

अप्रैल

April
2023

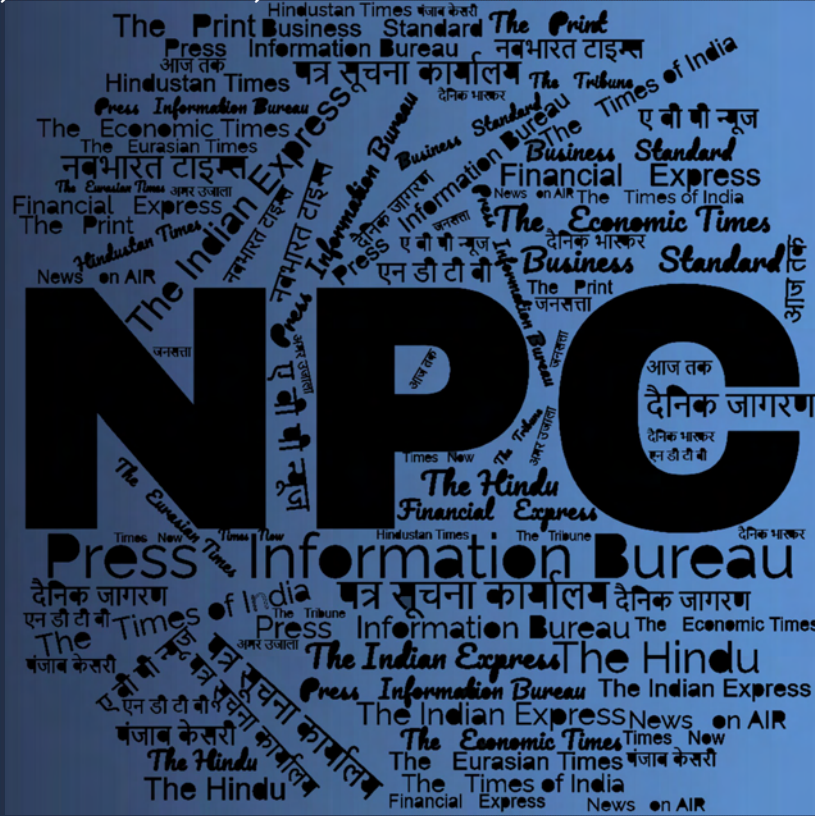
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समाचार पत्रों से चयित अंश Newspapers Clippings

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CONTENTS

S. No.	TITLE		Page No.
	DRDO News		1-2
	DRDO Technology News		1
1.	Upgraded Pinaka Rocket System Tested Successfully	<i>The Times of India</i>	1
	DRDO on Twitter		2
	Defence News		3-25
	Defence Strategic: National/International		3-25
2.	Vice Admiral Sanjay Jasjit Singh, AVSM, NM Assumes Charge as Vice Chief of the Naval Staff	<i>Press Information Bureau</i>	3
3.	Prime Minister Shri Narendra Modi Reviews Operational Readiness of the Armed Forces during Combined Commanders' Conference in Bhopal	<i>Press Information Bureau</i>	3
4.	Defence will get all the Resources it Needs: PM	<i>Hindustan Times</i>	4
5.	Rajnath Attends Combined Commanders' Conference	<i>The Pioneer</i>	6
6.	“Significant Boost to Indian Navy...”: SN Ghormade on Defence Ministry's Multiple Deals	<i>The Times of India</i>	6
7.	Army Chief General Manoj Pande Leaves for Australia to Enhance Defence Ties	<i>India Today</i>	7
8.	दुश्मन के मंसूबे ध्वस्त करेंगी समुद्री ठिकानों पर तैनात कूज मिसाइलें	<i>दैनिक जागरण</i>	8
9.	Defence Ministry Inks Procurement Deals worth Rs 32,086 Crore before FY2023 Ends	<i>Financial Express</i>	8
10.	Defence Exports, at All-Time High of Rs 16,000 Crore, Include Made-in-India ATAGS	<i>The Print</i>	10
11.	Defence Sector Reforms Delivering Good Results: PM Modi on Exports Reaching Record High	<i>The Economic Times</i>	12
12.	No Headway with AMCA Fighter Jet Engine; a Quest for New Engine Propulsion Technology Lingers	<i>Financial Express</i>	12
13.	Defence Ministry Signs Rs 470 Crore Contract with UDPL for Modernisation of Naval Aircraft Yards at Goa and Kochi	<i>News on AIR</i>	15
14.	BEL gets Defence Export Orders worth \$52 Million	<i>Business Line</i>	16
15.	Guns vs Butter-4: We Took Giant Leap with the Tejas, says Indian Air Force	<i>Business Standard</i>	17
16.	Guns vs Butter-5: 'India can make do with Defence Spend of 2% of GDP'	<i>Business Standard</i>	18
17.	India, Philippines Agree to Bolster Defence Ties	<i>The Tribune</i>	20
18.	LS Speaker Om Birla Calls for Deepening India-Israel Cooperation to Combat Terrorism	<i>RepublicWorld.com</i>	20
19.	India-China Exploring Bilateral Talks when Chinese Defence Minister Visits for SCO Meeting in April	<i>Financial Express</i>	21
20.	Russia's new Foreign Policy Strategy Identifies India, China as Main Allies	<i>The Times of India</i>	22
21.	New Satellite Pics Reignite Chinese 'Spy base' Suspicion at Myanmar's Coco Islands	<i>India Today</i>	23
22.	NATO Opens Innovation Hub in UK	<i>Janes</i>	25
	Science & Technology News		25-27
23.	ISRO Successfully Conducts Autonomous Landing of First Reusable Rocket in Karnataka	<i>The New Indian Express</i>	25
24.	ISRO's RLV Success to Cut Launch Costs by 80 per cent	<i>The New Indian Express</i>	26

DRDO News

DRDO Technology News

THE TIMES OF INDIA

Sat, 01 Apr 2023

Upgraded Pinaka Rocket System Tested Successfully

The Make-in-India upgraded Pinaka Mk-I user (Enhanced) Rocket System (EPRS) surface-to-surface extended range flight-testing was conducted on Wednesday & Thursday by the Defence Research and Development Organisation (DRDO) and Indian Army at Pokhran firing ranges in Jaisalmer district. The short & high range multiple trials of Pinaka rockets were carried out successfully.

New EPRS rockets were fired for more than 35km range in high range & of 7-8 km in low range during the trials. Accuracy and consistency were achieved by the rockets meeting all trial objectives satisfactorily. With these trials, the initial phase of technology absorption of EPRS by the industry has successfully been completed. Official sources said required accuracy and consistency were achieved by the rockets meeting all trial objectives satisfactorily. Officials said, “The EPRS is the upgraded version of the Pinaka variant which has been in service with the Indian Army for the last decade. The system has been upgraded with advanced technologies enhancing the range to meet the emerging requirements. The company officials were also present during the trials.”

<https://timesofindia.indiatimes.com/city/jaipur/upgraded-pinaka-rocket-system-tested-successfully/articleshow/99160574.cms>

DRDO on Twitter



DRDO ✓

@DRDO_India



#DRDOUpdates | To boost #AatmaNirbhartaInDefence, @DefenceMinIndia signed contracts for procurement of DRDO designed and developed Akash Prime Weapon System and Weapon Locating Radars- Swathi (Plains) @SpokespersonMoD



9:22 AM · Apr 1, 2023 · 25.3K Views

Defence News

Defence Strategic : National/International



Press Information Bureau
Government of India

Ministry of Defence

Sun, 02 Apr 2023

Vice Admiral Sanjay Jasjit Singh, AVSM, NM Assumes Charge as Vice Chief of the Naval Staff

Vice Admiral Sanjay Jasjit Singh, AVSM, NM assumed the appointment of the Vice Chief of Naval Staff on 01 Apr 2023. On assumption VAdm Sanjay Jasjit Singh paid homage to the bravehearts at the National War Memorial and reviewed the Guard of Honour at South Block, New Delhi on 02 Apr 23. VAdm Sanjay Jasjit Singh is a graduate of the National Defence Academy, Pune, and was commissioned in 1986 in the Executive Branch of the Indian Navy. In his career spanning 37 years, he has served on most class of ships of the Indian Navy and has held a range of command, training and staff appointments, including Assistant Chief of Naval Staff (CSNCO), Flag Officer Sea Training, Flag Officer Commanding Western Fleet, Commandant Naval War College, and Controller Personnel Services. Prior to taking over as the Vice Chief of Naval Staff, he was Deputy Chief of Integrated Defence Staff (Operations).

