years of service) from all three services and the Coast Guard have been recorded against a questionnaire meant to validate these observations. The questionnaire is attached herewith.

- **Tanks are here to stay**. This war has conclusively proven that tanks are the primary instrument to attack in plains, deserts and to an extent, the mountainous terrain.

■   Procurement of tanks fitted with Armour Protection Systems and Remote Weapon Systems as a guard against drone attacks (as has been seen in the ongoing war) should be the prime focus of the Indian military. A larger number of lightweight Main Battle Tanks (MBT) should be procured to generate firepower with high mobility.

■   Fixed tank batteries should be positioned in mountainous regions after clinically ascertaining critical points. Terrain restrictions should not pose any limitation in the generation of firepower in the northern theatre.

●   Linking of Battle Management System (BMS) with tanks would provide digital mapping of the area of operation. This would enhance the situational awareness of an operator to make decisions leading to the shortening of the Orient-Observe-Decide-Act loop.

●   Effective amalgamation of AI with BMS would prune the human intervention down. Big Data analysis and machine learning should form the basis of discriminating targets as friends or foes. 'Conflict Continuum' and degree of threat should decide the extent to which freedom of action may be given to these systems. Autonomous 'Authority to Kill' should be given during extreme situations and escalated conflict scenarios only.

●   Additionally, amalgamation of drones with tanks would further strengthen the capability. 'Over the Horizon' surveillance capability and early warning of approaching threats would be possible. It is, therefore, recommended that one drone squadron should be clubbed with an armoured regiment.

Dovetailing Logistics with Operations. The logistics aspect should be exquisitely dovetailed with operational planning to enhance the reach and sustenance of fighting forces. It is recommended that joint logistics planning should find special mention in the Joint operational planning template as an independent step.
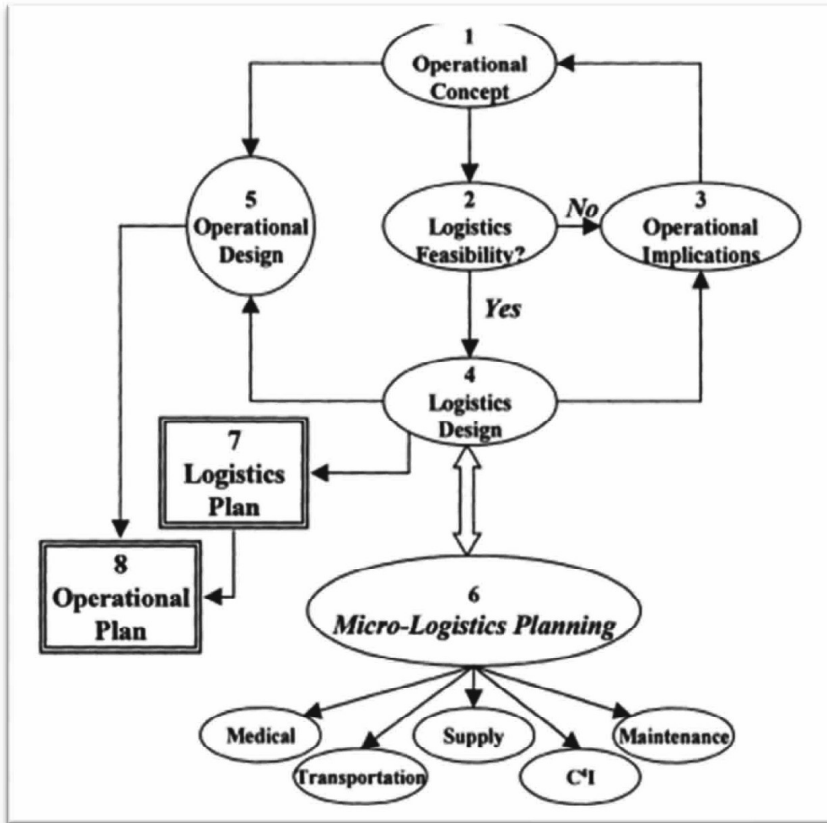
**Figure 14: Sample flow chart of Logistics Planning,
Source: Page 94 of the book 'Operational Logistics-The Art and
Science of Sustaining Military Operations' by Moshe Kress**

● **Indigenisation- No Scope for Delay**. 60 per cent of
India's tank fleet are the Russian T-72 tanks.[36] The
dependency for arms on foreign companies is a tricky and
unhealthy proposition. Swift repairs and replacement of
defective equipment becomes a challenge for want of spares.
India should strive vehemently towards achieving complete
indigenisation. The government's flagship scheme of
Atmanirbhar Bharat (Self-reliant India) is encouraging Indian
companies and start-ups to come forward with innovative
ideas Schemes like Innovations for Defence Excellence (iDEX)
and Supporting Pole-Vaulting in Research and Development
(R&D) through iDEX, Naval Innovation and Indigenisation

Organisation and Technology Development Acceleration Cell should reach every corner of India. Extensive R&D efforts by the Defence Research and Development Organisation with strict adherence to timelines would help in going the extra mile in tremendously enhancing the military potential.

