

IIRF STRATEGIC YEARBOOK 2025

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Strategic thinking is an essential part of holistic national security. This include traditional and non-traditional threats. There are new areas of security such as climate change, weaponization of natural and manmade resources and leveraging of power differential in geopolitics..

Geography makes India's challenges multifaceted. While on the one hand, there are lofty mountains on land borders, there is also a vast coastline and massive maritime territory. Besides, the aerospace domain has already attained a great importance. The scenario in the greater neighbourhood and the larger global situation creates unique challenges that need to be addressed and future scenarios need to be visualised imaginatively..

Technology plays a vital role in ensuring defence preparedness from external adversaries and guarding against internal inimica elements. Emerging technologies also increase the risks of undeclared war at a sub-conventional level. Irrespective of any attempts at arms control, nuclear weapons are there to stay. In fact chemical and bio security has become a matter of concern and pandemics are listed as national threats to advanced nations.

India faces economic conspiracies as it makes rapid strides in economic growth.. Developed economies see this rapid growth as a threat to the existing power balance.

The way ahead is to seek a clear identification of adversaries and of critical issues. This will empower the global and national level decision makers. Projection of Indian strategic thought to the world is vitally important.

The IIRF Strategic Yearbook is a compilation of articles by scholars on vital strategic matters. These cover varied topics classified under specific sections. Felicitations to the IIRF Editorial Team and Governing Board for this rich compilation. It will be invaluable to policymakers, armed forces, academia, think tanks, students of all ages and to the citizens, in effect to all stakeholders.

JAI HIND !

30 May 2025

**CENJOWS****CENTRE FOR JOINT WARFARE STUDIES (CENJOWS)***301, B-2 Wing, 3rd Floor, Pt Deendayal Antyodaya Bhawan CGO Complex,
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<http://cenjows.in>***MESSAGE**

Security encompasses a broad spectrum of traditional and non-traditional domains, including technology, airpower, maritime affairs, nuclear power, information operations, geoeconomics, and environmental challenges. The IIRF Strategic Yearbook 2025 offers a distinctive compilation of these critical topics, authored by eminent professionals with deep expertise in their respective fields.

This edition features thought provoking chapters such as India-US Defence Relations 2025, Tryst with Technology, The Indian Marathon, Narco-Terrorism and Its Impact on National Security, Artificial Intelligence in Aircraft Maintenance, The Digital Silk Road and De-dollarisation of the International Financial System. These contributions collectively offer a comprehensive view of India's strategic landscape and emerging challenges, both regional and global.

CENJOWS applauds the publication of this anthology by our MoU partner. We extend our congratulations to the IIRF editorial team for their outstanding work in producing this volume. It will significantly enhance the understanding of strategic affairs for Indian and global intellectuals, providing valuable insights into regional dynamics for India and key conceptual issues.

Maj Gen (Dr) Ashok Kumar, VSM
Director General



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COMMENDATION



The IIRF Strategic Yearbook, now in its third edition, continues to uphold its distinguished record of rigorous research and meticulous editing established over the past three years.

This Yearbook consolidates a diverse range of thematic and regional topics of critical strategic significance, authored by leading experts in their respective fields. It serves as a vital resource for Key Leader Engagement, fostering dialogue among diplomats, military officials, attachés, scholars, broadcasters, journalists, and other influential figures.

CASS Pune is proud to contribute to this esteemed collection. The IIRF editors and authors deserve high commendation for their outstanding work in producing this exceptional volume.

Air Marshal Bhushan N Gokhale PVSM AVSM VM (Retd)

Former Vice Chief of Air Staff

Director, Centre for Advanced Strategic Studies, Pune

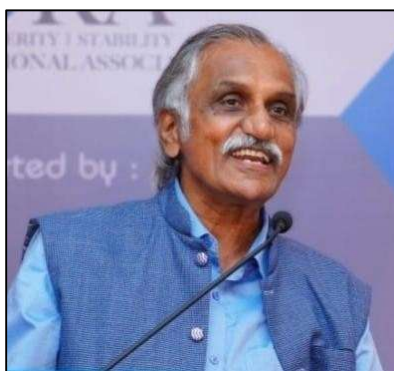


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RECOMMENDATION



The Editorial team has taken great care to select and thematise the third 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 with command, field and academic experience for the choice of topics and for the in-depth analysis. The topics and the contributors from different disciplines have been carefully chosen to lend immense value to the third publication of the yearbook. The carefully chosen resource persons with decades of multiple domain expertise have done full justice to the topics on strategy, geopolitics, technology, economics, and the environment.

