



# IIRF STRATEGIC YEARBOOK 2024



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# IIRF STRATEGIC YEARBOOK 2024

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# MESSAGES



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22 May 2024



सूचना का  
अधिकार 3755/VGK

Strategic non linear thinking is mandatory to accurately identify the traditional and non-traditional threats that are likely to impinge on national growth and security. In an era of grey zone warfare and hybrid warfare new security concerns are emerging in multiple ways such as space dominance, data security, cyber threats, climate change, weaponisation of natural resources and choking technologies.

Geography provides security and opportunities and also poses challenges for India. The inherited neighbourhood since 1947 has kept our focus on mischief mongers employing conventional war waging methodology as well as the deniable proxy warfare. The overwhelming disruptive technologies have created situations with cross border covert attacks in non contact warfare with the highest degree of deniability and non attributability to the adversaries; some of whom are known and others are unknown.. India that is Bharat has the lofty Himalayas providing natural defence but technological growth has reduced the insularity. The vast Indian Ocean Region is rapidly manifesting into major power rivalry translating into maritime challenges for us. As the world grapples with the geo political and geo economic transition from a unipolar to a multipolar world India has to be prepared for regional and global changing realities well in time. Ongoing wars and conflicts have busted a large number of myths and pre conceived notions.

The IIRF Strategic Yearbook is a compilation of articles by scholars on vital strategic matters. These cover varied topics classified under specific sections. The book will be invaluable to policymakers, diplomats, armed forces, intelligence community, academia, think tanks, other stakeholders in security and growth of Bharat and the public at large.

Felicitations to the IIRF Governing Board and to the Editorial Team for their effort towards publishing a scholarly Yearbook!

Jai Hind - Jai Bharat!



## **CENTRE FOR JOINT WARFARE STUDIES (CENJOWS)**

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### **MESSAGE**



An integrated approach to defence, in terms of Joint Defence and Civil-Military Relations, forms the bedrock of effective security. This includes a surfeit of traditional and non-traditional areas, including technology, airpower, maritime, and nuclear power. Given the current global scenario, nuclear issues are becoming increasingly pertinent. The IIRF Strategic Yearbook 2024 is a unique compilation of relevant strategic topics. The authors are distinguished practitioners and experts in their domains.

CENJOWS is glad to see this book being published by an MoU partner. Congratulations to the editorial team of IIRF for publishing this anthology. It will go a long way in helping Indian and Global scholars understand India and the larger neighbourhood in an all-inclusive manner.

**Maj Gen (Dr) Ashok Kumar, VSM**

Director General

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### MESSAGE

Strategic discourse and writing are the hallmarks of all reputed research establishments. The IIRF Strategic Yearbook is an excellent example of such an activity. It is being published for the consecutive second year. This Annual Yearbook is an excellent compilation of India's wide-ranging security issues. All articles provide deep insight and unique perspectives on vital subjects. The book is most relevant for the analysts in the areas of Defence and International Relations as well as for the diplomats, policymakers, and those working in Media.

This book provides a holistic view beyond the continentalist mindset. CASS Pune is glad to have contributed to the compendium. The IIRF editors and contributors deserve praise for their excellent work.

With best wishes,

A handwritten signature in black ink, appearing to read 'B. Gokhale'.

**Air Marshal Bhushan N Gokhale PVSM AVSM VM (Retd)**

Former Vice Chief of Air Staff

Director, Centre for Advanced Strategic Studies Pune





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It was a pleasure to go through the latest issue of IIRF Yearbook 2024. It is very evident that great care has been taken to select and thematise the edition to deal with issues of relevance to not just India but to the strategic community around the world. I would like to compliment the editorial board and the galaxy of contributors for the choice of topics and for the in-depth analysis. The topics and the contributors have been carefully chosen to lend immense value to the second publication of the yearbook. The highly experienced contributors with decades of domain expertise have done full justice to the range of well-chosen topics on strategy, geopolitics, technology, economics, and the environment.

IIRF has carved out a niche place as a credible public policy research institute within a brief time. It deserves wholesome praise for bringing out this second yearbook illustrative of the high levels of commitment of the team to content and quality.

I have no hesitation in recommending the book as a must for all libraries of universities, colleges, think tanks and institutes of higher learning.

**Commodore RS Vasan, IN Retd**

Director General

Chennai Centre for China Studies

Regional Director National Maritime Foundation TN

## Message from IIRF Americas

Dear Members, Patrons, and Supporters

Since our inception in India in January 2021, Indus International Research Foundation (IIRF) has rapidly expanded its footprint to the Americas, Thanks to the unwavering support of our members, patrons, and advisors. Following The formal inauguration of IIRF Americas in September 2022, IIRF Americas has been forging ahead in various tracks. Our recent success extends beyond borders, as IIRF Americas anchored a high-level delegation to India, led by His Excellency Gary Herbert, Former Governor of Utah. This World Trade Center (WTC) mission, steered by us, showcased our dedication to fostering Indo-US collaboration in business and economy.

As we continue to grow, IIRF is poised to be a credible think tank supporting national and international interests. While we remain committed to supporting grassroots initiatives, our primary focus is catalysing Indo-US collaboration in various sectors. I extend my heartfelt gratitude to our founders, patrons, advisors, and board members for their invaluable support in establishing and nurturing IIRF Americas.

Together, let us strive to promote thought leadership, facilitate meaningful dialogue, and foster international cooperation for the betterment of our world.

I take this opportunity to congratulate Team IIRF for facilitating the publication of yet another yearbook with content rich with best-in-class articles from well-known personalities covering topics of strategic interest.

**Guru Sowle**

President, IIRF Americas

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# FOREWORD

The **IIRF Strategic Yearbook**, now in its second edition, was first published in 2022-23. This milestone marks the evolution and growing importance of our Strategic Yearbook.

The current West Asia conflict has created a whole new strategic scenario. The continuing war in Ukraine is escalating with a renewed offensive by Russia. Turbulent conditions currently prevailing in the geo-strategic and geopolitical domains, which are affected by the recession in geo-economics, are rewriting the global balance of power with the likely resurgence of Russia. In addition, China's assertion as a major player in global politics and economics will continue in the foreseeable future. The much talked about Cold War 2.0 is becoming more real with these developments. These create unique challenges for all countries, especially the Global South and emerging India. Geopolitical instability will continue in 2025 and become a key policy development driver. Major shifts are already visible in Geo-Strategical alliances. The contributions to the Yearbook by the finest scholars cover a substantial vista of topics influencing Security and Geopolitics. Most of the articles have been influenced by political and economic developments of last year and delve into India's defence and security. The wide-ranging subjects are varied and diverse, from Nuclear Scenario, Technology, Military Power, Geo Economics and Environment. Two cross-cutting themes are Integrated Defence and Civil-Military Relations.

Last year, India chaired the G20 and Shanghai Cooperation Organisation. These are covered in the book. The Yearbook is a valuable guide for lawmakers, think tanks, strategists, researchers, defence planners, diplomats and scholars interested in international affairs and foreign relations. The articles are well-researched and curated diligently. They are objective and presented free from any political bias. This book should find a well-deserved place in the book racks of prestigious libraries worldwide. It will enrich readers' knowledge and add value to their understanding of international affairs. This compendium will provide the reader with an objective and fact-based assessment, which is also the mandate and idiom of the IIRF.

Many thanks to all the authors for the exhaustive research and drafting of the articles. Commendations to the editorial team of Mr Rishi Athreya, Gp Capt Raj Shekhar Mehta, and Col P Madhavan for their effort in collating the articles and editing and compiling the book. I would also compliment the entire Team Indus for their cooperation and support in bringing out this book.

**Brig C Sandeepkumar, VSM**

President

Indus International Research Foundation

# YEAR IN REVIEW

**Lt Gen Arun Kumar Sahni, PVSM, UYSM, SM, VSM**

The post-pandemic year 2023 has seen many significant activities but was overshadowed by continued conflicts, violence, Chinese aggressiveness, and big power contestation. The impact of geo-economics and polarisation in international relations continued to influence geo-political alignments and led to geo-strategic turbulence. Events this year have once again reinforced the perception that the global order is changing. However, there is ambiguity regarding the emerging contours due to a lack of clarity on global power distribution. Are we still in a world dominated by the USA? Or have we transited to a bipolar or multipolar world order? Or are we in an age of ‘techno polarity’ where mammoth corporates such as Amazon, Apple, Alphabet, Meta, and billionaire Elon Musk are the new great powers? Great questions, but no clear answers.

Global institutions’ lopsided bias and ineffectiveness in addressing the concerns of emerging economies and the Global South and their inability to influence ongoing conflicts are raising questions about their relevance and effectiveness. There is a growing groundswell for initiating major reforms, but it is yet too early to be definitive of the likely changes. But what is apparent is that there seems to be the emergence of a binary in the global space, with Russia – China- Turkey – Iran on one side and the developed liberal world led by the USA on the other. A few strategists are already talking about the emergence of Cold War 2.0. However, it may not exist as of now. But yes, there is a growing relevance of bilateral, trilateral and mini-laterals in international relations.

Harnessing technological developments continues to be central to developmental initiatives globally across sectors. There is a growing realisation that Data, Digitisation, Digitalisation and Disruption govern the future of the Tech world. National efforts to take the lead in quantum tech, renewable energies, EV, ICT hardware, semiconductor and software, big data analytics, and the emerging technology stack of AI, AR, VR, meta, IoT, blockchain and chip manufacturing are the global megatrends. India is setting its standards in adaptation of new technological systems like 5Gi and with Solar and Green Hydrogen missions. Own data policies have been promulgated regarding cyber security, and issues like AI are under debate. Towards self-reliance, there is a concerted push for indigenous semiconductor manufacturing in the USA and India.