● **Drones and AI**. Air Force doctrine mentions Air Superiority and Supremacy. However, what prevailed in this conflict was the concept of 'Air Denial'. The Russians had grounded the Ukrainian Air Force and Ukrainian ground-based AD systems S-300 and Man Portable AD Systems denied airspace to Russians.[37] What could be operated with impunity were Drones.

■ Drones are game changers of future wars. A potent platform for Intelligence, Surveillance and Reconnaissance, attack and air mobility due to their less cost and effective utilisation, drones may be additionally used for logistics support in mountainous regions. Drones can be utilised in attack configuration to generate firepower to make good for gaps due to employment restrictions of tanks in mountainous terrain.

■ The clubbing of AI with drone's employment philosophy may generate stupendous and unimaginable results.

■ **Proposed Mechanism**. The drones on surveillance missions (unarmed configuration) would identify threats using big data analysis and AI. Upon identification of a threat, a signal would pop up at the operator's console in the control room. The drone detaches itself to continue its mission. Further decisions will be taken by the operator based on the prevailing security state and threat scenario. In case, it is decided to neutralise the threat, the 'Order to Kill' signal would, then, be generated from the control room and is transmitted with all relevant data to robotic soldiers for the 'Shoot and Scoot' task.
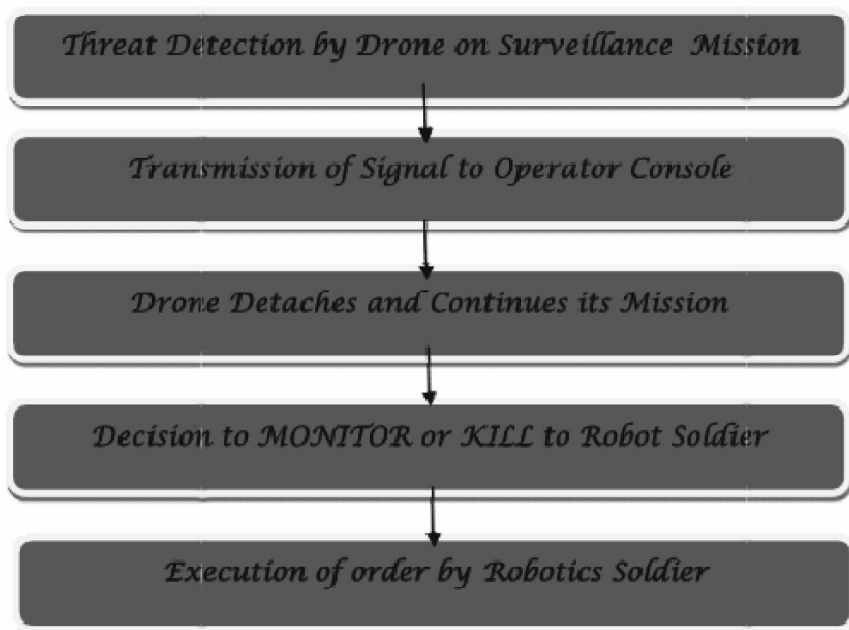
Figure 15: Flow diagram,
Source: Created by the author based on understanding

● **Electronic Warfare (EW)**. The future wars will have a non-contact component in which weapons of standoff ranges coupled with precision-guided munitions will be used. The transaction of guiding signals would undoubtedly be part of the system circuitry. A robust EW umbrella to disorient and jam incoming threats will position India in an advantageous operational paradigm. Extensive research should be undertaken in this field and Joint Services EW Warfare Doctrine should be evolved for joint operations in this domain.

● **Battle of Narratives**. The importance of the battle of narrative has been amply surfaced in this conflict. It would be germane to create an organisation at the theatre command level for coordinated and planned psychological operations. It is recommended that officers of the rank of Major and below (equivalent in other services) should be provided special training in media management. A six-month duration curriculum should be designed, and

contracts may be concluded with the best colleges of journalism. The internship attachment with journalists/news channels of good repute may be made part of the curriculum to acquire a knack for generating impactful narratives.

● **Mastering Disruptive Technologies-Cyber Warfare**. The 'Denial of Internet Surveillance' to the military disorients soldiers. India needs to evolve a watertight strategy and tactics of cyber warfare in both offensive and defensive roles. Cyber warfare precedes and thereafter continues in sync with conventional waves of attack to create chaos, confusion and disorientation. The solution lies in achieving an absolute technological edge in cyber warfare. China has championed technological know-how and the use of disruptive technology. With China providing satellite surveillance access to Pakistan, India should aggressively aggrandise the setting up of a dedicated and independent Joint Cyber Warfare Command. Tech-savvy officers should be posted there to undertake extensive research and development along with students from the Indian Institute of Technology (IIT). A curriculum of six-month duration should be designed in consultation with IITs for selected officers to acquire advanced technological acumen.