He holds MSc and MPhil in Defence and Strategic Studies from Madras University, MA in Defence Studies from Kings College, London, and MA (History), MPhil (Pol) and PhD (Arts) from Mumbai University. In recognition of his distinguished service, the Flag Officer was awarded the Nao Sena Medal in 2009, and Ati Vishisht Seva Medal in 2020.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1913086>



Press Information Bureau
Government of India

Ministry of Defence

Sat, 01 Apr 2023

Prime Minister Shri Narendra Modi Reviews Operational Readiness of the Armed Forces during Combined Commanders' Conference in Bhopal

Prime Minister Shri Narendra Modi reviewed the security situation and operational readiness of the Armed Forces during the valedictory session of Combined Commanders' Conference 2023 in Bhopal on April 01, 2023. The Prime Minister was briefed by Chief of Defence Staff General

Anil Chauhan about the various discussions conducted during this year's conference. Shri Narendra Modi complimented the Armed Forces for their role in Nation Building and providing Humanitarian Assistance and Disaster Relief (HADR) assistance to friendly countries.

The Prime Minister called upon the three Services to stay ready to deal with these new and emerging threats, emphasising that all steps are being taken to equip the Armed Forces with necessary weapons and technologies.

During the final day of the session, various topics including aspects of digitisation; cyber security; challenges of social media; Aatmanirbharta; absorption of Agniveers and jointness were discussed. In a significant development from the past, the scope of the conference was expanded this year, wherein, a few multi-layered and interactive sessions were conducted with participation of soldiers from every command of the Indian Army, Indian Navy and Indian Air Force, including the Tri-Services Andaman and Nicobar Command.

This three-day conference of combined apex-level military leadership of the country commenced on March 30, 2023. The theme was 'Ready, Resurgent, Relevant'. During the conference, deliberations over a varied spectrum of issues were held, including on national security and evolving a Joint Military Vision for the future.

On March 31, 2023, Raksha Mantri Shri Rajnath Singh interacted with the top military brass and reviewed the defence preparedness. He lauded the Armed Forces for their valuable contribution in protecting national interests and providing support to the Government in realising its vision of 'Aatmanirbhar Bharat'.

This year's conference was special, wherein, inputs from the field units were sought on contemporary issues like changes in TTP and way forward for greater integration among the three Services. These inputs were deliberated in detail by the Military Commanders. The conference also provided an opportunity for the Commanders to review the modernisation of the Armed Forces and the ongoing & concluded military operations, while also discussing ways to improve the country's defence capabilities.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1912891>



Sat, 01 Apr 2023

Defence will get all the Resources it Needs: PM

Prime Minister Narendra Modi on Saturday assessed the operational readiness of the armed forces in the backdrop of the lingering border row with China, carried out a security review, and asked the military to stay prepared for new and emerging threats at the Combined Commanders' Conference in Bhopal.

The conference focused on a raft of issues including evolving a joint military vision for the future, theaterisation, self-reliance, modernisation and cyber security, officials familiar with the matter said. Addressing the country's military brass on the concluding day of the three-day conference, Modi said the armed forces and the defence sector will be provided all the resources,

weapons and technologies required. His comments came a day after the defence ministry signed deals worth ₹32,100 crore to boost capabilities of the armed forces with indigenous military hardware.

“During the final day, various topics including digitisation, cyber security, challenges of social media, Aatmanirbharta (self-reliance), absorption of Agniveers and jointness were discussed,” the defence ministry said in a statement.

Chief of defence staff General Anil Chauhan briefed the Prime Minister on discussions held during the conference. Those who attended the conference included defence minister Rajnath Singh, Indian Air Force chief Air Chief Marshal VR Chaudhari, army chief General Manoj Pande and top commanders of the three services.

This year’s conference was special as inputs from field units were sought on contemporary issues, including the way forward for greater integration among the three services, which is top priority for the government, the defence ministry said. “These inputs were deliberated in detail by the military commanders,” its statement said. The conference was based on the theme Ready, Resurgent, Relevant.

The top conference was held at a time when the central government is pushing in Parliament the Inter-Services Organisations (Command, Control and Discipline) Bill, 2023, which seeks to empower it to notify the setting up of inter-services organisations, including joint services commands — a key goal of the ongoing theaterisation drive — consisting of units and personnel drawn from the three services, and placed under a commander-in-chief.

It will also empower commanders of tri-services organisations to take action against service personnel of any of the three services — serving under existing or future joint commands or institutions — to ensure discipline and effective discharge of duties.

Efforts to push theaterisation gathered steam again after Chauhan took over as CDS in September 2022, even though the momentum was hit after his predecessor, General Bipin Rawat, died in a helicopter crash in December 2021.

In a new development, the conference involved the participation of soldiers from every command of the three services, and the Port Blair-based Andaman and Nicobar Command, officials said. The scope of the conference was expanded this year as a few multi-layered and interactive sessions involved these soldiers, they said.

Modi also lauded the armed forces for their role in nation building and providing humanitarian assistance and disaster relief assistance to other countries, the ministry statement added.

The conference took place at a time when the India and China have been locked in a border row for almost three years. Despite four rounds of disengagement from Galwan Valley, Pangong Tso, Gogra (PP-17A) and Hot Springs (PP-15), the Indian and Chinese armies still have more than 60,000 troops each and advanced weaponry deployed in eastern Ladakh.

The two armies have held 17 rounds of talks so far, but problems at Depsang in Daulet Beg Oldi sector and Charding Nullah Junction in Demchok sector are still on the negotiating table.

<https://www.hindustantimes.com/india-news/pm-modi-reviews-armed-forces-operational-readiness-in-combined-commanders-conference-amid-china-border-row-focuses-on-self-reliance-and-cyber-security-101680371084605.html>

Rajnath Attends Combined Commanders' Conference

Defense Minister Rajnath Singh attended the Combined Commanders' Conference of the three Services being held in Bhopal on Friday. Apart from CDS General Anil Chauhan, various issues related to the army were discussed in the presence of the chiefs of the three services, Army, Navy and Air Force. At present no information has been made public regarding the issues discussed and the decisions taken. Prime Minister Narendra Modi will attend the conference on Saturday.

The conference lasted for about four and a half hours. Its agenda includes the strategy of the Indian Army, self-reliance in defense matters and other topics. Vice Chief, Chief of Integrated Defense Staff, 7 Army Commander, Commander and Chief of 3 Naval Command have also come to Bhopal to attend the conference.

Prime Minister Narendra Modi is reaching Bhopal on April 1, the last day of the three-day Commander's Conference. PM Modi will see new weapons and other equipment related to defense made in India. Along with this, they will be exposed to the innovations of DRDO and all the three services. Joint command structures of the three armies will also be discussed.

On the other hand, there will be a discussion about the response received to the Agni Veer scheme and what further planning the central government is going to do regarding it. There can also be a discussion on changing the insignia of the three armies which have been going on since the time of the British.

Kushabhau Thackeray Convention Center has been made a high security zone due to the Combined Commander's Conference. Army soldiers are stationed all around this auditorium. Apart from the officers of the forces, no one is allowed inside.

