

September
2022

समाचार पत्रों से चयित अंश Newspapers Clippings

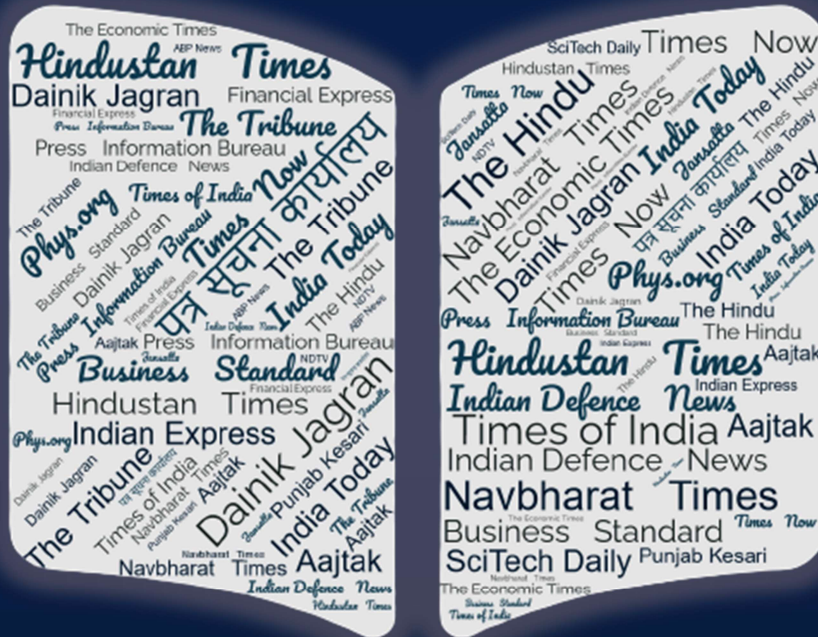
A Daily service to keep DRDO Fraternity abreast with DRDO
Technologies, Defence Technologies, Defence Policies,
International Relations and Science & Technology

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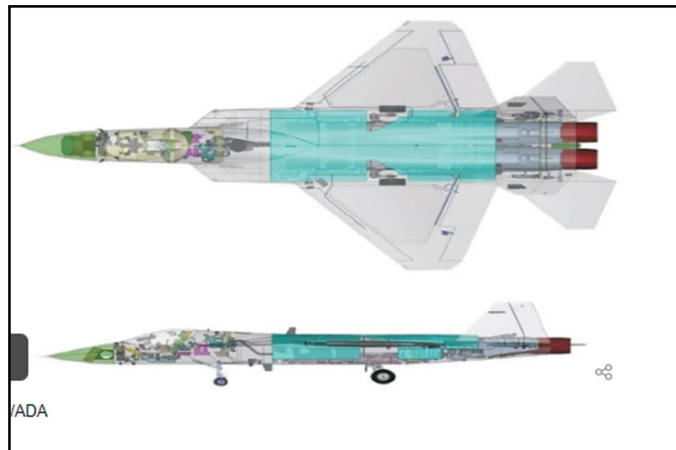
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Thu, 29 Sept 2022

AMCA—India’s Stealth Fighter Jet Completes Design Phase; Awaits Cabinet Approval for the Prototype: DRDO Chairman S. Kamat

DRDO has already developed medium altitude long endurance “MALE UAV TAPAS”. As on date, more than 150 flight trials of TAPAS UAV have been completed. During these flights, altitude and endurance has touched the desired requirements. The long development cycle time for the initial projects can be attributed to the steep learning curve of R&D centers and indigenous industry. It is expected to reduce substantially for the subsequent platforms like high altitude long endurance (HALE) UAV, since most of the legacy knowledge, technologies and systems will be effectively leveraged by all R&D partners in academia, industry and DRDO laboratories.



AMCA /ADA

ADA has completed the fabrication of AMCA at HAL with special material for 5th gen design. What is the next stage of development as Project is still waiting for final approval from the cabinet committee? What is the estimated cost that you look at and how will it unfold under the SPV mechanism which you earlier talked about? Fabrication of AMCA has not been done yet.

However, the preliminary design has been finalized. Design phase of AMCA is proceeding well by ADA team. However, the actual activity of prototype realization would begin after final approval of the Government.

AMCA programme will be undertaken through SPV involving Indian industries in a big way. The SPV would be involved in the prototype development, series production and providing life time/cycle support to the Indian Air Force. AMCA development would be a major compliance to budget announcement of 2022-23 with respect to 25 per cent R&D budget allocation to industry and encouraging private industries to collaborate with DRDO through SPV model. Could you talk about the Light Tank under 25 tonnes which is to be deployed in High altitude Areas (HAA)? DRDO took it under to develop in the shortest possible time. What is the prototype stage development. DRDO has developed strong technology base for battle tanks having developed MBT Arjun. Indian Army has felt the need of light tanks, under 25 tonnes, for mountainous regions. DRDO is developing light tank through industry partner. The configuration has been worked out.

Work on the prototype of Light Weight Tank is in full swing and it is expected to be ready for production by next year. These tanks will be fitted with High Altitude Operable Power pack of 1000hp and capable of firing multiple ammunitions. You also have been spearheading some of the structural changes, aiming to create many centers of excellence within DRDO. How are you doing this? Lately, it was reported that DRDO is facing fund crunch. What is your take on this?

In line with the vision of Prime Minister, DRDO has created 5 Young Scientists Laboratories in four cities viz, Bengaluru, Pune, Chennai, and Hyderabad. Each of these laboratories will work on a particular key advanced technology of importance to the development of futuristic defence systems viz, Artificial intelligence, Quantum technologies, Cognitive technologies, Asymmetric technologies and Smart materials. The establishment of these five labs lays down the foundation for research and development of futuristic technologies. It will be a big leap forward for DRDO to be future ready in defence technologies. Apart from these, DRDO has also collaborated with various academic institutes all over the country and established 10 DRDO Industry Academia Centres of Excellence (DIA-CoE). These CoEs have been established at different Universities/institutions throughout the country to develop critical technologies for enabling futuristic requirements of Armed Forces.