● **Retention Policy of Agniveers**. Russia could not amass troops due to manpower shortage and demographic weakness. So, it kept on recycling the same troops by mobilising them from one sector to another.[38] Military common sense dictates that one must generate a 3:1 superiority in manpower to attack.[39] So, there is a need to reconsider the decision to whittle down manpower and switch from a regular full-colour service army to short-term inductees (*Agniveers*). The clue can be taken from the fact that Russian conscripts have performed very poorly in the Ukraine war. Given the fact that future wars will not just be high-tech but high-tech and mass, the idea of thinning down the forces may not be a feasible option. It is not a grandiose idea to let go 75 per cent of trained manpower after four years. By doing so, India is creating a potpourri of trained and unemployed

youngsters who are conversant with the sensitivities of military operations. Released *Agniveers* are sources of confidential information which they have gained during their engagement period. The fact that they are unemployed can be leveraged by terrorist organisations by luring them using honey traps or by offering them hefty monetary dividends. It is, therefore, recommended to change the clause of retention of Agniveers from 25 per cent to 50 per cent. Provision should be made for guaranteed employment to the remaining 50 per cent in reputed private companies and horizontal reservation in government jobs with age relaxation after completion of the engagement period.

Conclusion

The ongoing Russia-Ukraine has quintessentially touched upon almost all aspects related to nation-building. Although the scope of this essay is restricted to military aspects of conflict, it will be apposite to mention that economic, social and technological aspects have a profound bearing on military operations. With the commencement of a great game of multi-polarity among superior nations, the world again stands at the brinkmanship of World War. Future war will span across multiple domains with nuclear hangover proving to be a potent deterrence factor. The time is ripe to take lessons from this war and validate existing doctrines and strategies through war gaming. The use of disruptive and niche technology is yet another factor to be brooded upon seriously. Existing inventory needs to be realigned with evolving scenarios and employment requirements.

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Review Articles and Book Reviews

Grey Zone Warfare: Way Ahead for India

Lieutenant General Dushyant Singh, PVSM, AVSM (Retd)

Introduction

Grey Zone has become the preferred choice of countries to secure their national interests due to its low cost and deniability. The book 'Grey Zone Warfare: Way Ahead for India' written by Lieutenant General Dushyant Singh has attempted to demystify the grey zone and examined the way countries are indulging in this as well as highlighted the threats being faced by India. Warfare has changed and technology has been the prime driver of change, in a widened spectrum where the dimensionality is expanding to include multiple domains, as the distinctions between war and peace are blurring. Terms such as political war, economic war, cyber war, lawfare, information war fourth and fifth generation war, irregular war, proxy war and hybrid war are now all part of the lexicon. The book, while examining the complexity of this form of warfare also suggests the level and nature of response and has given out suggested structural changes in the security architecture.

About the Author

Lieutenant General Dushyant Singh, PVSM, AVSM was commissioned into 9 MARATHA Light Infantry in Dec 1981 and subsequently commanded the battalion. He has held numerous command, staff and instructional appointments and served in varied terrains including command of his Brigade and Division in Jammu and Kashmir (J&K) and the prestigious 11 Corps in Punjab. An alumnus of the National Defence College, he attended the Defence Counter Terrorism Programme at the Naval Post Graduate School in the United States (US) where he specialised in terrorist operations and financing and has served twice in the National Security Guard. A scholar and prolific writer who headed the Army War College, is presently the Director General Centre for Land Warfare Studies.

About the Book

The book has eight chapters and six appendices. The first Chapter talks about 'Grey Zone being the Emerging Frontier in War'. The author gives an example of the targeting of the Mumbai electricity grid, which started on 10 Oct 2020. He says that the "COVID-19 crisis complicated the grey zone conflict space with countries creating unproven narratives to play the blame game or to meet national interests". He further questions if "India's weak response in this domain and wonders whether it is due to idealism, a lack of capability or a lack of will by our national leadership".

In the Chapter 'Demystifying Grey Zone Warfare', the author states that 'The name is slightly misleading' as it is not a zone that can be defined geographically but owes its origin to a 'Colour-based Metaphor'. While explaining various terms, he says that the difference compared to 'Hybrid Warfare' is that it is a "State between war and peace where an aggressor aims to reap either political or territorial gains associated with overt military action without crossing the threshold of open warfare".

"War in the 21st Century is conducted at a roughly four-to-one ratio of non-military and traditional military tools and tactics" is a quote from General Gerasimov and, thereafter, the author tells us about 'Russia being an adept practitioner'. The six stages of the Gerasimov Doctrine are explained and an interesting dimension of the denial of the doctrine itself by Michael Kofman of the Wilson Centre. The author also gives examples of Russian action in the grey zone ranging from its 'Nuclear campaign to maintain a strategic advantage with the US' to expanding its influence across the globe. Russia 'Has played the grey zone with all instruments of statecraft'.

In chapter four, the author terms 'US the Subtle Player' and quotes a study by Lindsey O'Rourke, where he says that between 1947 and 1989, the US attempted 72 regime changes of which 64 were covert. Lately, they have been involved in the 'War on Terror' in Afghanistan and removing dictatorial regimes in Iraq and Libya. While overtly the reasons for intervention may seem simplistic, they were primarily linked to securing US interests. The activities range from proxy wars and economic coercion to information operations, the last of which have a major advantage of a 'Lack of Attributability'. This includes the media campaign launched against India to back which he has quoted articles from various US newspapers.