<https://www.dailypioneer.com/2023/state-editions/rajnath-attends-combined-commanders---conference.html>

THE TIMES OF INDIA

“Significant Boost to Indian Navy...”: SN Ghormade on Defence Ministry's Multiple Deals

The Cabinet Committee on Security (CCS) chaired by Prime Minister Narendra Modi has cleared two important proposals including the 6 Next-Generation Missile Vessels, and 11 Next-Generation Offshore Patrol Vessels on March 30. While reacting to ANI, former Navy Vice Chief Vice Admiral SN Ghormade praised the government's move and said, “This is a very significant boost to the capability of the Indian Navy.” “Next-Generation Missile Vessels will

replace the aging missile vessels and we needed a replacement. It will give a boost to the Navy and the nation. Offshore patrol vessels will give us surveillance capability at sea which is a must considering the vast Indian Ocean that we have to monitor and track under our mission-based deployments,” he further said. BrahMos-Equipped Maritime Mobile Coastal Batteries is an indigenous joint venture. This provides us with two capabilities; land attack and anti-ship, both are extremely essential to the maritime security of the nations. With the Next-Generation Mobile Missile Coastal Batteries we will be able to deploy them at strategic locations so that any threat from the east or west could be monitored and neutralized.

<https://timesofindia.indiatimes.com/videos/news/significant-boost-to-indian-navy-sn-ghormade-on-defence-ministrys-multiple-deals/videoshow/99173002.cms>



Sun, 02 Apr 2023

Army Chief General Manoj Pande Leaves for Australia to Enhance Defence Ties

General Manoj Pande, Chief of the Army Staff (COAS), on Sunday left for Australia on a four-day visit to explore ways to boost defence cooperation between the Armed Forces of the two countries.

The Army chief will interact with a host of senior military dignitaries from different services of the Australian Defence Forces. He will also call on the Chief of the Defence Force of Australia, the senior most defence officer of the nation.

Besides a discussion with his counterpart, the Chief of the Australian Army, he will also interact with the Chief of the Australian Air Force. Gen Manoj Pande is scheduled to meet a host of other senior dignitaries wherein he will discuss avenues for enhancing India-Australia defence relations.

Australia-India defence cooperation has been on an upward trajectory with a series of diverse engagements at different levels, in various domains. These include bilateral visits by senior officers, reciprocal courses of instruction and training exercises, among others.

The ever-expanding defence cooperation engagements encompassing a broad spectrum of activities have established a strong bonhomie between the two Armed Forces. The visit of the COAS to Australia will further strengthen the bonds of trust and understanding between the two armies.

<https://www.indiatoday.in/india/story/army-chief-general-manoj-pande-leaves-for-australia-to-enhance-defence-ties-2354736-2023-04-02>

दैनिक जागरण

Sun, 02 Apr 2023

दुश्मन के मंसूबे ध्वस्त करेंगी समुद्री ठिकानों पर तैनात क्रूज मिसाइलें

नई दिल्ली, एएनआइ: चीन और पाकिस्तान की ओर से बढ़ रही चुनौतियों से निपटने के लिए नौसेना महत्वपूर्ण समुद्री ठिकानों पर ब्रह्मोस सुपरसोनिक क्रूज मिसाइलों की तैनाती करेगी। कई सफल परीक्षणों के बाद नौसेना ने हाल ही में इन मिसाइलों को समुद्री ठिकानों पर तैनाती के लिए स्वीकृत किया है।

तैनात की जाने वाली क्रूज मिसाइलें आवाज से तेज गति से लक्ष्य पर सटीक निशाना लगाने के लिए जानी जाती हैं। नौसेना इन क्रूज मिसाइलों को मोबाइल लांचर के जरिये भी दाग सकती है। इन्हें आवश्यकतानुसार कहीं भी ले जाया जा सकेगा। अर्थात् इन्हें खोजकर बर्बाद करना दुश्मन के लिए लगभग असंभव होगा। इतना ही नहीं ये मिसाइलें युद्धपोत और पनडुब्बी से भी दागी जा सकेंगी।

यह जानकारों नौसेना के पूर्व उप प्रमुख वाइस एडमिरल सतीश एन घोरमाडे ने दी है। तटीय क्षेत्रों के लिए मोबाइल मिसाइल बैटरी सिस्टम की तैनाती को रक्षा मंत्रालय ने हरी झंडी दे दी है और इस बाबत आवश्यक सामग्री की आपूर्ति का समझौता 30 मार्च को ब्रह्मोस एयरोस्पेस कॉर्पोरेशन के साथ हो गया है। नौसेना के पूर्व उप प्रमुख ने कहा, तटवर्ती इलाकों में अगली पीढ़ी के अत्याधुनिक मिसाइल सिस्टम को तैनात कर हम सभी तरह की चुनौतियों से निपटने में सक्षम हो जाएंगे। यह सिस्टम खतरे का पता लगाकर उसे खत्म करने में सक्षम होगा। रूस के साथ मिलकर तैयार हुआ यह स्वदेशी सिस्टम दुश्मन के युद्धपोत और जमीन से होने वाले हमलों से निपटने में सक्षम होगा।

 **FINANCIAL EXPRESS**
Read to Lead

Fri, 31 Mar 2023

Defence Ministry Inks Procurement Deals worth Rs 32,086 Crore before FY2023 Ends

Just a day before the end of the FY 2023, the Ministry of Defence (MoD) firmed up deals for military equipment and weapons with various Defence PSUs to the tune of Rs 32,086 crore several crores which will help boost the operational capabilities of the Indian Armed Forces.

Agreements signed on March 30, 2023

The bulk of contracts inked were for the Indian Navy, however, the wait for Fleet Support Ship continues.

The Indian Navy will get 11 Next Generation Offshore Patrol Vessels (NG-OPV) and six Next Generation Missile Vessels (NGMV). And also BrahMos supersonic missiles which are meant for coastal defence for the Navy.

And for the Indian Army there is the improved version of Akash Surface to Air missile system and also 12 Swathi Weapon Locating Radars (WLR).

According to the MoD official statement, a contract was inked with Goa Shipyard Ltd (GSL) and Garden Reach Shipbuilders and Engineers (GRSE), Kolkata for the acquisition of 11 NG-OPVs at a total cost of Rs 9,781 crore. Out of the 11 NG-OPVs seven of them will be designed, developed and manufactured by GSL and GRSE will get the balance four and the delivery is expected to start from September 2026.

How will these help the navy?

According to the MoD these new generation OPVs will strengthen navy's combat capability and also help to meet different operational requirements including anti-trafficking, non-combatant evacuation operations, Search and Rescue (SAR), anti-piracy, protection of offshore assets, anti-poaching and counter-infiltration.

NG Missile Vessels for navy

A contract worth Rs 9,805 crore for acquiring six NGMVs (next generation Missile vessels) was inked on Thursday with Cochin Shipyard Limited (CSL) and the delivery of these is expected to start from March 2027.

These high speed heavily armed war vessels will be incorporating stealth, and offensive capability, and their primary role will be to provide offensive capability against land targets, enemy warships and merchantmen, stated the MoD statement.

These vessels are expected to be a potent instrument of sea denial for enemy ships especially at choke points, said the MoD and will be capable of carrying out anti-surface warfare operations, and maritime strike operations.

Lynx-U2 Fire Control Systems

Another major contract inked was worth Rs 1,700 crore with Bangalore based Bharat Electronics Limited (BEL) for the procurement of 13 Lynx-U2 Fire Control Systems. These will be installed on the NGOPVs of the Indian Navy. This is a 4th generation naval gun fire control system. It has been designed, developed indigenously and has the capability of tracking and engaging targets accurately and also engaging targets in the midst of sea clutter, in air as well as surface, according to the official statement issued by the MoD.

Next Generation Maritime Mobile Coastal Batteries (NGMMCB) (Long range) & BrahMos

A contract worth Rs 1,700 crore was signed with BrahMos Aerospace Private Limited (BAPL) for procurement of Next Generation Maritime Mobile Coastal Batteries (NGMMCB) (Long

range) and BrahMos supersonic cruise missiles. And the delivery schedule of NGMMCBs is set to start in 2027.

Improved Akash Weapon System

A contract has been signed with Bharat Dynamics Limited (BDL) for the improved Akash SAM for 3rd and 4th Regiments of Army Air Defence. This deal will include live missiles, ground support equipment, vehicles and infrastructure as well as launchers with upgrades. The deal is worth over Rs 8,160 crore.

Improved environmental parameters, seeker technology, reduced footprint and 360 degree engagement capability will help the Indian army meet aerial threats especially along the Northern borders.

