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Dec
2024

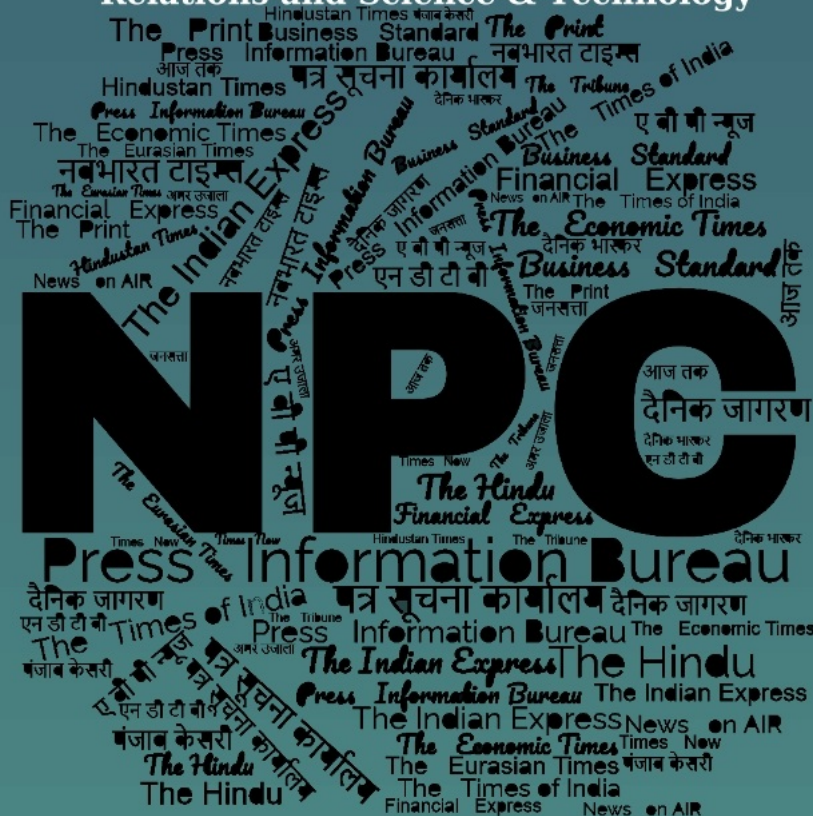
खंड/Vol. : 49 अंक/Issue : 239

27/12/2024

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Defence News

Defence Strategic: National/International



Press Information Bureau
Government of India

Ministry of Defence

Thu, 26 Dec 2024

Year End Review 2024

2024 witnessed some path-breaking achievements & breakthroughs as Ministry of Defence (MoD), marched ahead with renewed vigour to make India a strong, secure, self-reliant & prosperous nation, as envisioned by Prime Minister Shri Narendra Modi. Shri Rajnath Singh assumed the office of Raksha Mantri for the second consecutive term in June this year and under his leadership, the Ministry reaffirmed its resolve to work in the priority areas to realise the vision of self-reliance in Defence. Some of the major highlights of 2024 include:

India-China border consensus

India and China achieved a broad consensus to restore the ground situation in certain areas along the LAC. Both countries have been holding talks at diplomatic and military levels to resolve the differences in some areas along the LAC. As a result, a broad consensus was developed on the basis of equal and mutual security. Raksha Mantri, during the Chanakya Defence Dialogue on October 24, 2024, described the consensus as proof that continuous dialogue brings solutions.

Aatmanirbharta in Defence

- **Positive Indigenisation List:** To boost Aatmanirbharta in defence & minimise imports by DPSUs, Department of Defence Production in July, notified the fifth Positive Indigenisation List (PIL) consisting of 346 items. These include strategically-important Line Replacement Units/Systems/ Sub-systems/Assemblies/Sub-assemblies/Spares & Components and raw materials. Earlier, four PILs comprising 4,666 items were notified by the DDP for DPSUs, of which 2,972 items, having import substitution value worth Rs 3,400 crore, have already been indigenised. These five lists for DPSUs are in addition to the five PILs of 509 items notified by the Department of Military Affairs. These lists include highly-complex systems, sensors, weapons and ammunition.
- **Record Defence Production:** MoD achieved the highest-ever growth in indigenous defence production in value terms during Financial Year (FY) 2023-24, on the back of successful

implementation of the policies and initiatives of the Government. The defence production went up to a record-high figure of Rs 1,26,887 crore, reflecting a growth of 16.7% over the defence production of the previous financial year. The value of defence production in FY 2022-23 was Rs 1,08,684 crore. Of the total value of production in 2023-24, about 79.2% has been contributed by DPSUs/other PSUs and 20.8% by the private sector. The data shows that in terms of absolute value, both DPSUs/PSUs and private sector have recorded a steady growth in defence production. MoD has set a target to achieve Rs three lakh crore defence production by 2029.

- **Record Defence Exports:** Defence exports touched a record Rs 21,083 crore (approx. US\$ 2.63 Billion) in the FY2023-24, a growth of 32.5% over the previous fiscal when the figure was Rs 15,920 crore. The figures indicated that the exports grew by 31 times in the last 10 years as compared to FY 2013-14. The defence industry, including the private sector and DPSUs, have made tremendous efforts in achieving the highest-ever exports. The private sector and DPSUs contributed about 60% and 40% respectively. Raksha Mantri has exuded confidence that the target to export defence equipment worth Rs 50,000 crore by 2029 will be met.
- **C-295 TATA Aircraft Complex:** Prime Minister Narendra Modi and his Spanish President Mr Pedro Sanchez jointly inaugurated the TATA Aircraft Complex for manufacturing of C-295 transport aircraft at TATA advanced systems limited Campus in Vadodara, Gujarat in October 2024. In September 2021, MoD had signed a Rs 21,935-crore contract with Airbus Defence and Space SA, Spain for supply of 56 aircraft - 16 to be brought in fly away condition from Spain and 40 to be built in India by TASL. Of the 16 aircraft, six have already been inducted into IAF at 11 Sqn based at Vadodara. The last would be delivered by August 2025. The first Made-in-India C-295 is expected to be rolled out of the Final Assembly Line facility at Vadodara by September 2026 and the remaining by August 2031.
- **Indian Light Tank:** Indian Light Tank (ILT) 'Zorawar' has achieved a major milestone by firing a number of rounds at different ranges at an altitude of more than 4200m (High Altitude Location) with consistently accurate results. This was subsequent to the Phase I trial in desert environment in September 2024. This light tank has been defined, designed and developed by Combat Vehicles Research & Development Establishment, the Chennai-based laboratory of DRDO for the Indian Army. It is manufactured by the Industry Partner Larsen & Toubro Precision Engineering & Systems.

During the field trials conducted in the desert terrain, the Light Tank demonstrated exceptional performance, efficiently meeting all the intended objectives. In the initial phase, the tank's firing performance was rigorously evaluated and it achieved the required accuracy on designated targets.

Major Inductions/Commissioning

- **INS Arighaat:** The second Arihant-Class submarine 'INS Arighaat' was commissioned into the Indian Navy on August 29, 2024 at Visakhapatnam in the presence of Raksha Mantri. The construction of INS Arighaat involved the use of advanced design and manufacturing technology, detailed research & development, utilisation of special materials, complex engineering and highly skilled workmanship. It has the distinction of having the indigenous

systems and equipment which were conceptualised, designed, manufactured & integrated by the Indian scientists, industry and Naval personnel. The technological advancements undertaken indigenously on this submarine make it significantly more advanced than its predecessor Arihant.

- **INS Tushil:** INS Tushil (F 70), the latest multi-role stealth-guided missile frigate, was commissioned into the Indian Navy in the presence of Raksha Mantri Shri Rajnath Singh at the Yantar Shipyard in Kaliningrad, Russia on December 09, 2024. It is an upgraded Krivak III class frigates of the Project 1135.6 of which, six are already in service – three Talwar class ships, built at Baltiysky shipyard, St. Petersburg, and three follow-on Teg class ships, built at Yantar shipyard, Kaliningrad. INS Tushil, the seventh in the series, is the first of the two upgraded additional follow-on ships, the contract for which was signed in October 2016 between JSC Rosoboronexport, Indian Navy and the Government of India. Armed with a range of advanced weapons, it is designed for blue water operations across the spectrum of naval warfare in all four dimensions - air, surface, underwater and electromagnetic.
- **LCH Prachand:** Induction of all Light Combat Helicopters LSP was completed in February 2024. IAF personnel were vigorously trained on the system and the LCH successfully participated in Ex Gagan Shakti in April 2024.

Major Acquisitions

To provide substantial boost to the Indian defence industry and reduce foreign spending significantly, Defence Acquisition Council (DAC) and Defence Procurement Board (DPB), during 2024 (upto November), accorded Acceptance of Necessity (AoN) for 40 Capital Acquisition proposals amounting to Rs 4,22,129.55 crore. Out of these, AoNs for Rs 3,97,584.34 Crore (i.e. 94.19 %) have been accorded to be procured from indigenous sources. These include:

- DAC, in September 2024, accorded AoN for 10 capital acquisition proposals amounting to Rs 1,44,716 crore. These include procurement of Future Ready Combat Vehicles, Air Defence Fire Control Radars, Dornier-228 aircraft, Next Generation Fast Patrol & Offshore Patrol Vessels.
- DAC, in February 2024, accorded approval for AoN for various capital acquisition proposals amounting to Rs 84,560 crore. The proposals include new generation anti-tank mines, Air Defence Tactical Control Radar, Heavy Weight Torpedoes, Medium Range Maritime Reconnaissance & Multi-Mission Maritime Aircraft, Flight Refueller Aircraft & Software Defined Radios.
- In July 2024, DAC approved capital acquisition proposals including procurement of Advanced Land Navigation System for Armoured Fighting Vehicles of the Indian Army and 22 Interceptor Boats with latest state-of-art system for the Indian Coast Guard.
- DAC, in December 2024, accorded AoN for five capital acquisition proposals amounting to over Rs. 21,772 crore. These include procurement of Water Jet Fast Attack Crafts, Fast Interceptor Craft, Electronic Warfare Suite, Next Generation Radar Warning Receiver, Advanced Light Helicopters for surveillance in coastal areas.

Major contracts

- MoD inked a contract with the US Government for Tri-Service procurement of 31 MQ-9B Sky/Sea Guardian High Altitude Long Endurance Remotely Piloted Aircraft System (RPAS) in October 2024. Another contract was signed with General Atomics Global India Pvt Ltd for Performance Based Logistics for these RPAS through Depot Level Maintenance, Repair & Overhaul in India.
- **Hindustan Aeronautics Limited**
 - A contract was signed in September 2024 for 240 AL-31FP Aero Engines for Su-30MKI aircraft at a cost of over Rs 26,000 crore.
 - A contract for procurement of 12 Su-30MKI aircraft along with associated equipment was inked in December 2024, at an approximate cost of Rs 13,500 crore.
 - Two contracts for a combined value of Rs 8,073.17 crore were signed in March 2024 for acquisition of 34 Advanced Light Helicopters (ALH) Dhruv Mk III along with Operational Role Equipment for Indian Army (25 ALHs) and Indian Coast Guard (09 ALHs).
 - A contract for RD-33 Aero Engines for MiG-29 aircraft was inked in March 2024 at a cost of Rs 5,249.72 crore. These aero engines will be produced by the Koraput Division of HAL
 - A contract was signed in March 2024 for Mid Life Upgrade of 25 Dornier Aircraft along with associated equipment for the Indian Navy at a cost of Rs 2,890 crore.
- **Bharat Electronics Limited**
 - A contract was inked in February 2024 for procurement of 11 Shakti Electronic Warfare Systems along with associated equipment for Indian Navy under Buy (Indian-IDDMM) category at a total cost of Rs 2,269.54 crore.
- **Advanced Weapon Equipment India Limited**
 - A contract was signed in February 2024 for manufacturing & supply of a total of 463 indigenously manufactured 12.7 mm Stabilised Remote Control Guns for the Indian Navy & Indian Coast Guard at a total cost of Rs 1,752.13 crore, with Indigenous Content of more than 85%.
- **Mazagon Dock Shipbuilders Limited**
 - A contract was inked in January 2024 for acquisition of 14 Fast Patrol Vessels (FPVs) for the Indian Coast Guard. The value of the contract is Rs 1,070.47 crore. These multi-role FPVs will be indigenously designed, developed and manufactured under Buy (Indian-IDDMM) Category.
- **Armoured Vehicles Nigam Limited**
 - In March 2024, a contract was signed for the procurement of 693 Armament Upgrades of Infantry Combat Vehicle BMP2 to BMP2M. This upgrade includes Night Enablement,

Gunner Main Sight, Commander Panoramic Sight and Fire Control System (FCS) with Automatic Target Tracker under Buy (Indian-IDDMM) category.

- **BrahMos Aerospace Private Limited**

- Two contracts were inked in March 2024 for procurement of BrahMos missiles at a cost of Rs 19,518.65 crore and Procurement of Ship borne BrahMos system at a cost of Rs 988.07 crore.

- **Larsen & Toubro Limited**

- Two contracts for procurement of Close-in Weapon System at a cost of Rs 7,668.82 crore, and High-Power Radar at a cost of Rs 5,700.13 crore were signed in March 2024.
- A contract was inked with Larsen & Toubro Limited in December 2024 for procurement of 155 mm/52 calibre K9 VAJRA-T Self-Propelled Tracked Artillery Guns for the Indian Army under Buy (Indian) category at a total cost of Rs 7,628.70 crore.

- **Cochin Shipyard Limited**

- A contract was inked in November 2024 for Short Refit and Dry Docking of INS Vikramaditya at an overall cost of Rs 1,207.5 crore.

- **Chowgule & Company Private Limited**

- A contract was signed in October 2024 for procurement of six Air Cushion Vehicles for the Indian Coast Guard at a total cost of Rs 387.44 crore. These amphibious vessels, also called 'Hovercrafts', will be procured under the Buy {Indian) category.

Defence Budget

In the Union Budget of FY 2024-25, MoD has been allocated Rs 6.22 lakh crore (approx. US \$75 Billion), the highest among the Ministries. The allocation to MoD for FY 2024-25 is higher by approx. Rs one lakh crore (18.43%) over the allocation for FY 2022-23 and 4.79% more than allocation of FY 2023-24. Out of this, a share of 27.66% goes to capital; 14.82% for revenue expenditure on sustenance and operational preparedness; 30.66% for Pay and Allowances; 22.70% for Defence Pensions, and 4.17% for civil organisations under MoD. The total allocation comes out to approx. 12.90% of Budgetary Estimate of Union of India. 75 per cent of the defence capital procurement budget has been earmarked for domestic industry.

Gaganyaan Programme

The Gaganyaan Programme was launched by the Government for demonstrating Human Spaceflight capability in Low Earth Orbit, wherein, a manned spacecraft will be launched safely to LEO for an orbital mission of 5 to 7 days followed by safe re-entry and recovery on earth. The Prime Minister revealed the names of four IAF astronauts to the nation and awarded them with the 'Space Wings' in February 2024. The four IAF astronauts are: Group Captain Prasanth Balakrishnan Nair, Group Captain Ajit Krishnan, Group Captain Angad Pratap and Group Captain Shubhanshu Shukla. Presently, Group Captain Shubhanshu Shukla and Group Captain Prasanth Balakrishnan Nair are undergoing space training at NASA for Axiom-4 mission to International Space Station scheduled in 2025.

Defence Cooperation

The year saw Ministry of Defence take defence cooperation with its friendly countries to the next level through visits of the dignitaries and military exercises. Raksha Mantri, Raksha Rajya Mantri, Chief of Defence Staff, three Service Chiefs and Defence Secretary undertook visits to various nations with the aim to strengthen defence ties with them. Major events of Raksha Mantri include:

- **US visit:** Raksha Mantri Shri Rajnath Singh visited US from August 23 to 26, 2024. He met US Secretary of Defence Mr Lloyd Austin, during which the two Ministers held wide-ranging discussions on bilateral defence cooperation, industrial collaboration, regional security and other international issues. Raksha Mantri also met the US Assistant to the President for National Security Affairs Mr Jake Sullivan.
- **Russia visit:** Raksha Mantri visited Russia from December 08 to 10, 2024. He co-chaired the 21st session of the India-Russia Inter-Governmental Commission on Military & Military Technical Cooperation with his Russian counterpart in Moscow. Raksha Mantri also called on Russian President Mr Vladimir Putin in Moscow. Both leaders discussed various issues of bilateral defence cooperation, and expressed that partnership between both countries holds immense potential and combined efforts will pave way for remarkable outcomes.
- **UK visit:** Raksha Mantri paid an official visit to London, United Kingdom from January 09 - 10, 2024. He held a bilateral meeting with UK Defence Minister Mr Grant Shapps in London, and discussed a range of defence, security and cooperation matters with particular emphasis on enhancing defence industrial collaboration. He also called on the then Prime Minister of UK Mr Rishi Sunak, highlighting that both nations have made significant strides in moulding and recrafting the historic ties into a modern, multifaceted and mutually beneficial partnership.
- **ADMM-Plus:** Raksha Mantri addressed the 11th ASEAN Defence Ministers' Meeting-Plus (ADMM-Plus) at Vientiane, Lao PDR on November 21, 2024. He reiterated India's stand for rule-based international order for peace & prosperity in Indo-Pacific, and pitched for Buddhist doctrines of peaceful co-existence for global peace. On the sidelines, Raksha Mantri met the Defence Minister of China Admiral Dong Jun and highlighted the fact that amicable relations between India and China, would have positive implications for global peace and prosperity. He also met US Secretary of Defense Mr Lloyd J Austin, with both sides recognising remarkable progress made under US-India Defence Industrial Cooperation Roadmap. Raksha Mantri also met his Malaysian, Lao PDR, South Korean, Australian, New Zealand Philippines counterparts.
- **India-Japan 2+2 Ministerial Dialogue:** Raksha Mantri and External Affairs Minister Dr S Jaishankar hosted Japanese Minister of Defense Mr Kihara Minoru and Minister of Foreign Affairs Ms Yoko Kamikawa for the 3rd India-Japan 2+2 Ministerial Dialogue in New Delhi on August 20, 2024. On the sidelines of the 2+2 dialogue, a bilateral meeting was held between Raksha Mantri and his Japanese counterpart. They reviewed the existing defence cooperation activities and discussed ways to enhance further cooperation.

- **India-Singapore Defence Dialogue:** Raksha Mantri and Minister of Defence of Singapore co-chaired the sixth India-Singapore Defence Ministerial Dialogue in New Delhi on October 22, 2024. Both Ministers acknowledged the deep and long-standing bilateral defence relations based on shared outlook on regional peace, stability and security.
- **India-Netherlands:** Raksha Mantri held a bilateral meeting with the Netherlands Defence Minister Ms Kaja Ollongren in New Delhi on February 23, 2024. Both Ministers discussed the possibilities for expanding their bilateral defence cooperation, particularly in maritime and industrial domains. They noted the increased interaction between the two Navies and expressed keenness to work together to enhance maritime security in the Indian Ocean Region.

OROP 10th Anniversary

November 07, 2024 marked the tenth anniversary of One Rank One Pension (OROP). OROP was implemented as a significant step towards addressing long-standing demand and reaffirming the nation's gratitude to the heroes. It is a tribute to veterans and ex-service personnel who dedicated their lives in protecting the nation. Over the decade lakhs of pensioners and their families have benefitted from the landmark initiative. OROP also represents the government's commitment to the well-being of the armed forces.

Appointments

- Shri Rajnath Singh assumed charge as the Raksha Mantri for the second consecutive term in June 2024. "Under the leadership of Prime Minister Shri Narendra Modi, our aim will be to further strengthen the security apparatus of the country, with focus on achieving self-reliance in defence manufacturing. Armed Forces modernisation and the welfare of the soldiers, both serving and retired, will continue to be our main focus," he said upon his joining.
- Shri Sanjay Seth assumed charge of the office of Minister of State, Ministry of Defence in June 2024. He said he would strive towards fulfilment of several initiatives of the Ministry of Defence aimed at strengthening the nation's security.
- General Upendra Dwivedi, Admiral Dinesh K Tripathi and Air Chief Marshal AP Singh took over as the Chief of the Air Staff, Chief of the Naval Staff and Chief of the Air Staff respectively this year.
- Shri Rajesh Kumar Singh assumed the office of Defence Secretary and Shri Sanjeev Kumar took over as Secretary (Defence Production).
- DG Paramesh Sivamani took over as the 26th Director General of Indian Coast Guard.