Quoting a maxim of Sun Tzu, 'Subdue the enemy without fighting', the author states that "The Dragon is not far Behind in the Grey World". Its 'Favoured tools being information operations' that include stifling criticism of the Chinese Communist Party by dissidents abroad. He states, "Unrestricted Warfare appears to be the overarching concept of conduct and 'The three-warfare strategy' is the means to operationalise this". The Peoples' Liberation Army Strategic Support Force is at the forefront of this, especially through its Network Systems Department. Quoting Colonel Xiangsui, he says, "All means will be in readiness, that information will be omnipresent and the battlefield will be everywhere. It means weapons and technology can be superimposed at will and the boundaries between military and non-military and war and peace will be destroyed". There are no rules, ethics or limits. The author says that "China considers India as its major challenger in regional dynamics, therefore, it aims at keeping India unsettled".

Chapter six is regarding Israel, who he calls the master of grey zone warfare, but it has a chink in its armour. Their grey zone warfare tactics largely target countries such as Lebanon, Syria and Iran as well as non-state actors such as Hamas and Hezbollah. Israel has consistently mixed its warfighting with grey zone actions. This includes assassinations and the book covers in detail the elimination of Mohsen Fakhrizadeh, a nuclear scientist, by "A high tech computerised sharpshooter kitted with artificial intelligence and multiple camera eyes operated via a satellite". Though Israel did not claim the act, many believe they were responsible.

He also tells us how they carried out a cyber-attack disrupting the Iranian nuclear weapon development programme by the 'StuxNet' virus. However, he states that Israel has been constantly under attack in the information domain from the Palestine Liberation Organisation and Hamas. They then countered this with a concept named 'Hasbara' and this has been refined by a new policy that was more centralised and incorporated a greater number of social media platforms.

Chapters seven and eight are the essence of the book and give out the author's views on 'India's Challenges' and 'How it should organise itself'. While writing about the threats posed by China, the author states that "China perceives the Quadrilateral

Security Dialogue to be directly linked to its security interests so it is unlikely to escalate border skirmishes into a major conflict", and is likely to continue playing in the grey zone by salami slicing and various other means including cyber-attacks, regime changes in India's neighbourhood, Myanmar being a present case, information operations and leveraging countries against India, as was done by Nepal, raising the Lipulekh border dispute during the Galwan crisis.

Pakistan, he states is a 'Past Master' and has spent 'Minuscule sums in terms of military and finances' in waging a proxy war. Disproportionate outcomes below the threshold of war 'Have consistently encouraged Pakistan to consistently resort to non-military goals to achieve its objectives'. Punjab and J&K stand out as examples and in the latter, they are using the diplomatic domain to make it a 'Multi-lateral rather than bilateral issue'. The Inter-Services Intelligence, Pakistan's intelligence agency, controls its terror groups which they use against India.

Strategic communication forms an important component of grey zone warfare. Social media and digital manipulation are the new tools of misinformation. Social media is the 'Domain for the future'. He even gives out case studies including the Shaheen Bagh protest to support his argument.

At the core of information warfare is 'Building a strong narrative'. He then goes on to suggest various communication strategies for social media, print media and traditional electronic media. Quoting Lieutenant General Ata Hasnain, he talks of the need to establish a body to handle information warfare, this was reinforced by Lieutenant General PS Rajeshwar who said, "If the handling of security related information domain is perceived as saddling the Information and Broadcasting Ministry with too many tasks, perhaps it's time to look at a National Strategic Communication Authority".

There is a need to evolve solutions both for offence and defence in the grey zone. A requirement of greater synergy is necessary between all components of the security architecture dovetailed with our foreign policy objectives. The whole nation's approach to national security matters. However, there cannot be a traditionally laid down black-and-white document on the grey zone policy.

Comments

Due to the inherent advantages of operating in shades of grey, various nation-states are using it as a favoured tool to secure a strategy and the advent of technology has made it a preferred form of combat. There is no doubt that the way forward to tackle the grey zone threat is an 'All nations approach' which has been brought out by the author. This includes integrating all agencies dealing with the grey zone while at the same time not compromising on our stated stand of a rules-based international order.

Galwan was by far the most skilful grey zone activity of China. The Chinese are upset with India due to its stand on the spread of the Corona Virus, the abrogation of Articles 370 and 35A and the construction of the Leh-Darbuk-Shyok-DBO Road, decided to test the Indian resolve to defend its territory.

The book, which is meticulously researched is a work of scholarship whose arguments are backed by adequate references. It will be extremely useful to the practitioners and policymakers in the security fraternity in getting clarity on the complexities of grey zone warfare.

The ambiguity of grey zones will continue to be exploited at multiple levels by nations to overcome international laws and create an ambiguous world order. The challenge is how to preserve the values and rules of combat in an environment where 'There are no rules and nothing is forbidden'.