There is almost 82 percent of indigenous content and this will go up to 93 percent by 2026-27. According to the statement 60 percent of the cost will be awarded to the private industry including the MSMEs, in maintaining the supply chain of the weapon system and thereby creating large scale direct and indirect employment.

Swathi WLR (Plains)

Another Rs 990 crore contract has been signed for WLR Swathi (Plains) with BEL which is indigenously designed and is capable of locating mortars, guns and rockets firing its own troops. This will facilitate their destruction through counter bombardment by their own firepower resources. The induction is planned in 24 months.

Also a contract for the navy has been signed at a cost of Rs 410 crore with BEL for the acquisition of Sarang Electronic Support Measure (ESM) systems, with its associated engineering support package.

It has been reported earlier this month that the CCS had approved to sign an agreement with L&T for acquiring three cadet training ships at a cost of Rs 3,108.09 crore.

Though the indigenous acquisition for the armed forces this fiscal is expected to cross more than 68 percent, yet the ministry has not been able to use up the entire Capital budget allocation.

<https://www.financialexpress.com/business/defence-defence-ministry-inks-procurement-deals-worth-rs-32086-crore-before-fy2023-ends-3028689/>

ThePrint

Sun, 02 Apr 2023

Defence Exports, at All-Time High of Rs 16,000 Crore, Include Made-in-India ATAGS

India's defence exports, which have reached an all-time high of Rs 15,920 crore in the financial year 2022-23, include the sale of the indigenous Advanced Towed Artillery Gun System (ATAGS), the defence ministry has announced.

The approximately Rs 16,000 crore-worth exports were almost Rs 3,000 crore more than the previous financial year. It has risen over 10 times since 2016-17, the defence ministry said.

Prime Minister Narendra Modi described the achievement as a clear manifestation of India's talent, saying, "It also shows the reforms in this sector over the last few years are delivering good results. Our government will keep supporting efforts to make India a defence production hub".

Calling it a remarkable achievement for the country, Defence Minister Rajnath Singh in a tweet said, "Our defence exports will continue to grow exponentially."

While it was reported that the exports this fiscal will be at an all-time high, the sale of ATAGS, which is yet to be inducted into the Indian Army, is a revelation.

While the defence ministry remained mum on which country bought the 155mm ATAGS gun system — which has been developed by the Defence Research and Development Organisation, in collaboration with the Kalyani Group and TATA — though sources indicated that it could be Armenia.

Earlier, it was speculated that Armenia had bought the mounted gun system for itself from the Kalyani Group.

However, the statement by the defence ministry Saturday did not mention the mounted gun system. "India, which was known as an importer about eight years ago, exports major platforms like Dornier-228, 155 mm Advanced Towed Artillery Guns (ATAGs), Brahmos Missiles, Akash Missile System, Radars, Simulators, Mine Protected Vehicles, Armoured Vehicles, PINAKA Rockets & Launchers, Ammunitions, Thermal Imagers, Body Armours...", the defence ministry statement said.

Incidentally, in an interview to ThePrint, Amit Kalyani, the scion of the Kalyani Group and deputy managing director at Bharat Forge, part of Kalyani Group, had said that India will become the global hub for manufacturing and export of artillery guns.

It was just last month that the defence ministry sanctioned the process to procure 307 ATAGS for the Indian Army.

India is now exporting to over 85 countries. Indian industry has shown its capability of design and development to the world, with 100 firms exporting defence products at present.

The defence ministry highlighted that export procedures have been simplified and made industry-friendly with end-to-end online export authorisation curtailing delays and bringing Ease of Doing Business.

The government has notified three Open General Export Licences (OGEL) for export of Parts and Components/Transfer of Technology/Major Platforms and Equipment.

OGEL is a one-time export licence that permits the industry to export specified items to specified destinations, enumerated in the OGEL, without seeking export authorisation during the validity of the OGEL.

The Modi government had in 2020 set an ambitious target of Rs 35,000 crore (\$5 billion) export in aerospace, and defence goods and services for the next five years. This was part of the Rs 1.75 lakh crore (\$25 billion) turnover in defence manufacturing that the government is aiming to achieve by 2025.

<https://theprint.in/defence/defence-exports-at-all-time-high-of-rs-16000-crore-include-made-in-india-atags/1490547/>

Defence Sector Reforms Delivering Good Results: PM Modi on Exports Reaching Record High

With defence exports reaching an all-time high, Prime Minister Narendra Modi said on Saturday that it shows the reforms in this sector over the last few years are delivering good results. The government will keep supporting efforts to make India a defence production hub, he tweeted.

The prime minister was reacting to Defence Minister Rajnath Singh's tweet that India's defence exports reached an all-time high of Rs 15,920 crore in the fiscal year which ended on Friday. It is a remarkable achievement for the country, Singh said.

Modi said, "Excellent! A clear manifestation of India's talent and the enthusiasm towards 'Make in India.' It also shows the reforms in this sector over the last few years are delivering good results. Our Government will keep supporting efforts to make India a defence production hub."

<https://economictimes.indiatimes.com/news/defence/defence-sector-reforms-delivering-good-results-pm-modi-on-exports-reaching-record-high/articleshow/99162059.cms?from=mdr>



No Headway with AMCA Fighter Jet Engine; a Quest for New Engine Propulsion Technology Lingers

The Advanced Medium Combat Aircraft—AMCA— will put India in a select group of countries with super-cruise and stealth aircraft capabilities. For its most ambitious indigenous military project, India is making efforts to join hands with at least three foreign original equipment manufacturers (OEMs)—France's Safran, US's GE Aerospace and the British Rolls Royce—to co-develop fighter jet engines in India.

The Prime Minister's Office (PMO) has prioritised the AMCA, according to a senior official who is part of the prime minister Narendra Modi-led Cabinet Committee on Security (CCS).

The first 40 jets of AMCA would fly on GE-414 engines. The next version of the aircraft, AMCA Mark 2, will fly on an engine co-developed in India.

India has plans to locally develop a new engine, with 110kN Class thrust, for the AMCA Mark 2, which is expected to go into production in 2035. This is to meet the requirement of super-cruise capability.

However, there are concerns over the engine development roadmap for Indian fighter jets. The AMCA has a budget of Rs 15,000 crore for the development of the prototype. While the fund is

meagre it is still underutilized. The critical here is the staggering complexity that the AMCA demands and the engine remains at the heart of such ambitions.

The new engine technologies will involve engine-airframe integration, advanced materials and material-processing techniques. Advances in turbo-machine technology, progress in combustion technology and vastly improved utilisation of Computational Fluid Dynamics (CFD) in engine design procedures have radically transformed the new age aeroengine. Novel technologies such as “smart engines” are on the horizon marking the fifth and the sixth generation of fighter aircraft.

Propulsion technology approach

The joint development for the aero engine must embrace the concept of smart engines based on next-generation clean sheet technology. A clean sheet engine takes advantage of recent advances in propulsion system technology to significantly improve performance and reduce emissions and noise footprints.

While it is about pushing the boundaries, it also creates opportunities for India and aero-engine manufacturers to design and develop on the advanced fundamentals for the AMCA and other variants.

It touches the critical technologies and its full spectrum of aero-engine from R&D to traditional gas turbines, electric, hybrid-electric or hydrogen.

How is it unfolding with three OEMs?

Safran M88 engine

The M88-2 engine is the variant for the Rafale fighter jet which produces 50 kN of dry thrust & 75 kN with afterburners.

The M88 engine that powers Dassault Aviation’s multirole fighter is a new-generation turbofan engine offering a high thrust-to-weight ratio. Reliability remains its top feature as records show the engine has clocked up more than one million operating hours.

The M88-2 powerplant is rated at 10,971 lbs dry and 16,620 lbs with an afterburner. It comes equipped with “full authority digital engine control” which is all about easy manoeuvring.

Safran was able to upgrade the high-pressure compressor and the high-pressure turbine of the M88-2 which boosted durability by up to 50 percent.

Safran is in talks with the Gas Turbine Research Establishment which is a laboratory of the Defence Research and Development Organisation. Safran and GTRE are deliberating on the scaled-up version of this engine which could generate a thrust of 125 kN. This is the most viable option for AMCA-2 as per the aviation expert.