IIRF has demonstrated that it has excellent credentials to pursue and engage in dialogue on public policy matters. The entire team needs to be complemented for bring out this issue of third yearbook that will be a very useful addition to the libraries of institutes of higher learning, think tanks other agencies engaged in policy formulations.

Commodore RS Vasan, IN Retd

Director General

Chennai Centre for China Studies

Regional Director, National Maritime Foundation, TN

Message from IIRF Americas



It is with great pride that I commend the IIRF India team on the successful release of this year's Yearbook—an essential compilation that captures the evolving complexities of today's strategic environment. From maritime security to aerospace, from emerging technologies to continental and nuclear challenges, this edition reflects the intellectual rigor and foresight that IIRF is known for.

As the global order undergoes significant shifts, marked by intensifying geopolitical rivalries and strategic recalibrations, there is an urgent need for platforms that offer clear, data-driven, and future-focused perspectives. IIRF is answering that call—not just in India, but across borders.

In the United States, IIRF Americas continues to play a critical role in shaping informed discourse about India's position in the world. At a time when the Indian narrative is often overlooked or misrepresented in American mainstream media, our think tank is working deliberately to bridge that communication gap—bringing nuanced, credible insights to the fore.

We also believe that dialogue must translate into collaboration. Our partnership with the World Trade Center Utah reflects our commitment to building institutional bridges—deepening India–U.S. cooperation in trade, technology, and strategic affairs.

This Yearbook is more than a chronicle of developments—it is a call to engage, to understand, and to partner.

Guru Sowle

President, IIRF America



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FOREWORD

The **IIRF Strategic Yearbook** enters its third edition amidst profound global turbulence. The wars in Ukraine and West Asia continue unabated, reshaping international alliances and security paradigms. Op Sindoor, India's focussed non escalatory precision strikes against Pakistan supported terrorist camps followed by the precision escalatory operations to neutralise Pakistani air assets, while successfully defending its own assets from aerial attacks by Pakistan, have added a new dimension to counter terrorism operations. The current Israel Iran conflict and its global repercussions are a matter of great concern

The return of Donald Trump to the White House has ushered in a dramatically altered global landscape marked by heightened volatility. The world is multipolar, with the United States, China, and Russia emerging as the principal power centers. Europe strives for greater strategic autonomy despite its growing divergence from the U.S. The much-debated Cold War 2.0 is no longer an abstract notion but a stark reality.

These shifts present unique challenges for nations worldwide, including India. Geopolitical instability is expected to persist through 2026, increasingly influencing national and international policy. Governments are adjusting their strategies across critical areas such as defence, technology, nuclear power, and environmental policy. The private sector must also anticipate and evaluate these trends to understand their impact on state priorities and global markets.

This edition of the Yearbook gathers leading scholars to explore a wide range of themes impacting security and geopolitics. The articles, shaped by the political and economic developments of the past year, offer in-depth analyses of India's defence and security landscape. The covered topics include technology, military power, information operations, geo-economics, and environmental concerns.

Designed as a valuable resource, this Yearbook serves world leaders, policymakers, think tanks, strategists, researchers, defence planners, diplomats, and all those engaged in international affairs. The articles are rigorously researched, objectively presented, and devoid of political bias, aligning with the IIRF's ethos of impartial, data-driven analysis. This Yearbook rightly deserves a place on

FOREWORD

esteemed bookshelves globally. It enriches our understanding of international affairs and provides a balanced and empirical assessment of contemporary global challenges.

IIRF Strategic Year Book 2025 A sincere thank you to all the authors for their exhaustive research and insightful contributions. Special appreciation to the editorial team—Air Marshal Anil Khosla, Rishi Athreya, and Group Captain Raj Shekhar Mehta—for their dedication in curating and refining this volume. Gratitude also extends to Team Indus for their unwavering support in bringing this publication to fruition. Lastly, a heartfelt acknowledgment to our advertisers and the publishers Sabre & Quill for their unwavering support that is invaluable.

Brig C Sandeep Kumar VSM

President

INTRODUCTION

In its third edition, the IIRF Strategic Yearbook 2025 comprehensively reviews the past year's pivotal events. Organised into nine thematic sections, this volume reflects India's unique geopolitical position—as both a continental power in Asia and a maritime force in the Indo-Pacific. It underscores our commitment to addressing multifaceted challenges and seizing strategic opportunities.

Strategic Scenario: This section examines India's strategic landscape, neighbourhood, and global dynamics.