INDIAN ARMY

Operations

- **Operational Preparedness:** The Indian Army (IA) maintained a high state of operational preparedness to ensure stability & dominance along all the frontiers including Line of Actual Control (LAC) & Line of Control (LC). Relentless counter terrorist operations were also carried out while constantly reviewing emerging & future threats to National security.

Infrastructure development in border areas being one of the key imperatives of operational preparedness was given impetus in consonance with the 'Viksit Bharat Vision' of the Government.

- **Situation at LAC:** Overall situation along the LAC is stable but sensitive. Post prolonged negotiations at Diplomatic and Military levels, on 21 October 2024, broad consensus has been achieved to restore ground situation based on principles of Equal and Mutual Security. Consensus achieved includes disengagement and relocation of troops from the friction areas of Depsang and Demchok followed by joint verification. Currently, blocking positions have been removed by both sides and joint verification has been completed. Patrolling activity has commenced to traditional patrolling areas in Depsang and Demchok.
- **LC & Counter Terrorist Operations:** Situation along the LC remains peaceful post the Director General Military Operations (DGsMO) Understandings of February 2021. However, Indian Army is monitoring the situation closely and remains prepared to respond to any escalation along the LC. Since the abrogation of Article 370, the security situation in Jammu and Kashmir (J&K) continues to witness steadfast improvement despite intermittent spikes in violence.

Infrastructure

- **Infrastructure Development:** Development of essential infrastructure from operational perspective is being carried out in a holistic and comprehensive manner. Adoption of latest construction techniques is being ensured for timely completion and enhanced quality infrastructure. Concerted efforts are being made by Border Roads Organisation (BRO) & other construction agencies for construction of road infrastructure in border areas. The perspective plan of BRO has been finalised till year 2028, wherein, 470 roads of approximately 27,000 kms will be constructed. The perspective plan of other agencies roads is being synchronised with the plans of BRO.
- **Operational Works:** The construction efforts are focused on development of defence related infrastructure including force preservation assets, operational logistics infrastructure, billeting of troops, establishment of forward connectivity, anti-infiltration system and development of aviation related infrastructure.
- Connectivity in Sikkim was severely affected due to Glacial Lake Outburst Flood in October 2023. Further, flash floods in May 2024 also severely affected roads and borders in Sikkim. Actions are at hand with various stakeholders for restoration and construction of new infrastructure for redundancy.
- Indian Army is undertaking infrastructure development in the Creek Sector. Infrastructure being constructed includes berthing facility, docking infrastructure and marine equipment repair & maintenance. Further, additional billeting and allied infrastructure is being constructed for housing troops during heightened security situations.
- In sync with Pradhan Mantri Gati Shakti National Master Plan (PM GS NMP), details of dual use infrastructure like border roads, Hospitals, important railway lines etc have been

uploaded on GS NMP portal. The data layers will enhance visibility to all stakeholders for integrated planning and dual use of infrastructure.

Tri-Services Synergy

- **Operational Synergy and Jointness:** Exemplary conduct of Tri-Service Exercises, participation & pragmatic discussions during Front Level Operational Discussions are a testimony of enhanced Inter-Service integration. Formations along the International Border (IB) continued their training to maintain highest standard of operational readiness in conjunction with other services.
- Exercise JAL PRAHAR-I, a joint amphibious training exercise with Indian Navy was conducted at Visakhapatnam in September 2024. This was followed by Operation Sea Test (OST) of INS JALASHWA, which was conducted at Kakinada in October 2024.
- An integrated Tri-Service live demo and static display was conducted on 12 March 2024, wherein Indian Army was the lead service. The exercise was conducted in Pokhran Field Firing Ranges with the aim to validate joint all-arms, Air-Land Battle, in a Tri-Service setting, with indigenous equipment. Around 250 types of equipment in the wide range of tech domains such as aircraft, helicopters, ISR platforms, unmanned & counter-unmanned aerial systems, Artificial Intelligence/ autonomous systems/robotics, armament, ammunition, communication/5G/quantum, mobility, survivability, alternate power solutions, habitat, operational logistics, cyber, space applications and training equipment were showcased.

Modernisation and Aatmanirbharta

- Force modernisation through capability development is progressing at a steady pace. Cognisance is being taken of the hi-tech warfighting equipment being developed and used across the world especially in active war zones. Acquisition procedures are being reviewed and renewed to boost 'Aatmanirbharta'. Defence Acquisition Procedure 2020 is likely to undergo a complete revamp in 2025 and efforts are being made to make it amenable to service requirements. More than five hundred schemes have been planned for acquiring potent fighting capability in next 15 years. The broad categories of acquisition schemes include Force Application, Battlefield Awareness, Command & Control, Sustenance & Support, and Protection. Defence Procurement Board (DPB) has approved the Annual Acquisition Plan 2024-26 in May 2024. Based on prioritisation of schemes in AAP 2024-26, a total of 25 schemes costing approximately ₹40,695 crores have been identified and targeted to be concluded in FY 2024-25. To address any capability void and induct niche technology, a special provision was accorded in the form of EP-IV by DAC on 22 August 2023. A total of 73 Capability Development schemes were contracted in the domains of Drone/Counter-Drone, Weapon systems, Mobility & Protection, Survivability etc.
- Out of 158 Capital Acquisition contracts worth Rs 70,028 crore concluded in last four Financial Years (2021-22 to 2024-25), 144 contracts worth Rs 68,121 crore (97.3%) have been signed with Indian vendors under Normal/Emergency Procurement acquisition process. This year, 16 contracts have been concluded. Out of these, 14 are with Indian Industry.

enhancing the force capability in important domains of small arms, long range vectors, communication and remotely piloted aerial systems.

- 96% of total Acceptance of Necessity accorded in Financial Years 2022-24 have been granted to indigenous defence industry. During this year, 23 AoNs have been accorded (worth Rs 1.22 lakh crore). Out of these, 21 are with Indian Industry worth Rs 1.19 lakh crore (98%).
- Indian Army's ammunition procurement under 'Manufacture of Ammunition for Indian Army by Indian Industry' for long term requirement of 10 years is in progress to establish at least one indigenous source for all types of ammunition. Through concerted and proactive efforts and in close coordination with other agencies, 154 out of 175 (nearly 88%) ammunition variants have been indigenised so far.
- **Initiatives Taken to Promote Technology Infusion**
 - Army Design Bureau (ADB) acts as a facilitator for technological R&D efforts and procurement of indigenously developed weapons and equipment. 'Make Projects' are being spearheaded by the Indian Army to compliment the vision of Government of India and to create a robust defence ecosystem. Out of 52 Make Projects, 35 Projects have reached prototype development stage and beyond. Number of projects under Army Technology Board (ATB) have risen from 17 to 62 in one year.
 - Technology Development Fund (TDF) has been launched by the Government for giving impetus to R&D projects beyond the proof-of-concept stage. At present five projects (approximately Rs 50 crore) are being progressed through TDF.
 - The Innovation in Defence Excellence (iDEX) platform was created to harness the innovation potential of startups and innovators in the country. Presently, 85 challenges of Indian Army (approximately Rs 500 crore) as part of iDEX, are being progressed.
 - In the fifth PIL promulgated in October 2023, out of 97 items, 37 are Indian Army items. Anticipated cumulative positive impact from PILs is ₹ 5 lakh crore over a period of next 5-10 years.
 - 10 Intellectual Property Rights were filed by IA during this year, out of which three have been granted. The remaining IPRs are under progress. Details are as under:
 - Portable Multi Target Detonation Device, developed by Major Rajprasad RS (Engineers) has already entered production and is being inducted in the Indian Army.
 - Hexacopter Tactical Remotely Piloted Aircraft is developed by Major Rengarajan (EME).
 - Full Body Armour Suit, developed by Lieutenant Colonel Anoop Mishra (Engineers) overcomes the limitations of existing Bullet Proof Jackets and provides troops with higher level of protection.

- MoU with Department of Science and Technology (DST) was signed in March 2024 for the utilisation of their expertise and access to Tech Evaluation & Tech Consultancy from the domain experts of the DST for evaluation of proposals received from the defence ecosystem.
- MoU with Centre for Development of Advance Computing (CDAC) was inked in May 2024. It will enable IA to utilise the expertise of CDAC to foster focused Research & Development and innovations towards finding solutions to address Indian Army challenges.
- The following innovations developed by Service personnel have been inducted:
 - Transfer of Technology (ToT) of two innovations developed by service personnel namely 'Xploder'- IED disposal and room intervention UGV and 'Agniastra'- Multi Target Portable Detonation Device has been undertaken with two private industries. Both the innovations have extensive utilisation in conventional and sub conventional operations.
 - Another innovation by service personnel named 'Vidyut Rakshak – Internet of Things Enabled Integrated Generator Monitoring Protection and Control System', has already been inducted in Northern Command.
 - The ADB has mapped over 1,700 industries, contacted 200+ top academic institutions and 50 top R&D institutes/organisations in the country. The outreach initiatives include Forward Area Tours, facilitating Internal Development Trials, Capability Demonstration (No Cost No Commitment) by providing access to Field Firing Ranges and Equipment and establishment of Regional Technology Nodes.
- **Project AKASHTEER:** First batch of Control Centre for the Air Defence Control & Reporting Systems, Project Akashteer was flagged off from Bharat Electronic Limited, Ghaziabad in April 2024. This is significant development for automation of Air Defence Operations.

Digitisation and Automation

- The declaration of Indian Army's Theme of 2024 & 2025 as 'Years of Technology Absorption' has focused the thrust towards force modernisation by infusion of technology. It involves various initiatives in the fields of Automation, Digitisation, Development of Joint Applications for Tri-Services, Data management and Infusion of Artificial Intelligence (AI). 59 applications/websites have been developed. The software/applications aim to enhance situation awareness, generate comprehensive operational & intelligence picture, facilitate HR management and create quality MIS for multiple domains. Collaboration with industry, Public Sector Undertakings (PSUs), academia, ministries, domain experts and start-up ecosystem is being done while integrating efforts with India's AI Mission, National Quantum Mission and IT Mission. A compendium of 100 applications showcasing

Digitisation Initiatives undertaken by Indian Army was released by Raksha Mantri during Chanakya Defence Dialogue in October 2024.

- Indian Army has prepared an AI roadmap which outlines the effort and timelines for implementation by various stakeholders to achieve tactical, operational and strategic goals. Indian Army has signed an agreement with Bharat Electronics Limited (BEL) for joint technology incubation. An AI Incubation Centre for Indian Army will be established at BEL, R&D centre as part of the agreement.

Military Diplomacy

- In line with India's rising global stature in recent years, there has been a considerable increase in diplomatic activity undertaken by the Indian Army. Presently, Indian Army is engaged with 118 countries through various defence cooperation activities.
- As part of Phase-1 of reorganisation of defence wings, the number of Defence Wings have been increased from 45 to 52. Four additional new defence wings were established at Poland and Algeria in June 2024 and at Ethiopia & Mozambique in October 2024. For Phase-2 of reorganisation, raising of four additional Defence Wings is in process.
- There are total 39 Joint Exercises in which IA participates. In addition, new bilateral exercises are being planned with Egypt, UAE, KSA and Cambodia. Yoga and Nari Shakti is being given emphasis during the conduct of these Exercises.

Humanitarian Assistance & Disaster Relief Ops

- During this year, IA deployed 83 columns including Eco Task Force (ETF) in fourteen states, so far during which 29,972 civilians were rescued, medical aid provided to approx 3,000 civilians and relief material for over 13,000 civilians. Major relief operations were undertaken at Manipur (May 2024), Wayanad Landslide Kerala (July 2024), Uttarakhand Landslide (July 2024) and Gujarat Floods (August 2024).

Women Empowerment

- Women officers (WOs) are being provided equal opportunities to include career courses, foreign exposures and posting to challenging appointments in difficult areas akin to their male counterparts. Special Number 3 Selection Board has been conducted for WOs from 1992-2008 batches wherein 128 officers have been empanelled for promotion. 124 WOs presently are in various command appointments leading major units in difficult and challenging assignments. 507 WOs have been provided permanent commission similar to their male counterparts through Special Number 5 Selection Board. Commissioning of WOs into Corps of Artillery has led to an increase in their footprint across all arms and services, less combat arms. WOs are also being now commissioned as Non-Departmental Territorial Army Officers, as on date nine such officers have been inducted.
- **Appointment of DGMS (Army):** On August 01, 2024, Lieutenant General Sadhna Saxena Nair assumed the office of DGMS (Army), becoming the first women to be appointed to this prestigious position.
- **Women Officers in UN Peace Keeping Missions**

- Presently 23% of appointment of Staff Officers/Military Observers are being tenanted by WOs in various missions which is in accordance with UN Directives. In addition to Female Engagement Teams (FETs) already operational in MONUSCO, UNISFA and UNDOF an additional team has been inducted in UNMISS in July 2024. Another team will be inducted in UNIFIL by mid 2025 thereby ensuring FETs with each mission. Two women Psychological Counsellors from Military Nursing Service (MNS) have been inducted to mission area in July 2024 for outreach to local communities and to augment peace building efforts.
- **Military Gender Advocate of the Year Award:** UN Headquarters constituted 'Military Gender Advocate of the Year Award' in the year 2016. The award recognizes a military peacekeeper who has best integrated a gender perspective into peacekeeping activities. Major Radhika Sen, Female Engagement Team Commander in MONUSCO, received the award for the year 2023 reflecting our steadfast commitment towards gender equality and promotion of rights of women and children in conflict-torn areas.
- **Equal Entry of Girl Cadets:** The lateral entry of girl cadets in class XI of Rashtriya Military School has commenced from academic session 2024-25. As on date 90 girl cadets are studying in five Rashtriya Military Schools.

UN Peacekeeping

- Indian Army has deployed approximately 5200 military personnel in five Infantry Battalions and 11 Formed Units apart from Staff Officers/ Military Observers in ten UN missions in Democratic Republic of Congo, South Sudan, Abyei, Western Sahara, Central African Republic, Addis Ababa, Lebanon, Syria, Israel and Cyprus. Female Engagement Teams, women psychological counsellors and Military Nursing Service (MNS officers) have been posted to various missions to ameliorate the suffering of women & children in conflict zone. In addition, trained yoga instructors also form part of contingents for conducting Yoga for both peacekeepers and local population.
- In sync with 'Aatmanirbharta' and 'Make in India' mission, state-of-art Made-in-India equipment and vehicles are being inducted in all the missions.
- Centre for UN Peacekeeping (CUNPK) is the nodal agency for UN Peacekeeping training in the country. It trains more than 10,000 troops every year. The Centre excels in training Indian and international peacekeepers.

Ecology Restoration & Conservation

- IA has the unique distinction of being the only army which has undertaken ecological restoration task through its Eco Task Force (ETF) units. Solarisation is being given impetus and 84 MW of solar power is being generated through multiple solar projects. Under 'Amrit Sarovar Pariyojna' 450 Water Bodies have been created. Veterans are being incorporated to play a major role in nation building initiatives including environmental protection. 'Atulya Ganga Initiative' is one such initiative by the veterans to restore and preserve the ecological integrity of the Ganga river. Efforts are being made to popularise Electric Vehicles (EVs) & alternate fuel vehicles.

Operation Sadbhavana

- The IA continued to undertake large number of Military Civic Action projects under Operation Sadbhavana. These military civic action projects include a wide range of activities in the fields of National Integration Tour, Healthcare, HR development, Women Empowerment, Environment Protection, Education and Sports. With an annual financial outlay of approximately Rs 150 Crore, 75% of these projects are also being executed in the 100 Vibrant Villages as identified by the Indian Army under Vibrant Villages Programme. Total of 68 Projects amounting to Rs 4.43 crore are under execution in the 'Vibrant Villages' identified by Ministry of Home Affairs and prioritised by the IA along the Northern Borders. It broadly includes infrastructure development projects like construction of Community Halls, provisioning of Solar Power Plants, construction of Grazier Huts, construction of Toilet Blocks, Rain Shelters and provisioning of Hybrid Power Plants.

INDIAN NAVY

SHIPBUILDING PROJECTS

With over 133 ships/submarines having been built and commissioned in India to date, the Indian Navy continues to propel the domestic shipbuilding industry's growth by supporting self-reliance in defence manufacturing. The IN remains the key pillar that supports the growth of Indian shipbuilding sector, with 63 of the 64 warships planned to be inducted in the Navy being built in India, orders for 62 more ships and submarines being in the final stages of approval, and steadfast focus on achieving higher indigenisation content across weapons, sensors and equipment.

The ships/ submarines which have been commissioned/ delivered and those scheduled for delivery this year are as follows:-

- INS Sandhayak, the first of four Survey Vessel Large (SVL) was commissioned into the Indian Navy in the presence of Raksha Mantri in February 2024, at Visakhapatnam. Induction of the vessel has enhanced the hydrographic survey capabilities of the Navy and the Nation.
- The second ship of SVL project, Yard 3026 (Nirdeshak), was delivered to Indian Navy by GRSE on October 08, 2024 and commissioned in the presence of Raksha Rajya Mantri on December 18, 2024.
- The contract for construction of two ships, Addl P1135.6 FO, ex Russia, was signed on October 23, 2018 between MoD and JSC RoE. The first of the two ships, INS Tushil, was commissioned on December 09, 2024. The ship is installed with state-of-the-art weapon and sensors and would significantly enhance the combat capability of the Indian Navy.
- Delivery of the fourth Ship of P15B - Y12707 (Surat), being constructed at MDL, is being targeted by December 2024.
- Seven P17A ships are at various stages of construction, with four ships being built at M/s MDL and three ships at M/s GRSE. Delivery of the first ship, Nilgiri, is planned in December 2024.

- The sixth and final submarine of Kalvari class (Vaghsheer) is planned to be delivered in December 2024.
- The first ASW SWC, Arnala, is at advanced stage of readiness and delivery is targeted by December 2024.
- Three 25 Tons Bollard Pull tugs, four of the eleven Ammunition Cum Torpedo Cum Missile barges and fifth of the eight Missile Cum Ammunition barges were delivered to Indian Navy in 2024 by MSME shipyards namely, Shoft Shipyard Pvt Ltd, Suryadipta Projects Pvt Ltd and SECON Engineering Projects Pvt Ltd respectively.

NAVAL AVIATION

- Induction of Drishti-10 MALE RPAs marks an important addition to the Indian Navy's RPA inventory. This technologically advanced aircraft would significantly bolster Indian Navy's surveillance capabilities and augment Maritime Domain Awareness efforts.
- Rotary Naval Shipborne Unmanned Aerial Systems have been inducted in the IN in early 2024. Four systems comprising two aerial vehicles have been integrated on Fleet ships and are being effectively utilised for surveillance.
- First nine of the 24 MH 60Rs helicopters being procured by IN have been operationalised onboard Fleet ships. These multi-role helicopters have significantly bolstered IN's Anti-Submarine Warfare capabilities. The aircraft have also participated in multinational exercises such as MALABAR, SIMBEX and MILAN 24. The first MH 60R Squadron, INAS 334, was commissioned at INS Garuda, Kochi in March 2024.