DRDO is providing financial support through the DIA-CoE in IITs/Universities to undertake science and technology projects and to create special test facilities in these Centres. We are processing more DIA-COEs at various technical institutions of high ranking. Raksha Mantri (Defence Minister) has recently approved setting up of six new DRDO Industry Academia Centres of Excellence at IIT (Kanpur), Kharagpur, Roorkee, BHU, Jodhpur, and Hyderabad. Each DIA-COE has identified technology verticals and is empowered to act as research node for all academic institutions in the country.

<https://www.financialexpress.com/defence/amcaindias-stealth-fighter-jet-completes-design-phase-awaits-cabinet-approval-for-the-prototype-drdo-chairman-s-kamat/2695686/lite/>

डीआरडीओ खोजी श्वानों के लिए बनाएगा सुगंधित पैड

नई दिल्ली, एजेंसी। रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) मेक इन इंडिया के तहत के9 खुशबू वाले पैड के निर्माण करेगा। डीआरडीओ इसके निर्माण के लिए भारत-तिब्बत सीमा पुलिस (आईटीबीपी) की मदद ले रहा है। यह विदेशों से खरीदे जाने वाले पैड की लागत के 1/100वें हिस्से पर निर्मित किए जाएंगे। डीआरडीओ की इस पहल से खोजी कुत्तों की घ्राण कंडीशनिंग को बढ़ाने के लिए विशिष्ट विस्फोटक और मादक गंध किट रखने में मदद मिलेगी। पुलिस, सेना समेत सभी सशस्त्र बलों को विस्फोटकों और नशीले पदार्थों का पता लगाना और अधिक आसान हो जाएगा।

पुलिस या सभी सशस्त्र बलों की डॉग स्कायड टीमों द्वारा इस्तेमाल किए जा रहे के9 सुगंध पैड अभी भी विदेशों से खरीदे जाते हैं। परियोजना के लिए डीआरडीओ अपने विश्व प्रसिद्ध जैव रसायन और भौतिक विशेषज्ञों को के9 लक्ष्य गंध पैड के निर्माण के लिए एक अग्रणी अनुसंधान और विकास करने के लिए तैयार कर रहा है। आईटीबीपी ने बयान में कहा कि विदेशी एकाधिकार को तोड़ने के लिए 'मेक इन इंडिया फॉर इंडिया परियोजना का यह एक अनूठा प्रयास होगा। प्रसिद्ध डीआरडीओ वैज्ञानिक डॉ. संगीता राव आचार्य अडांकी, निदेशक डीएलआईसी डीआरडीओ और डॉ. ओम कुमार आदि विशेषज्ञ इस परियोजना में शामिल हैं।

भारत में वितरण करने वाली एक अमेरिकी कंपनी की वेबसाइट के अनुसार अफीम, मारिजुआना, फेंटनिल, एलएसडी और एमडीएमए के लिए प्रत्येक सुगंध पैड किट की लागत 29,127 रुपये है। टीएटीपी खुशबू वाले पैड की कीमत 47,235 रुपये है। बयान के अनुसार, इनमें से प्रत्येक विदेशी किट को कुछ समय के लिए इस्तेमाल किया जा सकता है, लेकिन इस पर भारी खर्च होगा। डीआरडीओ ने आईटीबीपी के पशु चिकित्सा प्रमुख डीआईजी सुधाकर नटराजन के साथ एक उच्च स्तरीय वैज्ञानिक बैठक की। इस परियोजना के तकनीकी मानकों को समझने के लिए वीडियो कॉन्फ्रेंसिंग के माध्यम से डीआरडीओ ग्वालियर के विशेषज्ञों को भी शामिल किया गया।

<https://www.livehindustan.com/ncr/new-delhi/story-drdo-will-make-scented-pads-for-sleuths-7153822.html>

THE TIMES OF INDIA

Thu, 29 Sept 2022

DRDO Starts Work on Scent Pads to Train Military Dogs for Detection of Explosives/Drugs

In a first, the Defence Research Development Organisation (DRDO) has started working on the development of scent pads for training military dogs to detect explosives or narcotics. A proposal regarding this was sent by the Indo-Tibetan Border Police (ITBP), as per which, the DRDO would conduct a pioneering R&D to manufacture K9 Target Odour Scent Pads. As of now such pads are imported from abroad at an extremely high cost, for canine training. Once developed by the DRDO, the scent pads would be used in the training of dogs for explosive or narcotics detection. At present, the dog training institutions have been training the dogs on live material. A senior ITBP officer involved in canine training for operational purposes said that these scent pads are needed for initial olfactory conditioning of young dogs. Later they will work on composite live materials, he added.

As per the available information, Dr Sangita Rao Achary Addanki, Director DLIC DRDO, and scientist Om Kumar, also an acknowledged biochemist, are helming this project to manufacture the K9 scent pads at one-hundredth the cost of the foreign pads. This initiative will also help all the Central Armed Police Forces (CAPFs)/ state police organisations and defence forces, including army. Presently, K9s of all the security forces in India are conditioned on 'real materials', however, having a specific target odour impregnated on an inert material would remove numerous teething troubles in K9 scent olfaction. As per the official website of a US company having distributors in India, one scent kit for heroin/opium, marijuana, fentanyl, LSD and MDMA detection cost \$369 (around Rs 30,000). The TATP scent pad costs \$599.99 (around Rs 47,000). Each of these foreign kits can be used for only a few times and incur huge recurrent expenditure. A high-level meeting regarding this was held between the DRDO scientists and DIG Sudhakar Natarajan, the Veterinary Head of the ITBP, on September 23. Experts from DRDO Gwalior had also attended the meeting via videoconferencing to understand the technical parameters of this project.