- *Review of the Year* by Lt Gen Arun Kumar Sahni provides a detailed overview of major global developments.
- *Digital Silk Road: China's Belt and Road Extension* by Gp Capt Raj Shekhar Mehta explores China's digital technology ambitions beyond physical infrastructure.
- *Indo-US Defence Relations: Trump 2.0*, by Lt. Gen Anil Ahuja, analyses the implications of renewed U.S. leadership for bilateral ties.
- *India-Middle East-EU Economic Corridor (IMEC): Pipe Dream or Shared Progress?* By V Adm Vijay Shankar evaluates IMEC's potential to foster global stability and economic cooperation.

Defence Technology: Technology shapes both civilian and military domains, driving India's strategic evolution.

- *Loyal Wingman Concept: Redefining Air Combat* by Air Marshal Khosla examines an innovative airpower paradigm.
- *Tryst with Technology: India's Marathon to Technological Supremacy* by Lt Gen Anil Kapoor outlines India's journey toward becoming a tech superpower.
- *Winning Future Battles with Firepower Dominance* by Lt Gen S Harimohan Iyer highlights artillery's critical role in modern warfare.

INTRODUCTION

Continental and Regional Security: India's extensive land borders present enduring security challenges.

- *Narco-Terrorism: Threats to India's National Security* by Maj Gen A K Chaturvedi, addresses the nexus of narcotics and terrorism.
- *Proxy War in Jammu & Kashmir* by Maj Gen Sudhakar Jee examines Pakistan's destabilising regional activities.
- *People's Liberation Army: Building a World-Class Military* by Lt Gen S L Narasimhan assesses the structure and capabilities of China's armed forces.

Maritime Security: India's maritime and shipbuilding sectors are vital to its security as a major maritime nation.

- *When Will Indian Shipbuilding Flourish?* by V Adm B Kannan and Capt S Sreeram analyses challenges and proposes solutions for India's shipbuilding industry.
- *India-Indonesia-Australia: A Military Partnership for the Indo-Pacific* by Gp Capt A V Chandrasekaran, explores trilateral cooperation among middle powers.

Aerospace Security: Air power remains a cornerstone of military and economic strength.

- *Adapting Air Power: Lessons from Israel* by Air Marshal Khosla draws strategic insights from Israel's air operations.
- *AI and Advanced Technologies in Aircraft Maintenance* by AVM Surya Narayana Murti examines technological convergence in aerospace.
- *Cyber Security Imperatives in Aerospace* by AVM Devesh Vatsa addresses the growing cyber threats to air operations.

Nuclear Security: Nuclear dynamics pose critical risks to global stability.

- *Iran-Israel Nuclear Sabre-Rattling: How Dangerous?* by Dr Parvez Khushnam evaluates escalating tensions in the Middle East.
- *India's Nuclear Submarine Programme: An Upward Trajectory* by Cmde Anil Jai Singh, reviews advancements in India's nuclear submarine capabilities.

Information Operations: Information warfare is increasingly central to modern conflicts.

- *Chinese Cognitive Warfare* by Brig N Sanal Kumar analyses China's strategies to shape perceptions.
- *Think Tanks in Perception Management* by Rishi Athreya explores the role of think tanks in shaping strategic narratives.

Geo-Economics: Economic and geopolitical interplay defines international relations.

- *De-dollarisation: BRICS Leading the Change* by Maj Gen Nitin P Gadkari examines efforts to reshape the global financial system.
- *Tech-Powered Military Transformation in the Intelligence Age* by Vish Sahasranamam offers a private-sector perspective on military innovation.

Environment and Natural Resources: Environmental factors profoundly influence strategic priorities.

- *Glacial Meltdown in the Himalayas: Climate Change and National Security* by Air Marshal VPS Rana assesses the strategic impacts of Himalayan glacier retreat.

RECAPITULATION OF KEY EVENTS – 2024-25

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

The pivotal developments in geopolitics, geo-economics, and security, in 2024-25, profoundly influenced the global landscape. The year was significant as these events have precipitated reshaping of international relations, global economic paradigms and regional security frameworks.

The global security environment continued to be vitiated with the ongoing conflicts in Europe, West Asia and sporadic socio ethnic clashes in Africa and Asia. The Russia Ukraine conflict, entered the third year and the Israel offensive in the Gaza strip, against the Hamas, continued into the second year. The conflict in West Asia had undertones of spreading across the Middle East, as Hezbollah from its bases in Lebanon, activated a second front against Israel¹. The canvas was further enlarged, when there were standoff attacks against Israel, by the Houthis from Yemen. It took an ugly turn when it graduated to missile strikes by the Iran and Israeli retaliation. The world breathed a sigh of relief, when these engagements got restricted to only standoff attacks and did not escalate. Concurrently the nations continued to grapple with the disruptions in the existing supply chains, infrastructure devastation, increasing polarisation amongst nations and avoidable human misery.