Peace continued to be elusive in 2023 as Europe and the world grappled with the negative impact of the Russia-Ukraine conflict into its 2<sup>nd</sup> year. It further intensified polarisation amongst nations and challenges the global supply chains face, specifically impacting food and energy security. To desist other European

Nations / NATO's physical involvement in the conflict, Russia carried out nuclear sabre rattling. This once again highlighted the relevance of nuclear deterrence. In June 2023, Russia faced an unprecedented internal security crisis, with the mutiny by the chief of Russia's Wagner Private Military Company, Mr Yevgeny Prigozhin. The rebels created alarm with the takeover of Russia's Southern Military District headquarters in Rostov-on-Don.

After that, his troops led a convoy of armed men and armoured vehicles towards Moscow, demanding the ouster of Russia's top defence brass. However, Prigozhin abruptly ended his so-called 'march of justice' after Belarus's Alexander Lukashenko brokered a deal to allow him and his forces to come to his country. Prigozhin was later killed in August in a plane explosion in central Russia.

The year, they witnessed an increase in the arc of conflict as it engulfed West Asia. A dastardly Hamas attack on an Israeli kibbutz on 07 Oct 2023 resulted in the large-scale killing of innocent Israeli residents and hostages being taken by Hamas. This evoked a solid military action by Israel against Hamas in the Gaza Strip, which continues to date, with some of the hostages yet to be released. The Israeli offensive has led to an appalling number of Palestinian casualties and near-total destruction of their infrastructure. It has precipitated intense international reactions and has had a cascading impact with other non-state actors and their mentor States entering the fray against Israel. This has led to clashes within the Israeli-occupied Palestinian West Bank and along the Israel–Lebanon–Golan Heights with Hezbollah (RUSI, 2024).

In retaliation, there have also been acts of piracy and attacks on international shipping transiting the Red Sea by Houthi rebels and their lackeys. The once peaceful Red Sea is once again the hotbed of maritime piracy, and India, in November 2023, joined the US-led *Combined Maritime Force* to patrol this region. The Indian Navy has been the area's major constabulary force and first responder Sea. Undoubtedly, there has been a resurgence in non-traditional maritime security threats.

The military standoff between India and China remains a hotspot in South Asia. Some critical connectivity and infrastructure projects have been completed to bolster our security against the northern adversary, and others have been fast-tracked. The 'Vibrant Villages' scheme for developing border villages has been another step towards enhanced security. The Taliban regime has embedded itself in Afghanistan and is seeking ways to enhance legitimacy. Pakistan continues to battle challenges on all fronts: political, economic and security. It was for the first time on 09 May 2023 that the military establishment in Pakistan was attacked after the famous political leader and then Prime Minister Imran Khan was arrested. Party workers of his party, Pakistan Tehreek-e-Insaf (PTI), torched the residence of the Corps Commander in Lahore. In Rawalpindi, protesters raided the gates of the Pakistani military headquarters. Currently, the former PM continues to be in jail, and his political party is facing an army backlash. Since 2024, after a rigged election, the Pakistan Muslim League (Nawaz) has been in power with a government headed by Prime Minister Shehbaz Sharif, the younger brother of former Prime Minister Mian Nawaz Sharif. Asif Ali Zardari of the Pakistan People's Party assumed office as an indirectly elected President. This Government enjoys the support of the military establishment. Pakistan's internal security is vitiated, with the TTP at loggerheads with the establishment and the Pak-Afghan border in a state of flux, with an antagonist, the Taliban.

Whereas, in East Asia, China's hostility to dominate the South China Sea has resulted in military responses against both the Philippines and Taiwan. It continued to weaponise the economic dependencies of other Nations to further its global agenda. China's continuous technological accretions and upgrade of its military capabilities concern India and the extended neighbourhood, which have a major impact on its war-waging capability. Specifically for India, China's plans to upgrade the facilities at the Kyaukphyu Port in the Bay of Bengal and its regular hydrographic survey missions in the IOR are signs of its nefarious design.

The probability of these three conflict zones escalating beyond the current levels has seen a surge in global military spending. SIPRI report for 2023 indicates that global military expenditure grew by 6.8 % to USD 2.43 trillion. The steepest annual rise since 2009. Also, it was the first time since then that military spending went up in all five geographical regions - the Americas, Europe, the Middle East, Africa and Asia. The USA, China and Russia were the top spenders in 2023. Given the conflict in Europe, NATO member countries accounted for 55% of the world's expenditure. Russia raised its military spending to approximately USD 10.9 Bn, whereas Ukraine's spending with external aid was about 91% of Russian expenditure. The figures speak out loud and clearly about the deteriorating international security (Tian, da Silva, Liang, & Scarazzato, 2024).

The good news in the conflict-afflicted region of the Middle East was the Iran – Saudi détente, which was surprisingly broken by China on March 23. The bitter rivalry between Sunni Saudi and Shia Iran has, over the years, destabilised several Middle Eastern countries, including Iraq, Syria, Lebanon, Yemen and Bahrain. It was a win for Iran, as it wanted to end the nation's political and economic isolation on the global stage following the US withdrawal from a landmark nuclear deal. However, this reproachment between the two countries may become a casualty due to the regional flare-up, post the Israeli retaliation in Gaza. Another speculation is that Iran was behind the Hamas attacks to derail the *Abraham Accord* and current Israel-Saudi bonhomie.

India surpassed China in 2023 to become the world's most populous country, with an estimated population of 1.43 billion. Projections suggest that India is likely to maintain this status for decades (DESA, 2024). On the other hand, we in India observed the country's gradual but effective ascension to the global stage, with the successful culmination of India's Presidency of the G20 and the release of a consensus outcome document, a rarity in the last few summits. The Leaders' Summit on September 9-10, under the theme "One Earth, One Family, One Future," saw the participation of 43 heads of various governments, including US President Biden (Ministry of External Affairs, 2023). They discussed several important topics of global concern. The acceptance of the African Union as a member of the G 20 was another landmark achievement. During its first year of Presidency, India showcased its development by hosting over 200 sub-sectoral meetings of G 20 countries in different cities. Apropos gained international resonance for its vision of inclusive human-centric globalisation, which places the well-being of the individual and societies at the centre of progress. India displayed political cum diplomatic understanding and the ability and willingness to lead and actively participate in shaping the global agenda and critical determinants of global governance. A few highlights are the finalisation of tourism roadmaps, the 'reformation of multilateral development

banks', enunciating principles in food security and green hydrogen, and cooperation in fighting terrorism. India also impeded initiatives such as the Green Hydrogen Innovation Centre streeted by the International Solar Alliance, Coalition for Disaster Resilient Infrastructure and Mission, LiFE. The announcement of the India Middle East Europe Economic Corridor (IMEC) and Global Biofuel Alliance was momentous.

India had another geopolitical win by playing a stellar role in admitting six new member Nations into the BRICS Forum during the annual leader's summit in Johannesburg in August 2023. Argentina, Egypt, Ethiopia, Iran, Saudi Arabia and the United Arab Emirates, representing the global South, officially joined the group in January 2024. Argentina has however withdrawn from BRICS. The forum primarily deals with economic issues but plays a meaningful role in global Geo Politics in the current scenario.

Internally, last year was significant as it was post-pandemic, and the government's efforts towards social equity became visible. A result of the globally acknowledged advanced digital public infrastructure and maturing of locally driven central government funded schemes like Ayushmann Bharat, Har Ghar Jal, Swachh Bharat, Beti Bachao - Beti Padhao, Pradhan Mantri Ujjwala Yojana 2.0 and electrification of villages. The said initiatives are inclusive, educative and facilitate the alleviation of poverty. These developments also promote gender equality and address the girl child. The Make in India initiative has been re-engineering global supply chains to develop an India focus.

A few other incidents dominated global headlines for several days. The first was that of a Chinese spy balloon traversing the USA for a week in February 2023. It was shot down with an AIM-9X Sidewinder missile from the 5th generation F-22 fighter aircraft after it had transited over a few critical US military facilities, including Malmstrom Air Force base in Montana, with US nuclear assets (Department of Defense, 2023). Subsequent revelations found that the Chinese surveillance balloon used an American internet service provider to send short, periodic transmissions related to navigation and location data.

The other incident was the loss of the Titan submersible due to an implosion, resulting in the loss of all five famous personalities on board. And lastly was the demise of a leading thought leader, former US Secretary of State and NSA, Mr Henry Kissinger, at the age of 100, on Nov 23. He was regarded as one of the most influential politicians in American history, who authored some of the US's greatest triumphs and some of its most tragic foreign policy failures. He was the architect who made China the world's work factory and was in the chair when the US pressured India during the 1971 war. The year was also witness to the demise of Pakistan's last dictator, President Pervez Musharraf and former Chinese Premier Li Leqiang.

Climate emergency and climate change initiated catastrophic events, periodically wrecked unspeakable loss of men and material across the globe. Undoubtedly, these climate-related disasters are no longer a future problem but a reality of today. They emphasised the need to institute measures to arrest 'global warming urgently'. The events varied from heat waves to flooding to icebergs or glacial melts. Floods were a worldwide phenomenon and caused havoc in Russia, China, the USA, and Australia. On February 23, Turkey and Syria were hit by two major catastrophic 7.8 and 7.4 magnitude earthquakes, with multiple



aftershocks. It was one of the biggest disasters that had impacted Turkey since 1939. In Syria, it further exacerbated the humanitarian crisis to over a million conflict-displaced population that was already on UN aid.

India, too, experienced floods and a major disaster due to the ‘Glacial Outburst Flood (GLOF)’ in Sikkim on Oct 23. It was triggered by a landslide into a glacial lake and led to the collapse of the ‘Teesta III hydroelectric dam’, killing more than 100 people and affecting thousands of others. Also, as per data, 2023 has been the hottest year in history.