However, it depends on how soon India gets Safran on board with GTRE to have a plan for AMCA and its variants.

What is important here is that Safran is also working on engine development as a part of 6th generation fighter jet program called Future Combat Air System (FCAS) program aimed to develop a sixth-generation fighter jet for Europe. This is marked as the most advanced joint program with France, Germany & Spain on the development of next-generation aero-engine

along with Airbus. This will result in a much higher thrust – the benchmark target—as the reports suggest.

Safran Aircraft Engines is also currently working on the F4 Standard of the M88, which will power the Rafale fleet. This upgrade, slated to be rolled out in 2025, will provide even more onboard electronics for storing the growing volume of data required for integrated predictive maintenance.

In addition to 36 Rafale multi-role fighter jets for the Indian Air Force (IAF), Dassault Aviation's Rafale-M has also emerged as the frontrunner to bag a mega contract from the Indian navy for 27 fighters.

“This makes a great sense to have a larger fleet of Rafale for a joint aero-engine programme for AMCA,” said a senior leader of the IAF.

In fact, experts believe the co-development must even target the AMCA-MK 1 version to have a greater efficiency and cost advantage with Safran as the existing program already favours scaling up.

GE Aerospace's F414-GE-400

The F414-GE-400 combines advanced technology with proven reliability.

Sharing its basic design with the base F404 engine, the F414 stands on a foundation of over 5,600 F404/F414 engines built, and a combined 18 million engine flight hours. It adds to the maintainability, and operability of its successful F404 predecessor while delivering 35 % more thrust.

It powers Boeing F/A-18 Super Hornet. The F414-GE-400 also powers Boeing's EA-18 G Growler electronic attack aircraft. Advanced technology features such as Full Authority Digital Electronic Control (FADEC) improve the operational characteristics of the engine. New materials and cooling techniques improve performance and extend component life. It is also a potential powerplant for emerging platforms such as the Korean KF-X and the AMC, as well as growth versions of the Saab/BAE Systems JAS39 Gripen, KAI/LMTAS T-50, and the LCA Tejas.

The F414 Enhanced Durability Engine (EDE) incorporates additional advanced technology, which can be retrofitted into the F414-GE-400 to deliver enhanced component capability for a significant reduction in ownership costs, or up to 20 % increased thrust-improved specific fuel consumption.

Here the critical advantage of engine performance is the ability to improvise for rapid engine throttle response and zero throttle restrictions. So, the engine is defined for afterburner light and stability to ensure extra thrust on demand when needed.

However, GE Aerospace is heavily restricted by the US government and it certainly limits the scope of technology transfers. For India, the engine frame is a must for the AMCA to achieve the fifth-generation capability in real terms.

What is still lacking in F-414? The crucial thermal reduction technology in gas turbine engines is based on the concept of Thermal Management (TM) of utilising the engine fluid systems to extract the excess heat generated within the various components and systems of the engine.

Further, the thermal reduction technology adds to the overall thrust engine performance with extracted heat for multiple functions that would improve the engine's performance.

Rolls Royce EZ 200

The EJ200 was developed by an international European consortium (EUROJET Turbo GmbH) consisting of MTU, Rolls-Royce, Avio Aero and ITP Aero. This boasts of 20,000-pound force thrust which powers the Eurofighter and its export version, the Typhoon.

Rolls-Royce has also indicated its interest in collaborating with India to co-develop and produce engines for India's AMCA fifth-generation fighter aircraft project. Rolls Royce has offered a Eurojet EJ200 version with 110-120KN thrust.

Rolls-Royce also powers legacy aircraft of the IAF which include Jaguars, Hawks and the C-130Js. Besides, it has also received an order from Air India for its new 68 Trent XWB-97 engines.

However, there are two factors which delay the outcome.

Firstly, the technological barriers within the UK government make the program untenable with India. According to the official from the MoD, despite the intention, there is hardly any progress with Rolls Royce on the fighter jet engine programme.

Second, as reports suggest, the IAF is looking for the advanced version of EJ200; some experts are calling it "outdated" for next-generation platforms like the AMCA. Even the Eurofighter order is in decline.

"Time is the essence," said a former Vice Chief of the IAF. The engine enigma must be resolved if India aims for breaking the technological barriers for the AMCA.

<https://www.financialexpress.com/business/defence-no-headway-with-amca-fighter-jet-engine-a-quest-for-new-engine-propulsion-technology-lingers-3029390/>



Fri, 31 Mar 2023

Defence Ministry Signs Rs 470 Crore Contract with UDPL for Modernisation of Naval Aircraft Yards at Goa and Kochi

Defence Ministry today signed a contract with Ultra Dimensions Private Limited (UDPL) Vishakhapatnam for modernisation of Naval Aircraft Yards at Goa and Kochi at a cost of 470 crore rupees. The Naval Aircraft Yards undertake servicing or repairs of Naval Aircraft, Aero Engines, Rotables and Test Equipment at Goa and Kochi.

Defence Ministry said, induction of latest state-of-the-art aircraft into Indian Navy inventory requires modernisation of existing maintenance and repair facilities at Naval Aircraft Yards to bridge the technological and capability gap to meet the present and future aviation maintenance challenges. It said, the modernisation includes repair facilities with state of Art automated

machinery and Composite repair bays. The project will generate employment of more than 1.8 lakh man-days over a period of three years.

The modernisation will augment the operational readiness of Naval Aviation Platforms and reduce dependence on external agencies and foreign Original Equipment Manufacturers OEMs for repairs. Defence Ministry said, the project will be a proud flag bearer of Aatmanirbhar Bharat.

In addition, Ministry of Defence has inked a contract with Mecon Limited, Ranchi as Project Monitoring Consultant, at a cost of 24 crore rupees.

<https://newsonair.com/2023/03/31/defence-ministry-signs-rs-470-crore-contract-with-udpl-for-modernisation-of-naval-aircraft-yards-at-go-a-and-kochi/>

THE HINDU BusinessLine

Fri, 31 Mar 2023

BEL gets Defence Export Orders worth \$52 Million

Bharat Electronics Ltd (BEL) has won export orders worth about \$52 million this month, besides large volume contracts from the government.

BEL, in a stock exchange filing on Friday, said the orders are for supplying communication equipment, electronic assemblies, micro modules and mechanical parts to customers in France, Israel and the US, among other countries. “This shows overseas interest in BEL and Indian industries,” the navratna PSU said. BEL will come out with its results on Saturday, said leading defence PSU sources.

BEL bags 28 MoD contracts, worth ₹16,750 crore, in March 2023. Electronic Warfare Systems, Fire Control Systems, Medium Power Radars & Weapon Locating Radars among prominent equipment.

Last November, BEL got an export order of \$93.15 million for manufacture and supply of radar warning receivers and missile approach warning systems for Airbus Defence and Space, a European global pioneer in the aerospace industry. The order was part of Airbus’ offset commitment to the Indian government following the September 2022 deal for 56 C295 transport aircraft for the Air Force.

BEL and Thales Reliance Defence Systems (TRDS) inked a frame supply agreement at Aero India 2023, held at Bengaluru in February, for manufacture and supply of TR modules and micro modules of radars used in the Rafale fighter jets. This again was an offshoot of the offset commitment under a contract India signed with French company Dassault for acquisition of 36 Rafale aircraft.

The government is banking on indigenous industry, both private as well as PSUs, to achieve the export target of Rs 40,000 crore by 2026. Defence Minister Rajnath Singh on Thursday said defence exports have jumped manifold from Rs 900 crore seven-eight years ago, to Rs 14,000 crore in FY 2022-23.

The government's move for self-reliance in the defence sector is paying off for the domestic arms manufacturing industry. In the last two days alone, the Defence Ministry has signed four contracts worth Rs 5,084 crore with BEL for supply of military equipment to the armed forces.

For instance, in one of the two deals inked on Thursday, the Ministry will procure 13 Lynx-U2 Fire Control Systems for Indian Naval warships at a total cost of over Rs 1,700 crore. It will also supply the weapon locating radar "Swathi" (Plains) for Rs 990 crore, the ministry had announced on the previous day.