Once again, in September 2024, Israel surprised the world, when it decimated the Hezbollah leadership with innovative technological subversion of the 'Pagers and Mobiles' of Hezbollah cadres and senior leadership. In a well-executed plan of implanting explosives in these communication devices, during their manufacturing and then their remote activation, in two waves to cause maximum casualties. A master stroke of subversion, with follow on precision strikes, led to elimination of Hezbollah's leading figures, including its Secretary-General Hassan Nasrallah, and his successor, Hashem Safieddine.

These events precipitated major realignments that are underway in the Middle East. The death of Hezbollah leader Hassan Nasrallah has disrupted the balance of power in Lebanon and also heightened Israel- Iran tensions. Turkey has positioned itself as a stabilizing force, mediating between conflicting parties and asserting its role in regional security. The fall of Assad regime in Syria, has led to ascendancy of a new Islamist administration, led by an erstwhile radical, in Damascus, further impacting regional power dynamics. Whereas, the continuing isolation of Russia by the developed West and USA, has led to deepening of the China-Russia Alliance. Their strategic partnership was reinforced with the visit of Russian President Vladimir Putin to China, in May 2024, This alliance challenged western domination by emphasising on a shared vision in a multipolar world order.

India's near abroad continued to be in turmoil. A new security challenge for India emerged when Bangladesh went into a tail spin with a student fronted, Jamaat steered, support from quasi organisations of USA, insidious coup, in early August, against the incumbent Prime Minister Sheikh Hasina. With threat on her life she had to flee to India and in the interim been given asylum here, till she moves to her desired destination.

This has fuelled anger amongst a large cross section of Bangladesh society, especially the interim Government, being directed against India. As they hold India accountable for supporting the high handedness of Sheikh Hasina. Their open support and enhanced engagement with Pakistan and release of convicted terrorists and criminals from jails, has become a major security concern. Bangladesh is conducting state supported suppression and merciless killing of minorities. There is unabated and uncontrolled witch hunting, leading to unsolicited killing of Awami League workers and those perceived close to Sheikh Hasina. This state of strife and instability, has led to economic down turn, with negative impact on its export oriented industrial base. The Bangladesh military has till now been a silent spectator to this mayhem.

In addition, the neighbouring Myanmar continues to be in turmoil, with no let up in the continuing civil war. It is devastating both men and material. Myanmar continues to be balkanised in context of State control on regions, where large swathes of territory and towns are under the control of EAGs (Ethnic Armed groups). This is negatively impacting the ongoing socio-ethnic strife, within the NE State of Manipur. There are confirmed reports of China's covert support to the VBIGs (Valley Based Insurgent Groups), that further exacerbates, India's security paradigm.

Violence levels during the year, in Afghanistan came down drastically, except for the skirmishes with Pakistan along their border, especially at the traditional crossing points. It continued to grapple with a severe humanitarian and food crisis, with continuing restrictions on women and girls, including their exclusion from education and public life. The international community continued to provide humanitarian aid, while the Taliban sought international recognition. There are long term issues with that country that need addressing².

Pakistan continued to wrestle with political instability and economic recession, under an appearance of outward calm. The 'deep state' of the Army continued to grapple with insurgency in Baluchistan and Khyber Pakhtunkhwa. The '*Baluchistan Liberation Army*' (BLA) and the TTP continued to bleed and embarrass the Pakistan Army with their bold and high profile strikes. The Army continues to play an important role in that country³.

The world while enjoying the benefits of exploitation of 'cyber and space' domains, also tried to come to terms with the negative impact on security and the challenges on public privacy and safety, unleashed by the militarisation of these erstwhile global commons. India continued to be globally the 3rd most targeted country for cyber attacks. To highlight the this malady, a quick look at some high visibility breaches. The

"Salt Typhoon" cyberattack, attributed to Chinese state-sponsored actors, compromised U.S. telecommunications networks⁴. Iran's cyber operations, that came to public domain during the year, was to influence the U.S. Presidential electoral process, by disseminating disinformation and influencing the electorate.

2024 was also witness to major global electoral shifts, with a series of critical elections worldwide, testing democratic institutions and their results indicative of changes to regional and global dynamics. Globally, more voters than ever in history went to polls for their national elections, in approximately 64 countries, including the EU, representing a combined population of about 49% of the world. The results of which, for many will be consequential, for years. These elections also underscored the global trend of political polarization and rise of populist movements.