<https://timesofindia.indiatimes.com/india/drdo-starts-work-on-scent-pads-to-train-military-dogs-for-detection-of-explosives/drugs/articleshow/94531651.cms>

DRDO On Twitter



DRDO 
@DRDO_India



Dr Samir V Kamat, Secretary, DDR&D and all DRDO fraternity extend best wishes to Lt Gen Anil Chauhan (Retd) on being appointed as the Chief of Defence Staff [#CDS](#). We wish you all the success in taking forward the [#resolute strides](#) for [#AtmaNirbhartaInDefence](#) for a strong India.

12:25 pm · 29 Sep 2022 · Twitter for iPhone

Defence News

Defence Strategic : National/International



Press Information Bureau
Government of India

Ministry of Defence

Thu, 29 Sep 2022 3:41 PM

Visit of Admiral R Hari Kumar Chief of the Naval Staff to Australia

Admiral R Hari Kumar, the Chief of Naval Staff (CNS), Indian Navy visited Australia from 26 Sep – 28 Sep 22. This was his first official visit to Australia upon assuming the office of the CNS. During the visit, he held meetings with Vice Admiral Mark Hammond, Chief of Navy, Royal Australian Navy (RAN), Vice Admiral David Johnston, Vice Chief of Australian Defence Forces, Mr Greg Moriarty, Secretary of Defence, Air Marshal Robert Chipman, Chief of Royal Australian Air Force (RAAF) and Air Vice Marshal Mike Kitcher, Deputy Chief of Joint Operations. During these meetings, the leaders expressed their commitment to pursue collaborative activities in several areas of bilateral convergence.



Admiral R Hari Kumar visited RAN facilities at HMAS *Penguin* and Hydrographic School. The CNS, accompanied by Shri Manpreet Vohra, Ambassador of India to Australia and the Chief of Navy, RAN interacted with the prominent members of Australian Think Tanks to understand and develop new maritime cooperation opportunities. The discussions also highlighted the need for raising the level of synergy and focused efforts for overcoming the challenges of the maritime environment.

India and Australia share commonality of perspectives on several contemporary maritime security issues in the Indo-Pacific and have been working together closely in several bilateral and

multilateral fora such as the Indian Ocean Naval Symposium (IONS), Indian Ocean Rim Association (IORA) and Western Pacific Naval Symposium (WPNS). Coming on the heels of successful participation of Indian Naval Ship *Satpura* and one P8I Maritime Patrol Aircraft of Indian Navy in the recently concluded multilateral exercise *KAKADU*, hosted by the RAN at Darwin, the visit of the CNS further consolidated the strong and long standing bilateral relations between two countries.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1863366>



शुक्रवार, 30 सितंबर 2022

रक्षा मंत्री राजनाथ सिंह ने एलएसी पर बुनियादी ढांचे के विकास की समीक्षा की, जाना जवानों का हाल

रक्षा मंत्री राजनाथ सिंह ने बुधवार को असम में दिनजान सैन्य अड्डे का दौरा किया। उन्होंने चीन से लगती वास्तविक नियंत्रण रेखा (एलएसी) पर बुनियादी ढांचे के विकास के साथ ही क्षमता विकास व संचालन तैयारियों की समीक्षा की। उनके साथ जीओसी 3 कोर के लेफ्टिनेंट जनरल आरपी तिवारी भी थे।



रक्षा मंत्री राजनाथ सिंह ने बुधवार को असम में दिनजान सैन्य अड्डे का दौरा किया। उन्होंने चीन से लगती वास्तविक नियंत्रण रेखा (एलएसी) पर बुनियादी ढांचे के विकास के साथ ही क्षमता विकास व संचालन तैयारियों की समीक्षा की।

अरुणाचल के दो दिनों के दौरे पर राजनाथ सिंह

रक्षा मंत्री 28 व 29 सितंबर को पूर्वी अरुणाचल प्रदेश के सीमावर्ती क्षेत्रों के दो दिवसीय दौरे पर हैं। रक्षा मंत्री सिंह के साथ सेना प्रमुख जनरल मनोज पांडे और पूर्वी कमान के सैन्य कमांडर लेफ्टिनेंट जनरल आरपी कलिता व अन्य वरिष्ठ अधिकारी भी हैं। रक्षा मंत्री ने जवानों के साथ बातचीत भी की। राजनाथ सिंह के सामने जवानों ने बार्डर फिल्म का गीत 'संदेश आते हैं' भी गाया। रक्षा मंत्री ने जवानों की प्रतिभा के साथ ही देश के लिए उनके प्रयास और बलिदान की सराहना की

रक्षा मंत्री ने बुनियादी सुविधाओं की ली गहन जानकारी

रक्षा मंत्री को एलएसी के साथ बुनियादी ढांचे के विकास के साथ-साथ क्षमता विकास और संचालन संबंधी तैयारियों के बारे में जीओसी 3 कोर के लेफ्टिनेंट जनरल आर सी तिवारी और अन्य वरिष्ठ अधिकारियों द्वारा जानकारी दी गई। इसके बाद, रक्षा मंत्री ने देश के पूर्वी हिस्से में गठन की परिचालन तैयारी की समीक्षा की। यात्रा के दौरान, रक्षा मंत्री को अग्रिम पंक्ति में तैनात सैनिकों की परिचालन दक्षता बढ़ाने के लिए अत्याधुनिक सैन्य उपकरणों और प्रौद्योगिकी के उपयोग के बारे में भी जानकारी दी गई

सीमा पर स्थित अग्रिम चौकियों का दौरा करेंगे रक्षा मंत्री

आज राजनाथ सिंह अग्रिम चौकियों का दौरा करेंगे और परिचालन संबंधी तैयारियों के बारे में प्रत्यक्ष जानकारी प्राप्त करेंगे और सैनिकों से बातचीत करेंगे। वह स्थानीय इडु मिशमी जनजाति के वार्षिक ट्रेक अथु पोपू के दूसरे धार्मिक अभियान के सदस्यों के साथ बातचीत करेंगे, जिसे भारतीय सेना द्वारा 2021 से भारतीय सेना के आउटरीच के हिस्से के रूप में सुविधा प्रदान की जा रही है और स्थानीय लोगों और विकास का समर्थन करने के लिए निरंतर प्रयास किया जा रहा है।