<https://www.thehindubusinessline.com/news/bel-gets-defence-export-orders-worth-52-million/article66684085.ece>

Business Standard

Fri, 31 Mar 2023

Guns vs Butter-4: We Took Giant Leap with the Tejas, says Indian Air Force

By Ajai Shukla

As is the case with the Army and the Navy, the Indian Air Force's (IAF's) budget allocations for the Financial Year 2022-23 (FY23) are significantly lower than its projections, according to the 36th Report of the 17th Lok Sabha's Standing Committee on Defence.

In five out of the last six years, the IAF's revenue allocations were 20-42 per cent less than what it projected as its demands for those years.

The situation is even bleaker for the IAF's capital allocations, in which the IAF received between 40 per cent to 67 per cent less than its projected figure.

While the defence ministry expects that the IAF's order for 123 Tejas light combat aircraft (LCA) will galvanize the indigenous aerospace manufacturing eco-system, the Standing Committee on Defence asked the IAF if it was comfortable with inducting so many varieties of fighters.

The report quotes an IAF officer as responding: "In every air force, we will have a mix of all types of aircrafts because every aircraft has a certain role. You cannot have all aircrafts of one class. As far as LCA is concerned, it does fit in. We have to remember that it was designed as a replacement for MIG-21. The aircraft has come up quite well. It is meeting those requirements quite well. Yes, if you ask, everybody would like to have all fifth- generation aircraft. But we have to see what we can get, what is available in the market."

The IAF officer also pointed out the need to give a fillip to our own aerospace industry.

"We also have to see what will happen tomorrow. If we keep buying [fighter aircraft] from the open market, we will never become self-reliant. So, we need to give a push to our own industry also. We need to hold their hands and the IAF is committed towards that. We will make a happy mix and that is why we are going in for a MRFA (multi-role fighter aircraft) contract for 114 aircraft," said the IAF officer.

Asked about the LCA project delays, an IAF representative told the Standing Committee: “The last (fighter) aircraft that we designed was the Marut (in the 1950s). So, after a gap of 30 years plus, we are now trying to make a fighter aircraft in-house. We took a giant leap. LCA is a generation 4-plus aircraft. We could have gone for a third- generation aircraft with the conventional controls and with rudimentary dials and old avionics but we had to catch up with (global) technology. It was a very good step, though we have taken longer than we should have.”

The IAF officer said this has resulted in having to overcome road-blocks, but in the end, in India developing its own design and manufacturing systems.

“We were learning our lessons. We cannot call them failures but there are a lot of road blocks. Then, the sanctions came in after our nuclear test (in 1998). That caused a lot of drawbacks. That is where we started thinking that we should have most of the technologies in-house. But the fly-by-wire system of that aircraft and the entire control laws have been written by Indians in-house. In the avionics, the entire architecture is Indian, and it has been revised once fully. That means what we conceived in the beginning and what we are flying today are two different architectures. The one we are flying today is called federated architecture. If I can use the word, it is, plug and fly. You can integrate any new weapon or any new system much more easily now,” stated the IAF pilot.

The Standing Committee sought an explanation on the sharp decline in this year’s BE projection, compared to the previous year, and was told it was due to the Russia-Ukraine conflict.

“Our projection last year was Rs. 85,000 crore and we finally got allocation of Rs. 57,000 crore which we consumed. This year, the projection itself has been less because of this Russia-Ukraine war as some of our deliveries are not taking place. We have already been told that those deliveries will not take place, so, we have taken that part of the component out,” the IAF officer said.

https://www.business-standard.com/india-news/guns-vs-butter-4-we-took-a-giant-leap-with-tejas-says-indian-air-force-123033100699_1.html

Business Standard

Sun, 02 Apr 2023

Guns vs Butter-5: 'India can make do with Defence Spend of 2% of GDP'

By Ajai Shukla

The 35th Report of the 17th Lok Sabha’s Standing Committee on Defence, which was tabled before Parliament on March 21, reveals that successive defence budgets from the Financial Year 2018-19 (FY19) to the most recent one – for FY24 – have steadily increased in real terms, but decreased as a proportion of the national economy (gross domestic product, or GDP).

Defence allocations have also decreased steadily as a percentage of the central government expenditure (CGE) each year.

“The Committee has been apprised that the total Defence Budget (including MoD (Civil) and Defence Pensions) is ₹ 5,93,537 crore for FY24, which is 13.18 per cent of total Central Government Expenditure (CGE) and 1.97 per cent of the GDP for FY24,” said the report.

The Ministry of Defence (MoD) also told the Standing Committee on Defence that the capital budget for FY24 amounted to approximately 17.12 per cent of the total capital spending of the central government.

When the Standing Committee asked the MoD for data on defence spending by other countries of relevance, the ministry submitted: “A like-to-like comparison of defence spending vis-à-vis that of other countries is difficult... Nevertheless, based on inputs from Stockholm International Peace Research Institute (SIPRI) military expenditure database, data on defence budget in respect of neighbouring countries and some advanced countries, including defence spending as percentage of their GDP and share of government spending, is given below (see table graphic).”

Defence spending by other countries

(In current US million dollars)

Country	2019			2020			2021		
	Defence spending	Percentage of GDP	Percentage of govt exp	Defence spending	Percentage of GDP	Percentage of govt exp	Defence spending	Percentage of GDP	Percentage of govt exp
China	(240,333)	(1.73%)	(4.91%)	(257,973)	(1.80%)	(4.75)	(293,351)	(1.74%)	(5.03%)
Pakistan	10,388	4.11%	18.70%	10,395	4.03%	17.44%	11,305	3.83%	17.82%
USA	734,344	3.43%	9.60%	778,397	3.72%	8.20%	800,672	3.48%	8.32%
Russia	65,201	3.83%	11.40%	61,713	4.26%	10.59%	65,907	4.08%	10.79%
UK	56,851	1.98%	5.17%	60,675	2.24%	4.56%	68,366	2.22%	4.66%

Figures in (brackets) are SIPRI Estimates; Source: SIPRI Military Expenditure Data Base*

Justifying India’s sub-2 per cent level of defence spending, the defence secretary told the Standing Committee that, in accordance with global norms, governments usually spend three per cent of GDP on defence, two per cent on healthcare and three per cent on agriculture.

“Three per cent of the GDP will be around ₹ 10 lakh crore, if we take our next year’s GDP to be around US \$3.2 trillion. The MoD may not be able to absorb three per cent of the GDP. We may not require that much. What is required for the defence ministry has (already) been allocated.”

The defence secretary was asked whether India was spending adequately on developing border infrastructure that could compare with neighbouring countries. He responded: “Infrastructure is a very important factor in winning war. A very long-term plan has been prepared. It is being revised every year for border infrastructure. As you see, under Udaan Scheme we are building several airfields, airport all along the border and also in the interior of the country. We are developing our infrastructure like never before.”

When asked about what steps were contemplated for achieving integration among the three services and the creation of integrated theatre commands (ITCs), the MoD responded in writing.

“Deliberations on reorganising the armed forces into ITCs are in progress. The ITCs will facilitate better coordination and integrated application of force which will enhance operational efficiency and optimize resource utilisation. The likely benefits will be: Enhanced operational effectiveness; optimal utilisation of resources; synergy in capability development and (the use of) emerging defence technologies, (such as) next-generation weapons, artificial intelligence, disruptive technologies etc.,” said the MoD.

<https://www.ajaishukla.com/2023/04/part-5-defence-secretary-says-india-can.html>

https://www.business-standard.com/economy/analysis/guns-versus-butter-5-india-need-not-allocate-3-of-gdp-on-defence-123040200712_1.html

The Tribune

Fri, 31 Mar 2023

India, Philippines Agree to Bolster Defence Ties

India and the Philippines conducted their 4th Joint Defence Cooperation Committee meeting today in New Delhi and agreed to initiate measures to enhance cooperation in the defence industry and technology domain.

A statement by the Ministry of Defence said the two sides discussed cooperation in multilateral forums and approaches to the Indo-Pacific Region.