In conclusion, it is reiterated that there is an urgent need for institutional reforms of global multilateral institutions to be inclusive and responsive to the aspirations of the developed world. China continues to be aggressive in the maritime and continental spheres, and security has become a multifaceted rubric. Apropos, collaborative security seems to be the way ahead. The near neighbourhood will continue to be politically turbulent and create challenges for India. Thus, in this complex geo-political environment, India must be diplomatically deft to retain its strategic autonomy and be ‘ahead of the curve’ to address the dynamic strategic, economic, environmental and technological challenges.

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# INTRODUCTION

With great enthusiasm, IIRF presents the IIRF Strategic Yearbook 2024. This second edition delves into the events of the past year, encapsulated in seven comprehensive sections. India, with its unique geography, grapples with a myriad of challenges and is poised to seize numerous opportunities. As part of the Asian continent, it navigates a complex geopolitical landscape while also asserting its influence as a significant maritime power in the Indo-Pacific. This book is a testament to our commitment to addressing these challenges and opportunities, both in geographic and thematic terms.

## Strategic Scenario

Understanding the strategic scenario facing India, its neighbourhood, and the larger world is of utmost importance. Lt Gen Arun Kumar Sahni (Retd) 's first article, Review of the Year, provides a comprehensive overview of major global events, including Cold War 2.0, that are crucial for this understanding.

The following article, penned by Lt Gen P.R. Shankar, is titled India's Role in Emerging Global Affairs: A Leadership Perspective. It delves into India's pivotal role in major multilateral fora like G 20, BRICS, and SCO, underscoring our nation's growing influence on the global stage. It also provides a nuanced analysis of the global balance of power and India's strategic position. The subsequent chapter, authored by Maj Gen G Murali, examines India's National Security Strategy, applying the explanatory framework of Kautilya to this analysis. The next chapter, titled A Historical Perspective on the Impact of the Belt and Road Initiative (BRI) on South Asia on its Completion of Ten Years, provides a comprehensive look at the role of the BRI in South Asia, spanning countries from Afghanistan to Myanmar. The final chapter by Maj Gen Chowgule, Past Communications As Guideposts For The Future, offers a thought-provoking contrast between India's policies towards China and the USA's policies towards the erstwhile Soviet Union, starting in the late 1940s.

As we go into print, we have learnt of the demise of the President of Iran, Ebrahim Raisi, in a helicopter crash. His death will reverberate in the Middle East, increasing tensions.

## **Nuclear Weapons**

Nuclear Weapons are the greatest threat to global peace and stability. India faces two hostile nuclear-armed neighbours. It faces threats on land and sea in the immediate and extended neighbourhood. The chapter by Lt Gen P.R. Kumar is titled *The Changing Global Nuclear Equilibrium and Nuclear Security in India's Immediate Neighbourhood*. It studies the global nuclear scenario and makes recommendations for India. The Ukraine war has once again brought atomic weapons to the forefront. The chapter by V Adm Vijay Shankar titled *Ukraine The Last Nail* addresses this issue.

## **Military Technologies**

Technology is crucial to any military and affects the strategic and geopolitical scenario. The chapter titled *Military Strategy and Technology* by Maj Gen Ravi Murugan looks at the role of technology in warfare. This studies conventional conflict and emerging non-kinetic technologies. Unmanned Aerial Vehicles or Drones of various kinds have revolutionised the entire concept of warfare. R Adm Nakarni has a chapter titled *Unmanned And Autonomous Maritime Systems: Implications For Future Naval Warfare*. The next chapter by Air Marshal Rana is titled *Doctrinal Shift In Warfare Due to the Employment of Drones: Challenges And Complexities*.

## **Terrorism**

Terrorism in various forms continues to be a significant challenge to global and national security. The chapter by Lt Gen D Singh is titled *India-Canada Relations*. It examines the concerns around anti-India terror being perpetuated on Canadian soil. The chapter by Dr Khushnam is titled *Israel- Palestine Conflict*. It looks at the current war in the Middle East. India's border areas have become particularly important in countering cross-border terrorism. Gp Capt Chandrasekaran has a chapter titled *India's Diminishing Border Population* that examines demographic challenges in these regions.

## **Maritime**

India is a maritime nation with an extensive coastline and vast EEZ. Its naval presence extends beyond its immediate borders, especially in the Indo-Pacific. The chapter by V Adm Muralidharan is titled *India-Russia Maritime Relations*. It analyses Russia's maritime dimension as a Pacific nation. The next chapter by Cmde A.J. Singh is titled *Undersea Dimension of the Maritime Domain in the Indo-Pacific*.

## **Air Power**

Air Power is an important military and economic asset to any nation. The chapter by Air Marshal Khosla is titled *Combat Aviation: Most Essential, Least Understood*. It examines the entire concept of Air Power. The next chapter, *Civil Aviation Maintenance, Repair, and Overhaul (MRO) Companies as Strategic Assets*, is by AVM Murti. It looks at Civil-Military cooperation in this domain. Military Diplomacy is an integral part of Strategy. The chapter by Rishi Athreya is titled *EX COBRA WARRIOR: Implications For India-Uk Defence Diplomacy*.

## **Geo Economics**

Economic relations and their interface with Geopolitics is critical to understanding International Relations. The chapter by Maj Gen Gadkari is titled *India's Status in the Global South & Recent G-20 Leadership: Defining a New World Order*. The next chapter by Maj Gen Chaturvedi is titled *India Middle East Europe Corridor*. It examines a newly proposed transit route.

## **Environment and Natural Resources**

Environment and Natural Resources play an important role in influencing the strategic scenario. The Himalayas form India's northern border, running west to east. Air Marshal Rana has a paper titled *Balancing the Infrastructure Development and Environmental Concerns in Himalayan Regions: A Strategic Necessity*. The seas are a military concern and offer immense economic potential. V Adm Kannan has authored a chapter titled *India Adopts Blue Economy to Safeguard Ocean Health*.

## **Editor's Note**

The editors want to express their gratitude to all distinguished contributors for the articles. Each article, with its comprehensive coverage of the subject matter and the inclusion of maps and charts, provides an in-depth understanding of the topics. They also serve as authoritative, valuable, and accessible reference material for the interested reader. IIRF eagerly awaits comments and feedback from readers. We wish everyone a fruitful reading experience!

Lt Gen C A Krishnan, PVSM, UYSM, AVSM

**Editorial Adviser**

Rishi Athreya

Col Parappil Madhavan

Gp Capt Raj Shekhar Mehta, Shaurya Chakra

**Editors**

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# CONTRIBUTOR PROFILES

## Group Captain (Dr) AV Chandrasekaran (Retd)

He was commissioned in the Indian Air Force in June 1985 and has held various appointments in a career spanning 34 years. The officer is vastly experienced and has been deployed on multiple security, counterintelligence, and infrastructure-building duties. The officer was posted as Chief Administrative officer of frontline fighter bases, Commanding officer of a counter Intelligence unit In the Jammu & Kashmir sector, was the Staff Officer Provost Training Command Air Force Bangalore, thereby responsible for the physical security of all the Air Force bases in the four southern states.

He was also posted in the Andaman & Nicobar to oversee infrastructure building to enhance the Indian Air Force's regional operational capability. He was also posted as an instructor in some of the prestigious training institutions of the Indian Air Force. The officer has been commended by the Chief of Air Staff and the Air Officer Commanding in Chief, Central Command, for operational duties. The officer retired from the Indian Air Force on 31 July 2018. Group Captain Chandrasekaran has an MA in Defence Studies from the University of Madras and won the coveted Ministry of Defence Gold Medal for being first in overall order of merit, an M Phil in Defence & Strategic Studies from the University of Madras and a PhD in Strategic studies from the University of Madras. He is also a guest faculty member of the Department of Defence & Strategic Studies, University of Madras. As part of his career, Group Captain Chandrasekaran was a Senior Fellow at the Centre for Air Power Studies. He has authored *Insurgency and Counter Insurgency: A Dangerous War of Nerves*.



## Maj Gen Ajay Kumar Chaturvedi, VSM (Retd)

Maj Gen Ajay Chaturvedi is a veteran of the Indian Army. He is an engineer by training. He holds a BTech Mechanical from the College of Military Engineering Pune, M Tech Combustion and Propulsion from IIT Madras, MMS from Osmania University, M Phil from Madras University on Strategic Studies and National Security, and a Diploma in Interviewing Techniques from the Defence Institute of Psychological Research. He is a keen sportsman with the Basic Rowing Coaching Diploma from Shanghai. And Advanced Rowing Coaching degree from Italy and finally



During his service, among the appointments he tenanted, the important ones were command of an Engineer Regiment, a training Centre, Deputy Director General of Financial Planning, and Chief Engineer of a

Command of the Indian Army. He has also been Assistant Chief of Integrated Defence Staff in the Defence Intelligence Agency, Chief of Staff of a Tri-Service Command overseeing Amphibious, and Additional Director General (Personnel) at the Integrated HQ of MoD (Army). He also has been on the teaching/directing staff of the College of Military Engineering (Mechanical Engineering) and the College of Defence Management (Strategic Management).

A prolific author, after he retired from the Army, he has been writing and lecturing extensively on national security, disaster management and value-based leadership. His more critical written works include *Water a Source of Future Conflicts*, *Nuclear Energy in India's Energy Security Matrix- An Appraisal and Role of Pakistan in India's Energy Security*. He is also continually active on the lecture circuit. He is a regular speaker on strategic issues with several universities. Currently, he is Vice Chairman of a Lucknow-based think tank, STRIVE. He is also the convenor of a think tank, namely VIMARSH of Vivekananda Kendra, and the Executive Director for UP and Uttarakhand for another thing, Eco Development Foundation. He is the co-editor of *The Elephant Awakes: Strategic Reflections – 2023*.