Major General Jagatbir Singh, VSM (Retd)

Review Article 2

Bridging Borders: Indo-Nepal Relations in a Changing Landscape

Lieutenant General Shokin Chauhan, PVSM, YSM, SM, VSM, PhD (Retd)

'Bridging Borders: Indo-Nepal Relations in a Changing Geopolitical Landscape' is a new book by Lieutenant General Shokin Chauhan, a military author and a second-generation Gorkha officer, who was also India's Defence Attaché to Nepal from 2004 to 2007. He has also been the Director General Assam Rifles and later was the Chairman of the Ceasefire Monitoring Group in Nagaland.

The author's first-hand experience of Nepal and the Gorkhas takes the reader on a journey through the shared footprints of the history of India and Nepal; on the Indo-Nepal bridging relations and, thereby, bridging borders. The research topic 'Bridging Borders: India-Nepal Relations in a Changing Geopolitical Landscape' for the United Service Institution of India led to this timely book release for the Indian academics and Nepal-China watchers who think of having a friendly nation to its north between its adversary China to its further north, with its Tibet Autonomous Region (TAR) under the Chinese control.

'The history of the people is the story of their survival and growth on the land' discovers and traces the centuries-old bonds forged through trade, culture, and interwoven destinies, shaping a relationship critical to the region's stability. The stories of both India and Nepal have undergone tremendous ups and downs with changing relations from time to time.

Kirantis are said to have ruled the valley in the 7th or 8th Century BC. Their famous King Yalumber is even mentioned in the epic, *Mahabharat*. Around 300 AD, the Lichhavis arrived from Northern India and overthrew the Kirantis. One of the legacies of the Lichhavis is the Changu Narayan Temple near Bhaktapur, a United Nations Educational, Scientific and Cultural Organization

World Heritage Site that dates back to the 5th Century. In the early 7th Century, Amshuvarma, the first Thakuri king took over the throne from his father-in-law who was a Lichhavi. He married off his daughter Bhrikuti to the famous Tibetan King, Tsong Tsen Gampo, thus, establishing good relations with Tibet. The Lichhavis brought art and architecture to the valley, but the golden age of creativity arrived in 1200 AD with the Mallas.

The history of the Gorkha state goes back to 1559 when Dravya Shah established a kingdom in an area chiefly inhabited by Magars. During the 17th and early 18th Centuries, Gorkha continued a slow expansion, conquering various states while forging alliances with others. Prithvi Narayan dedicated himself at an early age to the conquest of the Kathmandu Valley and for more than a century, Nepal remained in isolation.

After many years of struggle when the political parties were banned, they finally mustered enough courage to start a People's Movement in 1990. Paving the way for democracy, the then-King Birendra accepted constitutional reforms and established a multiparty parliament with the King as the Head of State and an executive Prime Minister. In May 1991, Nepal held its first parliamentary elections. In Feb 1996, the Maoist parties declared a People's War against the monarchy and the elected government.

A horrific tragedy (01 Jun 2001) wiped out the entire royal family, including King Birendra and Queen Aishwarya. Only King Birendra's brother, Gyanendra and his family survived. He was crowned the king. King Gyanendra abided by the elected government for some time and then dismissed the elected Parliament to wield absolute power.

In Apr 2006, another People's Movement was launched jointly by the democratic parties focusing most energy on Kathmandu, which led to a 19-day curfew. Eventually, King Gyanendra relinquished his power and reinstated Parliament. On 21 Nov 2006, Prime Minister Girija Prasad Koirala and Maoist chairman Pushpa Kamal Dahal (Prachanda) signed the Comprehensive Peace Agreement 2006, committing to democracy and peace for the progress of the country and its people. A Constituent Assembly election was held on 10 Apr 2008. On 28 May 2008, the newly elected Constituent Assembly declared Nepal a Federal Democratic Republic, abolishing the 240-year-old monarchy.

The strategic geographical location of Nepal, which lies along the mountains of the central portion of the Himalayas has been well explained with the help of maps. A landlocked country, surrounded by India on three sides and by TAR to the north. However, I wonder if Nepal has really acted as an important bridge linking two ancient civilisations of the Asian continent, China in the north, and India in the south as brought out by the author. Even the Aryan links to the Indian subcontinent have since been debunked and, thereby, to Nepal as well.

The Indian defeat in the 1962 war against China marked significant geopolitical shifts and a change in the attitude of Nepal towards India. Also, if India could not protect itself, how could they expect India to protect Nepal? The main concern in Kathmandu was that a powerful China posed, possibly, a much larger threat to Nepal than India could militarily. The entry of China as a key strategic player in Nepal and working with the communist parties of that country has now created a better zone of influence with its economic power and is on its way to spreading its wing of eco-colonialism in Nepal. China has ultimately emerged as an important strategic player in Nepal's affairs.

Existing fault lines especially the border disputes, political tensions, and other sensitive issues, are well addressed with clarity, offering crucial context for understanding the past and present complexities. However, some of these disputes are the legacy of the British colonisation. Kalapani salient boundary dispute along its southern and south-eastern borders mainly due to shifting riverbeds and the origin of the Mahakali River around Dharchula are the reasons given for the dispute.

The Madhesi issue has also been discussed in great detail. The Madhesi protestors in Nepal, who were dissatisfied with the newly adopted Constitution of Nepal, caused the blockade. However, the Government of India and the ruling party at that time held multiple meetings with Madhesi leaders and were believed to have provoked them which was naturally not to Nepal's liking.