<https://www.jagran.com/news/national-defense-minister-rajnath-singh-reviews-development-of-infrastructure-on-lac-23106241.html>

The Tribune

Fri, 30 Sept 2022

At LAC, Rajnath Briefed About Ground Positions

Defence Minister Rajnath Singh, on Thursday, visited forward areas along Anini village in Dibang valley located in far-eastern part of Arunachal Pradesh. He made an on-the-ground assessment of the country's defence preparedness along the Line of Actual Control (LAC). The senior military leadership briefed him on how many patrols were conducted and how many times Indian and Chinese troops came face to face. Indian Army chief General Manoj Pande, Eastern Army Commander Lt General RP Kalita and other senior officers accompanied the minister. Rajnath Singh also interacted with the troops posted in the area. After his visit to the forward areas, Rajnath Singh held an interaction with armed forces personnel in Tezpur, Assam.

The minister told the audience that strengthening India's military prowess has been the government's top priority ever since it came to power in 2014 with focus on equipping the Services with state-of-the-art weapons and equipment through an 'atmanirbhar' (self-reliant) defence industry. India's international image, he said, had been completely transformed due to the bold decisions taken by Prime Minister Narendra Modi as well as the gallant deeds of the armed forces. "Due to the efforts of our Prime Minister, we have become an assertor from a mere observer," he said. As part of the day's engagements, the minister also interacted with the members of the second religious expedition to Athu Popu, an annual trek of local Idu Mishmi tribe which is being facilitated by the Indian Army since last year as part of outreach and continued efforts towards supporting the locals and development of tourism.

<https://www.tribuneindia.com/news/nation/at-lac-rajnath-briefed-about-ground-positions-436650>

THE ECONOMIC TIMES

Thu, 29 Sept 2022

Indian Industry has Potential, Capability to Support IAF: Air Marshal Vibhas Pande

Air Officer Commanding-in-Chief Maintenance Command, IAF on Thursday said the Indian industry has the potential and capability to support IAF in its indigenisation programme. Addressing the personnel of 5 Base Repair Depot in Sulur on the outskirts in Coimbatore, Pande emphasised to reach out and engage with Coimbatore District Small Industries Association and private industries. He was on a three-day visit to the depot from September 28 and was accompanied by Ruchira Pande, President, Air Force Wives Welfare Association (Regional) AFWWA (R) and was presented Guard of Honour by the Air Warriors of the depot on his arrival, an official release said here.

The Air Marshal visited various repair and overhauling divisions of the depot and reviewed the progress on production of aircraft. He was briefed on various indigenisation efforts undertaken by the depot under 'Make in India' and 'Atmanirbhar Bharat' initiatives to minimise dependency on foreign Original Equipment Manufacturers (OEMs), it said. Ruchira Pande visited various welfare ventures run by AFWWA (L) and addressed all Sanginis of the depot. She appreciated their efforts in maintenance of the AFWWA ventures and enhancing the quality of life at the depot by creating a stress free environment.

She urged the Sanginis to continue the good work towards welfare, empowerment and upliftment of IAF families. The AFWWA's initiative towards extending helping hand to the orphans, senior citizens, poor and needy of the society was also appreciated, the release said.

https://m.economictimes.com/news/defence/indian-industry-has-potential-capability-to-support-iaf-air-marshal-vibhas-pande/amp_articleshow/94535454.cms

The Tribune

Fri, 30 Sept 2022

India, Aus Vow to Boost Naval Ties

Indian Navy Chief Admiral R Hari Kumar ended his three-day visit to Australia last night. Kumar and Australian military leaders have highlighted the need for raising the level of synergy and focused efforts for overcoming the challenges of the maritime environment. The visit came after the participation of warship INS Satpura and Maritime Patrol Aircraft P8-I in the recently concluded exercise 'Kakadu' hosted by Australia. India and Australia share commonality of perspectives on several contemporary maritime security issues in the Indo-Pacific and have been working together closely in multilateral fora such as the Indian Ocean Naval Symposium, Indian Ocean Rim Association and Western Pacific Naval Symposium.

Kumar held meetings with Vice Admiral Mark Hammond, Chief of Navy, Royal Australian Navy, Vice Admiral David Johnston, Vice Chief of Australian Defence Forces, Greg Moriarty, Secretary of Defence, and Air Marshal Robert Chipman, Chief of Royal Australian Air Force. Chief Admiral Kumar also visited facilities at HMAS Penguin and Hydrographic School.

<https://www.tribuneindia.com/news/world/india-aus-vow-to-boost-naval-ties-436725>

The Tribune

Fri, 30 Sept 2022

MiG-21 Squadron that Hit Pak in '19 Retires Today

The Indian Air Force (IAF) fighter squadron at Srinagar that participated in the Kargil operation and was also locked in a duel with Pakistani forces in February 2019 will retire its MiG-21 jets tomorrow. Group Captain Abhinandan Varthaman, who was hit during the duel over Nowshera in J&K and landed inside Pakistan, was part of the 51 Squadron, known as 'Swordarms'. Raised in Chandigarh on February 1, 1985, the squadron moved to its present location Srinagar on May 1, 1986. "It will be number plated tomorrow," an IAF official said, explaining that the squadron would be revived once new jets arrived.

After the retirement of MiG-21 jets from Srinagar, the IAF will be left with three MiG-21 squadrons, which are anyway flying on extended life. During its nearly 38 years of existence, the 51 Squadron has had a proud history. Operation Brasstacks in 1987 tested its preparedness as pilots carried out an intensive valley flying from both Srinagar and Awantipora. During the Kargil campaign in 1999, the squadron flew 194 sorties and offensive missions at Point 5140 and Tololing in the first two days of the operation.