OPERATIONAL DEPLOYMENTS/ EXERCISES

- **Mission Based Deployments:** The Indian Navy (IN) undertook Mission Based Deployments in Areas of Interest in the Indian Ocean Region (IOR) to safeguard national maritime interests and maintain continuous/ near continuous presence in the areas of maritime significance in the IOR. IN ships and aircraft were regularly deployed in the Gulf of Oman/Persian Gulf, Gulf of Aden/Red Sea, South and Central IOR, off Sunda Strait, Andaman Sea/ approaches to Malacca Strait and Northern Bay of Bengal. These deployments aligned with the larger GoI vision of 'Security And Growth for All in the Region (SAGAR)', whereby enhanced Maritime Domain Awareness, swift Humanitarian Assistance and Disaster Relief (HADR) assistance to IOR littorals, security to Indian and international maritime community were ensured, and operational engagements with friendly navies through capability development and capacity building programmes were facilitated.
- **Anti-Piracy Patrol in Gulf of Aden (Op PoG):** Anti-Piracy Patrol in Gulf of Aden commenced in 2008 to ensure safe passage of Indian Flagged Merchant Vessels, and 127 IN ships have since been deployed in the Gulf of Aden. In addition, IN commenced deployments to counter piracy off the West Coast of Africa, in Gulf of Guinea, since 2022. Over the last year, the Indian Navy has successfully conducted six Anti-Piracy operations, saving 120 lives.

- **Maritime Security Operations:** In view of the Israel-Hamas conflict, the Indian Navy commenced Maritime Security Operations. The high tempo of operational deployments of IN assets continues to be maintained, with a close watch on Indian Flagged Merchant Vessels and vessels carrying critical commodities for India. Over the last one year, in response to Houthi shipping attacks, and rising incidents of piracy in the Western Arabian Sea, the Indian Navy has deployed over 30 ships in the region and has responded to over 25 incidents. The credible and swift actions of IN saved more than 400 lives, irrespective of the nationality of the crew. As of November 2024, IN has safely escorted over 230 Merchant Vessels, carrying over 90 Lakh Metric Tons of cargo, valued at over Four Billion USD. IN efforts have garnered international/ national acclaim, consolidating its position as a 'Preferred Security Partner' and 'First Responder'.
- **Response to Maritime Incidents:** Mission deployed unit(s) in Gulf of Aden (GoA) and adjoining seas have responded to numerous maritime incidents with resolve and alacrity. Salient operations undertaken/ assistance provided include with respect to MV Ruen; MV Lila Norfolk; MV Marlin Luanda; MV True Confidence.
- **Anti-Narcotics Operations:** Over the last three years, 13 Anti-Narcotics Operations have been undertaken by the IN, resulting in seizure of narcotics worth about Rs 35,000 crore. In February 2024, an IN Ship seized the largest ever consignment (by quantity) amounting to 3,300 kgs of narcotics in northern Arabian Sea. In April 2024, IN Ship deployed for Focussed Operations Crimson Barracuda seized about 940 kgs of contraband from a Fishing Vessel in South Western Arabian Sea. In November 2024, IN ship again apprehended another vessel and seized over 750 kgs of narcotics.
- **MILAN - 2024:** MILAN 2024 was conducted at/off Visakhapatnam from February 19-27, 2024. This year's edition was conducted at an unprecedented scale, involving participation of over 36 ships, two submarines, 55 aircraft and senior leadership of 47 friendly countries from six continents.
- **P8I Deployment in North Sector:** P8I aircraft of Indian Navy was deployed in Northern Sector for surveillance on various occasions in support of Army/Air Force taskings. The deployments enhanced inter-service operability and jointmanship.
- **Twin Carrier Operations:** IN's carriers participated in MILAN 2024 and twin carrier operations were conducted off Goa in March 2024 on the sidelines of the first edition of the biannual Commanders' Conference. These operations have been a potent demonstration of IN's fast growing blue water capability and gained considerable attention from national and international media.
- **Exercise Poorvi Lehar:** IN conducted Exercise Poorvi Lehar in March 2024 in multiple phases on the East Coast. The exercise was aimed at validation of procedures towards assessment of Indian Navy's preparedness to respond to various maritime security challenges.

- **Coastal Security:** Regular coastal security deployments and exercises have greatly assisted in streamlining the SOPs and enhanced interoperability with various stakeholders. Coastal security exercises Sea Vigil, Prasthan, and Op Sentinel have been conducted in 2024.
- **Navika Sagar Parikrama II - INSV Tarini:** INSV Tarini, with two women officers embarked onboard, sailed from Goa on October 02, 2024 for dual handed Navika Sagar Parikrama (sailing expedition around the world). The expedition encompasses ocean sailing over 21,600 Nm in about 240 days, across four continents, three oceans and three challenging Capes. The voyage aptly highlights Nari Shakti and Atmanirbharta in sail boat construction, whilst also contributing to maritime consciousness.
- **Final Operational Clearance of INS Vikrant:** INS Vikrant, the first indigenously built aircraft carrier of the Indian Navy, post-certification of aviation facilities, commenced Final Operational Clearance in January 2024. As part of the FOC, more than 750 hours of flying have been undertaken from Vikrant with various types of carrier-borne aircraft, including extensive day and night flying by fighter aircraft and all types of helicopters in the Indian Navy.

EXERCISES WITH FOREIGN NAVIES

- **Ex-Malabar:** The 28th edition of Exercise MALABAR, which is a multinational maritime exercise between India, Australia, Japan and the US, was hosted by Indian Navy at/off Visakhapatnam from October 08 to 18, 2024.
- **RIMPAC:** IN Ship Shivalik, P8I aircraft and team of Marine Commandos were deployed in South China Sea and Pacific Ocean from May to August 2024 for participation in the 29th edition of multinational exercise RIMPAC at/off Pearl Harbour, Hawaii, from June 27 to August 02, 2024.
- **JIMEX 24:** The eighth edition of bilateral maritime exercise between the Indian Navy and the Japanese Maritime Self Defence Force, JIMEX 24, was held in Yokosuka, Japan in two phases, from June 11 to 14, 2024.
- **Ex-Indra:** IN Ship Tabar participated in Exercise Indra 2024 from July 25 to August 01, 2024 with the Russian Federation Navy. The ship also took part in the Russian Navy Day celebrations at St. Petersburg, Russia.
- **Ex-Varuna:** The 22nd edition of Exercise Varuna was conducted from September 01 to 04, 2024, in the Mediterranean Sea, wherein maiden P8I European detachment was undertaken at Istres, France for participation in Ex-Varuna 24.
- **IBSAMAR VIII:** IN Ship Talwar participated in the India-South Africa- Brazil trilateral exercise IBSAMAR VIII at/ off Simon's Town, South Africa, from October 10 to 16, 2024.
- **Ex-Tiger Triumph:** In consonance with the established partnership between India and the US, an advanced large scale joint amphibious Tri-Service Humanitarian Assistance and Disaster Relief (HADR) Exercise between both the countries, Tiger Triumph 24, was conducted on the Eastern Seaboard of India from March 18 to 31, 2024.

- **Ex-Kakadu:** IN P8I aircraft participated in multinational exercise Kakadu-24 at Darwin, Australia, from September 05 to 22, 2024.
- **Ex-Sea Dragon:** IN P8I aircraft operated from Andersen Air Force Base, Guam, for the multilateral exercise Sea Dragon from January 08 to 22, 2024. The Indian P8I crew was adjudged first in the identification of tonals.

ASSISTANCE TO FOREIGN GOVERNMENTS

Sri Lanka

- One IN Dornier (DO) aircraft was handed over to the Government of Sri Lanka (GoSL) on August 15, 2022 for a period of two years. An IN technical team consisting of five personnel (two officers and three sailors) has also been deputed to Sri Lanka to oversee maintenance of the aircraft. Regular training of Sri Lankan Navy (SLN) pilots on ALH operations and of SLAF and SLN crew on Dornier operations is being undertaken.
- A Letter of Exchange was signed between GoI and GoSL for positioning one Dornier 228 Maritime Patrol Aircraft at Sri Lanka, for undertaking Maritime Surveillance and Search and Rescue operations. Dornier aircraft IN 234 has been handed over to Sri Lankan Air Force on August 27, 2024 at Kochi on yearly turnaround basis.

Maldives

- As part of refit preparatory activities of MCGS Huravee (ex-Tarmugli; gifted by IN to MNDF), a three member IN technical delegation from Naval Dockyard (Mumbai) was deputed to Maldives from June 23 to 26, 2024 for undertaking assessment of the scope of work. Expeditious provisioning of machinery spares, including that of control systems, was undertaken to Maldives in August 2024 for sustenance of MCGS Huravee.

Mozambique

- Two Fast Interceptor Crafts from IN inventory have been gifted to Government of Mozambique. These were transhipped onboard IN Ship Gharial to Mozambique in October 2024.

Seychelles

- Two detachments were undertaken by the IN DO squadron from March 19 to 23, 2024 and July 17 to 21, 2024. The squadron flew several surveillance missions in areas off Seychelles.

Mauritius

- Maiden Short Refit of MCGS Victory was conducted from October 15, 2023 to January 31, 2024. The refit of the ship was successfully completed within the promulgated timelines.

HADR & SAR OPERATIONS

- **Op Sadbhav – Typhoon Yagi:** IN ship Satpura was deployed to Yangon, Myanmar on September 17, 2024 to provide HADR in response to the flash floods caused by Typhoon Yagi. IN swiftly delivered 21.5 Tons of essential supplies such as medical aid, food and shelter materials.

- **Cyclone Hidaya:** In the aftermath of Cyclone ‘Hidaya’, making a landfall off Dar-es-Salaam, Tanzania on May 04, 2024, mission-deployed IN ship off Somalia (for anti-piracy operations) was diverted to render HADR assistance. The ship handed over HADR relief material (food, clothes and medicines) to Government of Kenya at Mombasa on May 10, 2024.
- **SAR Assistance to MV Prestige Falcon:** On July 15, 2024, IN responded to provide SAR assistance towards locating and rescuing crew of Comoros Flagged Oil Tanker MV Prestige Falcon, which had capsized at about 70 nm South of Duqm, Oman (approx. 800 Nm West of Mumbai). IN ship Teg rescued nine surviving crew members (eight Indians and one Sri Lankan) and recovered mortal remains of one crew member (Indian).
- **SAR Assistance on Landslide in Karnataka:** On July 16, 2024, IN diving teams ex-Karwar helped to locate and recover one missing LPG tanker from Gangaveli river in Uttara Kannada, post landslide near NH 66.
- **Disaster Relief Operations at Kerala:** On July 30, 2024, IN personnel were deployed to Wayanad to render SAR assistance in the aftermath of massive landslide near Meppadi in Wayanad District, Kerala. The deployed IN personnel provided medical aid, undertook extensive SAR ops and distribution of relief material.
- **SAR Assistance in Andhra Pradesh:** On September 01, 2024, IN teams were deployed at Nuziveedu town (approx. 60 km from Vijayawada and 280 km from Visakhapatnam) for SAR efforts based on the request from District Collector, Eluru District, Andhra, post incessant rains. A total of 751 civilians were rescued and 4537 Kg of relief material were distributed.
- **Food Relief at Vijayawada:** During floods at Vijayawada from September 01 to 04, 2024, two ALH, two Chetak and one Dornier aircraft were deployed to the affected areas. 22 stranded individuals were rescued and more than 1000 Kg of food aid was air dropped. 10 Flood Relief Teams were also deployed to rescue citizens stranded in the flooded areas.
- **SAR Assistance in Jharkhand:** IN provided SAR assistance from August 22 to 27, 2024 at Chandil Reservoir (approx 100 Km South East of Ranchi), on request of the District Administration, Seraikella-Kharsawan, Jharkhand for two seater training aircraft (Cessna VT-TAJ, with two pilots), which had reportedly crashed on August 20, 2024. Mortal remains of both the pilots were recovered and aircraft debris/ wreck were salvaged by IN team and handed over to District Administration on August 27, 2024.

WELFARE AND EMPOWERMENT

IN has taken significant steps for becoming a true gender-neutral and inclusive force, both in letter and in spirit. IN has commenced induction of women into all branches, and all avenues for career progression are now available for women in the IN. In the last two decades, newer ships have been inducted into the Navy that cater for gender specific needs of women, and their appointment onboard warships commenced from December 2020.

- **Women Officers:** Women officers are inducted into the Navy through a common entrance process and are subject to uniform ‘Terms and Conditions’ of Service. Further, duties, job

specifications and training for women officers is in no way different from their male counterparts. The working conditions, promotion prospects, as well as pay and allowances of women officers are also exactly the same as male officers.

- **Permanent Commission to Women Officers:** SSC women officers are eligible for grant of PC.As on date, 72 women officers (excluding Medical and Dental officers) have been granted PC.
- **Women Officers Onboard Ships:** Women officers are being appointed onboard warships. Currently, 44 women officers are deployed on afloat billets.
- **Naval Air Operations Officers on Helicopters:** Women NAO officers have been appointed as specialist NAO officers to shipborne helicopter flights.
- **RPA Stream:** Women officers can join the Remotely Piloted Aircraft (RPA) stream and the first woman officer joined a RPA squadron in March 2021.
- **Overseas Assignments:** Women officers are being deputed overseas including as part of 'Mobile Training Teams' and other foreign cooperation engagements.
- **Command of Combat Units:** Meriting women officers are being selected to command combat units. Indian Navy appointed the first woman Commanding Officer of a naval ship in December 2023.
- A woman officer was appointed as Executive Officer of a ship in May 2024.
- First woman helicopter pilot of IN was awarded 'Wings' on June 07, 2024 and also the first woman officer qualified as 'P8I' aircraft pilot in July 2024.
- **Women Sailors in the Navy**
- **Agniveers:** Indian Navy became the first Service to leverage Agnipath to tap into the vibrant 'Nari Shakti' of the nation's workforce. Women Agniveers are subject to the same training curriculum, professional courses and enrolment criteria for selection as regular sailors as their male counterparts. Women sailors will be employed across all trades for sailors, including onboard frontline operational units. As on date, 1,321 women Agniveers are borne on the strength of Indian Navy.

ADDITIONAL IMPORTANT ACTIVITIES

- President Smt Droupadi Murmu attended the 'Day at Sea' event off Goa on December 07, 2024. During the visit, the President witnessed several naval operations, including missile firing drills, and fighter aircraft operations from the deck of Vikrant, and was also briefed on the role of Indian Navy and the naval Concept of Operations.
- Raksha Mantri laid the foundation stone of a new Very Low Frequency Station of the Indian Navy at the Damagundam Reserve Forest site, Pudur Mandal in Vikarabad, Telangana in October 2024. The facility, built at a cost of Rs 3,200 crore, will be spread across 2,900 acres. It will bolster the Indian Navy's operational readiness, ensuring effective command and control capabilities in challenging maritime environments.

- As part of Navy Day celebration, an Operational Demo by frontline naval ships and aircraft, to demonstrate Indian Navy's preparedness to respond to maritime threats and challenges, was conducted off Puri (at Golden Beach), Odisha in December 2024. The event is in consonance with the Government of India policy to celebrate Service Days in various cities apart from Delhi. The President presided over the event as the Chief Guest.
- As part of first edition of Naval Commanders' Conference 2024, Raksha Mantri interacted with the Naval Commanders on the inaugural day of the conference on March 05, 2024 and witnessed the naval Operational Demonstration, including Twin Carrier operations.
- Nausena Bhawan, the newly-constructed Headquarters of the Indian Navy, located at Delhi Cantt. was officially inaugurated by Raksha Mantri Shri Rajnath Singh in March 2024.
- As part of Project Seabird, four major marine piers at Karwar have been completed/handed over to Indian Navy in early 2024. Further, five more piers are scheduled for delivery by end December 2024.

INDIAN AIR FORCE

Inductions

- IAF has contracted for C-295 MW aircraft from Airbus Defence and Space. The first domestically manufactured C-295 is likely to be delivered in 2026. The C-295 simulator has also been operationalised.
- Unexploded Ordnance Handling Robot has been designed and developed by R&DE (Engr), Pune based on QRs given by IAF to reduce risk to Explosive Ordnance Device operators during disposal of unexploded ordnance. UXOR is a remotely operated vehicle capable of handling and disposal of unexploded ordnance up to 1000 kg. After exhaustive field trials Transfer of Technology of UXOR, the first UXOR produced by Indian Firm was inducted in service in August 2024.
- IAF has inducted indigenous Counter Unmanned Aerial System to thwart sub conventional threats to IAF Vulnerable Area/Points. To encourage start-ups/MSMEs towards an Aatmanirbhar Bharat, contracts for development of such systems and Jamming Guns under iDEX challenge were concluded on March 2024.
- First batch of Weapon Systems branch cadets completed their Stage-I training at Air Force Academy in June 2024. The cadets are undergoing Stage-II training at the newly raised Weapon Systems School in AF Station Begumpet. This is the first time since independence that a new operational branch has been created in the IAF.
- With the induction of Weapon Systems Branch, two new directorates were carved out of Directorate of Operations (Air Defence) to function independently under Director General Air Operations till establishment of Director General (Weapon System) post.
- IAF has been extending support to prominent research organisations for conducting the Integrated Navigation Test (INT), Engineering Model Tests (EMT) and the Landing Experiment (LEX) missions. IAF provided Chinook Hptr for RLV LEX2 trials, which were successfully carried out.

- Integrated Airdrop test of crew module from Chinook Helicopter was carried out as part of Gaganyaan program at Satish Dhawan Space Centre, Sriharikota.
- IAF has been successful in integration and firing of many new generation/ indigenous air to ground weapons such as CM MKII, HSLD MKII, Spice 1000, SFW, SAAW and NGCCM on various aircraft of IAF such as SU-30 MKI, Jaguar, LCA and MiG 29. This will go a long way in achieving Aatmanirbharta in the air armament domain and reduce foreign exchange spending of the nation.
- Site Acceptance Test (SAT) of Integrated Air Command and Control System (IACCS) Batch-III software is under progress. The SAT at three IACCS Nodes has been completed.

Sustenance of IAF fleet

- Life extension study for AL-31FP aero engine of Su-30 MKI aircraft to maximise the service life was taken up by IAF, DMRL, CEMILAC and HAL (Koraput). This initiative has paved way for extension studies from 2,500 hours to 3,000 flying hours for gainful utilisation of assets.
- Additionally, contract for procurement of AL-31 FP Aeroengines for Su-30MKI aircraft fleet of IAF from HAL (Koraput) was signed in September 2024 for an amount of Rs 26,964.41 crore.
- Contract with Hindustan Aeronautics Limited for procuring RD-33 aero engines for MiG-29 aircraft of Indian Air Force, at an amount Rs 5,249.72 crore was signed on 01 Mar 2024 towards fulfilling IAF's need to sustain operational capability of MiG-29 fleet for next 15 years.

Self-Reliance Efforts by IAF through IGA/ JV

- JV with Russian OEM has been signed by Indian firm for manufacturing of aggregates components related to Aircraft Wheel, Anti-Skid and Brake Units of An-32 to enhance self-reliance capabilities.
- An Indian firm has formed a Joint Venture with the Russian OEM under IGA for joint production, maintenance and repair Wheel Hubs, Brakes and associated spares for IL Series aircraft.
- An indigenous MRO facility within India is being established to harness the D Level support in sustaining the tri-services RPA fleet. Setting up a MRO facility for RPA may be viewed as a much required boost towards creating the MRO eco-system in India.
- 61 lines of spares have been indigenised in Apache fleet in the last one year.
- Magnesium Teflon Viton flares used in IAF aircraft have been indigenised with help of High Energy Material Research Laboratory and ground trials have been completed successfully.
- The impetus on indigenisation over the last decade has resulted in indigenisation of approximately 73,000 lines of spares for sustenance of IAF assets of which approximately 1700 spares have been indigenised in the last one year. Approximately Rs 645 crore of

Foreign Equipment has been saved in the last FY while the FE savings for this FY till date is approximately Rs 115 crore.

- Three ongoing D&D projects are nearing completion under Make-II scheme and two new projects each in Make-III and I have been launched.

Tri-services Integration.

- Central Servicing Development Organisation is spearheading the Tri-services Integration of Common Aviation assets with Indian Army & Indian Navy. It achieved a significant milestone towards the integration of tri-services aviation assets, where in two Hawk aircraft of IN and IA LCH flew on e-MMS platform.
- All the national air surveillance radars are planned for integration to achieve a fused air picture at IACCS. Presently, integration of all IAF and civil radars has been completed. Integration of IA sensors is planned through project Akashteer and integration of Indian Naval ships based sensors is planned through Project Trigun, for which the first site integration is under progress. The naval sensors located on mainland and island territories are being integrated directly to enhance surveillance in island territories.