<https://www.tribuneindia.com/news/nation/india-philippines-agree-to-bolster-defence-ties-493118>

R. REPUBLICWORLD.COM

Fri, 31 Mar 2023

LS Speaker Om Birla Calls for Deepening India-Israel Cooperation to Combat Terrorism

Lok Sabha Speaker Om Birla on Friday called for deeper cooperation between India and Israel to combat terrorism, saying a common strategy will give a new direction to the world in the fight against the scourge.

Birla also said that in the changing global dynamics, the relations between India and Israel have become more important.

He made these remarks while welcoming an Israeli parliamentary delegation to India.

The delegation, led by Amir Ohana, Speaker of the Knesset (Parliament) of Israel, is in India at the joint invitation of Vice President and Rajya Sabha Chairperson Jagdeep Dhankhar and Speaker Birla.

The delegation is visiting India between March 31 and April 4.

This is the first visit of Ohana to any country after assuming office of the Speaker, the Lok Sabha Secretariat said in a statement.

Birla said that Israel and India have traditionally enjoyed close and friendly relations and underscored that the two countries share a robust democratic heritage and as fellow democracies both have many similarities, including respecting diverse cultures and following democratic values. He observed that in the changing global dynamics, the relations between India and Israel have become more important.

Cautioning against the growing scourge of terrorism, Birla said terrorism is an area of common concern for India and Israel. Democratic countries like India and Israel should deepen cooperation in the fight against terrorism, Birla stressed.

He emphasised that a common strategy of India and Israel will give a new direction to the world in the fight against terrorism.

Referring to the Jewish community in India, he said that India has always supported and provided a safe ecosystem to them.

Speaking about the popularity of India as a tourist destination for the Israeli youth, Birla called for more travel and tourism between the two nations and encouraged more people from Israel to visit India.

Speaking on this occasion, Ohana said that both India and Israel are old civilisations and the relationship between the countries has been strengthened over the period of time.

Referring to India's progress, he said it is rising miraculously in all sectors. He expressed hope that the bilateral relations between India and Israel will be further strengthened and collectively both will deal with the global challenges, the statement added.

<https://www.republicworld.com/world-news/rest-of-the-world-news/ls-speaker-om-birla-calls-for-deepening-india-israel-cooperation-to-combat-terrorism-articleshow.html>



Fri, 31 Mar 2023

India-China Exploring Bilateral Talks when Chinese Defence Minister Visits for SCO Meeting in April

Amidst the ongoing standoff between the Indian and Chinese forces along the Line of Actual Control (LAC), for the Shanghai Cooperation Organisation (SCO) Defence Ministers to meet the Chinese Defence Minister General Li Shangfu (he is also State Councillor) is expected to be here. India under its presidency of SCO has already dispatched the invites for the meeting ;21` which is scheduled for April 27-29 to take place in New Delhi.

This will be the first high level military visit since the clashes along the LAC in eastern Ladakh. While the new defence minister of China is expected to present physically for the Defence Ministers SCO meeting, Financial Express Online has reported earlier this week that Chinese

Minister of Public Security and State Councillor Wang Xiaohong had attended the SCO NSAs' meeting virtually.

Will there be a bilateral meeting on the sidelines?

Both India and China are exploring the possibility of holding a bilateral meeting during the visit of the Chinese defence minister who happens to be from the aerospace sector. According to reports he has served in the Chinese PLA's equipment development department. And if the bilateral meeting takes place on the sidelines of the SCO Defence Ministers meeting then it will be first meeting between Defence minister Rajnath Singh and his Chinese counterpart General Li Shangfu

The last meeting between defence ministers of India and China had taken place at the SCO meeting in Moscow 2020 – when minister Singh had met with General Wei Fenghe.

Why has the US imposed sanctions on him?

He has been appointed by President Xi Jinping and reports indicate that the US sanctioned him over China procuring the S-400 air defence missile from Russia. His appointment is an indication of China's renewed focus on modernization of its armed forces.

Standoff continues at LAC

It's been more than three years that forces of both sides are locked in a standoff along the LAC in eastern Ladakh. Through 17 rounds of talks at the Corps Commanders' level the two sides have disengaged from Galwan Valley, Gogra, Pangong Tso, and Hot Springs. Both sides continue to discuss disengagement at two crucial friction points: Demchok and Depsang. These two are yet to be resolved. Financial Express Online has reported earlier though India maintains that these two friction points remain, China maintains that these two friction points predate the standoff since 2020.

Earlier this year Joint Secretary (East Asia) in the Ministry of External Affairs (MEA) Shilpak Ambule was in Beijing for the first in-person meeting of the Working Mechanism for Consultation and Coordination on India-China Border Affairs (WMCC) since July 2019. According to reports the two sides had talked about proposals for disengaging in the two remaining friction points and to restore normalcy in relations.

The two countries have already agreed to hold the next round of Corps Commander's talks.

<https://www.financialexpress.com/business/defence-india-china-exploring-bilateral-talks-when-chinese-defence-minister-visits-for-sco-meeting-in-april-3029167/>

THE TIMES OF INDIA

Fri, 31 Mar 2023

Russia's new Foreign Policy Strategy Identifies India, China as Main Allies

Russia has identified India and China as its main allies on the world stage, according to a new foreign policy strategy adopted by President Vladimir Putin. The new 42-page document singled out ties with China and India, stressing the importance of "the deepening of ties and coordination

with friendly sovereign global centres of power and development located on the Eurasian continent."

According to the document, Russia will continue to build up a particularly privileged strategic partnership with India with a view to enhance and expand cooperation in all areas on a mutually beneficial basis and place special emphasis on increasing the volume of bilateral trade, strengthening investment and technological ties, and ensuring their resistance to destructive actions of unfriendly states and their alliances. Live updates: Russia's invasion of Ukraine.

"In order to help adapt the world order to the realities of a multipolar world, Russia intends to make it one of priorities to enhance the capacity and international role of the interstate association of BRICS, the Shanghai Cooperation Organization (SCO), the Commonwealth of Independent States (CIS), the Eurasian Economic Union (EAEU), the Collective Security Treaty Organization (CSTO), the RIC (Russia, India, China) and other interstate associations and international organizations, as well as mechanisms with strong Russian participation," the document states.

India and Russia are long-standing partners and have shared close ties over the decades.

Russia has been the largest supplier of weapons to India, accounting for nearly 50% of the latter's arms imports from 2016-2020. Both China and India have also ramped up oil imports from sanctions-hit Russia amid the war in Ukraine. India has maintained a neutral stance over the Russian invasion of Ukraine, which completed a year on February 24. However, Prime Minister Narendra Modi has advocated for a peaceful resolution to the conflict through dialogue.

Last year, PM Modi told Putin that "today's era is not an era of war."

<https://timesofindia.indiatimes.com/india/ukraine-war-putin-modi-xi-jinping-russia-identifies-india-china-as-main-allies-in-new-foreign-policy-strategy/articleshow/99148257.cms>



Sat, 01 Apr 2023

New Satellite Pics Reignite Chinese 'Spy base' Suspicion at Myanmar's Coco Islands

Once a penal colony of General Ne Win during the late 1950s, the Myanmar-controlled Coco Islands recently witnessed a new constitution on its land, giving way to suspicion. Satellite images captured by Maxar Technologies in January this year unveil new developments in the Great Coco Island region, where two freshly-built hangars can be seen at the center, and a few new buildings in the north, along with a large pier possibly for accelerating naval activities.

Further, the length of the runway belonging to the Coco Islands Airbase has been extraordinarily increased to 2,300 meters, which was merely 1,300 meters just a decade prior. The issue was first brought to light by Chatham House, a think tank with its headquarters in London.

It is being surmised that the Myanmar Junta, colloquially called Tatmadaw, is preparing the islands for its covert maritime surveillance operations, often in collusion with China, as is being regarded by geopolitical experts. The growing dependence of the junta on the CCP (Chinese

Communist Party) soon after the coup d'état also adds to people's concern. However, Beijing's relations with the Tatmadaw have been on-and-off since its inception on Myanmar's throne.