<https://www.tribuneindia.com/news/nation/mig-21-squadron-that-hit-pak-in-19-retires-today-436648>

Business Standard

Fri, 30 Sept 2022

A Shift Towards Indigenisation: 'Make In India' Fortifies Defence Spending

By Ajai Shukla

An analysis of defence capital expenditure (capex) indicates increased spending during the last four or five years, along with a discernable shift towards indigenisation. Adjusted for inflation, capital allocations to the defence sector have grown at a compounded rate of around 7 per cent between the base year 2011-12 and the present (2022-23). While rupee-denominated spending has grown at a little better than 8 per cent, imports have grown at just 1.2 per cent during this 11-fiscal year period. The allocation patterns have been quite uneven. Let's explain how we've examined the data. We looked for Defence Capital Allocations, including capex scattered across several different Budget heads and Demands for Grants, to arrive at the annual expenditure. For

example, in the 2019-20 budget, the capital allocations for border road construction is not in the capital budget (Demand No 21), but buried as Demand No 19 under the Ministry of Defence head.

The allocations to the Coast Guard are similarly included in Demand No 19, even though it operates under the Navy, which is allocated funds under Demand No. 20. Until 2016-17, capital allocations for the Defence R&D Organisation and Ordnance Factory Board were also part of the Ministry of Defence budget head. These scattered capital allocations have been compiled and included in capex. Then we split the expenditure into two separate categories: First, domestic rupee-denominated spending and, second, imports which are USD-denominated. For six of these 12 fiscal periods (including the base year, 2011-12) defence ministry statements in Parliament gave out the ratio between domestic capex and imports. These range from 50:50 in 2018-19 to a targeted 68 per cent of domestic spending in the current fiscal with most years seeing a trend of 60 per cent of expenditure incurred domestically. Where there is no clear attribution, we've assumed 60 per cent of the spending was local.

The domestic capex component was adjusted for inflation, and the import component was converted into USD since all defence expenditure, even imports from France or Russia, are USD-denominated. The inflation adjustment was done using the deflator, compiled from Finance Ministry, Ministry of Statistics and Programme Implementation, and World Bank data. Overall, the GDP deflator indicates that inflation ran at an annualised 5.2 per cent. However, it has been over 9 per cent in 2021-22 and in the current fiscal (until August). A deflator is a ratio of the value at current prices of all goods and services in the economy in a given year compared to the value during the base year, which is 2011-12 in this case.

For converting the rupee to dollar, the median USD-INR exchange rate prevailing during the concerned fiscal periods was used. A median is a mid-point value – in a year this would be the USD-INR value which has 182 values above and 182 values below it. The USD strengthened from Rs 48-49 in 2011-12 to over Rs 81 in September 2022 with a median value of Rs 78.84/USD in the current fiscal. These approximations yield a clear picture of trends. Although the nominal allocation has grown every year, from Rs 69,476 crore (2011-12) to Rs 160,071 crore (2022-23 Budget Estimate), allocations have been uneven if we adjust them for inflation.

In 2012-13, and in 2021-22, the allocation was actually lower post-inflation, than in the prior fiscal. There was a whopping 20 per cent year-on-year jump in capex in 2020-21, and there has been 10 per cent increase in 2022-23. It would appear that the creation of infrastructure and the filling of gaps in the military's arsenal after China's incursions into Eastern Ladakh in April 2020 are at least partly responsible for this capex hike. However over this entire period, defence spending has grown at a CAGR of 7 per cent. It is noteworthy that defence spending has grown strongly by 9 per cent CAGR after 2016-17 even though the GDP growth has fallen since then.

The value of imports has fluctuated significantly, probably because this is "lumpy". Defence imports are paid for in the year in which they are delivered, apart from a signing advance of 10-15 per cent of the contract value. There could be a capex spike in a year where a large contract is signed (through payment of the advance) or when a larger-than-normal delivery takes place (e.g. a full squadron of aircraft, or a brigade of tanks). There have been years such as 2018-19 and 2019-20 when Imports climbed 26.5 per cent YoY to \$7.7 billion in 2018-19 and then dropped by 16 per cent to \$6.5 billion in 2019-20. In each such case, there is a larger-than-normal

delivery – for example, the Rafale (imports) or Tejas fighters (domestic), or the Russian S400 air defence system (imports) – to explain the bounce.

In the base year, 2011-12, India imported \$5.7 billion worth of defence equipment. In 2022-23, it intends to import \$6.5 billion, which is a CAGR of just 1.2 per cent. But imports hit \$7.8 billion in 2021-22, and \$7.6 bn in 2020-21. It does appear that the efforts to indigenise are slowly making an impact. This could also be due to accelerated construction of communication infrastructure along the northern, Himalayan borders during the past few years. This means that part of the domestic capex has been allocated towards roads, barracks, etc., which necessitate the use of locally sourced cement and steel and other construction materials, rather than expensive imported weapons and sensor equipment.

https://www.business-standard.com/article/economy-policy/a-shift-towards-indigenisation-make-in-india-fortifies-defence-spending-122092900883_1.html



Thu, 29 Sept 2022

India Strikes ‘Big Deal’ with Armenia; To Export Indigenous Pinaka Missiles amid Conflict with Azerbaijan

India is set to export one of its prized possessions, the “Pinaka” missile system, to conflict-ridden Armenia, just days after recording the highest-ever defense export that swelled by a staggering 334% over the last five years. As Armenia grapples with managing a surge in violence with Azerbaijan in a new flare-up of tensions, India has decided to export missiles, rockets, and ammunition, including indigenous Pinaka multi-barrel rocket launchers, Economic Times reported. The system figured in India’s export list published in February 2021. The Ministry of Defense authorized the export of weapons via a government-to-government channel, under which the two countries signed agreements to deliver weapons and ammunition to Armenia earlier this month.

While the deal’s value has not been disclosed, the report claims armament worth \$250 million would be sold over the next few months. This disclosure comes days after India called on the “aggressor side” in fresh fighting along the Armenia-Azerbaijan border to “immediately cease hostilities” without directly naming Azerbaijan. Fighting erupted between the two sides on September 13 over the lingering Nagorno-Karabakh region dispute. Azerbaijan, for one, has received backing from its traditional allies and supporters, Turkey and Israel. During the 2020 skirmish between the two combatants, Baku turned the tide in its favor by overwhelmingly deploying Turkish Bayraktar and Israeli kamikaze drones.