### **Maj Gen Vijay Chowgule PVSM, VSM (Retd)**

He was commissioned in the Parachute Regt and has had considerable operational service in the Northeast, Assam, and J&K in High Altitude and Counter Insurgency environments. He also had the rare experience of commanding a Rifle Company in the Mushkoh Sector during Operation Vijay. He commanded an Infantry Battalion in Assam in insurgency and an independent sector in Himachal Pradesh. He served as Commandant of the Parachute Regiment Training Centre, where Indian Airborne and Special Forces are trained. He has also served on the faculty of Army War

College, where he instructed potential commanding officers of the Indian Army. In his last appointment, he served as Deputy Commandant and Chief Instructor of the Officers Training Academy, Chennai. Gen Chowgule also had the unique experience of representing the interests of the 1.2 million Indian Army before two pay commissions on pay and allowances matters. This served as a significant HR determinant for the attractiveness of Services' as a career. He also dealt with procuring weapons and equipment for the Indian Army under the Capital Head and was part of a delegation to Russia.

Gen Chowgule holds a Master's degree from Madras University and a Master's in Management Studies from Osmania University, Hyderabad. The officer is on the HD Centre, Geneva panel as a Subject Matter Expert on Security Sector Governance and attended a conclave on Climate Change as a Driver of Conflict in Thailand in 2024.



### Major General (Dr) Nitin Gadkari (Retd)

Major General Nitin Gadkari is a career military officer who served with the Indian Army for 41 years, including his training period. He is an alumnus of the National Defence Academy, Khadakvasla, Pune, which is the premier defence training establishment of the country. He was commissioned into the Regiment of Artillery in June 1977. In his early career, the officer was part of a team that trained in Sweden on the Bofors Gun. He helped raise the first Regiment of the Bofors in the Indian Army in the eastern part of our country. The officer was selected to serve in the UN mission established just at the end of the first Gulf War between Kuwait and Iraq. The officer was part of this mission to oversee the ceasefire between Iraqi armed forces and the coalition forces led by the US Army. As a young Major, he saw action in the Siachen glacier.



During his service, the officer served across the length and breadth of the country, including J&K, where he had four tours of duty. He was involved in fighting the terrorists during his tenure with the Army. He commanded a brigade that saw action in the counter-infiltration and counter-terrorism roles. Due to his active involvement in fighting terrorism, he wrote his doctoral thesis on 'Motivational Factors for terrorism'. The study focused on finding motivating factors for terrorism in the state of J&K.

The author extensively researched the subject, including interviewing some surrendered terrorists to get to the root cause of terrorism in J&K. This was awarded a PhD by Osmania University. He was Commandant of the prestigious College of Defence Management in Secunderabad and Deputy Commandant of the Army War College in Mhow. He is on the Governing Council of Centre for Advanced Strategic Studies Pune.

The author is a keen writer and has written extensively in defence journals on military matters and strategic affairs. An eager economics and international relations student, he has been writing on issues relating to happenings in neighbouring countries. His last published book, *Growing Sino-Nepal Relationship and its Policy Implications on India*, was well received in governmental circles. The author also wrote *Oscar Tango (Final Solution)*, a fictional story about our adversary's diabolical plan to find a final solution for India Kashmir.

### Vice Admiral B. Kannan PVSM, AVSM, VSM (Retd)

He graduated in Electronic Engineering in 1973 from the Govt. College of Engineering, Thiruvananthapuram. He served the Indian Navy for 40 years and held the apex post of the Chief of Materiel before retirement. While in the Indian Navy, he completed his M Tech from IIT Powai and MBA from Jammalal Bajaj Institute of Management, Mumbai. V Adm Kannan was also the Programme Director for India's Nuclear Submarine programme for nearly four years, and during his tenure, INS Arihant was launched in 2009. After retiring from the Indian Navy, he was the MD and CEO of L&T Shipbuilding Company, Chennai, for five years. Presently, he has settled down at Coimbatore and engages in giving lectures on techno-economic topics.





### **Air Marshal Anil Khosla PVSM, AVSM, VM, (Retd)**

He is a former Vice Chief of Air Staff (VCAS) of the Indian Air Force and AOC in C of Eastern Air Command. An alumnus of the National Defence Academy, he was commissioned in the fighter stream of the Indian Air Force in December 1979. He has over 4,000 hours of flying experience, having flown the Jaguar and MiG-21. He is equally experienced in ground attack and air defence roles with a specialisation in maritime. He is a Defence Services Staff College postgraduate with two M.Phil degrees in military studies. He is an 'A2' category flying instructor and a fighter strike leader. He is also an alumnus of the National Defence College.

The Air Officer has vast instructional experience and has been directing staff at prestigious institutions like the Tactics and Combat Development Establishment and Flying Instructor School. He has commanded a Jaguar squadron with a maritime role and two frontline bases of the IAF at Jaisalmer and Ambala. He has held various staff appointments at Air HQ. These include the Principal Director at the Directorate of Information and Electronic Warfare, the Director of the Personnel branch and the Joint Director at the Directorate of Concept Studies. In the rank of Air Vice Marshal, he has held the appointment of Air Officer Commanding HQ Maritime Air Operations and Air Officer Commanding, Jammu and Kashmir area. His last appointment was as a Senior Air Staff Officer at Central Air Command.



### **Dr P.N. Khushnam**

He is an International Relations and Regional Security Researcher and analyst with a specialisation in the Regional Security of Iran, the Persian Gulf, and the role of the USA. He holds a PhD Degree from Jawaharlal Nehru University. Dr Khushnam teaches Social Sciences at the Kendriya Vidyalaya Sangathan school at the National Aerospace Laboratories. He is a widely published author and has presented several conference papers.

### **Lt Gen P.R. Kumar, PVSM, AVSM, VSM (Retd)**

Lieutenant General PR Kumar, PVSM, AVSM, VSM, retired Director General of Military Operations at the Indian Army Headquarters 2016. He is an alumnus of the National Defence Academy and was commissioned into the Regiment of Artillery in 1977. The General Officer, in his illustrious career spanning 39 years, has a very sagacious mix of command, staff and instructional appointments in varied operational environments.

He has commanded an Infantry Brigade on the Line of Control, an Infantry Division and the prestigious Strike Corps (Offensive operational tasks). He has also tenanted varied staff appointments, mainly operational at the divisional, command and Military Operations Directorate levels. He is an Army Aviator with 1400 hours of flying in the Himalayas. He has had an instructional tenure at the School of Artillery and is a Senior Liaison Officer in the UN Mission in Liberia (UNOMIL).

The General officer is a graduate of DSSC, Wellington, and has attended the prestigious Higher Command and National Defence College Courses. He has been awarded the M.Phil degree twice. He has been awarded the Chief of Army Staff commendation card twice for his distinguished and meritorious service to the nation. General Kumar tenanted the appointment of Director General of Army Aviation before taking over as DGMO. As DGMO, he handled national disasters and all operational matters of the Indian Army. He has worked in the Civil-Military interface with the PMO, NSA, Ministries, and concerned institutions on all security matters. He was concurrently Colonel Commandant of the Regiment of Artillery and Army Aviation, a rare distinction.

The General Officer keeps current on all contemporary strategic and security issues and delivers occasional talks. He regularly writes on geo-strategic and security problems for Think Tanks, digital media platforms, and newspapers.



### **Major General G. Murali (Retd.)**

An alumnus of National Defence Academy, Major General G Murali was commissioned in the Regiment of Artillery in 1977. He gained the foundational character of Military leadership in the NDA, which was moulded by his experiences in all the regions in the country, in operational situations and formal training to give him positions of commanding troops, authority and decision-making ability in a career span of 38 years.

Some crucial experiences in his career include induction of the Bofors guns into the Indian Artillery, planning and execution of logistical operations of a Strike Corps in Op PARAKRAM, and heading the Information Warfare team in Northern Army Command. Maj Gen Murali has



headed the planning, negotiating and finalising Project Battle Field Surveillance System for Artillery. He acquired a Masters and MPhil degrees in Defence and Strategic Studies from the Madras University. He has submitted a PhD thesis for evaluation and award of the degree of Doctor of Philosophy. Maj Gen Murali retired as Deputy Commandant and Chief Instructor of Officers Training Academy, Chennai.



### **Vice Admiral M P Muralidharan, AVSM & Bar, IN (Retd)**

He retired in Feb 2013 as the 19th Director General of the Indian Coast Guard. A specialist in Navigation and Direction and a postgraduate in Defence Studies, the Admiral, in a career of close to four decades in the Indian Navy, has held several critical Operational and Staff appointments, including command of three warships. As Flag Officer, he commanded Maharashtra and Gujarat Naval Area, was the first Commandant of the Indian Naval Academy and Chief of Personnel of the Navy. Post-retirement, the Admiral was appointed as a Member of the Armed Forces Tribunal at

its Regional Bench at Kochi, an appointment equivalent to a sitting Judge of a High Court. During his tenure of four years, the Admiral authored nearly 500 judgments. The Admiral, a keen Strategic and Defence Issues student focusing on Maritime affairs, is a member of various strategic study societies and institutions. He regularly contributes to professional journals and is a speaker and panellist at multiple Seminars and Conferences.