Towards a way forward for better and friendly relations with Nepal measures from the Indian side, the Nepalese side and joint measures have been discussed by the author. Reasons for Nepal trying to remain equidistant from India and China have been adequately elaborated by the author duly analysed. Former Prime

Minister BP Koirala's statement sums up the Catch-22 situation for India-Nepal relations: "Our ties shouldn't be interpreted only on the basis of ancient history and culture. Look at Europe; it may be one culturally, but they were always fighting and killing each other. Distrust does not disappear just because there is cultural affinity. Relationships are dependent upon differing perspectives on society and differing expectations of the future".

The author, being a second-generation Gorkha officer strongly feels that the "Presence of thousands of Indian Gurkha ex-servicemen in Nepal who have served in the Indian Army can help shape ideas and opinions in favour of India". The author has travelled extensively the length and breadth of Nepal while posted as India's Defence Attaché to Nepal. He continues to maintain close contacts with the Nepal-domiciled Indian Gurkha ex-servicemen with whom he has served over the years, through the changing political scenario of Nepal.

Wish the author had thrown light on the palace massacre of 01 Jun 2001, the tragedy that wiped out the entire royal family, including King Birendra and Queen Aishwarya with many of their closest relatives.

The quality of maps could have been better to be decipherable. Maybe the maps were retrieved from some very old historical archives. 'Uncertainty is Uncomfortable' so need to engage with the nuances even if uncomfortable which will lead to respective trust between the two Hindu nations India and Nepal. This timely researched book titled 'Bridging Borders: India-Nepal Relations in a Changing Geopolitical Landscape', for those seeking an insight into the India-Nepal strategic relationship will be a valuable possession, especially to the serving Gorkha officers and India-Nepal-China watchers.

Colonel RC Patial, SM, FRGS, PhD

War Transformed: The Future of Twenty-First-Century Great Power Competition and Conflict *by Mick Ryan, pages: 298, Price: ₹ 3060, ISBN: 9781682477410, Naval Institute Press.*

Introduction: Setting the Scene

The book explores strategies for predicting and adapting to the changes in future warfare. It reviews necessary institutional adjustments, military concepts and Human Resource (HR) development, concluding with the principal themes for applying military power in the 21ˢᵗ Century. Surprisingly, the book's introductory section begins by referencing the Galwan clash to highlight the fusion of outdated and the most modern technologies in future wars, the propensity of minor incidents to quickly escalate and embedded surprises in conflict, technology and natural events.

Mick Ryan, the author, retired as a Major General from the Australian Army after heading the Australian Defence College, Canberra. He draws his experiences from Brigade level command appointments, leadership of the strategic planning organisations in the Australian Army and Australia's first reconstruction task force in Afghanistan. The book 'War Transformed' was published on 15 Feb 2022 by the United States (US) Naval Institute Books. 'Futura Doctrina' is a recently established Substack page by the author where he writes about contemporary war and competition and the technological and human dimensions in these areas. 'White Sun War' is the latest book by the author that is a fictional account of the China-Taiwan conflict.

Chapter I: 'Revolutions and Military Change'

In Chapter I, the author examines the impacts of the industrial and information revolutions on society and warfare while identifying upcoming disruptors such as great power competition, demographic trends, disruptive technologies and climate and natural threats.

Chapter II: 'Future Wars'

In Chapter II, the author examines how the disruptors identified in the first chapter will reshape warfare and identifies various continuities with the war itself as the first continuity. He challenges the proponents of 'Declining War Theory' and emphasises that deterrence will remain the cornerstone of international security studies. He critiques the use of buzzwords and fads like 'Gray Zone' and advocates 'Plain English' in military discourse for better

clarity. Additionally, the chapter delves into surprise as a continuity factor. The author opines that generating surprise should extend beyond the military domain, given the broader context of national security. He further discusses the trends in 21st Century warfare that include compressed adaptation cycles, signature management, man-unmanned teaming alongside conventional forces, narrative war and greater sovereign resilience to cater for protracted wars. The chapter concludes that militaries must evolve with new ideas, institutions and personnel.

Chapter III: 'Institutions, Ideas and Future Military Effectiveness'

The highlight of Chapter III is the analytical framework that the author postulates as metrics to gauge the military effectiveness at the strategic, operational and tactical levels of warfare. He cites the US multi-domain operations and the institutional innovation in creating the People's Liberation Army Strategic Support Force by China as organisational and operational innovations that have emerged as a result of both continuity and transformative changes in warfare. The chapter concludes with a cursory account of the counter-adaptation strategy to degrade adversary adaptive mechanisms.

Chapter IV

In Chapter IV, the author focuses on the HR management aspects of the military. Driving home the point, he concludes that due to the transformation in war, there is an urgent necessity to continually invest in the intellectual edge both at the individual capacity to out-think and out-plan the adversary and the institutional capacity to solve complex problems of future force design and operational concepts. He also lays out a strategic design for Professional Military Education (PME), from tactical mastery to training operational artists and nurturing strategists and national security leaders. The author also outlines a 'Think Tank and Idea Incubators' role for the premier military training institutes. While concluding the book, Ryan gives out propositions to assist military institutions to successfully wade through the challenges of the 21st Century.