While Armenia has often turned to Russia for support, Moscow’s preoccupation with war against Ukraine has garnered limited assistance. In the face of rising hostilities and little military aid, a deal with India for rocket systems and another armament would prove to be a shot in the arm for a beleaguered Armenia. The deal also comes when India has recorded its

highest-ever defense export and is chasing an even higher target. By 2025, the Defense Ministry wants to produce 1.75 lakh crores of weapons, including 35,000 crores (roughly \$5 billion at an exchange rate of 1:70) for export.

Pinaka Export Debut with Armenian Contract

India is set to export its indigenously developed Pinaka multi-barrel rocket launchers for the first time. Pinaka has been developed by the Defense Research and Development Organisation (DRDO) and manufactured by indigenous private sector firms. Pinaka is a multi-barrel rocket launcher primarily developed for the Indian Army. The system is mounted on a Tatra truck for mobility. Each Pinaka battery has six launchers, 12 rockets, and the DIGICORA MET radar. A battery of six launchers can neutralize an area measuring 1000metersx800meters. Each launcher has a separate direction of fire. The system can choose to launch all of the rockets at once or just a few using a fire control computer. The six launchers of a battery are all connected via a command post. Each launcher has its computer, allowing it to function independently if it becomes separated from the other five vehicles during a battle.

Besides the Pinaka, Armenia will also receive anti-tank missiles and a variety of ammunition from India as part of the package agreement. The complete details of these armaments have not yet been disclosed. It is not the first time that Armenia has received weapons equipment from the South Asian country. In 2020, India triumphed over Russia and Poland in a \$40 million defense agreement with Armenia providing it with four indigenous SWATHI counter-battery radars. Developed by DRDO and produced by Bharat Electronics Limited (BEL), it provides accurate information on enemy artillery firing positions and weapons up to 75 kilometers away.

These radars track incoming rockets, mortars, and artillery shells and provide the precise location of enemy launchers and positions. The radars have been effectively used on the borders with China and Pakistan and are thus tried and tested for use. India's military assistance for Armenia comes against the backdrop of its regional rival's bonhomie with Azerbaijan. Pakistan, the arch enemy of India, has consistently backed Azerbaijan in the Nagorno-Karabakh conflict and has refused to establish diplomatic ties and legally recognize Armenia as an independent state. The Armenian Army's primary source of weaponry and other military equipment has by far been Russia. However, Moscow's depleted stocks and crippled defense industry could be India's turn to further its weapon export goals.

<https://eurasianimes.com/india-set-to-export-indigenous-pinaka-missile-system-to-armenia/>

ThePrint

Thu, 29 Sept 2022

As Tensions Rise with Azerbaijan, Armenia Buys Pinaka Rockets & Ammunition from India

Armenia has signed a contract with India for procuring the indigenous Pinaka multi-barrel rocket launchers, unspecified missiles and ammunition, amid its growing tensions with Azerbaijan which is close to Turkey and Pakistan. On Wednesday, Armenia and Azerbaijan accused each

other of violating a cease-fire agreement that ended two days of conflict this month. Sources in the defence and security establishment confirmed that the government-to-government contract, valued at about Rs 2,000 crore, was signed earlier this month and that the supplies would be fast tracked as per the requirement. While the exact quantity is not known, the order includes the indigenous Pinaka system, ammunition and anti-tank rockets.

This is the first international order for the system, which was developed by the Defence Research and Development organisation (DRDO). The multiple rocket launcher is already in service with the Army and has been deployed along the borders with China and Pakistan. The defence sources remained tight-lipped about the exact nature of the government-to-government contract but pointed out that Armenia has bought Indian defence goods in the past. The ex-Soviet republic had bought four indigenous Swathi weapons locating radar in 2020 from India which was delivered in the backdrop of its conflict with Azerbaijan.

Azerbaijan-Turkey-Pakistan axis

Azerbaijan is seen by many as part of an emerging axis with Turkey and Pakistan. It has used Turkish drones to fight war against Armenia, and is also in talks with Pakistan to buy the JF-17 fighter aircraft. Observers have pointed out that in recent years, despite their physical distance, an “indirect linkage” has emerged between Armenia-Azerbaijan and India-Pakistan. In 2017, Turkey, Azerbaijan, and Pakistan had signed a Trilateral Ministers Agreement that established security cooperation, and built upon previous bilateral military aid arrangements. Besides the strategic importance of the deal with Armenia, the export order is a boost for the indigenous defence industry with the Indian government keen to increase the value of Indian arms exports.

India’s defence exports touched a record Rs 13,000 crore in the 2021-2022 fiscal, “eight times” of what it was around five years ago. In 2020, the Narendra Modi government had set a target of Rs 35,000 crore (\$ 5 billion) export in aerospace, and defence goods and services in the next five years. This is part of the turnover of Rs 1.75 lakh crore (\$ 25 billion) in defence manufacturing by 2025 that the government is aiming to achieve. In January, India had signed a contract with the Philippines for the sale of BrahMos missiles. Currently, India exports defence equipment to 75 countries and this includes weapon simulators, tear gas launcher, torpedo loading mechanism, alarm monitoring & control, night vision monocular & binocular, light-weight torpedo & fire control systems, armoured protection vehicle, weapons locating radar, high-frequency radio, coastal surveillance radar among others.

<https://theprint.in/defence/as-tensions-rise-with-azerbaijan-armenia-buys-pinaka-rockets-ammunition-from-india/1147833/>

US Businesses have Appreciated Incremental Ease of Doing Business in India, Says Jaishankar

External Affairs Minister S Jaishankar said that business leaders in the United States have appreciated the incremental ease of doing business enabled by the Indian government. Speaking at a press briefing in Washington on Wednesday, Jaishankar said American businesses are surprised by how much more digital India has become, and how effectively the government is practising digital delivery. These remarks come after Jaishankar met business leaders at the US-India Business Council (USIBC) and US-India Strategic Partnership Forum (USISPF) in Washington during his US visit.