### **Air Vice Marshal Surya Narayana Murti, VSM**

He superannuated from the Indian Air Force. He has nearly 37 years of experience in the Maintenance of Aircraft. AVM Murti was lastly Commandant (Two Star), Software Development Institute, Bangalore. This role involved managing all software development for Avionics and Weapon integration, Testing, Mission Planning and Simulators. Before this, he was Principal Director & Assistant Chief of Air Staff (Engineering) at Air Headquarters, wherein he extended maintenance assistance to UN Missions in Congo & Sudan. Following retirement, AVM Murti served as Executive Director of a private sector CR 145 MRO Organisation.

AVM Murti was decorated with the Vishishit Seva Medal in 2005. He received a commendation from the Vice Chief of Air Staff in 1993 and the Air Officer Commanding in Chief in 1996. AVM Murti is an M. Tech. (Computer Science & Engineering) from IIT, Madras. He has undergone formal training at the Air Force Technical Training Centre, Saint Petersburg, USSR. He has undergone a Technical Staff Course from the Institute of Armament Technology, Pune, and a System Engineering Course from Air Force Technical College, Bangalore.

### **Major General Ravi Murugan, PVSM, AVSM**

He has been the General Officer Commanding Karnataka and Kerala Sub Area since 01 August 2022. The General Officer joined the National Defence Academy in June 1983 and was later commissioned in the 8th Battalion, Brigade of Guards, in 1987. He is a Defence Services Staff College graduate from Wellington, Tamil Nadu, and the Higher Air Command Course, College of Air Warfare, Secunderabad.

In his 35 years of service, the General Officer has tenanted multiple challenging appointments across diverse operational Areas, including command of an Independent Armoured Brigade on the Western Borders and General-Officer Commanding of a Counter Insurgency Force in J&K. He has also held various important staff, Instructional and Diplomatic appointments during his service, including Captain Instructor at Commando Wing Belgaum, Major Instructor at the Military Intelligence Training School, Pune and Colonel Instructor at the School of Armoured Warfare, Ahmednagar. Most recently, he was the Additional Director General of Military Operations at Army Headquarters. The General Officer has been a Military Observer in the United Nations Mission at Angola and, more recently, the Defence and Military Attache at the Embassy of India in Washington DC, USA. He has been awarded the Chief of Army Staff Commendation Card twice for his distinguished service.



### **Rear Admiral Ravindra Jayant Nadkarni**

He was commissioned in the Indian Navy on 01 Jul 1983 and is a graduate of the National Defence Academy (NDA), Khadakwasla, the Defence Services Staff College (DSSC), Wellington, the College of Naval Warfare (CNW), Karanja and the National Defence College (NDC), New Delhi. He is a navigation and direction specialist with the distinction of commanding four ships. He has also held various important staff and training appointments. As a Flag Officer, he had held the appointments of Chief Staff Officer (Operations), WNC, Flag Officer Doctrines and Concepts, Flag Officer Commanding Karnataka Naval Area, and Chief of Staff, Southern Naval Command. He was the Flag Officer Offshore Defence Advisory Group before he retired from service on superannuation on 30 Nov 2020. He received the Vishisht Seva Medal in 2014 and the Ati Vishisht Seva Medal in 2019. Post-retirement, he settled in Pune, where he is a member of the Indian Maritime Foundation and the Centre for Advanced Strategic Studies.





### **Air Marshal Vijay Pal Singh Rana, PVSM, VSM (Retd)**

He served 37 years in the IAF and retired as an ‘Air Force Officer in Charge Administration (AOA). He served in many important operational and administrative appointments. He commanded a Radar unit during Op Kargil and contributed immensely during Op Parakram. He is a postgraduate in two Disciplines - Defence & Strategic Studies and Plant Breeding & Genetics. He also has postgraduate diplomas in Public Administration and Business Administration. He underwent the prestigious Advance Professional Programme in Public Administration (APPPA) course at the Indian Institute of Public Administration (IIPA). An avid reader and academician, he was an instructor at the prestigious Defence Services Staff Colleges at Wellington and Lusaka, Zambia, where he helped many defence officers undertake research in various fields as part of their curriculum. He has a specific interest in water security and disaster management, having handled these issues while at the helm of administration in IAF. He is working as a freelance researcher and executive in water management. He is currently Chief Adviser, Himalay Unnati Mission.



### **Lieutenant General Arun Kumar Sahni, PVSM, UYSM, SM, VSM (Retd)**

He is a decorated scholar–soldier with 40 years of commissioned service in the Indian Army. In his last assignment, tenanted the second highest rank of the army, he was the General Officer Commanding-in-Chief of one of the six operational commands of the Indian Army. He was the General Officer Commanding-in-Chief of one of the six operational commands of the Indian Army. His experience encompasses command and staff assignments in India’s most inhospitable and conflict-affected areas to battle external and internal security challenges. He has assumed many roles and duties during his four decades of service. In addition to his Command assignments of leading military formations, his essential staff appointments include ‘Chief Operations Officer’ of an Infantry Brigade in Sri Lanka as part of the Indian Peace Keeping Force (IPKF), Colonel General Staff responsible for operations of a Counter Insurgency Force in Jammu & Kashmir, ‘Principal Staff officer’ at Army Headquarters, Delhi, and ‘Director General Information Technology’. He has been an Instructor at various Military Institutions within the country to impart basic and specialised training to own officers and those from friendly foreign countries. Lt. Gen. Sahni has represented India as a military delegate at UN Headquarters in Geneva for the international conference debating banning land mines. He has trained with the British Army for a year and represented the country as a three-year military diplomat at the Embassy of India, Russia. He is mentoring start-ups/ new initiatives in Information Security and HR Management. An active speaker at seminars and various think tanks within the country, with specific reference to National Security Issues – External and Internal, International and Regional dynamics impacting India, Issues related to Cyber, Force Multipliers and surveillance, Nuances of Counter Terrorist Operations in the North East and J&K, Dynamics of Integration of North Eastern States, Strategic and Visionary Leadership skills/ nuances and Impact of Tactical Nuclear Weapons on South Asian Deterrence Dynamics. Lt Gen Sahni is a Distinguished Fellow at CLAWS.

### **Lieutenant General P R Shankar PVSM, AVSM, VSM (Retd)**

He is a retired Director General of Artillery. He is an alumnus of the National Defence Academy Khadakvasala, Defence Services Staff College, Wellington, Army War College, Mhow, Naval Post Graduate School, Monterrey and National Defence College, New Delhi. He has held important command, staff and instructional appointments. He has vast operational experience, having served in various terrain and operational situations, including counter-insurgencies that have confronted the Indian Army in the past four decades. He is a highly decorated officer. He gave great impetus to the indigenisation and modernisation of Artillery. He was instrumental in the induction of most guns, rockets and missile systems in the Indian Artillery. He has deep knowledge and experience in successful defence planning and acquisition. He was associated with the Integrated Guided Missile Development Program and worked under the late Dr. APJ Abdul Kalam in DRDL Hyderabad in the 80s.



The General Officer is now a Professor in the Aerospace Department of the Indian Institute of Technology, Madras. He is an independent member of the L&T Defence i/c Board. He is actively involved in applied research. He is associated with the development of the Tamil Nadu Defence Corridor. He is a regular speaker at the National Defence College, Army War College, Naval War College, and many other prestigious institutions and events. He has written over 500 articles on strategic affairs, defence planning, and technology. His website can be accessed @ [www.gunnershoot.com](http://www.gunnershoot.com). He is a Chennai Centre of China Studies member and has co-founded CASA, a virtual think tank on current and strategic affairs.

### **Vice Admiral Vijay Shankar PVSM, AVSM (Retd)**

He is the former Commander-in-Chief of the Strategic Forces Command of India. He is also the former Commander-in-Chief of the Andaman & Nicobar Command and Flag Officer Commanding Western Fleet. His command and operational experience include Command of INS Viraat, the aircraft carrier, active service during the 1971 war, Operation Pawan (the IPKF operations in Sri Lanka), and Operation Vijay to vacate the Kargil intrusion. He holds an MSc. in Defense Studies and is a graduate of the Naval War College, Newport, Rhode Island, USA. The Admiral retired on 30 September 2009 after nearly 45 years in uniform. Since retirement, he has lectured widely in India—at the Staff College, Higher Command College, the United Services Institute and the National Maritime Foundation, amongst other venues—and abroad. Internationally, his participation in the Global Zero initiative, Track II Ottawa Dialogue, the Bellagio Carnegie Endowment discussions, the Indo-Sino-Pak trilateral dialogue, Chaophraya Dialogue, and the papers he has presented there seek to provide a new paradigm for nuclear security on the sub-continent. He has delivered lectures and participated in discussions at academic and



research institutions in the US, including Massachusetts Institute of Technology's (MIT) Security Studies Program, The University of Tennessee at Knoxville, The Howard Baker Centre for Public Policy, Oak Ridge National Laboratory, and Lawrence Livermore Open Campus, The Atlantic Council, Council on Foreign Relations, Pratt House New York. SIPRI projects on Nuclear non-proliferation, Nuclear transparency and CBMs. And the Carnegie Endowment for Peace. Vice Admiral Shankar is a visiting faculty member at the National Institute of Advanced Studies in Bengaluru, India, and has tenanted the Admiral Katari Chair of Excellence at the United Services Institute.



### **Commodore Anil Jai Singh**

He is a Naval veteran and Vice President of the Indian Maritime Foundation, India's leading NGO in the maritime domain. Besides being the Senior Vice President of a leading European MNC in India, he heads its Delhi branch. He is also an Honorary Adjunct Fellow of the National Maritime Foundation and Vice President of the Navy Foundation, Delhi Chapter. He has formerly co-chaired the National Defence and Aerospace Committee of ASSOCHAM and has been a Defence Audit Advisory Board member.