Humanitarian Aid and Disaster Relief

International

- **Flood relief to Kenya:** On 14 May 2024, one C-17 aircraft airlifted 40 tons of relief aid to Nairobi, Kenya.
- **Airlift of Mortal Remains from Kuwait - fire incident:** One C-130 brought back the mortal remains of 31 deceased Indians from Kuwait to Cochin and 14 of them were further carried to Delhi from 13 to 14 Jun 2024.
- **Nepal Bus Accident:** One C-130 aircraft airlifted 24 mortal remains from Bharatpur, Nepal to Jalgaon on 24 Aug 2024.
- **Typhoon Yagi:** One C-17 aircraft was utilised to airlift 10 tons relief material for Laos and 35 tons relief material for Vietnam on 15-16 Sep 2024. One IL-76 aircraft was utilised to airlift 32 tons relief material for Myanmar on 17 Sep 2024.
- **Med Evac of IA Soldier from Israel:** One C-130 was utilised as an air ambulance to airlift one Indian Army soldier deployed in UN mission in Israel to Delhi on 26 Sep 2024.

Domestic

- **Tamil Nadu Forest Fire:** IAF helicopters were utilised for the Bambi Bucket Operations. 16 sorties over 06:30 hours were flown, dispensing 24300 litres of water.
- **Uttarakhand Forest Fire:** IAF helicopters flew 21 sorties over 10:30 hours and dispensing 41800 litres of water over Naina lake between 26 and 28 Apr 24. Between 06 and 08 May 2024, Mi-17 helicopters were utilised for forest fire fighting near Pauri Gharwal, Uttarakhand, in which 44600 litres of water was dispensed over 23 sorties.

- **Rescue of Two American Tourists.** Two female tourists hailing from America, safely from Churdhar peak area in Sirmaur district in Himachal Pradesh on 11 May 2024 by two Cheetah helicopters and were airlifted to Chandigarh. MHA, MEA, MoD and US Embassy were involved in this operation.
- **RE-MAL Cyclone (Imphal):** From 29 May to 01 Jun 2024, transport effort was provided to airlift NDRF load in support of relief for Cyclone Remal. Nine tons of load and 90 NDRF pax were airlifted over 12 sorties.
- **Assam Floods:** On 03 Jun 2024, one Mi-17 was utilised for evacuation of nine SDRF personnel involved in rescue mission owing to floods in the state of Assam.
- **Casevac of Trekkers at Uttarkashi:** Nine trekkers suffered fatal injuries while trekking in Shahstra Taal in Uttarakashi. Airlift was provided to shift the mortal remains of the deceased and five trekkers to Dehradun.
- **Forest Fire Almora, Uttarakhand:** One Mi-17 was utilised for Bambi Operations from 14 to 16 Jun 2024, to douse forest fires at Binsar wildlife sanctuary at Almora district of Uttarakhand. Towards this 13 sorties in 11:35 Hours were flown dispensing 23800 litres of water was dispensed.
- **Floods in North East:** On 02 Jul 2024 one Mi-17 helicopter was utilised for rescue of 13 persons from flooded area to Mohanbari. On 03 Jul 24, 40 passengers and 2.2 tons of NDRF load was airlifted from Hollongi to Imphal by C-130 aircraft.
- **Wayanad Landslides:** 110 sorties were flown towards relief operations in Wayanad district of Kerala, from Jul to Aug 2024. 326 people, 56.45 tons of relief material and nine mortal remains were airlifted by IAF.
- **Uttarakhand Floods:** 41 sorties involving Mi-17 and Chinook helicopters were flown and over 270 people were rescued along with airlifting 9.53 tons of relief material as part of rescue and relief operation in Kedarnath.
- **Tripura Floods:** One C-130 and two An-32 aircraft were utilized to airlift 120 personnel and 20 tons of NDRF load from Hollongi to Agartala on 22 Aug 2024. Two C-130 aircraft were utilized to airlift 90 personnel and 15 tons of NDRF load from Bihta to Agartala on 22 Aug 2024. Two Mi-17 V5 airlifted 2 tons and 30 personnel from Agartala to Chetanwadi.
- **Flood Relief Ops in Andhra Pradesh/Telangana:** Two IL-76 aircraft airlifted 240 personnel and 40 tons of NDRF load from Halwara to Vijaywada and Bhatinda to Shamshabad, between 01 and 02 Sep 2024. Two C-130 aircraft airlifted NDRF teams (90 personnel and 15 tons load) from Agartala to Vijaywada and one IL-76 airlifted 120 NDRF personnel and 9 tons load from Pune to Vijayawada on 02 and 03 Sep 2024. Additionally, on 03 Sep 2024, two Mi-17 V5, two Mi-17 and two Chetaks flew 23 sorties to air drop 49.875 tons of relief material over the flood affected areas of Telangana.
- **Cyclone Dana:** One IL-76 and one An-32 aircraft were utilised to airlift NDRF team consisting of 152 personnel and 25 tons of NDRF load from Bhatinda to Bhubaneswar on 23 Oct 2024.

Defence Cooperation

- **Six new defence wings:** Towards increasing its footprint across the globe, IAF is in the process of establishing six new defence wings, commencing with Spain, Armenia and Ivory Coast, while continuously exploring avenues to increase its presence in the Indo Pacific Region, Europe, the Americas as well as Africa.
- **Exercises:** The exercises include Ex Desert Knight 24.1, Ex-Khanjar XI, Ex-Southern Discovery, Ex-Tiger Triumph, Red Flag Alaska-24-2, Hop Ex, Ex Pitch Black-24, Ex Udara Shakti-24, PASSEX with CSG of USA (USS Abraham Lincoln, Ex Tarang Shakti-24, Ex Eastern Bridge-VII in Oman, Air to Air Mission with ITS Cavourm and Ex JMT-24 with RSAF.
- **Op Sankalp-Anti Piracy Mission:** On 16 March 2024, one IAF C-17 aircraft undertook a joint operation with Indian Navy wherein two combat boats, armament load and MARCO teams were inserted at the designated objective area, in support of antipiracy operations. The mission was flown in international airspace in covert mode to support the rescue ops for the bulk carrier vessel 'MV Ruen', which was hijacked by Somali pirates near the Yemeni island of Socotra.

Pan IAF Exercises:

- **Ex-Vayushakti-24:** Ex Vayushakti-24 was conducted on 17 Feb 2024 at Pokhran Range. The exercise showcased the devastating punch that IAF is capable of delivering on the enemy
- **Ex Gagan Shakti-24:** Tri-service IAF Ex Gagan Shakti-24 was held between 01 and 10 Apr 2024 in which full spectrum of operations was exercised in all the domains. Prior to the live exercise, a tabletop, war-game was conducted where operational plans for all contingencies were discussed.

Air Defence

- Deployment of IAF assets in conjunction with assets of other services for surveillance would create required deterrence toward securing our national interests. To realise same, Cabinet Committee on Security (CCS) has accorded approval to the following two projects on 18 Jul 2024: -
- Creation of joint user greenfield airfield and an Indian Air Force Forward Base Support Unit (FBSU) at Minicoy, UT of Lakshadweep at a cost of Rs 4,452.50 crore.
- Expansion of airfield and formation of an Indian Air Force Forward Base Support Unit (FBSU) at Agatti, UT of Lakshadweep at a cost of Rs 7,354.34 crore.
- Work services for Development of Basic Infrastructure at Nyoma C/o AFS Leh was sanctioned on 31 Mar 2023 at a cost of Rs 219.39 crore. Project includes construction of runway including allied operational works, necessary maintenance and administrative infrastructure. Work is likely to be completed by Aug 2025.

- The Prime Minister laid the foundation stone of Air Force Station Deesa airfield virtually on 19 October 2022. Works Services for “Construction of Runway and Associated Infrastructure at AFS Deesa (Phase-I)” was sanctioned for Rs 393.64 crore by MoD on 31 Mar 2021. Present progress is 90%. Runway work has been completed and execution of certain allied works are in progress.

IAF Agniveer Women in Tri-services Contingent in RDP 202

A Tri-Services women contingent participated in RDP-2024, which comprised of forty-eight IAF Agniveervayu women.

Agniveer Women Drill Team

Thirty Agniveervayu women were trained specially to perform drill in coordination with music. Within five months of training, their first public performance was conducted at India Gate on the occasion of Kargil Vijay Diwas on 26 Jul 2024.

INDIAN COAST GUARD

Launches

- Goa Shipyard Ltd (GSL) is constructing two Pollution Control Vessels for Indian Coast Guard. It is for the first time that these vessels are being designed and constructed indigenously. The ship was launched in August 2024 and named as ‘Samudra Pratap’ in the presence of Raksha Rajya Mantri.
- GSL is constructing eight Fast Patrol Vessels for Indian Coast Guard. The first two ships were launched in October 2024 and named as Adamya and Akshar in the presence of DG, ICG Paramesh Sivamani.

Procurement

- **Contract with BEL:** In January 2024, ICG signed a procurement contract of 267 V/UHF Software Defined Radios portable device for ICG ships and establishments with BEL, Bengaluru at the cost of Rs 90.71 crore.
- **ALH Mk-III:** Contract for procurement of nine ALH Mk-III Helicopters for ICG was concluded with HAL, Bengaluru in March 2024 for an amount of Rs 4,079.78 crore.

Major Projects:

- Inauguration of Maritime Rescue Coordination Centre, Chennai in August 2024 by Raksha Mantri.
- Inauguration of ICG Jetty at Vadinar on March 2024 by Raksha Mantri.
- Inauguration of CGAE Puducherry and Regional Marine Pollution Response Centre in August 2024 by Raksha Mantri.
- Inauguration of Hovercraft Maintenance Unit at Okha in March 2024 by Defence Secretary.

Anti-smuggling & Narcotics

- In 2024, ICG seized over 6,016 kilograms of methamphetamine, an INMARSAT satellite phone, Myanmar currency worth 633,850 Kyat, 4.9 Kgs of 24 Carat Gold bars with a market value of approx Rs 3.43 crore, 1.38 lakh kgs of contrabands which include sea cucumber, insecticides, Kendu Leaves, Betel Nuts etc. at a total market value of approx Rs 24.29 crore. ICG in six joint operations with NCB, DRI, ATS Gujarat and A&N Police seized 438.04 Kgs of narcotics worth Rs 7,133.60 crore.

Coastal Security

- **Coastal Surveillance Network:** Chain of Static Sensors has been setup along the coastline for enhanced electronic surveillance (46 Radar Stations setup under Phase-I and another 38 Radar Stations being setup under Phase-II).
- **‘Sagar Kavach’:** In order to enhance coordination between Coastal Security stakeholders and validate the Coastal Security SOPs promulgated by ICG, ‘Sagar Kavach’ is conducted biannually in each Coastal State/UT. A total of 16 Coastal Security exercises have been conducted since January 2024. In addition, a total of 31 Coastal Security Operations have also been conducted.
- **Boarding Operations:** Boarding Operations are undertaken by ICG ships on patrol for implementing maritime laws and to create deterrence against inimical elements. A total of 21,873 boarding operations have been conducted since January 2024.

Aid to Civil Authority

- In January 2024, ICG received information regarding grounding of MV Swasthya Sathi with approx. 400 pilgrims onboard in position 12 nautical miles North-east of Sagar Lt. ICG immediately launched Air Cushion Vehicles (ACVs) from Sagar Island & Haldia to provide assistance to the grounded ferry. ICG Dornier was also launched from Kolkata for monitor the situation. A total of 182 devotees were evacuated by ICG ACVs.
- In July 2024, ICG launched operation ‘Op Sahayata 02/24’ to provide assistance during major landslide at Meppadi Village, Wayanad District, Kerala. ICG ALH MK-III and Disaster Relief Teams assisted in search and evacuation of stranded persons/ recovery of deceased bodies. Additionally, ICG teams also distributed life-saving equipment, relief stores/ material, medicines and freshwater in the affected areas.

International Cooperation

- **Ship Visits:** During the year, ICG officially visited Sri Lanka, African, ASEAN nations and East Asian countries to strengthen long-standing diplomatic ties and enhance maritime cooperation. ICG also participated in 16th edition of trilateral exercise DOSTI among India, Maldives and Sri Lanka.
- **High Level Meetings:** ICG as part of the internal maritime cooperation, conducted bilateral meetings with Japan Coast Guard and Royal Oman Police Coast Guard. Also, DG, ICG participated in the 18th Governing Council meeting of the Regional Cooperation Agreement on Combating Piracy and Armed Robbery Against Ships in Asia.

- **ICG-JCG Joint Exercise:** In January 2024, Japan Coast Guard Ship Yashima was in Chennai for Joint Exercise covering various operational parameters viz. SAR, Law enforcement, Pollution response etc, with ICG.

DEPARTMENT OF DEFENCE PRODUCTION

- In continuous pursuit of self-reliance and to minimise imports by DPSUs, Department of Defence Production (DDP) notified fifth PIL of 346 items in June 2024. These items would be indigenised in the coming years and procured from Indian Industry after the timelines indicated against each of them.
- DDP has successfully indigenised more than 13,000 items during the period of four years since the launch of Srijan Portal. More than 37,000 items were uploaded by DPSUs and Service Headquarters on the portal for indigenisation by Industry. This includes 5,012 items of DPSUs under PILs being notified by DDP. More than 2,700 items of Srijan Portal including 86 PIL items have been indigenised this year.
- Codification of Defence inventory & stores is steered and directed by Defence Equipment Codification Committee (DECC). Based on the annual Codification Roll-on-Plan formulated by DECC, codification of defence inventory & stores have been carried out. Over 18,000 lines of inventory & stores have been codified during 2024. Total of 94 Common Use equipment & systems (Tri-Service or Two-Service usage) consisting of 43,379 lines of items have been codified.
- Department of Defence Production launched a key initiative named MISSION RAKSHA GYAN SHAKTI (MRGS) in April 2018 for creation and management of Intellectual Property Rights of DPSUs. As on 01.11.2024, DPSUs have filed a total of 6,109 IPR applications, of which 2,840 have been granted/registered.
- The 15th edition of Aero India is scheduled to be held from February 10-14, 2025 at Air Force Station, Yelahanka in Bengaluru, Karnataka. Since its inception in 1996, 14 successful events have been held with participation from across the globe.
- Indigenous Design & Development of Defence Systems has been undertaken through 'Make Procedure' given at Ch-III of Defence Acquisition Procedure (DAP) 2020. In 2024, 10 projects have been accorded 'Approval-in-Principle' bringing the total tally to 145 projects. Also, five projects have been accorded AoN this year, taking the number of AoN projects to 65.

Defence Exports

- In FY 2023-24, defence exports reached a record high of Rs 21,083 crore registering a growth of 32.5% over the last financial year. Based on the value of Export Authorisation issued by DDP to private companies and actual export/contract done by DPSUs, the export value during the last six years is Rs 10,746 (2018-19), Rs 9,116 (2019-20), Rs 8,436 (2020-21), Rs 12,815 (2021-22), Rs. 15,920 (2022-23) and Rs 21,083 (2023-24).
- Standard Operating Procedure (SOP) for Defence Exports was further simplified in May 2024 and made more business-friendly. Provision for export of munitions list items for

demonstration and for export of non-lethal items munition list as sample for business development has also been made in the SOP for Export. For Ease of Doing Business, DGFT has authorised DDP to grant export authorisations for items covered under SCOMET sub-categories 6A007 and 6A008. In order to further promote ease of doing business, DDP has promulgated three Open General Export License (OGEL). OGEL is a one-time export license, which permits the industry to export items to the destinations as specified in the OGEL, without seeking export authorisation during the validity of the OGEL. OGEL has been expanded by increasing the number of countries and items therein.

- An online facility/EXIM portal for collation and dissemination of export leads received from all over the world has been established. The portal is a repository of Indian defence exporters and the export leads are transmitted instantly to the concerned exporters. A total of 153 leads have been disseminated through the portal since January 01, 2024.
- To boost defence exports, webinars/seminars are being organised with friendly countries under the aegis of DDP through Industry Associations. Ten webinars/seminars have been organised since January 01, 2024.
- To promote defence exports, overseas offices are being opened by DPSUs. An SOP has been issued to streamline the process for establishment of overseas offices.

iDEX

- During the year, 155 winners of iDEX challenges were declared, 88 contracts were signed and nine prototypes were developed.
- iDEX organised the DefConnect 2024 on in March 2024, during which Raksha Mantri carried out the following launches:
 - i. ADITI (Acing Development of Innovative Technologies with iDEX) scheme to provide support to start-ups/MSMEs with grants of up to Rs 25 crore targeting development of cutting edge, critical and strategic technologies.
 - ii. First edition of ADITI (ADITI 1.0) with 17 challenges.
 - iii. 11th edition of Defence India Start-up Challenge (DISC) with 22 challenges.
- iDEX-DIO organised DefConnect 4.0 in October 2024. Following events took place:
 - Raksha Mantri launched the following:
 - i. ADITI 2.0 with 19 challenges.
 - ii. 12th edition of DISC with 41 challenges.
 - A technology showcase was organised by iDEX-DIO with a diverse range of technology start-ups.
- During Indian Navy's 'Swavlamban 2024' held in October 2024, Raksha Mantri launched the third edition of ADITI (ADITI 3.0) with one challenge and 13th edition of DISC with seven challenges.

- DIO achieved a significant milestone by signing its 350th contract in June 2024 to design & develop a miniaturised satellite, capable of carrying multiple payloads up to 150 kgs for Indian Air Force.
- The third edition of INDUS-X (India-US Defence Acceleration Ecosystem) Summit was held in California in September 2024. It featured in the Joint Factsheet/Statement of Prime Minister and US President released on September 21, 2024.
- Government has established two Defence Industrial Corridors in the country - one in Uttar Pradesh with six nodes viz. Agra, Aligarh, Chitrakoot, Jhansi, Kanpur & Lucknow and another in Tamil Nadu with five nodes viz. Chennai, Coimbatore, Hosur, Salem and Tiruchirapalli. As on September 2024, in both the corridors, arrangements have been made through 249 MoUs, for proposed investment of Rs 50,083 crore. Actual investment of Rs 8,331 has already been made in these corridors.
- A centralised online Defence Testing Portal has been commissioned as part of Digital DGQA Program for centralised, networked and optimal utilisation of Trial & Testing facilities of labs and firing ranges by industries available in the country. Defence Testing Portal has been made live for Defence Industry to access the portal as service user as well as service provider. Till date, a total of 86 Labs and 15 Proof Ranges of DGQA, DGAQA, DRDO & DPSUs have been on-boarded. 148 Service Providers and 212 Service Users have been registered at DTP with a total of 6,643 Lab tests & 416 Proof Tests which can be requisitioned on DTP.
- As a test bed model, Hybrid QA 4.0 with remote QA was established by DGQA at BEL Machilipatnam. As per directions of MoD/ DDP, Industry 4.0/ QA 4.0 has also been implemented in respect of 100 products in 100 days. Further, all the Products/ processes at DPSUs are to be covered under Industry 4.0/ QA 4.0 towards implementation of Remote/Hybrid QA in 16xDPSUs in phased manner.
- Hindustan Aeronautics Limited (HAL) attained the 'Maharatna' status on in October 2024, becoming the 14th Central Public Sector Enterprise in India to receive the recognition.
- HAL has indigenously designed and developed the first 60 KW GTEG-60, the Auxiliary Power Unit for the Military Transport aircraft AN-32. The control unit of GTEG-60 is also designed and developed in house by HAL. It was handed over to IAF by HAL in July 2024.
- Prime Minister inaugurated the Final Assembly Line Complex for the Airbus C295 Aircraft in Vadodara, Gujarat along with Spanish President.
- Raksha Rajya Mantri flagged-off the indigenously developed and manufactured Astra Missiles for supply to Indian Air Force in January 2024 at BDL, Kanchanbagh Unit, Hyderabad.
- Bharat Electronics Limited (BEL) was conferred with SIDM Champion Award for 2024 by Raksha Mantri under the category Import Substitution for the development of Thermal Imager Technology modules for T90 Tanks. BEL is the only DPSU to receive the SIDM Championship Award 2024.