Elections in India, the largest democracy, saw unstinted support for the resolute leadership of Indian Prime Minister Modi, when his party won a thumping third term. Whereas, US Presidential election, after a high octane drama, witnessed a historical comeback of Mr Donald Trump and defeat of the democratic candidate, the then incumbent Vice President Ms Kamala Harris. His clarion call and promise to 'Make America Great Again (MAGA)' resonated with the electorate. His return signalled a turbulent 2025 for the world, a shift towards more unilateral policies, affecting global alliances and trade dynamics. The world is currently in the midst of addressing the trade war unleashed by him, with unilateral trade tariffs for imports to the USA. It is agnostic of friends and competitors and particularly targets China, reigniting trade tensions. These measures have further impacted global supply chains and challenged the principles of free trade.

In general, the Geo Economic space, is witnessing a resurgence of protectionism, increased economic volatility and the impact of fluctuating oil prices, due to uncertainties of Russian and Iran's oil exports. Continuing conflicts and increasing geopolitical tensions are affecting global financial stability. The current trends indicate further economic downturns in 2025.

Sri Lanka while recovering from its economic crisis, voted for a change in its political leadership. 'The National Peoples Power (NPP)' steered by the current President of Sri Lanka, Mr Anura Kumara Disanayake, won a resounding victory in the national elections in Nov 2024, with the second highest proportion of seats in the nation's history. A fresh change in perspective seems to be auguring well for this island nation. Bhutan continued to pursue its "Gross National Happiness" approach, emphasising well-being and happiness beyond just economic growth. In its national elections, the People's Democratic Party (PDP) once again secured victory.

In April 2025, Pakistan backed terrorists killed tourists in Pahalgam in the Kashmir Valley⁵. In response, in May 2025 the Indian Armed Forces launched 'OPERATION SINDOOR'⁶. As highlighted in IIRF Yearbooks 2022-23 and 2024 there is continued tension between India and its western neighbour. The nuclear overhang is present between India and Pakistan⁷. This is an issue for the entire neighbourhood⁸.

The period of 2024–25 has been marked by urgent climate action and a deepening focus on sustainability transitions in both the Global North and South. The three key takeaways from COP 29 held in Baku, Azerbaijan in November 2024 sums up the direction and approach of the nations. Firstly, it reemphasised that current national climate plans (NDCs) are inadequate to meet the 1.5 °C goal and came to an agreement for a new framework for ‘enhanced NDCs’.

The countries are required to submit more ambitious emission targets. For the first time, there was also a formal push to include methane reduction targets, land-use reforms, and just transition pathways in national reporting. Secondly, the high-income countries agreed to increase their contributions to the ‘*Loss and Damage Fund*’, operationalised at COP 28. Germany, UK and Japan agreed to increase their contributions, but concerns remained about actual disbursement. The World Bank and IMF also launched climate resilience bonds targeting vulnerable small islands and African states, linking debt relief with sustainability investments. Thirdly, the Global South expressed their discontent at ‘green protectionism’ by EU and at transfer of technology and equitable access to clean energy markets. India, Brazil, and South Africa launched their own green manufacturing incentives to localise clean tech production, at the COP⁹.

The year was also witness to extreme weather globally—record-breaking floods in Bangladesh and Italy, deadly heatwaves in China and the U.S., and wildfires in Australia and Greece. These events accelerated national investments in early warning systems, urban cooling strategies, and climate-resilient infrastructure.

COP 29 suggested that Adaptation plans be finalised by 2025, to catalyse knowledge sharing and fund allocation for frontline communities¹⁰. Climate justice movements gained momentum, and the rise of ‘climate litigation’ has put pressure on both corporations and states to align with net-zero pathways¹¹. Cumulatively these developments reflect a world grappling with the urgency of climate action while navigating deep inequities and political fragmentation. The next year will be pivotal in determining whether the global community can deliver on its promises.

The much awaited Summer Olympics were held in Paris, France, from 26 July to 11 August 2024¹². It was a breath of freshness and change, from all the clashes and conflicts, hogging the print and visual space. The games were a resounding success and showcased the human resolve and capacity to breach new frontiers.

In conclusion, 2024 was a transformative year, marked by significant shifts in global power structures, economic policies, and security paradigms. These developments have set the stage for ongoing challenges and redefined the contours of international relations.

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Lt Gen 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, holding 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. 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 also served in peacekeeping, counterinsurgency, cybersecurity, and diplomatic roles. An active speaker at seminars and various think tanks within the country, with specific reference to National Security Issues, and strategic leadership. Lt Gen Sahni is a Distinguished Fellow at CLAWS.

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