In his naval career spanning more than three decades as a submariner from where he took premature retirement in March 2011, he had the distinction of five command tenures at sea, including the command of four submarines and a Fleet ship. He also served in the Directorates of Submarine Acquisition and Naval Plans at NHQ. This was followed by a diplomatic assignment as India's Defence and Naval Adviser in the United Kingdom, and his last appointment was as the Deputy Assistant Chief (Maritime) in Perspective Planning in the MoD's Integrated Defence Staff.

An alumnus of the National Defence Academy (NDA), the Submarine Warfare School (SWS), the Defence Services Staff College (DSSC) and the Naval War College (NWC), he has also been an Instructor at the SWS, a Directing Staff at the NWC and the CI(Navy) at the NDA.

He is keenly interested in maritime matters and speaks and writes in India and abroad. He has been a regular speaker at international conferences in Europe, Turkey, and Japan, as well as at the International Institute for Strategic Studies in London and Singapore. He has also participated in various Track 1.5 initiatives on Expert Panels for the IORA Summit, the East Asia Summit and maritime Security in West Asia. Most recently, he has been included in initiatives related to the Indo-UK Roadmap 2030 and has lectured at NATO's Maritime Security Centre of Excellence. He writes regularly on maritime and foreign policy-related issues for the mainstream media and various leading Indian defence journals and has contributed chapters for books on national security.



### Lt Gen Dushyant Singh, PVSM, AVSM (Retd)

He is the Director General of the Centre for Land Warfare Studies. He was commissioned into the 'Ninth Battalion of the Maratha Light Infantry Regiment' in Dec 81. He is an alumnus of NDC, DSSC, CDM, and Naval Post Graduate School in California, USA. He has attended the Regional Defence Counter Terrorism Programme with a specialisation in Terrorist Operations and Financing in the US. As a Military Observer, he has served in various terrains and theatres of operations in India and the UN. He has been an instructor of Human Resource Development at the College of Defence Management, Secunderabad. The General Officer has commanded an Infantry Battalion, a Brigade, and a Division in Jammu and Kashmir. He also holds the distinction of having served twice in the elite National Security Guards, as the Deputy Inspector General (Operations) and the Inspector General (Operations). The General Officer has also held the appointment of Brigadier General Staff of a Corps in the East and Chief of Staff, Eastern Command. The General Officer commanded a Corps and headed the Army War College. Lt Gen Dushyant Singh contributes regularly to various defence journals and newspapers. In addition, he has chapters in many other books and journals on strategic affairs. His book *Grey Zone Warfare Way Ahead for India* was recently published and is quite popular in the strategic community. He is the co-editor of *The Elephant Awakes: Strategic Reflections – 2023*. He was President of STRIVE India Think Tank and Prof Emeritus Rashtriya Raksha University.



# EDITORIAL ADVISOR



## **Lieutenant General CA Krishnan, PVSM, UYSM, AVSM**

He is a former Deputy Chief of the Army and a former Member of the Armed Forces Tribunal. A post graduate in Defence Studies and M Phil in Strategic Affairs and National Security, he is also a post graduate diploma in Human Rights Laws from NLSIU, Bangalore and a post graduate diploma in Journalism.

He has vast operational experience across high altitude remote areas of Ladhak, Arunachal Pradesh and Siachen Glacier as well as in combating terrorism in Jammu & Kashmir and North East. As the Director General of Man Power Planning & personnel services, he oversaw Indian Army's macro level Human Resource management. Subsequently, as the Deputy Chief of the Army, he was responsible for Perspective Planning, Financial Planning and Capital acquisition programs of the Indian Army. Widely travelled and has been part of numerous delegations representing the country.

He has been on the Board of Directors of Bharat Electronics Ltd and Bharat Dynamics Ltd, two of India's leading Defence manufacturers.

He is an Aerospace and Defence industries adviser and also assists startups in this field.

He is the Director, Asia Centre, Bangalore. A regular speaker on geopolitics and national security and a prolific writer on a wide variety of subjects covering Geopolitics, Energy Security, Artificial Intelligence, Mineral Security, Semiconductors, Population dynamics etc.

# EDITORS

## Rishi Athreya

He is Head of Research Strategic Studies at Indus International Research Foundation. Mr Athreya is an alumnus of Flinders University, Adelaide and the University of Leeds, wherein he acquired advanced degrees in International Relations and Development Studies. He holds a Certificate in Consulting from the United Kingdom's Chartered Management Institute. He has worked in academic research within the public sector, as well as international organisations, in the fields of consulting and risk analysis. He has served in the Governance Division of the Commonwealth Secretariat, where he worked on Public Sector Reform and Democracy. He has rendered yeoman service in development assistance and technical cooperation. Mr Athreya is a widely published author on various topics related to governance, security, and diplomacy. He has also been the editor of several publications published by international organisations, think tanks, and legislatures. His co-authors have included, amongst others, civil servants, officers of the defence services, and diplomats. He is co-editor of *Securing India's Maritime Neighbourhood: Challenges and Opportunities* and the *IIRF Strategic Yearbook 2022-23*.



## Colonel Parappil Madhavan

Col. P Madhavan is the Director (Finance) of IIRF and series co-editor of the IIRF Strategic Yearbook. He is an alumnus of Sainik School Bijapur and of 48 NDA Course (the third graduate Course), was commissioned in 4 RAJPUT in Jun 1976. He is a postgraduate from DSSC Wellington in 1986-87 and a PGDCA during study leave in 2004-06. He has extensive counter-insurgency and counter-terrorist experience in Eastern Arunachal Pradesh, Assam, Sri Lanka, and J& K. He served as the Grade 3 Intelligence Officer for 3 1/2 years in Tirap, then an active counter-insurgency area. He, as GSO2 (Ops), HQs 1 Sector RR, assisted in raising the Rashtriya Rifles in 1990.



He has commanded 4 RAJPUT in a High Altitude Area in Sikkim and 23 RR in Thana Mandi/Ramban. He was the Colonel GS of a Strike Corps Division, Head of the Training Team at the Officers Training Academy Chennai and the Dy Cdr and CI of the Assam Rifles Training Centre at Dimapur. Post-final

retirement, he served as the General Manager of Venkys UFFPL Manufacturing Plant at Namakkal for almost two years. Later, he was the General Manager at the Gopalan National School. He is currently an entrepreneur and writes extensively on military matters.

He has published a historical fiction, *Ninu - A Saga of the Valorous Wanchos*, about Northeast India. He has contributed two write-ups on his experience in Sri Lanka, one each for two volumes compiled on Op Pawan by Maj Gen Arjun Muthanna. He is the co-editor of *IIRF Strategic Yearbook 2022-23*.



### **Group Captain Raj Shekhar Mehta, Shaurya Chakra**

Gp Capt Mehta is the General Secretary of IIRF. He is the series co-editor of the IIRF Strategic Yearbook. A postgraduate from BHU and an M. Phil from JNU, he is an avid writer, scholar, and author. He was commissioned in the Indian Air Force in 1983 and served in various parts of the country. He received his Gallantry award from the President of India in 1995. As Director of (Special Projects, Planning and Coordination) at Air Headquarters, he was deeply associated with the planning and conceptualising Airforce infrastructure work on the eastern border, including reviving the DBO runway and other advanced landing grounds under the China Contingency plan. He also served as an instructor at The College of Air Warfare, a staff officer, and ADC to the deputy chief of air staff, camp commander at air headquarters, and chief administrative officer at Airforce Station Jammu and 26 ED, Bangalore. After his stint in the IAF, he joined Amity University, Noida, where he served for eight years. He is a visiting faculty member and a research scholar researching BRI at the same university. He is the co-editor of *IIRF Strategic Yearbook 2022-23*.

***PHOTO GALLERY***  
***OF***  
***IIRF ACTIVITIES***



MOU signed between IIRF and Coimbatore Innovation and Business Incubator (Forge). Left to right are Mr Vishwanathan Sahasranamam, CEO, CIBI, Forge, Lt Gen Arun Kumar Sahni, PVSM, UYSM, SM, VSM (Retd), Former GOC- in-C, Indian Army, Advisor to IIRF, and Brig C Sandeep Kumar, VSM (Retd), President, IIRF.



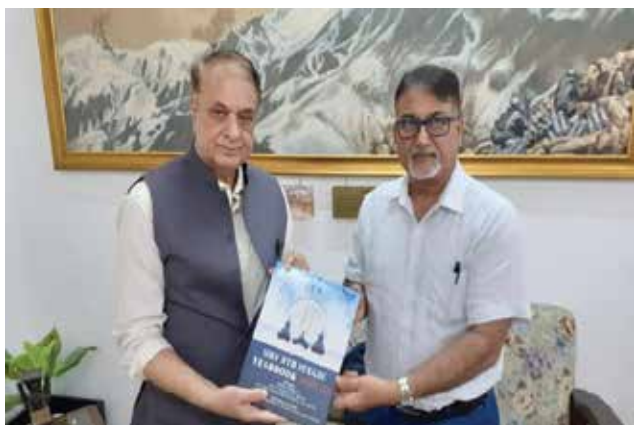
MOU signed between IIRF and Bridge Bharat Council at IIRF Bangalore Conclave. Left to right are Gp Capt RS Mehta, Shaurya Chakra (Retd), Gen Secy IIRF, Col Selva Kumar, CEO, Bridge Bharat Council, Wg Cdr Jayakumar (Retd), Founder nRoot Group & Bridge Bharat Council, Lt Gen CA Krishnan, PVSM, UYSM, AVSM(Retd), Former Dy COAS, Indian Army, Advisor to IIRF, Brig C Sandeep Kumar, VSM (Retd), President, IIRF