Critique

Stamping his professional authority, the author has crafted a well-researched book that is palatable, especially to military practitioners. Despite addressing multiple themes, the author presents a coherent

and structured book. The book revisits familiar themes and narratives yet stands out through unique viewpoints on traditional aspects, presented with historical analysis and logical arguments. It delves into granular details, such as advocating against the 'Zero Error Syndrome' and critiquing the excessive use of military jargon like 'Grey Zone', which resonates with military practitioners.

The author introduces novel concepts like identifying the 'Notion of Victory' in expanding domains of warfare, counter-adaptation strategy to offset adversaries' adaptive mechanism and promotions linked to intellectual curiosity, which are radical departures from the traditional approach to warfare and human capital development. However, the counter-adaptation strategies lack detailed analysis, occasionally leading to recommendations that appear impractical. The emphasis laid on building the 'Intellectual Edge' in the human capital appears to be drawn from his seasoned experience as head of the Australian Defence College. The strategic design outlined in PME reinforces this aspect, although its applicability may vary based on the specific contexts of different countries.

Although the book was written with western militaries and coalition forces in mind, it offers excellent insights and policy recommendations for militaries worldwide. Overall, the author's work provides a comprehensive and insightful analysis of the evolving nature of warfare and its implications for military strategy and training. The author's book is a must-read for military practitioners and national security planners worldwide.

<div align="right">Colonel R Abhilash</div>

Geopolitical Shifts and Opportunities, New Horizons in India-Southeast Asia Relations, ICWA-Delhi *by Prabir De and Temjenmeren Ao, Pages:278, Price: ₹ 1680/-ISBN: 978-93-94915-80-0, KW Publishers Pvt Ltd.*

India and Southeast Asian countries have transformed their diplomatic relationship into a strategic-level partnership. Apart from having a shared cultural and historical relationship, both India and the Association of Southeast Asian Nations (ASEAN) continue to pave their way for a world that values and accepts the active participation of the Global South countries at a strategic level. With ASEAN countries, India has registered a bilateral trade of USD 131.5 bn in 2022-23. The trade with ASEAN accounted for

11.3 per cent of India's global trade in 2022-23. A true multifaceted partnership with Southeast Asia has opened a gateway of opportunities for both in the form of enhanced cooperation, not only bilaterally, with each Southeast Asian country but also at regional forums.

India recognises the unique identity of each nation and their centrality in constructing an equity-based structure that tackles the challenges of a growing Indo-Pacific issue. The Indo-Pacific theatre laden with a host of political, economic, environmental and security-related opportunities and challenges, requires ASEAN to be at the front. This is evident from the establishment of the ASEAN Outlook on Indo-Pacific initiative ascertains the confluence between Asia-Pacific and the Indian Ocean with a view to enhance partnership, equality, open dialogue and not push for hard power rivalry, which is also endorsed by the Indian side.

This book serves to be a pedestal for understanding the ASEAN and India relations from a comprehensive perspective. It also gives a detailed account of epigraphical and palaeographical records of similarities between the scriptures of Southeast Asia and Indic scripts and languages. Underscoring how Sanskrit became a popular 'Courtly' language after 4 CE, followed by the use of Pali which eventually became more common due to the spread of Buddhism. The subsequent chapters include a detailed account of ASEAN-India relations which have been exhaustively and factually described by contributors. These include a critical analysis of the maritime challenges in the South China Sea and other evolving security dimensions. The role of multilateral mechanisms in dealing with a volatile geopolitical situation, especially at the time of heightened US-China powerplay. How does India see these complex geopolitical realities and turn the tide towards its side by not only 'Looking East' but 'Acting East' is a long-drawn game to be followed. Readers also get the opportunity to read the proceedings of the conference out of which the book was carved out.

Ms Surbhi Chakraborty

India's Historic Battles: Imphal-Kohima,1944, *by Hemant Singh Katoch, Pages: 228, Price: ₹ 310/-, ISBN: 978-9354899126, HarperCollins India.*

The book – 'Imphal Kohima 1944' is the first battlefield guide for Imphal and Kohima. It looks at what the present-day states of

Manipur and Nagaland have to offer about the two battles and the Second World War, including battlefields, memorials, airfields, cemeteries and museums. In the process, it describes the forces that clashed at the time, their strategies and the bitter fighting that ensued.

The book gives a very detailed overview of the clash between the British Fourteenth Army and the Japanese Fifteenth Army at Imphal in Manipur and at Kohima in the Naga Hills of what was then Assam in 1944, which was the turning point of the Japanese invasion of India and march through Asia was later stopped, with the Allies subsequently driving them out of Burma in 1945. The Japanese lost some 30,000 men, with another 23,000 injured, in what is considered one of their greatest-ever defeats on land. In Apr 2013, Imphal-Kohima was named 'Britain's Greatest Battle' by the United Kingdom's National Army Museum. Indians fought on both sides as part of the Fourteenth Army and, albeit, in much smaller numbers, alongside the Japanese as soldiers of the Indian National Army.