- Vice President Shri Jagdeep Dhankar presented the SCOPE Excellence Award in Special Institutional category (Digitalisation) to BEL.
- A historical milestone was achieved as BEL was granted 150th patent, fostering Aatmanirbharta efforts and enhancing the culture of innovation in BEL.
- MIDHANI developed Indian Advanced High Temperature Alloy for Advanced Ultra-Super Critical Thermal power plants to withstand inlet steam temperature of 700 degrees and pressure of 340 bars.
- A Tripartite MoU was signed between BEML, BEL and MIDHANI for the Development of Advanced Fuelling and Control System for Engines. A significant step towards self-reliance.
- Mazagon Dock Shipbuilders Limited (MDL) was conferred 'Navratna' status by the DPE in June 2024. MDL is the 21st PSU, first amongst the government owned shipyards and third among DPSUs having 'Navratna' status.
- Midget Submarine Prototype 'Arowana' was launched in May 2024 at MDL in the presence of Defence Secretary.
- GSL launched the following this year:
 - One Missile Frigate for Indian Navy.
 - One Pollution Control Vessel for Indian Coast Guard
 - Two fast Patrol Vessels for Indian Coast Guard.
- HSL signed a contract with Indian Navy for construction of Five Fleet Support Ships (FSS). Defence Secretary presided over the steel-cutting ceremony of first FSS in April 2024, while the keel laying ceremony was undertaken in November 2024.
- GRSE designed & built first Survey Vessel Large, 'INS Sandhayak' was commissioned in the presence of Raksha Mantri at the Naval Dockyard Visakhapatnam in February 2024.
- India's largest 'Fully Electric 150 Passenger Catamaran Ferry' built by GRSE for the Government of West Bengal completed river trials successfully and technical acceptance was given in March 2024. This zero-emission ferry, designed by GRSE, is poised to revolutionize passenger transport across River Hooghly as well as the Movement of vessels along National Waterway-I.
- GRSE delivered Second Survey Vessel large 'INS Nirdeshak' to Indian Navy in October 2024.
- GRSE launched seventh Anti-Submarine Warfare Shallow Water Craft 'Abbay' in October 2024.
- Fusion Technology based Driver Night Sight has been developed for the first time in India by IOL, increasing the efficiency of the Armed Forces.
- Indigenously developed 155x52 cal Towed Gun System was successfully test fired at PXE Balasore by AWEIL, to mark a new beginning in the field of Artillery guns.

- Indigenisation of Bearing of T-90 Tank Article has been completed by AWEIL. This is an important milestone towards successful completion of indigenisation and a step towards Aatmanirbhar Bharat.

DEFENCE ACQUISITION

Defence Acquisition Procedure (DAP) 2020 has been driven by the tenets of Defence Reforms announced as part of the Aatmanirbhar Bharat Abhiyan by promoting indigenous design, development and manufacturing of defence equipment, platforms, systems and sub-systems. A number of initiatives have been taken in Defence procurement to give a thrust to Atmanirbharta in Defence while also simplifying the procedures. These include:

- For promoting indigenous defence industry, following amendments were made to DAP-2020: -
- Import of Defence Equipment from any Foreign Original Equipment Manufacturer has been made only as an exception with specific approvals from Defence Acquisition Council.
- To reduce financial burden on the Indian Industry whilst maintaining financial safeguards, Integrity Pact Bank Guarantee (IPBG) has been dispensed with. Instead, Earnest Money Deposit (EMD) will be taken as a bid security which will be valid for the selected vendor up to signing of contract and returned to remaining vendors post declaration of selection.
- Inclusion of provision for minimum 50% Indigenous Content (IC) in the form of indigenous material/ components/ software in the equipment being acquired with an aim at boosting indigenous production and reduce import dependency.
- Streamlining and improving the procedures for procurement of technologies developed by Indian Startups and Micro, Small and Medium Enterprises (MSMEs) through various schemes like Innovations for Defence Excellence (iDEX) & Technology Development Fund (TDF). Procedure for procurement under TDF and iDEX has been simplified to reduce the procurement cycle, with corresponding resultant reduction in the costs, thus enabling the budding startup talent pool of the country to contribute towards the twin mantras of self-sufficiency and indigenization. In iDEX cases, quantity vetting and scaling will be dispensed with for initial procurement, subject to the procurement value being commensurate with delegated cases.
- Liberalising the financial parameters of vendor selection criteria for MSMEs and Startups to participate in the Capital procurement cases. For procurement cases where the estimated cost is upto Rs 300 crores, to encourage the Start Ups/ MSMEs and build Industrial ecosystem, the recognized Start Ups/ MSMEs in the relevant fields are considered for issue of RFP without any stipulation of Financial parameters and with General and Technical parameters to be decided on a case to case basis. The same waiver will also be applicable for cases where estimated cost is between Rs 300 and 500 crores, however, on a case to case basis where adequate justification exists, subject to approval by the Defence Procurement Board (DPB).

- To achieve the goal of Aatmanirbharta, during 2024 (upto November), out of the total 132 defence capital acquisition contracts signed, 126 contracts (approx. 95.45%) have been signed with Indian vendors for procurement of defence equipment.
- During 2024 (upto November), DAC & DPB accorded AoN for 40 Capital Acquisition proposals amounting to Rs 4,22,129.55 crore.

DEFENCE RESEARCH & DEVELOPMENT ORGANISATION

- DRDO conducted a successful flight-test of the New Generation AKASH (AKASH-NG) missile from the Integrated Test Range (ITR), Chandipur off the coast of Odisha on January 12, 2024. The flight-test was conducted against a high-speed unmanned aerial target at very low altitude. During the flight-test, the target was successfully intercepted by the weapon system and destroyed. It has validated the functioning of the complete weapon system consisting of the missile with indigenously developed Radio Frequency Seeker, Launcher, Multi-Function Radar and Command, Control & Communication system.
- Four flight trials of High-speed Expendable Aerial Target (HEAT) - ABHYAS were successfully carried out by DRDO from the Integrated Test Range, Chandipur in Odisha during January 30 to February 02, 2024. The trials were conducted with four different mission objectives in a revised robust configuration using a single booster to provide reduced launch acceleration. During the flight trials, various parameters like required endurance, speed, manoeuvrability, altitude and range were successfully validated.
- DRDO conducted two successful flight tests of Very Short-Range Air Defence System (VSHORADS) missile on February 28 & 29, 2024 from a ground based portable launcher off the coast of Odisha from Integrated Test Range, Chandipur. These tests were carried out against high speed unmanned aerial targets under different interception scenarios. VSHORADS is a Man Portable Air Defence System (MANPAD) designed and developed indigenously by Research Centre Imarat (RCI) in collaboration with other DRDO laboratories and Indian Industry Partners.
- DRDO conducted first successful flight test of indigenously developed Agni-5 missile with Multiple Independently Targetable Re-Entry Vehicle (MIRV) technology. The flight test named Mission Divyastra was carried out from Dr APJ Abdul Kalam Island in Odisha.
- Strategic Forces Command, along with DRDO, conducted the successful flight-test of New Generation Ballistic Missile Agni-Prime from Dr APJ Abdul Kalam Island off the coast of Odisha on April 03, 2024. The test met all the trial objectives validating its reliable performance, as confirmed from the data captured by a number of range sensors deployed at different locations, including two downrange ships placed at the terminal point.
- Man Portable Anti-tank Guided Missile Weapon System, indigenously designed and developed by DRDO, has been field evaluated in different flight configurations several times with the objective of proving the technology with high superiority. The Warhead Flight Trials were successfully conducted at the Pokhran Field Firing Range, Rajasthan on April 13, 2024.

- DRDO, along with researchers of IIT Delhi has developed Light Weight Bullet Proof Jackets named ABHED (Advanced Ballistics for High Energy Defeat) in the country for protection against 7.62 x 54 R API (Level 6 of BIS 17051) ammunition. The jackets have been developed at the DRDO Industry Academia Centre of Excellence (DIA-CoE) at IIT, Delhi. This jacket is based upon new design approach, where novel material along with new processes have been used. These jackets have been created from polymers and indigenous boron carbide ceramic material.
- Supersonic Missile-Assisted Release of Torpedo (SMART) system was successfully flight-tested on May 01, 2024 from Dr APJ Abdul Kalam Island off the coast of Odisha. SMART is a next-generation missile-based light-weight torpedo delivery system, designed and developed by the Defence Research and Development Organisation (DRDO) to enhance the anti-submarine warfare capability of the Indian Navy far beyond the conventional range of lightweight torpedo.
- DRDO successfully flight-tested RudraM-II air-to-surface missile from Su-30 MK-I platform of IAF off the coast of Odisha on May 29, 2024. RudraM-II is an indigenously-developed solid-propelled air-launched missile system meant for Air-to-Surface role to neutralise many types of enemy assets. A number of state-of-the-art indigenous technologies developed by various DRDO laboratories have been incorporated in the missile system.
- DRDO handed over the Medium Range-Microwave Obscurant Chaff Rocket to the Indian Navy at a ceremony held in New Delhi on June 26, 2024. Microwave Obscurant Chaff, a niche technology developed by DRDO's Defence Laboratory, Jodhpur, obscures radar signals and creates a microwave shield around platforms and assets, thus reducing radar detection.
- DRDO successfully flight-tested Phase-II Ballistic Missile Defence System on July 24, 2024. The flight test fully met all the trial objectives validating complete network centric warfare weapon system consisting of Long Range Sensors, low latency communication system and MCC and Advance Interceptor missiles.
- DRDO has carried out successful maiden flight test of Long Range Glide Bomb, GAURAV from Su-30 MK-I platform of IAF. GAURAV is an air launched 1,000 kg class glide bomb capable of hitting targets at long distance. During the flight test, the glide bomb hit the target with pinpoint accuracy.
- DRDO and the Indian Navy have conducted back-to-back successful flight tests of the Vertical Launch Short Range Surface to Air Missile. The missile intercepted a high-speed aerial target, flying at a very low altitude and simulating a sea-skimming threat, which showcased its precision and capability to neutralise targets. The second consecutive test was conducted on September 13, 2024, from the Integrated Test Range, Chandipur, Odisha. This follows the earlier test on September 12, 2024, when the VLSRSAM missile effectively engaged another low-altitude target.
- DRDO conducted the maiden flight-test of Long Range Land Attack Cruise Missile from the Integrated Test Range, Chandipur off the coast of Odisha on November 12, 2024 from a

mobile articulated launcher. During the test, all sub-systems performed as per expectation and met the primary mission objectives.

- DRDO has successfully completed the Flight Tests of Guided Pinaka Weapon System as part of Provisional Staff Qualitative Requirements Validation Trials. The flight tests have been conducted in three phases at different field firing ranges. During these tests, the PSQR parameters viz., ranging, accuracy, consistency and rate of fire for multiple target engagement in a salvo mode have been assessed by extensive testing of rockets.
- DRDO conducted a successful flight-trial of India's first long-range hypersonic missile from Dr APJ Abdul Kalam Island off the coast of Odisha on November 16, 2024. This hypersonic missile is designed to carry various payloads for ranges greater than 1,500 kms for the Armed Forces.

Measures to promote research include:

- DRDO's Technology Development Fund (TDF) scheme encourages participation of public/private industries especially Start-ups and MSMEs to create an eco-system for enhancing the capabilities in cutting-edge technology and promoting 'Aatmanirbharta' in defence. Till date, a total of 78 projects, with a commitment of over Rs 333 crore, have been sanctioned to various industries, and 27 defence technologies have been successfully realised under the scheme.
- The Dare to Dream Innovation Contest is another avenue through which DRDO promotes innovators and start-ups by encouraging disruptive ideas and concepts in emerging technologies for enhancing defence capabilities. Till date 4 Pan India Dare to Dream Innovation contest were carried out and 52 start-ups and 65 individuals have been awarded under the scheme.
- DRDO provides support to academia to carry out Directed Research in the identified research areas related to Defence application through DRDO Industry Academia- Centres of Excellence (DIA-CoEs) to undertake translational projects by providing direction, technical interactions and project funding. So far, 15 DIA-CoEs have been established. They are at IIT BHU, IIT Jodhpur, IIT Kanpur, IIT Roorkee, IIT Kharagpur, IIT Hyderabad, Gujarat University, IISC Bengaluru, Jammu University, Mizoram University, IIT Delhi, IIT Bombay, IIT Madras, University of Hyderabad and Bharathiar University.
- DRDO has Grants-in-Aid Scheme for S&T projects under Extramural Research and under Research Boards. It also supports Exhibitions, inter school and inter college level competitions etc. besides paid apprenticeship scheme, internship to B.Tech/ M.Tech/ M.Sc Students. These have been initiated by DRDO to generate interest in defence technologies among school and college students.
- DRDO has created five Young Scientists Laboratories to attract young Scientists/Engineers to join DRDO and provide R&D environment in emerging engineering fields and advanced technologies such as AI, Quantum Technologies, Cognitive Technologies, Asymmetric Technologies and Smart materials.

- Collaborating with DRDO in the development of major weapon systems, the Indian industry has matured to a stage where they can develop systems on their own. Indian industry has progressed from a 'build to print' partner to 'build to specification' partner. DRDO test facilities have been opened to the industries for utilisation and more than 18000 tests have been carried out for private industries/DPSUs in the past three years. Segments like Missiles, Bombs etc. have been opened to private industries for development.
- DRDO being a Research and Development agency focuses on system definition, design and prototype development. The relevant industries are identified for production purposes as Development cum Production Partner or Production Agency. Development cum Production Partner (DcPP)/ Production Agency (PA) identified for more than 120 systems.
- DRDO has carried out more than 1,800 Transfer of Technologies (ToTs) to Indian Industry including both Private and public. ToT is being carried out as per the policy and procedure approved by Raksha Mantri. Development Cum Production Partner (DcPP)/ Development Partners (DP)/ Production Agency (PA) of DRDO are given Technology free of cost i.e at "Nil ToT Fee".
- DRDO has a Policy for Free Access of DRDO Patents by Indian industries. This is likely to increase the technological capabilities of industries and enhance their competitiveness in global supply chain.

BORDER ROADS ORGANISATION

- **Sela Tunnel:** The Prime Minister virtually dedicated to the nation the Sela Tunnel project during the Viksit Bharat Viksit North East programme in Itanagar, Arunachal Pradesh in March 2024. The tunnel has been constructed at an altitude of 13,000 feet on the road connecting Tezpur, Assam to Tawang in the West Kameng district of Arunachal Pradesh. Built at a total cost of Rs 825 crore, the tunnel will provide all-weather connectivity to Tawang across Sela Pass on the Balipara-Chariduar-Tawang Road, boosting the preparedness of the Armed Forces and augmenting the socio-economic development of the border region.
- **Shinkhun La Tunnel:** The Prime Minister virtually witnessed the first blast of the Shinkun La Tunnel Project in Ladakh from an event organised at the Kargil War Memorial in Dras on the occasion of 25th Kargil Vijay Diwas in July 2024. The project consists of a 4.1 km long Twin-Tube tunnel to be constructed at around 15,800 feet on the Nimu-Padum-Darcha Road to provide all-weather connectivity to Leh. Once completed, it will be the highest tunnel in the world. Shinkun La tunnel will not only ensure swift and efficient movement of our armed forces and equipment but also foster economic and social development in Ladakh.
- **Inauguration of 75 Projects:** In October 2024, Raksha Mantri e-inaugurated 75 infrastructure projects constructed by the BRO at a cost of Rs 2,236 crore and spread across 11 border States and Union Territories including Andaman and Nicobar Islands. Of the 75 projects, 19 are in Jammu & Kashmir, 18 in Arunachal Pradesh, 11 in Ladakh, nine in Uttarakhand, six in Sikkim, five in Himachal Pradesh, two each in West Bengal and Rajasthan and one each in Nagaland, Mizoram, and Andaman & Nicobar Islands.

- **Mudh-Nyoma Airfield:** Nyoma-Mudh Airfield Project (2.7 km) located 46 km from the LAC, at an altitude of 13700 ft, will be one of the highest Fighter Bases in the World. The foundation stone was laid by Raksha Mantri in September 2023. The entire project will be completed by November 2025.
- **Nimmu-Padum-Darcha road:** Connectivity on 298-km long Nimu-Padam-Darcha road, an alternate route to Leh from Manali was established in March 2024. Approx. 201 km of this road has already been black topped.
- **Commencement of Strategic Works:**
 - a. Arunachal Frontier Highway spanning 1,748 kms starts from Bomdila in the West and goes upto Vijaynagar in the East. BRO has been entrusted with 531 Km of this highway. Out of the total 531 kms, BRO has commenced works departmentally on 102 kms.
 - b. BRO has embarked upon construction of Greenfield alignments from Tarem to Kundapalli (18 km), Kundapalli to Pamed (16 km) and Silger to Kundapalli (24 km) in Left Wing Extremism-affected areas of Chhattisgarh.
 - c. BRO has been entrusted with the strategically important border fencing works on Indo-Myanmar border. Works on a stretch of 10 km have been completed, while works are in progress on 46 km stretch.
- **Procurement of State-of-the-art Equipment:** BRO has significantly ramped up its procurement of cutting-edge equipment to ensure timely completion of strategic road projects. A total of 831 state-of-the-art machines, worth Rs 253 crore, have already been procured reflecting a major boost in operational capabilities, Advanced equipment such as Shotcrete Machines, Self-Propelled Rock Drills, and Double-Boom Jumbo Drills are set to enhance efficiency in formation cutting and tunnelling works. Additionally, modern snow cutters will enable BRO to maximise the availability of critical passes by significantly improving snow clearance operations.
- **R&D Works:** Supported by its R&D Centre in Shillong, BRO has intensified collaborations with IITs, NITs and industry leaders to develop advanced concreting and bituminous technologies for high-altitude applications. Partnering with CRRI, BRO implemented REJUPAVE technology for subzero bituminous work on critical roads like Lungro GG-Damteng-Yangtse in Arunachal Pradesh and Drass-Umbala-Sankoo in Ladakh, marking a leap in construction under extreme conditions.
- **Glacial Lake Outburst Flood in Sikkim:** Post the floods in Sikkim, which occurred in October 2023, BRO mobilised its resources and established connectivity for light vehicles in the entire North Sikkim in April 2024. Six bridges have since been restored.

NATIONAL CADET CORPS

Key Initiatives

- In line with ongoing efforts to expand NCC benefits to more youth, the Government approved Three Lakh Cadet Expansion Plan, which will increase the NCC's strength to 20

lakh cadets with close to 40% girl cadets, making it the largest volunteer uniformed force in the world. This initiative not only offers thousands of young people valuable leadership training, but it also creates employment opportunities for over 2,000 ex-servicemen, who will bring their expertise to mentor and guide the new cadets. Additionally, the expansion will address the demand from over 10,000 educational institutions seeking to affiliate with the NCC. The NCC Expansion plan is progressing steadily, with 30,00 Cadets enrolled under a pilot project and recruitment of 345 ex-servicemen already underway in the current year. Besides, three Army NCC units and one Air wing have also been operationalised in J&K and Ladakh. Enrolment of the remaining 2.7 Lakh cadets and hiring of 1,943 ex-servicemen will commence on 01 Apr 2025.

- NCC is equipping the Amrit Peedhi with skills to realise the vision of Viksit Bharat @ 2047, Contemporary subjects like Cyber Awareness, Disaster Management, and Drone Training have been incorporated, alongside simulator training to address modern challenges. Collaborations with organisations such as DRDO, ISRO, and NPCIL provide cadets with valuable insights into advanced research and the peaceful uses of technology. Initiatives like Skill Manthan and Kaushal Camps are being organised to align cadets' capabilities with industry requirements. Similarly, Idea and Innovation Camps encourage creativity and entrepreneurship, preparing cadets to contribute towards 'Swarnim Bharat'.
- In the current training year, the emphasis has been given on idea/innovation and start-up awareness to NCC Cadets. Three workshops have been conducted till date and further workshops by experts pan-India on Start-Up and Idea/Innovation is planned thereby providing the cadets an opportunity to showcase their innovative ideas and solutions to real-world challenges, emphasising the importance of entrepreneurship and teamwork. The idea/innovation competition is being conducted by all state Directorates which has engaged cadets thereby providing an opportunity to think outside the box, develop their concepts and contribute meaningfully to the NCC's mission of nation-building.
- In alignment with the government's push for digital transactions, NCC has disbursed over 07 lakh cadets with Rs 298 crore digitally last year for uniform purchases to the entitled cadets. This initiative not only simplifies the process but also ensures timely transfers reinforcing NCC's commitment to modernisation.