“I was struck by the fact both yesterday and today. Hearing from a very broad range of businesses. One overall appreciation for the incremental ease of doing business, sectoral, sometimes companies specific experiences, saying you know, like, today, there was an insurance company who spoke about ...what a big change they saw, and how much more positive they were about,” the external affairs minister told reporters. The minister said businesses were amazed at the change that has taken place in startups and innovation, as well as the change in labour laws and production-linked incentive policies in India. Jaishankar said he invited businesses to come forward with their problems so that solutions can be carved out.

During his press conference, the minister said the India-US relationship today is “so important that it is essential to have that face-to-face engagement on a regular basis.” He said ties are in a good place by citing good investment flows and regular political exchanges. “There might be some process issues on visas, but the actual movement of people on a longer timeframe has been quite positive, education student numbers have been strong,” Jaishankar said. He said the India-US relationship today impacts the rest of the world and there are a lot of countries that look to the two countries both individually and bilaterally.

“The good part of the relationship is today that we understand that we have to make space for each other and that we can work with each other even if we do not entirely agree on every aspect of every issue,” he added. On Wednesday, Jaishankar held a business luncheon with USISP Forum Board members during which he noted high interest in transformational changes happening in India. The minister said that India is ready to do even more business with the US.

“Delighted to participate in a business luncheon with @USISPFForum Board members. Thank Dr. Mukesh Aghi for organizing. Noted the high interest in transformational changes happening in India in energy, health, climate, infrastructure & logistics and defence domains,” the minister tweeted. “Reiterated that our confident country is ready to do even more business with the US. Appreciated the positive sentiment in the room for stronger India-US linkages,” he added.

<https://theprint.in/world/us-businesses-have-appreciated-incremental-ease-of-doing-business-in-india-says-jaishankar/1147648/>

Science & Technology News



Press Information Bureau
Government of India

Ministry of Science & Technology

Thu, 29 Sep 2022 4:03 PM

CSIR-NIScPR Celebrates 81st Foundation Day of CSIR

Council of Scientific & Industrial Research (CSIR) was set up on 26 September 1942. This year, this one of the largest R&D organisations of India is celebrating its 81st Foundation Day. 37 laboratories spread across the country, celebrate this special day at their own place. Delhi based CSIR laboratory the National Institute of Science Communication & Policy Research (NIScPR) celebrated 81st Foundation Day on 27th September 2022 at the National Agricultural Science Complex (NASC), Todapur, New Delhi.

Before the main function of the Foundation Day, CSIR-NIScPR organized an Open Day Program at Vivekanand Hall, NIScPR, Pusa Campus, New Delhi during 11 am to 12 noon on 27 Sept. 2022. On this occasion, 130 school students visited NIScPR and various institute facilities. NIScPR Director, Prof. Ranjana Aggarwal addressed the students and motivated them for a bright future ahead. During the Student-Scientist Connect Session of the Open Day, a special lecture was delivered by Dr. G. Mahesh, Chief Scientist, CSIR-NIScPR. Dr. M. Rais, Chief Scientist, CSIR-NIScPR and Chief Coordinator of CSIR's 81st Foundation Day Celebration at NIScPR and Shri C.B. Singh, Sr. Principal Scientist and Coordinator of JIGYASA, NIScPR also shared their thoughts with the students.

During the open day, exhibition of NIScPR publications, Ayur Vatika and RHMD visit were other special attractions for the visiting students. Special issue of NIScPR's monthly popular science Hindi magazine *Vigyan Pragati* focused on the Indian organizations engaged in science popularization were also distributed among the students. On 27 Sept. 2022, CSIR-National Institute of Science Communication and policy Research celebrated 81st Foundation Day at NASC, New Delhi. Distinguished guests Prof. Virendra K. Vijay, IREDA Chair Professor, CRDT, IIT Delhi & National Coordinator, Unnat Bharat Abhiyan (UBA) and Dr. Ashok Jain, former Director, CSIR-NISTADS graced the occasion.

During the Foundation Day celebration, a book of CSIR-NIScPR focused on the formats of science communication literature was also released. This book is the outcome of a workshop organized by the Studies in Science Communication Division of CSIR-NIScPR aimed at science communication in the regional languages of India. Authors of this book have discussed prominent formats like science fiction, poetry, puppet, science blog, etc. Delhi based four authors Dr. Madhu Pant (former Director, National Bal Bhawan), Shri Raghuvar Dutt Rikhari (former Editor-Invention Intelligence & Awishkar), Dr. Manish Mohan Gore (Scientist, CSIR-NIScPR & Editor, *Vigyan Pragati*) and Ms. Shubhada Kapil (Assistant Editor, *Vigyan Pragati*) joined the book release moment. During the Foundation Day Function, Distinguished Guests distributed the

Awards to retirees, 25 Years' service completion and 10th & 12th class brilliant wards of NIScPR staff. Cultural programs on various themes were performed by the staff members of NIScPR. Dr. Mohammad Rais, Chief Scientist, CSIR-NIScPR proposed vote of thanks.

Joint Secretary of CSIR visits CSIR-NIScPR

CSIR-National Institute of Science Communication & Policy Research (NIScPR), New Delhi organized the culmination program of Hindi Month. Joint Secretary of CSIR, Shri Mahendra Kumar Gupta visited NIScPR and joined this program on 28 September 2022. Shri Gupta visited the herbarium, popular science division, IT division and printing unit of NIScPR and interacted with the scientists of the concerned divisions.