The book is divided into three main chapters, which are Imphal, Kohima, Ledo Road and the Hump, in which the battles of Kohima and Imphal are described in great detail for the reader to understand the intricacies of jungle warfare as faced in the thick and dense fields of Northeast.

A battlefield guide has been given along with the book to assist in the mapping of relics of war and contribute to increasing awareness about this chapter of history. The guide also briefly presents sites that describe the forces that clashed at the time, their strategies and the bitter fighting that ensued. The guide also briefly presents sites of interest in Assam and Arunachal Pradesh that are linked to the war-era Ledo/Stillwell Road and fights over the 'Hump'. The book gives practical information for visitors in terms of security situations, permits, transport links, accommodation, season to visit, tour operators, etc.

The author has taken a number of photographs of the present-day sites, war memorials and historical places that are suitably placed in the book, along with maps, to give a better description of the battle and correlation between the two.

Colonel Ravinder Kumar Sharma (Retd)

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OFFICERS' RECORD OFFICE

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Contact Details

Col MP-5	35475
AAG MP-5B	35485
DAAG Grievances	34309
AAG (Pension) (Retiring Officer Seminar & Documentation)	35488
MP-5 (Helpdesk) (including SPARSH issues of Retd offrs)	
▪ Call Centre	011 26757700
▪ Mob	8800352938 8130591689
▪ WhatsApp	8368051743
OIC APACC (Pune)	9309781033
OIC DPCC (Prayagraj)	7393073973

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  - ✓ Intimation of Pensioners Demise (by NoK)

✉ E-mail
offr.record@gov.in
pensionoff.03401@gov.in

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ADJUTANT GENERALS' BRANCH
OFFICERS' RECORD OFFICE

MP-6 (SERVING OFFICERS RECORDS)

SERVING OFFICERS' RXN

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Offrs vis Delhi are encouraged to vis the Serving offrs rexn and check their docu.

Contact Details

Col MP-6	34496
DAAG (Offr Records)	34821
MP-6A (Brig & above)	34821
MP-6B (Arty, Armd, AAD)	35482
MP-6C (Engrs, Sigs, Avn)	39556
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For further particulars, please write to Director General, USI of India, Rao Tula Ram Marg, (Opposite Signals Enclave) Post Bag No. 8,Vasant Vihar PO, New Delhi – 110057.

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USI

(Estd. 1870)

OUR ACTIVITIES

Centre for Military History and Conflict Studies (CMHCS)

The CMHCS was established in Dec 2000 at the behest of the three Service Headquarters for encouraging an objective study of all facets of Indian military history with a special emphasis on the history of the Indian Armed Forces. It focuses on diverse aspects of the history of Indian military evolution, policies, and practices—strategic, tactical, logistical, organisational, socio-economic, as well as the field of contemporary conflict studies in the broader sense.

Centre for Atma Nirbhar Bharat (CANB)

The centre was established on 01 Jan 2024 and also includes Cyber Centre of Excellence (CCoE) as part of it in conjunction with Cyber Peace Foundation. The centre's objective is to forge emerging technologies with geostrategic and geopolitical situations with a view to make the services self-reliant by making possible the indigenous production of defence equipment and spares. The CCoE trains military personnel in artificial intelligence, cyber, and machine learning in addition to cyber forensic analysis in its well-equipped lab.

Gold Medal Essay Competition

Every year the Institution organises a Gold Medal Essay Competition open to all officers. These essays, the first one of which was introduced in 1871, constitutes a barometer of opinions on matters that affect national security in general and the defence forces in particular.

USI War Wounded Foundation Joint Essay Competition

This essay competition was instituted in 2021 after the signing of the Memorandum of Understanding between USI and the War Wounded Foundation. The competition is open to all across the globe and must be on the subject of issues relating to the experiences and/or rehabilitation of war disabled personnel of the Indian Armed Forces.

Lt Gen SL Menezes Memorial Essay Competition

This has been instituted from 2015 on a subject related to armed forces historical research. The essay competition is open to everyone, all across the globe.

Lectures, Discussions, and Seminars

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

MacGregor Medal

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

Centre for Strategic Studies and Simulation (CS3)

The erstwhile Centre for Research and its resources have been merged into the new centre named as CS3 w.e.f. 01 Jan 2005. The centre aims at conducting detailed and comprehensive enquiry research, and analyses of national and international security related issues, and gaming and simulation of strategic scenarios, to evolve options for wider discussion and consideration.

Centre for UN Peacekeeping (CUNPK)

The centre was established in 2000 and functioned with USI to organise workshops, seminars, and training capsules for peacekeepers, observers, and staff officers, both Indian and foreign. It also oversaw the practical training of Indian contingents. In Aug 2014, CUNPK moved out under the Integrated Headquarter of Ministry of Defence (Army). The USI has now established a United Nations (UN) Centre which is focusing on operational, strategic, and policy issues related to UN Peacekeeping. It also organises seminars and conferences on such issues.

Correspondence Courses

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

USI Journal

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

Library and Reading Room

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