Training

- **Certificate Examinations:** In the training year 2023-24, a total of 6,20,564 NCC cadets appeared for the certificate examinations. Of these, 5,03,350 cadets successfully passed and were awarded NCC 'A', 'B', and 'C' certificates.
- **Annual Training Camp/Combined Annual Training Camps:** The NCC conducted 1,162 Annual Training Camps and Combined Annual Training Camps during the year, with participation from 5,44,894 cadets, reflecting significant engagement within the youth pan India.
- **National Integration Camps:** Ek Bharat Shrestha Bharat (EBSB) camps are being conducted to foster National Integration and increase awareness about heritage and culture

of different states on a reciprocal basis. A total of 34 EBSB Camps were conducted during the year wherein 13,550 cadets imbibed national cultural diversity. Besides, Special National Integration Camps were conducted to make cadets understand and value the rich heritage of cultures that forge unity despite the diverse languages, traditions and religions of our country. This year eight SNICs were conducted at Rangreth, Kakinada, Kevadiya, Jaisalmer, Wokha (Nagaland), Kavaratti, Sri Vijayapuram and Delhi which witnessed participation of 2,474 cadets from across the country.

- **Centrally Organised Camps:** During the year, three distinguished centrally organised camps were successfully held, the All India Thal Sainik Camp, the All India Vayu Sena Camp, and the All India Nau Sena Camp. Through rigorous training and collaborative experiences, 2,757 selected cadets not only enhanced their leadership and teamwork abilities but also deepened their national pride and shared purpose, shaping them into well-rounded individuals ready to contribute to the nation's growth.

Service Training

- **Army Wing Activities:** As part of its annual training initiatives, the NCC Army Wing Cadets were provided with invaluable exposure to the armed forces' ethos and lifestyle through various attachment programs. A total of 21,598 cadets participated in 12 day attachment training with Army units. Additionally, 100 Senior Wing cadets attended specialised training at the Officers Training Academy (OTA), Chennai, in Oct 2024, while 250 Senior Division cadets gained experience at the Indian Military Academy (IMA), Dehradun, in Dec 2024. Complementing these efforts, 4,000 cadets (2,000 SD and 2,000 SW) gained practical insights through attachment with Military Hospitals for 12 days.
- **Naval Wing Activities:** The NCC's Naval Wing showcased its robust training initiatives through a variety of impactful programs. From 05 Jan to 16 Jan 2024, 200 cadets (175 SW and 25 SD) participated in attachment training at the prestigious Indian Naval Academy, Ezhimala. Maritime skills were further honed through the All India NCC Yachting Regatta (AIYR), held at INS Chilka from 14 Oct to 21 Oct 2024, involving 102 cadets (51 SD and 51 SW). Special Yachting Camps were conducted in Dec 2024 at INWTCS in Kochi, Goa, and Vizag for 100 cadets, while Sea Training for 240 SD cadets was organised at Vizag and Mumbai from 11 Dec to 22 Dec 2024. Technical Attachment Camps for 204 cadets (150 SD and 54 SW) were held at Lonavala and Jamnagar from 03 Sep to 15 Sept 2024, complemented by Whaler Sailing Camps under the Most Enterprising Naval Unif (MENU) initiative across 17 NCC Directorates. Besides, in line with the Prime Minister's directive to integrate technology, 58 rowing simulators were made operational, significantly enhancing training capabilities.
- **Overseas Deployment:** With an aim to evolve cadets into disciplined leaders with maritime expertise and a global outlook, on the international stage, 10 Cadets each were deployed aboard Training Squadron Ships at Kochi. The Spring Term covered Oman, Djibouti, Eritrea, Egypt, and Saudi Arabia (12 Apr to 18 May 2024), while the Autumn Term included Oman, Kuwait, UAE, Iran, and Djibouti (22 Sep to 30 Oct 2024).

- **Air Wing Activities:** On similar lines of Air and Naval wing activities, NCC's Air Wing provided extensive exposure to aviation and Air Force training. Attachment training for 200 SD and SW cadets was conducted at various Air Force Stations and the Air Force Academy, Dundigal. Flying training remained a highlight, with over 3,500 flying hours logged and 4,000 cadets gaining experience on NCC Microlight aircraft from Jan to Oct 2024. Additionally, 35 flying simulators provided advanced, technology-driven training.

Youth Exchange Programme

Through the programme, the NCC offers cadets unique opportunities to connect with peers from across the world, broadening their horizons and promoting cultural understanding. The 2024 Republic Day Camp, the largest YEP event to date, brought together 24 countries from every inhabited continent. With 16 Heads of Delegations, 14 Staff Officers, and 219 cadets, this event underscored the spirit of international cooperation and cultural exchange, reflecting the true essence of Vasudhaiva Kutumbakam - 'The world is one family'. The outgoing YEP also witnessed 16 officers and 98 cadets from India travelling to countries such as the UK, Vietnam, Singapore, Russia, Bhutan and Kazakhstan etc., further strengthening global ties and fostering international camaraderie.

Social Service & Community Development Activities

Nation-building is a cornerstone of NCC training, focusing on instilling values of civic duty, responsibility, and national pride. Through activities like community service, environmental campaigns, and blood donation drives, cadets are encouraged to actively contribute to society.

- **Swachhta Hi Seva:** NCC cadets across India enthusiastically participated in the Swachhta Hi Sewa (SHS) campaign from 17 Sep to 01 Oct 2024, under the theme 'Swabhav Swachhta, Sanskar Swachhta.' This initiative included a variety of activities such as Swachhta Pakhwada, competitions in posters, slogans, and paintings, as well as debates, Nukkad Nataks, and cultural programs focused on cleanliness. In total, approx. 3,200 activities were organized nationwide, highlighting the cadets' commitment in promoting cleanliness.
- **Ek Pedh Maa Ke Naam:** The initiative was passionately embraced by NCC cadets, who planted over 7,50,000 trees across the nation. This commendable effort helped in spreading the message of environment preservation throughout the country.
- **International Day of Yoga:** On 21 Jun 2024, IDY was organised in line with the theme 'Yoga for Self and Society, due focus was given to spread this message of oneness among cadets & family. Over eight lakh cadets participated Pan India.
- **World Environment Day:** Approximately 6,50,000 cadets from all State Directorates participated in a significant event organized on the occasion of World Environment Day on 05 Jun 2024. The cadets celebrated the day by embarking on a nature hike and engaging in activities such as plant potting techniques, seed ball making, pottery, fun games, skeet plays (Nukkad Natak), and a quiz on soil conservation.
- **Vibrant Village Programme:** As part of a pilot project initiated by the Ministry of Home Affairs, NCC is conducting camps in 15 selected villages to enhance their vibrancy by attracting visitors and organizing various activities such as fairs, festivals, and other tourist

events, along with the development of livelihood opportunities. This initiative is being implemented in the states and union territories of Arunachal Pradesh, Uttarakhand, Himachal Pradesh, Sikkim, and Ladakh

DEFENCE ACCOUNTS DEPARTMENT

Project DTS 2.0

Defence Travel System was primarily started to cater as an alternate solution for travel warrants of officers & PBORs. The system has since been extended to train tickets, air travel and foreign ticket booking through authorised agents. Facility extended to civilians also i.e DAD, Coast Guard & DRDO. Online submission of TA/DA claims for DAD and Army Officers has also been implemented in 2022-23. Currently, DTS has been upgraded to DTS 2.0 in 2024.

DTS 2.0 represents a critical upgrade. It is being built on the more robust Spring Boot Framework and WildFly Application server, ensuring compatibility with latest software versions. This upgrade also includes high configuration servers at both the Data centre (DC) and Disaster Recovery (DR) sites, alongside a dedicated reported server. Additionally, DTS LITE has been introduced as a crucial component of DTS 2.0, acting as a bridge between the DTS portal and PAO office automation systems like DOLPHIN, FALCON, and TULIP. It would ensure an efficient and accurate processing of expenditure related demands, better redressal of user issues & providing a more reliable & efficient service overall.

OROP-III

Ministry of Defence vide their letter No. 1(2)/2023/D(Pen/Pol) dated 10.07.2024 has issued orders for revision of pension/family pension of Armed Forces Personnel under OROP scheme w.e.f. 01.07.2024. Revision tables have been notified vide GoI, MoD letter dated 04.09.2024. Accordingly, CGDA has carried out the revision and ensured payment of revised pension to defence pensioners through SPARSH in the month of Sep'2024 itself.

Raksha Pension Samadhan Ayojan (RPSA)

RPSA are held every year at identified locations. 7 RPSAs were organized during the calendar year 2023-24, and 3 RPSAs out of the 7 planned in the year 2024-25 have been held up to Nov' 2024. Number of cases resolved during period are more than one thousand.

Digital Life Certificate (DLC 3.0) campaign

DAD is a major stake holder in DLC Campaign promulgated by DoP&PW. All the SPARSH Service Centres at 200 locations across the country have been geared up to facilitate pensioners identification with emphasis on Face Authentication Technology. Mega DLC campaign was held at Hyderabad on 12th and 13th Nov 2024, where more than 1000 pensioners attended. DLCs in r/o approx. 22.85 lakh Defence Pensioners have been generated till 22.11.2024.

SAINIK SCHOOLS SOCIETY

The Government has approved the initiative of setting up of 100 new Sainik Schools in partnership mode with NGOs/Trusts/Private schools/State Government schools in a graded manner, starting

from Class 6 onwards. As on date, Sainik Schools Society has approved 45 new Sainik Schools under partnership mode, of which Memorandum of Agreement has been signed with 41 schools.

Forty (40) of these schools have started functioning from academic session 2024-25. Among the 40 schools is Sainik School, Jaipur which was formally inaugurated by Raksha Mantri in September 2024. The 100 new Sainik Schools in partnership mode are apart from the existing 33 Sainik Schools already functioning under the erstwhile pattern.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2088180>



**Press Information Bureau
Government of India**

Ministry of Defence

Thu, 26 Dec 2024

Sri Lanka - India Exercise – 2024 (SLINEX 24)

The bilateral Naval exercise between India and Sri Lanka, SLINEX 24 (Sri Lanka - India Exercise 2024) was conducted from 17 - 20 Dec 24 at Visakhapatnam under the aegis of the Eastern Naval Command in two phases. The harbour phase was held from 17 - 18 Dec 24 and the sea phase from 19 - 20 Dec 24.

INS Sumitra of the Eastern Fleet, along with Special Forces team participated from Indian side, whereas, SLNS Sayura, an Offshore Patrol Vessel, along with Special Forces team participated from the Sri Lanka Navy.

The inaugural ceremony of the exercise was held on 17 Dec 24 and followed by the Harbour Phase, during which, the participants engaged in professional and social exchanges. The Sea Phase commenced on 19 Dec 24, included joint exercises by Special Forces of both the navies, gun firings, communication procedures, seamanship as well as navigation evolutions and helicopter operations.

SLINEX series of bilateral exercises were initiated in 2005 and since then regular exercises have been conducted. The current edition of the exercise has further strengthened the ties between the two maritime neighbours and contributed towards creating a safe and rule-based Maritime domain thereby taking forward the GoI's resolve and vision of Security And Growth for All in the Region (SAGAR).

<https://pib.gov.in/PressReleasePage.aspx?PRID=2088114>

India's defence exports touched record Rs 21,083 crore in 2023-24, marks 32.5 pc growth

India's defence exports continue to rise touching a record Rs 21,083 crore (about USD 2.63 billion) in the FY2023-24, a growth of 32.5 per cent over the previous fiscal when the figure was Rs 15,920 crore.

The figures indicated that the exports grew by 31 times in the last 10 years as compared to FY 2013-14. "The defence industry, including the private sector and DPSUs (Defence Public Sector Undertakings), have made tremendous efforts in achieving the highest-ever exports. The private sector and DPSUs contributed about 60 per cent and 40 per cent respectively," the Defence Ministry said in its year-end review 2024.

It said that Defence Minister Rajnath Singh has exuded confidence that the target to export defence equipment worth Rs 50,000 crore by 2029 will be met. The release said that to boost Aatmanirbharta in defence and minimise imports by DPSUs, the Department of Defence Production in July notified the fifth Positive Indigenisation List (PIL) consisting of 346 items.

The five lists for DPSUs are in addition to the five PILs of 509 items notified by the Department of Military Affairs. These lists include highly complex systems, sensors, weapons and ammunition.

The release said the Defence Ministry achieved the highest-ever growth in Indigenous defence production in value terms during 2023-24, on the back of the successful implementation of the policies and initiatives of the government.

Defence production went up to a record-high figure of Rs 1,26,887 crore, reflecting a growth of 16.7 per cent over the defence production of the previous financial year. The value of defence production in FY 2022-23 was Rs 1,08,684 crore.

Of the total value of production in 2023-24, about 79.2 per cent has been contributed by DPSUs/other PSUs and 20.8 per cent by the private sector. The data shows that in terms of absolute value, both DPSUs/PSUs and private sector have recorded a steady growth in defence production.

<https://economictimes.indiatimes.com/news/defence/indias-defence-exports-touched-record-rs-21083-crore-in-2023-24-marks-32-5-pc-growth/articleshow/116688200.cms>

5200 military personnel deployed in UN missions, 118 countries engaged through defence cooperation: Ministry of Defence

The Ministry of Defence in a release on Thursday highlighted the Indian Army's increased global engagement and diplomatic footprint with around 5200 military personnel currently deployed across 10 United Nations (UN) missions.

In its Year Ender Review for 2024, the Ministry of Defence also underscored the defence cooperation of the Indian Army, noting that 118 countries are now involved in defence cooperation activities with the country.

The ministry stated that personnel deployed for the 10 UN missions consisted of five infantry battalions and 11 formed units and are stationed in regions such as the Democratic Republic of Congo, South Sudan, Abyei, Western Sahara, Central African Republic, Lebanon, Syria, Israel, Cyprus, and Addis Ababa.

Aligned with the 'Aatmanirbharta' and 'Make in India' initiatives, India has introduced advanced Made-in-India equipment and vehicles into its UN missions.

Additionally, along with staff officers and military observers, the Indian Army has also posted female engagement teams, women psychological counsellors, and Military Nursing Service officers to assist women and children in conflict zones.

Along with that, there are trained yoga instructors who are part of the contingents, offering yoga sessions for both peacekeepers and local populations, the ministry stated.

The Centre for UN Peacekeeping (CUNPK), India's nodal agency for peacekeeping training, continues to train more than 10,000 troops annually, supporting both Indian and international peacekeepers, the ministry added.

Regarding its defence cooperation and military diplomacy, the Indian Army, as a part of its reorganisation, has increased the number of Defence Wings from 45 to 52, with new wings established in Poland, Algeria, Ethiopia, and Mozambique, the ministry stated. Further additions are in progress as part of the second phase of reorganisation.

In terms of military exercises, India participates in 39 joint exercises, with additional bilateral exercises planned with Egypt, the UAE, Saudi Arabia, and Cambodia with an emphasis on yoga and women's empowerment.

On the domestic front, the Indian Army had also been active in humanitarian assistance and disaster relief operations, deploying 83 columns across 14 states during disaster relief operations.

In its Year End Review, the ministry stated that the army has provided assistance in several major relief efforts in India, rescuing nearly 30,000 civilians, offering medical aid to around 3,000, and delivering relief supplies to over 13,000 individuals.

<https://economictimes.indiatimes.com/news/defence/5200-military-personnel-deployed-in-unmissions-118-countries-engaged-through-defence-cooperation-ministry-of-defence/articleshow/116689438.cms>

THE ECONOMIC TIMES

Thu, 26 Dec 2024

India, China agreement to end Ladakh standoff being implemented 'comprehensively and effectively': Chinese military

China's Defence Ministry on Thursday said that the Chinese and Indian militaries are "comprehensively and effectively" implementing the agreement to end the standoff at eastern Ladakh and "steady progress" has been made. Chinese Defence Spokesperson Senior Colonel Zhang Xiaogang made the remarks during a media briefing here while answering a question on the December 18 Special Representatives talks. "At present, the Chinese and Indian militaries are comprehensively and effectively implementing the border-related solutions reached between the two sides, and steady progress has been made," he said.

He said that in recent times, based on the important consensus reached by the leaders of the two countries, China and India have maintained close communication on the border situation through diplomatic and military channels and achieved great progress. Following the October 21 agreement between India and China, Special Representatives for border question NSA Ajit Doval and Chinese Foreign Minister Wang Yi met here and held a comprehensive dialogue on the implementation of the agreement and restoration of the relations which were frozen since the standoff began in April 2020.

In October, Prime Minister Narendra Modi and Chinese President Xi Jinping met in Kazan, Russia, on the sidelines of the BRICS summit and approved the Oct 21 agreement. Col Zhang said that bringing China-India relations back on the right track serves the fundamental interests of the two countries and the two peoples.

"The Chinese military is ready to make concerted efforts with the Indian side to faithfully implement the important consensus of the two leaders, conduct more exchanges and interactions, and promote China-India mil-to-mil relationship, in a bid to jointly safeguard lasting peace and tranquillity in the border areas," he added.

<https://economictimes.indiatimes.com/news/defence/india-china-agreement-to-end-ladakh-standoff-being-implemented-comprehensively-and-effectively-chinese-military/articleshow/116687024.cms>

Situation along LAC stable, sensitive: Defence Ministry

The overall situation along the Line of Actual Control is stable but sensitive, with patrolling resumed in disputed areas after an agreement with China, the defence ministry said in its yearend report.

"Currently, blocking positions have been removed by both sides and joint verification has been completed. Patrolling activity has commenced to traditional patrolling areas in Depsang and Demchok," the report said, adding that after prolonged negotiations at diplomatic and military levels, a broad consensus was achieved to restore the ground situation based on principles of equal and mutual security.

As reported earlier, all temporary structures in the disputed areas of eastern Ladakh have been removed by both sides following the agreement. New protocols for patrolling have also been established to ensure that opposing troops do not come face to face in the disputed areas. While disengagement at all border flashpoints in Ladakh has taken place, larger de-escalation with the withdrawal of over 50,000 troops by each side is still to be achieved.

Large military formations were moved to Ladakh following a surprising Chinese move in 2020 to deploy soldiers to disputed areas in the middle of the Covid-19 crisis. On a separate note, the report said that defence exports reached a record high of ₹21,083 crore, registering a growth of 32.5% over the last financial year. Almost 60% of these were done by the private sector. During the year, the defence ministry signed 132 defence capital acquisition contracts, with 126 of them (or 95%) being with Indian vendors.

The ministry also gave a go ahead for procurements worth ₹4.2 lakh crore by according 40 acceptance of necessity in the year.

<https://economictimes.indiatimes.com/news/defence/situation-along-lac-stable-sensitive-defence-ministry/articleshow/116691978.cms>

China's mega hydel project along Brahmaputra serves as wake-up call for India's pending hydroelectric project

China's reported decision to build Three Gorges like mega hydel project on the Yarlung Tsangpo (Brahmaputra in India) is not just a strong reminder on the piling security costs attached to the delay in commencing work on the Upper Siang Hydroelectric Project in Arunachal Pradesh, but

also a wake-up call on the need to treat water infrastructure building along the Himalayan rivers as a strategic imperative.

Hydel projects are just as important as border roads. It took India decades to realise that its policy of not building roads along the China border was counterproductive. By the time New Delhi got a grip of reality, Beijing had built all weather blacktop roads on the other side of the Line of Actual Control.

As India countered, standoffs and skirmishes increased. Now, when India and China have just completed a troop disengagement process after a four-year close-contact forward deployment, Beijing's move on Yarlung Tsangpo only raises more doubts on its overall political intent. Not to forget, resuming river water conversation is one of the items on the agenda of normalisation of relations.