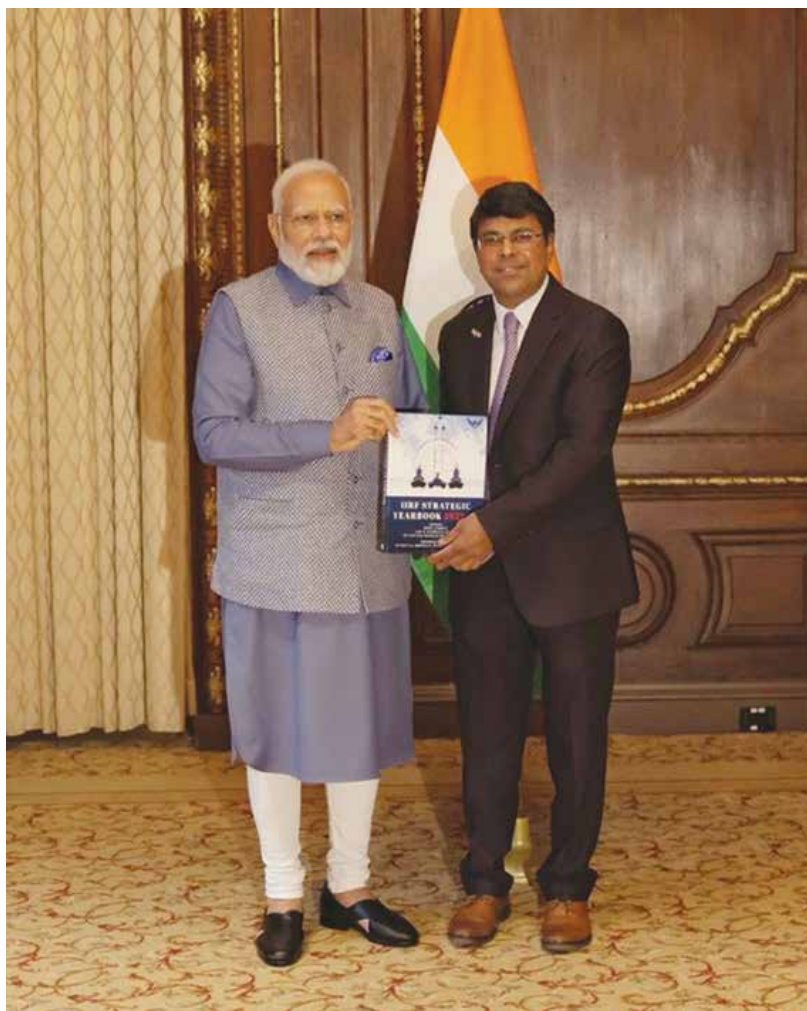
MOU signed between IIRF and CENJOWS. Seen in the centre are Lt Gen Sunil Srivastava, AVSM, VSM\* (Retd), Director, Centre for Joint Warfare Studies, Ministry of Defence and Air Cmde S Johri (Retd), Vice President, IIRF.



Book Release ceremony of IIRF Strategic Year Book 2021-22 at RSI, Bangalore by General MM Naravane, PVSM, AVSM, SM VSM (Retd), Former COAS. Seen in the photo are Brig C Sandeep Kumar, VSM (Retd), President IIRF, Gp Capt RS Mehta, Shaurya Chakra (Retd), General Secretary, IIRF, Maj Gen Ravi Murugan, PVSM, AVSM, General Officer Commanding, Karnataka and Kerala Sub Area and Mr Rishi Athreya, Head of Research, IIRF.



IIRF Strategic Year Book Presented to Director United Services Institute (USI) Maj General B K Sharma AVSM, SM and Bar (Retd) and Air Mshl Anantraman PVSM, VSM (Retd), erstwhile Air Officer in Charge Administration, IAF



Mr Guru Sowle, President of IIRF Americas, presented the IIRF Strategic Year Book to Shri Narendra Modi, the Honourable Prime Minister of India, in New York.





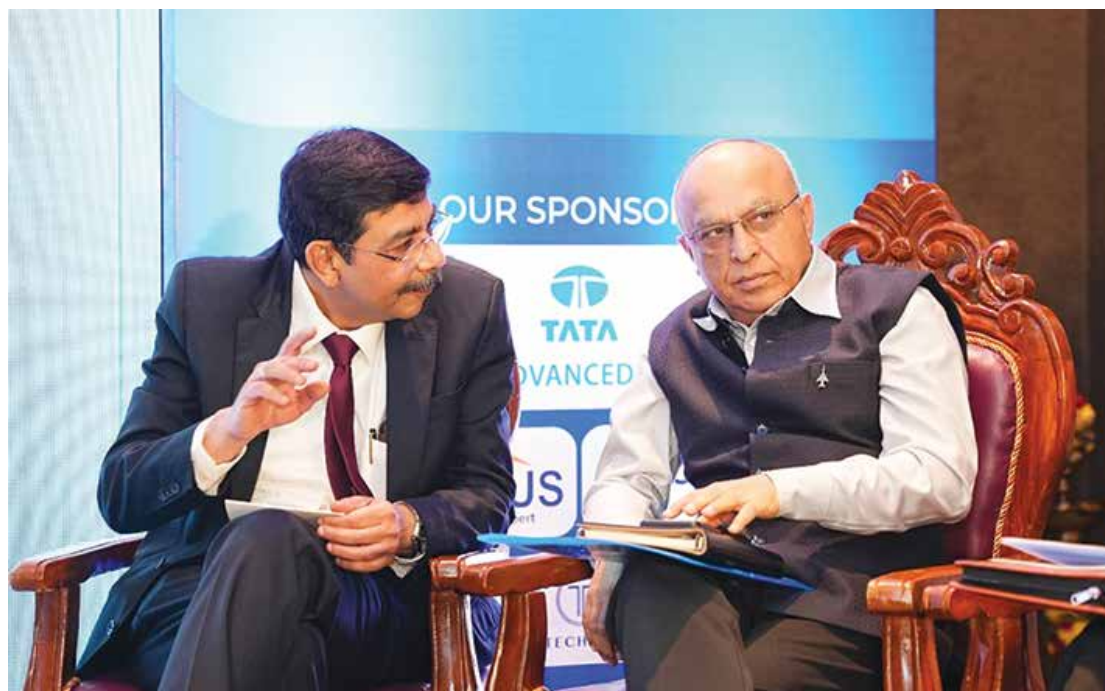
Mr Guru Sowle, President IIRF, Americas representing IIRF in a UN Conference.



Lighting of Lamp at IIRF Bangalore Conclave. Left to right are Mr Guru Sowle, President IIRF Americas, Ms Erin Farr, VP of Business Development, Economic Development Corporation of Utah, USA, Lt Gen Vinod G Khandare PVSM, AVSM, SM (Retd), Principal Defence Advisor to the Hon'ble Minister of Defence, Government of India, Gary Herbert Former Governor, State of Utah, USA, Julie Fullmer, Mayor, Vineyard City, Utah USA, and Brig C Sandeep Kumar, VSM (Retd), President IIRF India.



Guest of Honour, Lt Gen Vinod G Khandare, PVSM, AVSM, SM (Retd), Principal Defence Advisor to the Hon'ble Minister of Defence, Government of India, seen seated along with Brig C Sandeep Kumar, VSM (Retd), President IIRF, and Gp Capt RS Mehta, Shaurya Chakra (Retd), Gen Secy & Director Research, IIRF at The IIRF Bangalore Conclave Held at Taj Yashwantpur, Bangalore.



Mr Vikas Khitha, Vice President and Head (Corporate Office) at Larsen & Toubro Limited (L&T Defence), a guest speaker in IIRF Bangalore Conclave, seen here in conversation with Air Mshl Anil Khosla, PVSM, AVSM, VM (Retd), Former Vice Chief of Air Staff, Indian Airforce and Advisor, IIRF.



Members of the Board of Governors, IIRF, posing with the IIRF Advisor. Left to right Col (Dr) Vijaykant Chenji (Retd), founding member and former President IIRF, Col P Madhavan (Retd), founding member, Director Finance & Events, IIRF, Lt Gen Arun Kumar Sahni, PVSM, UYSM, SM, VSM (Retd) Former GOC-in-C, Indian Army and Advisor IIRF, President, Info Sec Council of India & Strategic Def Advisor to Tata Adv Sys and Advisor to IIRF, Brig C Sandeep Kumar, VSM (Retd), founding member and the current President, IIRF, Gp Capt RS Mehta, Shaurya Chakra (Retd), Founding member, Director Research, and General Secretary IIRF



IIRF Bangalore Conclave. Mr Gary Herbert, former Governor of the State of Utah, United States of America with Brig C Sandeep VSM (Retd), President IIRF.



President IIRF, Brig C Sandeep Kumar, VSM (Retd) presenting an IIRF souvenir to Lt Gen Dr Anil Kapoor AVSM, VSM (Retd) Former Director General Electronics and Mechanical Engineers (EME), Indian Army Board Member, Technology Innovation Hub & Professor of Practice at IIT Tirupati, Director and Founder Kiziaan Consulting Private Limited, Director StratMRO and Advisor to IIRF.



President IIRF, Brig C Sandeep Kumar, VSM (Retd), presents a token gift to Vice Admiral Narayan Prasad, PVSM, AVSM, NM (Retd), former MD, Mazagaon Dockyard Ltd, (MDL), India, who was invited as a guest speaker to one of the IIRF events.