A Reuters report in its findings also noticed a rapid surge in the installation of surveillance cams manufactured by Chinese entities within the densely populated cities of Myanmar, perhaps to track the movements of its citizens. So, the present status quo between the two is further bolstering the presumptions that are being made.

From a geopolitical context, gaining a clandestine presence in the Coco Islands would give a strategic advancement to the PLA (People's Liberation Army) as it could provide substantial access to critical Indian Ocean sea lanes, hence circumventing the Strait of Malacca. China has, in its bid to elicit a reciprocal favour from Myanmar's side, invested largely in the country via the China-Myanmar Economic Corridor.

A three-dimensional view of the present infrastructure reveals around 200 buildings which are said to be of the Myanmar military personnel and their families residing on the island.

The topic of a suspected Chinese presence on the strategic island is not new. Reports suggest India raised such issues with Myanmar back in 2009. Even in the early 1990s, there have been frequent reports of China using those islands for military and naval purposes.

A 2014 paper from the Manohar Parrikar Institute of Defence Studies and Analysis noted "there have been reports of Chinese-built SIGINT listening stations in the Andaman Sea at least at Manaung, Hainggyi, Zadetkyi and the Coco Islands in Myanmar. Chinese technicians and instructors have worked on radar installations in naval bases and facilities near Yangon, Moulmein and Mergui.

The Indian Coast Guard has intercepted fishing trawlers flying Myanmar flags off the Andaman Islands. On inspection, all the crew turned out to be Chinese nationals on expeditions with radio and depth sounding equipment for submarine usage."

Also, the island's close proximity to the Indian Tri-service Command situated on the Andaman and Nicobar islands raises eyebrows over possible reconnoitering of significant military locations. The Andaman and Nicobar Command is uniquely positioned as India's only tri-service command with the Navy, Air force, and Army working together.

The region holds significant strategic importance for India as many trade channels pass through it, and with China's increasing assertiveness in the area, India is looking to strengthen its maritime and surveillance capabilities there.

The integrated command was established in 2001 to safeguard India's strategic interests in Southeast Asia, leading to the deployment of more military assets in the area. In recent years, China has been expanding its naval operations in the Indian Ocean Region (IOR), often disguising its submarine activities as anti-piracy operations. The possibility of its operations being closely monitored by a nearby 'spy base' has been a cause for concern.

Concerns have also been raised over the possible monitoring of vital Indian space and military research entities like that of ISRO (Indian Space Research Organisation) based in Sriharikota and DRDO (Defence Research and Military Organisation) near Odisha's coastal area.

<https://www.indiatoday.in/world/story/new-satellite-pics-reignite-chinese-spy-base-suspicion-myanmar-coco-islands-2354386-2023-04-01>



Fri, 31 Mar 2023

NATO Opens Innovation Hub in UK

The first NATO Defence Innovation Accelerator for the North Atlantic (DIANA) office was formally opened in London on 30 March, the authority announced.

Located at the Imperial College London Innovation Hub (I-HUB) in White City Innovation District, the centre aims to enable NATO members and allies develop and integrate dual-use technologies to address critical defence and security challenges at pace, the announcement said.

It will achieve this by testing, developing, and adapting start-up, commercial, and academic technologies to create potential defence capabilities.

Initial DIANA pilot activities are scheduled to start in autumn 2023 (September to November), and a second regional office is planned in Tallinn, Estonia. Full operating capability (FOC) of the DIANA enterprise is expected by 2025.

DIANA was launched at the NATO Brussels Summit in 2021 to address nine key emerging and disruptive technologies: artificial intelligence, data, autonomy, quantum-enabled technologies, biotechnology, hypersonics, space, novel materials and manufacturing, and energy and propulsion. The aim is to leverage 100 deep-tech test centres and start-up accelerators from across the alliance. Together, these centres will be supported with EUR1 billion (USD1.08 billion) of investment over the next 15 years from NATO's Innovation Fund.

As part of the innovation process, DIANA will launch competitive 'challenge programmes', based upon specific operational end-user problem sets, which innovators can propose solutions for.

<https://www.janes.com/defence-news/defence/latest/nato-opens-innovation-hub-in-uk>

Science & Technology News



Sun, 02 Apr 2023

ISRO Successfully Conducts Autonomous Landing of First Reusable Rocket in Karnataka

The Indian Space Research Organisation (ISRO) on Sunday successfully landed its Reusable Launch Vehicle (RLV) in an autonomous mode, demonstrating its capability to deliver low-earth

orbit satellites in space and return to the ground for reuse in a subsequent mission. This is expected to pave the way for an 80 per cent reduction in the costs of satellite launching missions.

The successful experiment, Reusable Launch Vehicle Autonomous Landing Mission (RLV-LEX), was carried out at the Aeronautical Test Range (ATR) of the Defence Research and Development Organisation (DRDO) in Challakere in Karnataka's Chitradurga district. At 7.10 am, a Chinook Helicopter of the Indian Air Force carried a winged RLV and flew to a height of 4.5 km to a predetermined spot. It released the RLV from that height and carried out a precise autonomous landing on the runway at DRDO's ATR in Challakere.

ISRO had earlier demonstrated this re-entry of a winged RLV Technology Demonstrator (RLV-TD) in May 2016, but it was on a hypothetical runway over the Bay of Bengal. However, Sunday's LEX mission successfully achieved the final approach phase that coincided with the re-entry flight path exhibiting an autonomous, high-speed (350 kmph) landing, according to ISRO.

Going forward, more experiments are in the pipeline to ensure that the RLV succeeds in payload delivery to low earth orbit, as ISRO plans to reduce the cost of the process by 80%.

The experiments will also include taking off with a simulated payload and returning in an autonomous mode after releasing the payload in space at a predetermined location/orbit.

First in the world

The technique adopted to launch the vehicle was "a first in the world" wherein a winged body was carried to an altitude of 4.5 km by helicopter and released for carrying an autonomous landing on a runway. "The autonomous landing was carried out under the exact conditions of Space Re-entry vehicle's landing – (such as) high speed, unmanned, precise landing from the same return path – as if the vehicle arrived from space," an ISRO release said.

The RLV is essentially a space plane with a low lift-to-drag ratio, requiring an approach at high glide angles that necessitated a landing at high velocities of 350 kmph.

ISRO said the LEX utilised several indigenous systems. "Localized Navigation systems based on pseudolite systems, instrumentation and sensor systems, etc were developed by ISRO. Adaptation of contemporary technologies developed for RLV LEX makes other operational launch vehicles of ISRO more cost-effective," according to the space agency.

<https://www.newindianexpress.com/states/karnataka/2023/apr/02/isro-successfully-conducts-autonomous-landing-of-first-reusable-rocket-in-karnataka-2561989.html>



Mon, 03 Apr 2023

ISRO's RLV Success to Cut Launch Costs by 80 per cent

The Indian Space Research Organisation (ISRO) on Sunday landed its Reusable Launch Vehicle (RLV) in an autonomous mode, demonstrating its capability of using such spacecraft to deliver low-earth orbit satellites in space and return to the ground for reuse in a subsequent mission.

This is expected to cut the costs of satellite launching missions by 80%.

The successful experiment, called Reusable Launch Vehicle Autonomous Landing Mission (RLV-LEX), was carried out at the Aeronautical Test Range (ATR) of the Defence Research and Development Organisation (DRDO) in Challakere in Karnataka's Chitradurga district.

At 7.10 am, a Chinook Helicopter of the Indian Air Force carried a winged RLV (a space plane) and flew to a height of 4.5 km to a predetermined spot. It released the RLV from that height, which then carried out a precise autonomous landing on the runway at DRDO's ATR in Challakere. The technique used to launch the vehicle was "a first in the world" where a winged body was carried to an altitude of 4.5 km by helicopter and released for carrying out an autonomous landing on a runway.

"The autonomous landing was carried out under the exact conditions of Space Re-entry vehicle's landing," the space agency tweeted.

<https://www.newindianexpress.com/states/karnataka/2023/apr/03/isros-rlv-success-to-cut-launch-costs-by-80-per-cent-2562062.html>