But clearly, China appears to be drawing its line on the Brahmaputra river even as it talks de-escalation on LAC.

The over 10,000 MW Upper Siang project provides an answer, but in this case India is up against domestic political compulsions. The status of the project is that the National Hydroelectric Power Corporation needs to do some drilling work to carry out geological studies, important to the process of finalising the site. However, this has not happened because of local protests.

The facts are that China's project is likely to be in Namcha Barwa on the Great Bend, where Yarlung Tsangpo makes almost a U-turn to enter India. Any divergence of water will adversely impact the flow of Brahmaputra during the non-monsoon months. This could stretch to four-to-five months a year. Thereafter, the river benefits and enlarges from the Indian monsoon rain.

A large storage, as envisaged in the Upper Siang project, will cover for these months and help the local population against the possibility of China weaponising the Yarlung Tsangpo before it enters India. This political communication has, thus far, not succeeded locally, also complicated by the fact that one of the towns likely to be submerged is Yingkiong, which is the constituency of former Arunachal Pradesh chief minister Gegong Apang.

Similar delays on the 850 MW Ratle project on River Chenab allowed Pakistan the space to lobby with the US as well as the World Bank and drag India to a bizarre arbitration, where two parallel processes are going on simultaneously. India now wants a complete relook at the 1960 Indus Waters Treaty and has sent four notices to Pakistan.

India is an upper riparian country with Pakistan and a lower riparian with China. So, the situation is not fully comparable. But the solution to problems on both fronts is similar: Build efficiently, build fast. The reason is that trust stands eroded with both countries. The last agreement India had with China on sharing of hydrological data for Brahmaputra and Sutlej has expired. The Indus Waters Treaty was a more robust affair, which allowed Pakistan legal options to hold up even run-of-the-river projects on the tributaries of Indus in India.

In other words, India seems to have had a rough deal with legal instruments with both countries. While it has none to tie down China as a lower riparian country, it has to contend with a strong treaty with Pakistan as an upper riparian.

The way through this conundrum is just like with border roads, India has no option but to build hydel projects with strategic urgency, keeping in mind that it's on the receiving end of what China is doing - be it environmental like glacial lake outburst flood (Glof) or water security like the Yarlung Tsangpo plans.

<https://economictimes.indiatimes.com/news/defence/chinas-mega-hydel-project-along-brahmaputra-serves-as-wake-up-call-for-indias-pending-hydroelectric-project/articleshow/116691764.cms>



Fri, 27 Dec 2024

Defence Ministry heightens friendships with defence cooperation with other nations

The year saw Ministry of Defence take defence cooperation with its friendly countries to the next level through visits of the dignitaries and military exercises, a statement by the Ministry of Defence said.

Defence Minister Rajnath Singh, Minister of State for Defence Sanjay Seth, Chief of Defence Staff, three Service Chiefs and Defence Secretary undertook visits to various nations with the aim to strengthen defence ties with them, the statement said.

Defence Minister Rajnath Singh visited US from August 23-26. He met US Secretary of Defence Lloyd Austin, during which the two Ministers held wide-ranging discussions on bilateral defence cooperation, industrial collaboration, regional security and other international issues. Singh also met the US Assistant to the President for National Security Affairs Jake Sullivan, as per the statement.

Singh visited Russia from December 8-10. He co-chaired the 21st session of the India-Russia Inter-Governmental Commission on Military and Military Technical Cooperation with his Russian counterpart in Moscow.

Singh also called on Russian President Vladimir Putin in Moscow. Both leaders discussed various issues of bilateral defence cooperation, and expressed that partnership between both countries holds immense potential and combined efforts will pave way for remarkable outcomes, as per the statement.

Singh paid an official visit to London, United Kingdom from January 9-10. He held a bilateral meeting with UK Defence Minister Grant Shapps in London, and discussed a range of defence, security and cooperation matters with particular emphasis on enhancing defence industrial collaboration. He also called on the then Prime Minister of UK Rishi Sunak, highlighting that both nations have made significant strides in moulding and recrafting the historic ties into a modern, multifaceted and mutually beneficial partnership.

Singh addressed the 11th ASEAN Defence Ministers' Meeting-Plus (ADMM-Plus) at Vientiane, Lao PDR on November 21.

There, he reiterated India's stand for rule-based international order for peace and prosperity in Indo-Pacific, and pitched for Buddhist doctrines of peaceful co-existence for global peace.

On the sidelines, Defence Minister met the Defence Minister of China Admiral Dong Jun and highlighted the fact that amicable relations between India and China, would have positive implications for global peace and prosperity, the statement said.

He also met US Secretary of Defence Lloyd J Austin, with both sides recognising remarkable progress made under US-India Defence Industrial Cooperation Roadmap. Raksha Mantri also met his Malaysian, Lao PDR, South Korean, Australian, New Zealand Philippines counterparts.

Singh and External Affairs Minister S Jaishankar hosted Japanese Minister of Defense Kihara Minoru and Minister of Foreign Affairs Yoko Kamikawa for the 3rd India-Japan 2+2 Ministerial Dialogue in New Delhi on August 20.

On the sidelines of the 2+2 dialogue, a bilateral meeting was held between Raksha Mantri and his Japanese counterpart. They reviewed the existing defence cooperation activities and discussed ways to enhance further cooperation.

Singh and Minister of Defence of Singapore co-chaired the sixth India-Singapore Defence Ministerial Dialogue in New Delhi on October 22. Both Ministers acknowledged the deep and long-standing bilateral defence relations based on shared outlook on regional peace, stability and security.

Singh held a bilateral meeting with the Netherlands Defence Minister Kajsa Ollongren in New Delhi on February 23. Both Ministers discussed the possibilities for expanding their bilateral defence cooperation, particularly in maritime and industrial domains. They noted the increased interaction between the two Navies and expressed keenness to work together to enhance maritime security in the Indian Ocean Region.

<https://www.aninews.in/news/world/asia/defence-ministry-heightens-friendships-with-defence-cooperation-with-other-nations20241227080455/>



Fri, 27 Dec 2024

India-Bangladesh yet to plan biannual border meet

The border guarding forces of India and Bangladesh are yet to agree on a date for their biannual Director General-level meet in New Delhi, officials aware of the matter, confirming that the interaction won't happen within this calendar year.

The meeting, though routine, is significant because it will be the first after the regime change in Bangladesh on August 5, and will take place against the backdrop of string of recent incidents in which the two forces have been locked in an impasse. The chiefs of the two forces were set to resume their interaction last month but the meeting was deferred for a month by Bangladesh. People aware of the matter said that, more than a month later, the two sides could not mutually agree on meeting in the last week of December.

“The new dates are yet to be finalised so it won’t be held this year. After last month’s deferring of the meeting, there were efforts to mutually agree in December but that has not fructified,” said an BSF officer aware of the matter.

“There have been issues between BSF and BGB personnel at specific points along the border but it is a minor issue. Issues, which could not be resolved will be taken up during the meeting between the two forces. We believe it is a minor issue because meetings of mid-level officers of the two forces are being held regularly at the border,” added the officer, asking not to be named.

Major General Mohammad Ashrafuzzaman Siddiqui, director general of BGB, has to lead the Bangladesh delegation during the talks with the India side led by BSF’s Director General Daljit Chawdhary.

However, officials said that when BSF chief Chawdhary visited the Indo-Bangladesh border in North Bengal on December 25, some senior officers of the BGB came to greet him at the border.

Since August 5, the two forces have been locked in an impasse over issues such as arrest of civilians, who had strayed into Bangladesh territory accidentally, while helping the BSF sail a motorboat. The five civilians were later paraded as armed criminals. BGB personnel also objected to the construction of a border fence at several points.

While the two border guarding forces decided to meet between November 18 and 22 New Delhi for the biannual meeting, it was deferred on BGB’s request citing the law-and-order situation in Bangladesh.

“With approval from the home ministry, the BGB requested the BSF to delay the meeting by a month, as BGB officials are currently deployed across the country due to the present situation,” a BGB officer was quoted in Bangladesh media as saying.

The first meeting between the DGs of BSF and BGB (then Bangladesh Rifles) was held on December 2, 1975. In 1993 it was decided to hold biannual meetings in New Delhi and Dhaka.

Since former Bangladesh Prime Minister Sheikh Hasina fled the country for India in August and an interim government led by Muhammad Yunus took charge, relations between the two countries have been tense. India has repeatedly urged the interim government to prevent incidents of violence against minorities, particularly Hindus, even as Bangladesh has said it is an internal matter.

<https://www.hindustantimes.com/india-news/indiabangladesh-yet-to-plan-biannual-border-meet-101735254756519.html>

HAL set for LCA Tejas Mk1A missile and radar trials. When will Indian Air Force finally get the fighter jet?

Even as the Indian Air Force is awaiting the delivery of light combat aircraft (LCA) Tejas Mk1A, Hindustan Aeronautics Limited (HAL) is expected to begin trials of the fighter jet, involving testing of Astra beyond-visual-range missile, indigenous electronic warfare suite and the Elta radar, procured from Israel.

According to a *Hindustan Times* report, the trials will start in January 2025, while the IAF is expected to get the delivery of the first LCA Tejas Mk-1A by March 31. Tejas M-1A variant is an indigenously designed, developed and manufactured state-of-the-art modern 4+ generation fighter aircraft.

"The upcoming Astra missile firing, the electronic warfare suite testing and the ongoing software updates on the new systems are the final processes before HAL can deliver the first LCA Mk1A to the IAF," an official has been quoted as saying.

There has been an inordinate delay in the delivery of Tejas Mk1A, an advanced variant of LCA Tejas Mk1, especially due to the failure of GE Aerospace to supply the critical F404-IN20 engines needed to power the fighter jets.

"The project has been plagued by some delays, but HAL has the capability and capacity to catch up in production once the F404 engines start coming in," the official added.

In 2021, the defence ministry signed a contract for 83 LCA Tejas fighter jets, including 73 LCA Tejas Mk1A fighter aircrafts and 10 LCA Tejas Mk1 Trainer aircrafts.

"The deliveries of all 83 aircraft shall be completed in eight years from now. HAL will be delivering the first three aircraft in the third year and 16 aircrafts per year for subsequent five years," the defence ministry had then said. However, the delivery is yet to happen.

According to media reports, there was some issue with the F404 production line at Lynn in Massachusetts some time ago, but these issues have been fixed. "HAL officials also held talks with GE's critical vendors earlier this month, and things seem to be on track now," HT quoted a second official as saying.

<https://www.theweek.in/news/defence/2024/12/26/hal-set-for-lca-tejas-mk1a-missile-and-radar-trials-when-will-indian-air-force-finally-get-the-fighter-jet.html>

Come 2025, Indian Navy's cutting-edge warships , submarine will dominate Indian Ocean

Indian Navy is set for a major capability boost in the New Year with the induction of two frontline warships and a submarine next month.

INS Nilgiri, the the first stealth frigate of Project 17A class; INS Surat, the fourth stealth destroyer of Project 15B Class; and INS Vagsheer, the sixth and final submarine of the Kalvari-class, are expected to bolster the Navy's operational capabilities in the Indian Ocean Region (IOR), even as China is constantly trying to expand its footprint in the region.

The Navy's Warship Design Bureau designed the two warships built by Mazagon Dock Shipbuilders Ltd (MDL).

Equipped with cutting-edge advanced technology and comparable to the finest ships of similar class anywhere in the world, INS Nilgiri, the first of class (FoC) ship of Project 17A, incorporates design concepts for improved survivability, seakeeping, stealth and ship manoeuvrability.

What makes this warship—packed with state-of-the-art weapons and sensors and has an all-round capability against enemy submarines, surface warships, anti-ship missiles, and fighter aircraft—tough to detect is the shaping of the hull and radar transparent deck fittings.

MDL said INS Nilgiri is mounted with guns for close-in defence capability and effective naval gunfire. The warship is enabled to operate independently without supporting vessels and to function as the flagship of the Naval task force.

INS Surat, the fourth ship of Project 15B and is a potent platform capable of undertaking a wide variety of tasks and missions, spanning the full spectrum of maritime warfare, is armed with supersonic surface-to-surface Brahmos missiles and 'Barak-8 medium-range surface-to-air missiles.

The destroyer, significantly more versatile than the previous classes of destroyer and frigates in the Indian Navy's inventory, is fitted with indigenously developed anti-submarine weapons and sensors, prominently the hull-mounted Sonar HUMSA-NG, heavy-weight torpedo tube launchers and ASW rocket launchers.

INS Surat's all-round capability against enemy submarines, surface warships, anti-ship missiles and fighter aircraft will enable it to operate independently without supporting vessels and also to function as the flagship of a Naval task force, the company said.

"Surat has been delivered to the Indian Navy ahead of the contractual time as the most combat-worthy platform to date. This reaffirms MDL's commitment towards continuous improvement and exceeding global benchmark," the MDL said.

INS Vagsheer, the sixth Scorpene Submarine of Project-75 launched in April 2022, was designed by French naval defence, and can operate in all theatres of operation. The addition of Vagsheer will help address gaps in India's underwater warfare capabilities as the Navy's number of submarines has been reduced from 21 in the 1980s to 16 now.

<https://www.theweek.in/news/defence/2024/12/26/come-2025-indian-navys-cutting-edge-warships-submarine-will-dominate-indian-ocean-surat-and-nilgiri-and-vagsheer.html>

The Tribune

Thu, 26 Dec 2024

With new highs in 2024, public sector dominates defence production

With growing emphasis on self-reliance in the defence sector, the indigenous production of weapon platforms as well as the export of military hardware touched a new high in 2024. While the public sector dominated production, the private sector had a greater share in exports.

“The defence production went up to a record-high figure of Rs 1,26,887 crore, reflecting a growth of 16.7 percent over the defence production of the previous financial year,” the year-end review issued by the Ministry of Defence (MoD) on Thursday stated.

The value of defence production in FY 2022-23 was Rs 1,08,684 crore. Of the total value of production in 2023-24, about 79.2 percent has been contributed by Defence Public Sector Undertakings (DPSUs) and other public sector units (PSUs), and the remaining 20.8 per cent by the private sector.

The data shows that in terms of absolute value, both the public as well as the private sectors have recorded a steady growth in defence production. The MoD has set a target to achieve Rs three lakh crore defence production by 2029.

Defence exports touched a high of Rs 21,083 crore (approximately USD 2.63 Billion) during the 2023-24 financial year, a growth of 32.5 percent over the previous fiscal when the figure was Rs 15,920 crore, the MoD stated.

The figures indicated that the exports grew by 31 times in the last 10 years as compared to the 2013-14 financial year. The private sector and DPSUs contributed about 60 percent and 40 percent respectively.

The target set by the MoD for export of defence equipment is Rs 50,000 crore by 2029. India exports defence equipment to over 100 nations, with the top three destinations for defence exports in 2023-24 being the USA, France, and Armenia. The export portfolio includes a diverse range of advanced defence equipment, including air defence missiles, rockets, Dornier Do-228 aircraft, Dhruv and Chetak helicopters, fast interceptor boats, lightweight torpedoes, bulletproof jackets, boots and helmets.

While complementing the role of the public as well as private sector for making tremendous efforts, the MoD also cited successful implementation of the policies and initiatives of the government in achieving the highest-ever value of production and exports.

The initiatives include a liberalised Foreign Direct Investment policy with increased limits, enhanced budgetary allocation with 75 percent of the Rs 1,40,691.24 crore allocation for capital acquisition (modernisation) for 2024-25 being earmarked for domestic procurement, priority for domestic procurement, simplified licensing process and launch of the Innovations for Defence Excellence (iDEX) scheme to involve the private industry and startups in research and development.

Further, to boost self-reliance in defence and minimise imports, the Department of Defence Production (DDP) in July, notified the fifth Positive Indigenisation List (PIL) consisting of 346 items. These include strategically-important line replacement units, systems, sub-systems, assemblies, sub-assemblies, spares and components as well as raw materials.

Earlier, four PILs comprising 4,666 items were notified by the DDP for DPSUs, of which 2,972 items, having import substitution value worth Rs 3,400 crore, have already been indigenised. These five lists for DPSUs are in addition to the five PILs of 509 items notified by the Department of Military Affairs. These lists include highly-complex systems, sensors, weapons and ammunition.

India, however, continues to be the top arms importer in the world, accounting for close to 10 percent of the global weapons trade. According to reports, India's imports saw a 4.7 percent increase between 2014-18 and 2019-23.

<https://www.tribuneindia.com/news/india/with-new-highs-in-2024-public-sector-dominates-defence-production/>



Thu, 26 Dec 2024

सेना का लद्दाख में पर्वत प्रहार अभ्यास, हाई-एल्टीट्यूड वाले ऑपरेशन पर केंद्रित किया ध्यान

भारतीय सेना ने बुधवार को लद्दाख में हाई-एल्टीट्यूड वाले युद्ध और ऑपरेशंस पर ध्यान केंद्रित करते हुए एक रणनीतिक सैन्य अभ्यास पर्वत प्रहार किया. पर्वत प्रहार युद्ध अभ्यास पहाड़ी और ऊबड़-खाबड़ इलाकों जैसे पूर्वी लद्दाख के कई क्षेत्रों पर जोर देता है. इस बारे में अधिकारियों ने जानकारी दी है.

'पर्वत प्रहार' (माउंटेन स्ट्राइक) अभ्यास पहाड़ी और ऊबड़-खाबड़ इलाकों पर जोर देता है, जैसे कि पूर्वी लद्दाख जैसे क्षेत्रों में पाए जाते हैं. यह उस क्षेत्र में सेना की तत्परता और प्रभावशीलता बनाए रखने के लिए महत्वपूर्ण है जो भारत-चीन सीमा के करीब है. एक पखवाड़े से ज्यादा वक्त तक चलने वाले इस अभ्यास में ऐसे इलाकों में उत्पन्न

होने वाली अनूठी चुनौतियों में सैनिकों को प्रशिक्षित करने के लिए वास्तविक दुनिया के युद्ध परिदृश्यों का अनुकरण करना शामिल है। इस ड्रिल में पैदल सेना, बख्तरबंद, तोपखाने और सपोर्ट यूनिट समेत सेना की कई शाखाएं भाग ले रही हैं।

अधिकारियों के अनुसार, विभिन्न प्रकार के टैंक, के-9 वज्र, एयर डिफेंस सिस्टम, यूएवी और सेना की अन्य विमानन संपत्तियां अपनी संचालन क्षमता और युद्ध तैयारियों का प्रदर्शन कर रही हैं। इस अभ्यास के बारे में सेना की फायर एंड फ्यूरी कोर ने एक्स पर जानकारी देते हुए लिखा, लद्दाख में 12,000 फीट से अधिक की ऊंचाई पर कंपकंपा देने वाले तापमान में फायर एंड फ्यूरी सैपर्स प्लांट संचालकों के साथ कॉम्बैट इंजीनियरिंग ऑपरेशन पर एकीकृत ट्रेनिंग ले रहे हैं। हाई-एल्टीट्यूड पर प्रशिक्षण परिचालन तत्परता, विश्वसनीयता और आत्मविश्वास को प्रदर्शित करता है।

सेना की तैयारी को उजागर करता है अभ्यास अधिकारियों ने बताया कि क्षेत्र की रणनीतिक स्थिति और चीन से इसकी निकटता 'पर्वत प्रहार' को एक महत्वपूर्ण अभ्यास बनाती है। प्रशिक्षण में न केवल लड़ाकू इंजीनियरिंग कौशल शामिल है, बल्कि मिशन के दौरान निर्बाध सहयोग सुनिश्चित करने के लिए प्लांट ऑपरेटरों के साथ समन्वय भी शामिल है। यह कठोर अभ्यास दुनिया के सबसे चुनौतीपूर्ण इलाकों में से एक में काम करने के लिए भारतीय सेना की तैयारी को उजागर करता है। वहीं, गलवान झड़प के बाद से भारत और चीन चार साल से अधिक समय से सैन्य गतिरोध में बंद हैं, सैन्य और राजनीतिक दोनों स्तरों पर कई दौर की बातचीत महत्वपूर्ण प्रगति हासिल करने में विफल रही है। 2020 के बाद से भारतीय सेना ने इस क्षेत्र में 500 से अधिक टैंक और बख्तरबंद लड़ाकू वाहन तैनात किए हैं और तेजी से बुनियादी ढांचे का विकास किया है।

इसके अलावा भारत ने वास्तविक नियंत्रण रेखा पर चीनी तैनाती का मुकाबला करने के लिए 50,000 से अधिक सैनिकों को तैनात किया है, जिसका उद्देश्य चीन द्वारा यथास्थिति को बदलने के किसी भी अन्य प्रयास को रोकना है। भारत और चीन ने हाल ही में भारत-चीन सीमा मामलों (डब्ल्यूएमसीसी) की बैठक में परामर्श और समन्वय के लिए एक कार्य तंत्र का समापन किया है और जल्द ही एलएसी पर गतिरोध को हल करने के लिए कोर कमांडर-स्तर की अगेल दौर की वार्ता होने की उम्मीद है।

<https://www.aajtak.in/defence-news/story/army-focuses-on-mountain-strike-exercise-high-altitude-operations-in-ladakh-ntc-dskc-2130076-2024-12-26>

Business Standard

Thu, 26 Dec 2024

Rajnath Singh to chair Armed Forces Flag Day CSR conclave in Delhi on Fri

Defence Minister Rajnath Singh will chair the sixth edition of the Armed Forces Flag Day (AFFD) Corporate Social Responsibility (CSR) conclave here on Friday, officials said.