In the Hindi ceremony, Prof. Ranjana Aggarwal formally welcomed to Shri Gupta with potted plant, memento and a set of institute's publications. In her welcome address, Prof. Aggarwal said that NIScPR has contributed enormously towards science and society interface through Hindi language. She said that Vigyan Pragati magazine has recently won the prestigious National Award 'Kirti Puraskar' of the Official Language Department, Ministry of Home Affairs, Govt. of India which indicates that NIScPR is doing good work in Hindi language. Original Hindi research Journal namely 'Bharatiya Vaigyanik evam Audyogik Anusandhan Patrika' has been published by NIScPR since 1993. She added that SVASTIK is a flagship program of the Institute through which scientifically validated traditional knowledge is shared in Hindi and other regional languages of the country. She assured to JS that CSIR-NIScPR will keep on doing all the mandated activities of science communication and policy studies & research in Hindi.

On the occasion, Joint Secretary of CSIR Shri Mahendra Kumar Gupta said that he was an avid reader of 'Vigyan Pragati' in his childhood and he used to discuss the scientific content published in the magazine with his class-fellows. He also disclosed that NIScPR's science magazine 'Vigyan Pragati' has played a key role in developing interest in his science study. Shri Gupta added that CSIR-NIScPR is doing great job in its core fields of science policy and science communication. He distributed prizes to all the winners in various competitions organized during Hindi Month by CSIR-NIScPR.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1863380>



Fri, 30 Sept 2022

Researchers Develop Algorithm to Decode Brain Scans

Researchers at the Indian Institute of Science (IISc), in collaboration with the All India Institute of Medical Sciences (AIIMS), Rishikesh, have developed an algorithm that they said can help decode brain scans to identify the occurrence and type of epilepsy. In epilepsy, a neurological disease, the brain emits sudden bursts of electrical signals in a short amount of time, resulting in seizures, fits, and in extreme cases, death. Based on the point of origin of the brain's erratic signals, epilepsy is classified as either focal or generalised epilepsy. Focal epilepsy occurs when the erratic signals are confined to a specific region in the brain.

If the signals are at random locations, then it is termed as generalised epilepsy. To identify whether a patient is epileptic, neurophysiologists need to manually inspect EEGs (electroencephalograms), which can capture such erratic signals, an IISc statement said. Visual inspection of EEG can become tiring after prolonged periods, and may occasionally lead to errors, says Hardik J Pandya, Assistant Professor at the Department of Electronic Systems Engineering (DESE) and the corresponding author of the study published in 'Biomedical Signal Processing and Control'.

In their study, the team reported a novel algorithm that can sift through EEG data and identify signatures of epilepsy from electrical signal patterns. "The algorithm aims to differentiate EEG of normal subjects from epileptic EEGs. Additionally, the developed algorithm attempts to identify the types of seizures. Our work is to help neurologists make an efficient and quick automated screening and diagnosis," Pandya added. After initial training, the algorithm was able to detect whether a human subject could have epilepsy or not – based on these patterns in their respective analyses – with a high degree of accuracy, the researchers say.

To develop and train the algorithm, the researchers first examined EEG data from 88 human subjects acquired at AIIMS Rishikesh. Each subject underwent a 45-minute EEG test, divided into two parts: an initial 10-minute test when the subject was awake, which included photic stimulation and hyperventilation, followed by a 35-minute sleep period when the subject was asked to sleep. Next, the team analysed this data and classified different wave patterns into sharp signals, spikes, and slow waves. An epileptic subject shows a different set of patterns compared to a healthy individual.

The team ran their algorithm on a new set of EEG data from subjects for whom the classification (whether they had epilepsy, and if so, what type of epilepsy they had) was already known to the doctors. This blind validation study successfully classified the subjects accurately in nearly 91 per cent of the cases, the statement said. "We hope to refine this further by testing on more data to consider more variabilities of human EEGs until we reach the point where this becomes completely translational and robust," says Rathin K Joshi, a PhD student in DESE and first author of the study. Currently, a patent has been filed for the work and the algorithm is being tested for its reliability by physicians at AIIMS Rishikesh.

<https://www.dailypioneer.com/2022/india/researchers-develop-algorithm-to-decode-brain-scans.html>



गुरुवार, 29 सितंबर 2022

रक्षा बलों के लिए इन्फ्लेटेबल संरचनाओं की उपयोगिता बताई

आईआईटी रुड़की के मैकेनिकल एवं इंडस्ट्रीयल इंजीनियरिंग विभाग ने इन्फ्लेटेबल स्ट्रक्चर एंड लाइटवेट मेटिरियल पर दो दिवसीय सेमिनार का आयोजन किया गया। इन्फ्लेटेबल संरचनाओं, लाइटवेट मेटिरियल, उनके डिज़ाइन, उत्पादन तकनीकों को जागरूक करने के लिए सेमिनार किया गया। इसरो, डीआरडीओ,

अकादमिक संस्थानों एवं उद्योग जगत के विशेषज्ञों ने इन्फ्लेटेबल संरचनाओं के डिज़ाइन, विश्लेषण, निर्माण, लाइटवेट मटीरियरल और इनकी जांच आदि विषयों पर अपने विचार प्रस्तुत किए।

कार्यक्रम में टेक्नोलॉजी मैनेजमेंट एवं सिस्टम एनालिसिस एंड मॉडलिंग, डीआरडीओ के महानिदेशक हरी बाबू श्रीवास्तव मुख्य अतिथि रहे। सेमिनार में इसरो के ग्रुप डायरेक्टर डॉ. एचएन सुरेश, एफडी ग्रुप आरएण्डडीई (ई) पुणे के हैड संतोष कुमार, डिपार्टमेंट ऑफ मैकेनिकल एंड मैकट्रॉनिक्स इंजीनियरिंग, यूनिवर्सिटी ऑफ वाटरलू, कनाडा के प्रोफेसर बिशाख भट्टाचार्य, डॉ. एचएम वायसी मल्लिकराच्ची, एसजे राव, स्वर विकामशी, रमेश चौधरी, एसी माथुर, डॉ. पीसी जैन, प्रो. अनिरवन दास गुप्ता, प्रो. व्सेवोलोड कोरयानोव, डॉ. सतीश कुमार, सीआर सावंत ने प्रतिभाग किया।

<https://www.livehindustan.com/uttarakhand/roorki/story-explained-the-usefulness-of-inflatable-structures-for-defense-forces-7152463.html>