Speakers of Session – II ***ICET Opportunities with WTC Utah: Deliverables to Deliveries for Industry and Academia of IIRF Bangalore Conclave.*** Left to right Maj Gen Ravi Murugan, PVSM, AVSM. General Officer, Commanding, Karnataka and Kerala Sub Area, Lt Gen Dr Anil Kapoor AVSM, VSM (Retd) Former DG, EME, Advisor IIRF, Kiran Zachariah (US), VP Digital Security Sectrio, Mr Rishi Athreya, Head of Research, IIRF, Brig C Sandeep Kumar VSM(Retd), President, IIRF, Mr Kumar Gangwani VP (bdb.ai), Col Selva Kumar (Retd) , CEO Bridge Bharat



Group Photograph of delegates at IIRF Bangalore Indo US Trade Technology and Defence Industries Conclave at Taj Yeshwantpur: Bangalore in collaboration with World Trade Centre, Utah 02nd March 2024.



IIRF, MIICCIA, WTC Utah - joint conference at India International Centre, New Delhi. Seen on the dais are Mr Jonathan Freedman, CEO & President WTC Utah, Ambassador Anil Trigunayat, Patron IIRF, Mr Gary Herbert, former Governor of the State of Utah, United States of America and Mr Guru Sowle, President IIRF, Americas.



IIRF, in collaboration with the World Trade Center, Utah, participated in the CII event at Le Meridian, New Delhi. Left to right are Gp Capt RS Mehta, Shaurya Chakra (Retd), Gen Secy, IIRF, Lt Gen Dr Anil Kapoor, AVSM, VSM(Retd), Former DG, EME, Advisor IIRF, Mr Guruprasad Sowle, President IIRF Americas, Julie Fullmer, Mayor, Vineyard City, Utah USA, David Carlebach, COO & Managing Director of Business Services, World Trade Center Utah, Ms Erin Farr, VP of Business Development, Economic Development Corporation of Utah, USA



IIRF-WTC Trade Mission meeting with the Kavach team at Vigyan Bhavan, New Delhi. Left to right, Lt Gen Dr Anil Kapoor AVSM, VSM (Retd) Former DG, EME, Advisor IIRF, Dr Ajay Kumar, IAS (Retd), Former Defence Secretary, Mr Raj Sethia, Mr Anaghi Singh, AVP Invest India.

IIRF-WTC, Utah Trade Mission meeting with Kavach team at Vigyan Bhavan, New Delhi. Left to right Mr Guruprasad Sowle, President IIRF Americas, David Carlebach COO & Managing Director of Business Services, World Trade Center Utah, Gp Capt RS Mehta Shaurya Chakra (Retd) , General Secretary, IIRF







IIRF celebrating **Swarnim Vijay Diwas** at Mohanlal Sukhadia University, Udaipur. Left to right are Col (Dr) Vijaykant Chenji (Retd), former President IIRF, Dr. Peeyush Bhadviya, Assistant Prof., History, MLSU, Udaipur, Founding member and Director Academics, IIRF and others.



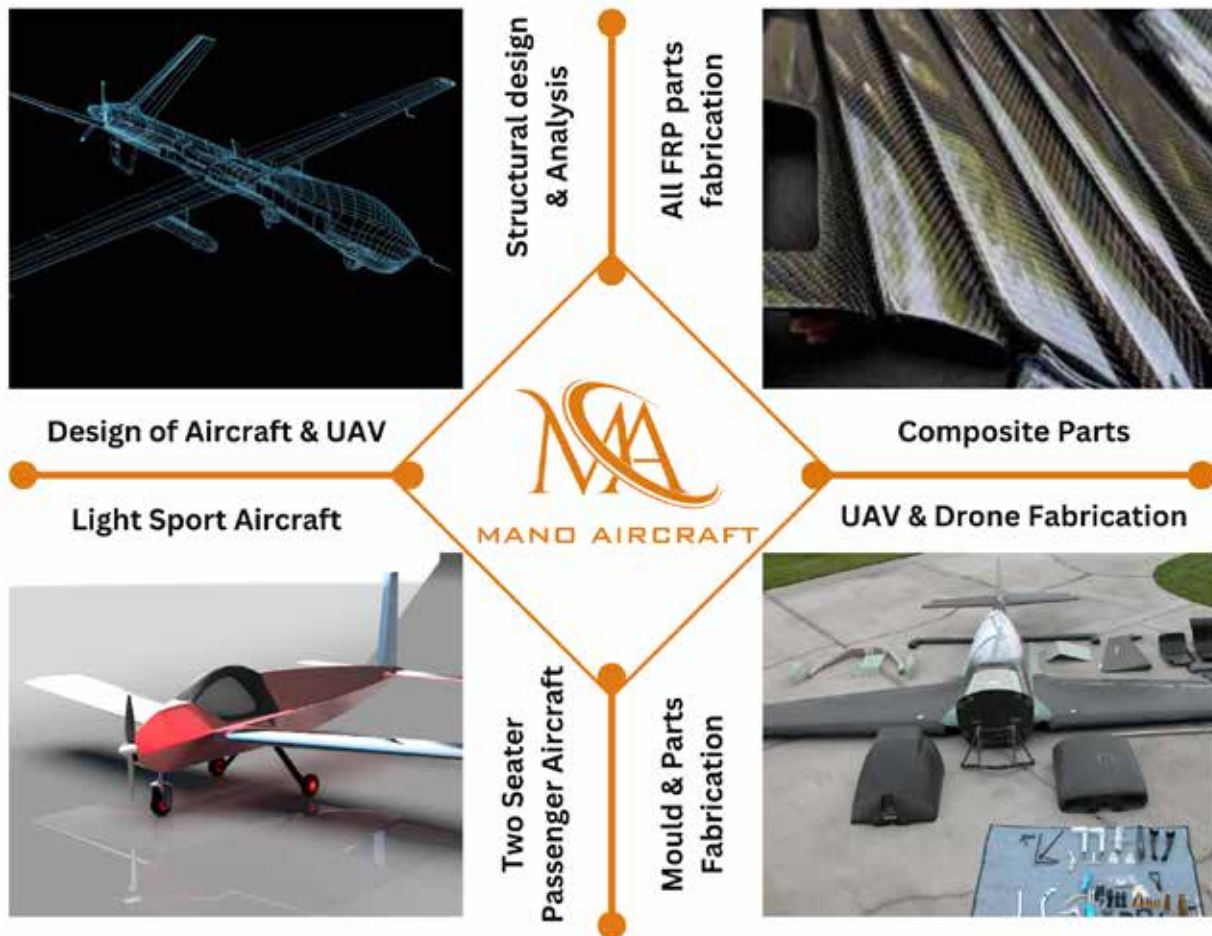
Participants of IIRF **Swarnim Vijay Diwas** at Mohanlal Sukhadia University, Udaipur.



Inaugural ceremony of International Conference on Mineral, Mines & Metallurgy in South Asia. Left to right are Dr Peeyush Bhadviya, Assistant Prof, Dept of History, MLSU, Udaipur, Founding member and Director Academics, IIRF, Dr Srikrishna Jugnu, Eminent Historian, MLSU Udaipur, Prof. Sharda Srinivasan (Padma Shri Awardee), NIAS, Bangalore, Prof. Sunita Mishra, Vice Chancellor, MLSU, Udaipur, Lt Gen Anil Kapoor AVSM VSM (Retd) Former DG EME, Indian Army, Advisor IIRF, Prof. Chulani Rambukwella University of Peradeniya, Sri Lanka, Prof Pratibha, HOD Dept of History, MLSU, Udaipur.



Brig C Sandeep Kumar, VSM (Retd) President IIRF, and Gp Capt RS Mehta, Shaurya Chakra (Retd), General Secretary IIRF, attending the "International Conference on Mineral, Mines & Metallurgy in South Asia" at Mohan Lal Sukhadia University, Udaipur.



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The IIRF Strategic Yearbook is a compilation of articles by scholars on vital strategic matters. These cover varied topics classified under specific sections. The book will be invaluable to policy makers, diplomats, armed forces, intelligence community, academia, think tanks, other stakeholders in security and growth of Bharat and public at large.

Lt Gen V.G. Khandare, PVSM, AVSM, SM (Retd), Principal Advisor, Govt of India MoD

IIRF Strategic Yearbook 2024, second in the series, is a remarkable collection of strategic wisdom of the best minds in the profession. It deserves its rightful place on the table of every strategic thinker and students of security studies within and outside India.

Dr Ajay Kumar, IAS (Retd), Former Defence Secretary of India, GOI

Strategic discourse and writing are the hallmarks of all reputed research establishments. The IIRF Strategic Yearbook is an excellent example of such an activity. CASS Pune is glad to have contributed to the compendium.

Air Marshal B.N. Gokhale PVSM AVSM VM (Retd),  
Former Vice Chief of Air Staff , IAF & Director CASS Pune

My compliments to team IIRF for bringing out yet another excellent strategic yearbook as a collection of highly analytical contributions from India's leading strategic minds and specialists across the spectrum of topics of national and international importance covering preceding year's disruptive geopolitics , climate change , technology and economy.

Ambassador Anil Trigunayat , IFS (Retd)  
Former Ambassador of India to Jordan, Libiya and Malta.  
Distinguished fellow, Vivekananda International Foundation

My good wishes to IIRF on publishing the second Strategic Yearbook 2024, a treasure trove with exemplary contributions by leading experts and specialists in the areas of defence, foreign policy, technology and environment. I'm sanguine that the compendium will provide the reader with an objective and fact-based assessment on professional issues of National importance.

Lt Gen Dr Anil Kapoor AVSM, VSM  
Former Director General EME,  
Board Member, Technology Innovation Hub & Professor of Practice at IIT Tirupati  
Director and Founder Kiziaan Consulting Private Limited, Director StratMRO

The IIRF Strategic Yearbook 2024 is a unique compilation of relevant strategic topics. It will go a long way in helping Indian and Global scholars understand India and the larger neighbourhood in an all-inclusive manner.

Maj Gen Ashok Kumar, VSM (Retd), DG CENJOWS



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