The event organised by Kendriya Sainik Board under Department of Ex-Servicemen Welfare aims to highlight the measures taken for rehabilitation, resettlement and welfare of the veterans, widows

and their dependents, and for mobilising the CSR support towards these efforts, the defence ministry said in a statement.

Singh will chair the Armed Forces Flag Day CSR conclave in New Delhi on December 27, the officials said.

He will also felicitate prominent CSR contributors to the AFFD Fund, they added.

Minister of State for Defence Sanjay Seth, Chief of Defence Staff Gen Anil Chauhan, Secretary ESW Niten Chandra, members from the CSR fraternity, veterans, defence service personnel and other senior officials of the ministry will also attend the conclave, the statement said.

https://www.business-standard.com/external-affairs-defence-security/news/rajnath-singh-to-chair-armed-forces-flag-day-csr-conclave-in-delhi-on-fri-124122600794_1.html



Thu, 26 Dec 2024

Maiden Flight Of China's 'Tailless' 6th-Gen Fighter Storms Social Media; Expert Calls It A Whole New Level!

Excitement and speculation have surged as new images and videos appear to reveal the maiden flights of not one but two of China's cutting-edge sixth-generation fighter jets. On December 26, social media platform X (formerly Twitter) was flooded with images and videos featuring China's latest generation fighter jet, sparking widespread discussion. The aircraft was seen soaring alongside China's fifth-generation J-20S (a twin-seat variant of its Chengdu J-20 Mighty Dragon stealth fighter).

The flight reportedly took place over Chengdu, the capital of Sichuan province, and is thought to have been conducted by the Chengdu Aerospace Corporation (CAC). The accompanying J-20 fighter is speculated to have acted as "a chase plane" during the test flight. This latest development has ignited a flurry of speculation online, with many observers hailing the aircraft as a "major leap" in China's military aviation capabilities.

On X, users described the event as a semi-annual "Chinese Christmas defense surprise," with one commentator humorously stating that the appearance had "sent aviation Twitter into cardiac arrest."

The timing of the flight is also noteworthy, coinciding with the birthday of Chairman Mao Zedong, the founder of the People's Republic of China. This new aircraft is the latest in a series of major milestones for China's aviation sector. Just a month ago, at the Zhuhai Airshow, China unveiled the J-35A fifth-generation fighter jet and the J-15T fighter.

During the Zhuhai Airshow, the unveiling of a mockup of a sixth-generation fighter, dubbed "Baidi" or "White Emperor," also caught the global media attention. At the time, the Baidi was

described as a next-generation integrated space-air fighter capable of supersonic flight and potentially operating in space. It is unlikely that the aircraft seen on December 26 is the Baidi. While some accounts have labeled the new Chinese aircraft the “J-XX”, others refer to it as the “J-XD”, adding to the uncertainty surrounding its designation. While many details remain unknown, the debut of China’s latest fighter marks another milestone in the country’s growing defense prowess and its ambitions to challenge global aviation powers.

What Do We Know About This New Aircraft?

Many experts initially approached the news with caution, wary of the possibility that this might be another case of China presenting an overhyped or unverified prototype. However, with a wide range of footage circulating on the internet, it appears that China has indeed reached a key milestone in its military aviation development. The available images and videos reveal a fighter jet that appears considerably larger than even the J-20, which is already regarded as a formidable aircraft.

Popular military analyst and observer Rick Joe, who closely follows developments within the People’s Liberation Army (PLA), noted that while the J-20S is already a sizable aircraft, the new plane displayed alongside it seems to take size to “a whole other level.” From the footage, it is clear that the aircraft features a unique design, including three engines—two located at the bottom of the fuselage and one positioned on top, with an intake above the center engine.

The jet also seems to be equipped with side and upper air intakes, a dual-bogey main undercarriage, and split airbrakes or flaperons, which indicate its advanced aerodynamic and performance features. Joe pointed out that despite having three engines, the aircraft would likely have ample internal space for various payloads or additional technological systems.

However, some experts remain cautious in their assessment of the aircraft’s role. Justin Bronk, another respected defense analyst, voiced intrigue over China’s decision to fly the prototype during daylight hours, which he believes is significant in terms of its strategic messaging.

Despite the attention surrounding the new fighter, Bronk warned against immediately categorizing it as China’s equivalent to the US Air Force’s Next-Generation Air Dominance (NGAD) fighter. He speculated that it might instead be part of a regional bomber or strike fighter program, possibly referred to as the JH-XX, which could complement China’s broader military capabilities in the region rather than focusing solely on air superiority.

However, Joe expressed skepticism, stating, “I’m very doubtful of this thing being JH-XX. Without going into details, the grapevine leading up to predicting this thing describes it as an A2A platform first (with the usual system of systems, CCA trends).” He also suggested that the concept of a “fighter” may become increasingly outdated with time.

Shenyang Joins The Race: Another Chinese Sixth-Generation Jet Takes Flight?

As the details surrounding China’s sixth-generation fighter jet developed by Chengdu Aerospace Corporation (CAC) began to surface, the internet was soon flooded with a new image that sparked discussions that Beijing may not have tested just one, but two prototypes of its sixth-generation fighter jets.

It appears that CAC's rival, Shenyang Aircraft Corporation, has also been working on a next-generation fighter. Reports suggest that the Shenyang prototype made its maiden flight on December 20, just days before the Chengdu jet's public appearance. However, the details cannot be independently confirmed by the EurAsian Times.

While both jets may be part of China's push for sixth-generation fighter capabilities, their designs differ significantly. Compared to Chengdu's prototype, which features a tri-engine configuration, the Shenyang design adopts a simpler twin-engine setup.

The Shenyang jet is somewhat smaller in comparison. In terms of aerodynamics, the Chengdu fighter boasts delta wings, which are known for their high-speed stability, while the Shenyang design is equipped with swept wings, optimizing it for maneuverability at various speeds.

One key similarity between the two prototypes is their tailless configuration. Both aircraft lack the traditional vertical and horizontal stabilizers. This aligns with a design philosophy that prioritizes stealth, reduced radar signature, and possibly advanced flight characteristics.

China's New Aircraft Sets A New Benchmark?

As several nations advance their own sixth-generation fighter programs, China's achievement highlights the rapid pace of technological progress in aerial warfare. This development has far-reaching implications, particularly for the United States, which is also working on a next-generation air superiority fighter under its Next Generation Air Dominance (NGAD) program.

China's progress is expected to push the US to accelerate its own plans. The US Air Force (USAF) has already conducted maiden test flights of a prototype for the NGAD program. In 2020, the USAF revealed that a full-scale flight demonstrator "has already flown in the physical world. It's broken a lot of records in the doing." However, the US has recently paused the contract award for the NGAD fighter as military officials reassess the aircraft's requirements.

Following China's latest achievement, Tim Robinson, editor-in-chief of Aerospace magazine, speculated that this could be a factor in the US reconsidering its NGAD plans. Robinson referenced rumors from the summer suggesting a shift in threat assessments that could explain the rethinking of the program's direction.

Across the Atlantic, several European nations are also working on next-generation fighter projects. The United Kingdom and Italy have joined forces with Japan on the Global Combat Air Program (GCAP), which seeks to produce a next-generation fighter jet by the early 2030s. Meanwhile, France, Germany, and Spain are collaborating on their own sixth-generation fighter program, though progress has been slow and marred by internal controversies.

However, the rapid pace of China's advancements highlights the urgency of the West's development of long-range, sixth-generation strike fighters capable of countering China's growing capabilities. Dr. Malcolm Davis, a Senior Analyst at the Australian Strategic Policy Institute, emphasized the need to move beyond short-range fighters, especially given the demands of the Indo-Pacific operational environment. He argued that the region requires fighters with hemispheric range, high payload capacity, and strong connectivity with autonomous wingmen. The UK's GCAP is already heading in this direction, and it appears that China's new fighter may share similar attributes. Davis further highlighted, "This and GCAP may demand some urgent re-thinking in

regards to NGAD, I think. Especially if the Chinese can introduce this into service quickly – it’s flying in 2024/25 – NGAD won’t enter service for another ten years.”

The accelerating pace of China’s military aviation technology demands an urgent rethinking of how Western nations approach next-generation fighter development.

<https://www.eurasiantimes.com/maiden-flight-of-chinas-tailless-6th-gen-fighter/>



Fri, 27 Dec 2024

Stealthy & Long-Ranged — Russia’s New ‘Klub-10E’ Kamikaze Drone Could Prove “Nasty” For Ukrainian Forces

Kalashnikov has unveiled a new long-range kamikaze drone named Klub-10E, which is likely to have a significant impact on the course of the Russian military operation in Ukraine. The drone will significantly increase the threat to Ukrainian forces and infrastructure.

In an interview with TASS, Kalashnikov CEO Alan Lushnikov stated, “We have developed several new products in the Cube line. The permits for one of them are already ready, so I can tell you briefly about our new product. This is the Kub-10E strike drone. It is designed to destroy enemy unarmored military equipment and armored personnel carriers, command posts, air defense and missile defense facilities, electronic reconnaissance and electronic warfare, and rear support facilities.”

The Klub-10E is relatively large in size. A video released by Kalashnikov shows Kub-BLA drones being launched alongside a Klub-10E using catapults. Based on the relative sizes of the drones and their catapults, the Klub-10E could be approximately five times larger in volume compared to the Kub-BLA. Both the Klub-10E and its predecessor, the Kub-BLA, are kamikaze drones, but they differ significantly in terms of strike range and payload capability. The Kub-BLA is a high-precision loitering munition designed to target ground and sea-based threats with lethal accuracy. It can hover over the battlefield, locate targets, and strike with precision. The Kub-BLA, also known as the KUB-E, has a range of up to approximately 40 kilometers and can carry up to 3 kilograms of sensors and explosive warheads.

The Kub-BLA features a compact and efficient tailless design with cranked delta wings. The design is optimized for stealth and maneuverability but not for range. Kalashnikov developed the Klub-10E to engage targets at much longer ranges. In addition to battlefield targets, the Klub-10E is designed to strike deeper behind enemy lines. These targets include rear support facilities, combat and support units, field warehouses storing ammunition and fuel, UAV launch sites, and aircraft stationed at airfields. According to Kalashnikov, the drone has undergone battle testing, which is why we have had puzzling reports of Russian kamikaze drone strikes deep inside Ukraine.

However, the company has not disclosed the exact range or payload capacity, only stating, “The flight range and combat power of the new guided munition significantly exceed the indicators of previous models of the line.” Based on its size and aerodynamically efficient design, the Klub-10E could potentially have a range of several hundred kilometers. Its large, straight wings would have a high lift coefficient, suggesting its range could rival or surpass that of the Geran-2 drones.

Design & Aerodynamics

The Klub-10E features a (gasoline?) power plant with a pusher propeller mounted atop the fuselage at the wing roots. The front fuselage connects to the tail unit via a low-mounted boom attached to the fuselage bottom. Directional stability and control comes from tailplane tips mounted twin all-moving rudders. This twin-rudder arrangement ensures the pusher propeller has an unobstructed slipstream.

Pitch control is likely managed by a combination of full-span ailerons and elevators. Aerodynamically, the Klub-10E appears relatively stealthy, although perhaps less so than the Geran-2. The non-stealthy engine and propeller are shielded by a voluminous front fuselage that likely accommodates a larger warhead than the Geran-2.

Guidance & Navigation

The Klub-10E can autonomously strike targets using pre-programmed coordinates or an optical seeker loaded with target images. It typically relies on satellite navigation systems such as GPS or GLONASS but can switch to inertial navigation in case of satellite jamming. Inertial navigation uses motion sensors and gyroscopes to calculate position, velocity, and orientation without external references.

Similarly, the Klub-10E employs a combination of satellite and inertial navigation for precise targeting. It currently doesn't incorporate an optical sensor, likely because target recognition isn't critical when striking static targets with geographical spread deep in the interiors. The drone can operate in diverse weather conditions, including wind gusts up to 15 m/s and within temperature ranges of -30°C to +40°C. The drone cruises at 100 km/h, with operational altitudes ranging from 100 to 2,500 meters.

Conclusion

Russia appears to have developed the Klub-10E to address limitations in the Geran-2 drone, which is based on the Iranian Shahed-136 platform. These limitations include a smaller warhead and the use of Western-origin components that require substitution through alternate sourcing. The Klub-10E's aerodynamic design allows for seamless upgrades, such as embedded optical sensors that could add surveillance without compromising stealth. The Klub-10E likely utilizes domestically manufactured subsystems, facilitating faster upgrades and production scaling.

It is likely that Russia will continue advancing its drone technology, producing upgraded versions of the Geran-2 while deploying the Klub-10E in greater numbers to reinforce its operational capabilities.

<https://www.eurasiantimes.com/stealthy-long-ranged-russias-new-klub-10e/>

Thu, 26 Dec 2024

26th edition of Shaastra, hosted by IIT-Madras, to be held from January 3-7, 2025

The 26th edition of Shaastra, hosted by the Indian Institute of Technology-Madras, will be held from January 3 to 7, 2025. Themed on “Fractal Frontiers,” Shaastra 2025 draws inspiration from the intricate shapes and patterns found in nature. Preparations are underway and over 60,000 people are expected to participate in India’s largest student-run techno-entertainment festival.

Sathyanarayana N. Gummadi, Dean (Students), IIT Madras, said, “This year, we are introducing two new areas in the Shaastra Summit and Research Conference: ‘Future Cities’ and ‘Smart Manufacturing’. We are looking forward to the contributions from all the stakeholders towards sustainable approaches in these domains.”

Over 110 events With over 110 events ranging from dynamic hackathons and biotechnology challenges to exciting workshops by industry experts, the festival serves as a premier hub for intellectual engagement.

Co-Curricular Adviser Murugaiyan Amirthalingam said, “Shaastra serves as a dynamic platform for learning and innovation, bringing together over 50 workshops on several topics. It offers students and tech enthusiasts a unique chance to gain invaluable hands-on experience in cutting-edge domains.”

Shaastra’s flagship Spotlight lecture series, presented by Shaastra’s title sponsor the National Institute of Ocean Technology (NIOT), features 10 eminent speakers, including Arokiaswamy Velumani, Founder-CEO, Thyrocare Technologies; Ruchira Kamboj, former Permanent Representative of India to the United Nations; and Dr. Subir Sachdev, Herchel Smith Professor of Physics at Harvard University.

This year’s event lineup features Caterpillar Autonomy Challenge, presented by Caterpillar Inc., which showcases the autonomous capabilities and precision picking skills of robots designed for space exploration. The FedEx SMART Centre, an IIT-M body, will host the pilot edition of its flagship hackathon to recruit students for a summer internship.

Comedy Night Speaking about the entertainment at Shaastra, Vaishnavi, who leads the Shows & Exhibitions vertical of Shaastra, said, “For the first time ever, we’re hosting a Comedy Night with the incredible Gurleen Pannu on January 6, 2025.”

Other highlights include the electrifying RoboWars on January 4 sponsored by IDFC FIRST Bank and Bajaj Auto, the Techno-Entertainment Night on January 5, featuring headliners Karan Kanchan

and international artist Camilla Lynx, and Jarvis Lab's tech-entertainment production Envisage 13.0 on January 3.

Co-curricular Affairs Secretary Sukheth Kallupalli shared, "Shaastra 2025 will be a testament to IIT Madras's commitment to sustainability and environmental stewardship. By replacing all plastic and vinyl banners with reusable cloth-based branding and implementing measures to drastically cut our carbon footprint, we are proud to align with the UN SDGs and India's mission to achieve net zero by 2070."

Adding to its intellectual appeal, Shaastra's International Research Conference, sponsored by Temenos, will host 160+ dignitaries exploring groundbreaking ideas on Industry 4.0, culminating in a one-of-its-kind publication.

Meanwhile, L&T's International Summit on Future Cities will bring together professionals and students to envision the future of urban landscapes, fostering innovative and sustainable solutions. Boeing is set to host its iconic national aeromodeling contest in association with IIT Madras across four different IITs.

Focus on farmers

This year's campaign, "Uzhavu," focuses on empowering Indian farmers through AI and technology, aiming to bolster the agrarian economy. In addition to upskilling sessions for farmers, awareness programmes have been held in schools and colleges, while a national hackathon has been launched among others.

Sukheth said of the social campaign, "Through initiatives like tech-enabled soil testing and precision farming in Chengalpattu, we aim to provide hundreds of farmers with crop cycle recommendations based on geolocation data, weather patterns, and economic feasibility in a six-month project. Uzhavu also seeks to create and distribute pollinator pods to support the declining bee population. The support of firms such as National Agro Foundation, Tamil Nadu Climate Change Mission and School of Sustainability, IIT Madras, has been instrumental in making this vision a reality."

Through initiatives like Macmillan's Budding Scientists Programme and the Junior Make-a-thon, school students will also be a part of the festivities. This edition of Shaastra also introduces Rewire, a cognitive enhancement initiative to promote multisensory learning and neuroscience-backed teaching methodologies.

Rewire hosted a national toy-designing competition sponsored by the organisation Help Them Shine, and will organise a national teachers' conference on January 4 and 5, 2025 during the festival to develop action plans for inclusive pedagogies, particularly for neurodiverse students.

<https://www.thehindu.com/education/26th-edition-of-shaastra-hosted-by-iit-madras-to-be-held-from-january-3-7-2025/article69030398.ece>

NASA spacecraft 'safe' after closest-ever approach to Sun

NASA said on Friday that its Parker Solar Probe was "safe" and operating normally after successfully completing the closest-ever approach to the Sun by any human-made object.

The spacecraft passed just 3.8 million miles (6.1 million km) from the solar surface on Dec. 24, flying into the sun's outer atmosphere called the corona, on a mission to help scientists learn more about Earth's closest star.

The agency said the operations team at the Johns Hopkins Applied Physics Laboratory in Maryland received the signal, a beacon tone, from the probe just before midnight on Thursday.

The spacecraft is expected to send detailed telemetry data about its status on Jan. 1, NASA added. Moving at up to 430,000 mph (692,000 kph), the spacecraft endured temperatures of up to 1,800 degrees Fahrenheit (982 degrees Celsius), according to the NASA website.

"This close-up study of the Sun allows Parker Solar Probe to take measurements that help scientists better understand how material in this region gets heated to millions of degrees, trace the origin of the solar wind (a continuous flow of material escaping the Sun), and discover how energetic particles are accelerated to near light speed," the agency added.

The Parker Solar Probe was launched in 2018 and has been gradually circling closer towards the sun, using flybys of Venus to gravitationally pull it into a tighter orbit with the sun.

<https://economictimes.indiatimes.com/news/science/nasa-spacecraft-safe-after-closest-ever-approach-to-sun/articleshow/116703949.cms>

