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**Press Information Bureau
Government of India**

Ministry of Defence

Thu, 04 Apr 2024

New Generation Ballistic Missile Agni-Prime Successfully Flight-tested by Strategic Forces Command & DRDO off the Odisha Coast

Strategic Forces Command (SFC), along with Defence Research and Development Organisation (DRDO), conducted the successful flight-test of New Generation Ballistic Missile Agni-Prime from Dr APJ Abdul Kalam Island off the coast of Odisha at around 1900 hrs on April 03, 2024. The test met all the trial objectives validating its reliable performance, as confirmed from the data captured by a number of range sensors deployed at different locations, including two downrange ships placed at the terminal point. The launch was witnessed by the Chief of Defence Staff, Chief of Strategic Forces Command and senior officials from DRDO & the Indian Army.

Raksha Mantri Shri Rajnath Singh has congratulated DRDO, SFC and the Armed Forces for the successful test. He stated that the successful development and induction of the missile will be an excellent force multiplier for the Armed Forces. Chief of Defence Staff General Anil Chauhan and Secretary, Department of Defence R&D and Chairman DRDO Dr Samir V Kamat appreciated the efforts of SFC and DRDO for the successful flight test.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2017114>



Thu, 04 Apr 2024

नई पीढ़ी की बैलिस्टिक मिसाइल अग्नि प्राइम का हुआ सफल परीक्षण, रक्षा मंत्री ने DRDO और SFC को दी बधाई

सामरिक बल कमान (Strategic Forces Command) ने डीआरडीओ के साथ मिलकर कल (बुधवार) शाम लगभग 7:00 बजे ओडिशा के तट पर डॉ एपीजे अब्दुल कलाम द्वीप से नई पीढ़ी की बैलिस्टिक मिसाइल अग्नि-प्राइम का सफल उड़ान परीक्षण किया। रक्षा मंत्रालय ने इस परीक्षण की पुष्टि की।

इस लॉन्च के मौके पर चीफ ऑफ डिफेंस स्टाफ जनरल अनिल चौहान, स्ट्रैटजिक फोर्सेज कमांड के प्रमुख और डीआरडीओ और भारतीय सेना के वरिष्ठ अधिकारी मौजूद थे। रक्षा मंत्री राजनाथ सिंह ने सफल परीक्षण के लिए डीआरडीओ, एसएफसी और सशस्त्र बलों को बधाई दी है।

अग्नि-प्राइम मिसाइल का हुआ सफल उड़ान परीक्षण

रक्षा मंत्रालय ने एक बयान में कहा, "रणनीतिक बल कमान (एसएफसी) ने रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) के साथ मिलकर 3 अप्रैल को लगभग 07:00 बजे ओडिशा के तट पर एपीजे अब्दुल कलाम द्वीप से नई पीढ़ी की बैलिस्टिक मिसाइल अग्नि-प्राइम का सफल उड़ान परीक्षण किया गया है।"

<https://www.jagran.com/news/national-new-generation-ballistic-missile-agni-prime-successfully-tested-defense-minister-congratulated-drdo-and-sfc-23689562.html>



Thu, 04 Apr 2024

New Generation Ballistic Missile Agni-Prime Successfully Flight-tested

The new generation ballistic missile Agni-Prime was successfully flight-tested by the Strategic Forces Command (SFC) along with the Defence Research and Development Organisation (DRDO) from the Dr APJ Abdul Kalam Island off the coast of Odisha around 7pm on Wednesday.

"The test met all the trial objectives validating its reliable performance, as confirmed from the data captured by a number of range sensors deployed at different locations, including two downrange ships placed at the terminal point," a Defence Ministry statement said. The launch was witnessed by the Chief of Defence Staff, Chief of SFC and senior officials from DRDO and the Army.

Agni-P is a two-stage canisterised solid propellant ballistic missile with dual redundant navigation and guidance system, according to DRDO. It has a range of 1,000-2,000km and was tested for the first time in June 2021. It is lighter than all the earlier Agni series of missiles.

In June 2023, the first pre-induction night launch was conducted by the users after three successful developmental trials of the missile, validating the accuracy and reliability of the system.

Agni series of missiles constitute the backbone of India's nuclear weapons delivery which also includes the Prithvi short range ballistic missiles and fighter aircraft. India has completed its nuclear triad and operationalised its second strike capability with nuclear-powered ballistic missile submarine INS Arihant undertaking deterrence patrols. Agni-Prime is a two-stage canisterised solid propellant ballistic missile with dual redundant navigation and guidance system, according to DRDO. It has a range of 1,000-2,000km and was tested for the first time in June 2021.

It is lighter than all the earlier Agni series of missiles.

<https://www.thehindu.com/news/national/new-generation-ballistic-missile-agni-prime-successfully-flight-tested/article68027482.ece>

THE TIMES OF INDIA

Fri, 05 Apr 2024

Young Scientists Meet Inaugurated

The 10th edition of DRDO Young Scientists Meet (YSM 2024), being organised at Naval Science & Technological Laboratory (NSTL), was inaugurated by Dr Samir V Kamat, secretary, department

of defence R&D and DRDO chairman. As many as 160 young scientists from DRDO laboratories/ establishments across the country are participating in the event.

<https://timesofindia.indiatimes.com/city/visakhapatnam/young-scientists-meet-inaugurated/articleshow/109048906.cms>

THE ECONOMIC TIMES

Thu, 04 Apr 2024

DRDO Starts Work to Set up Test Centre in Bengal: Official

The Defence Research and Development Organisation (DRDO) has started implementing a project in Junput village in West Bengal to build a small test centre for the country's weapon systems, officials said on Thursday. Junput, like Odisha's Chandipur which is known for its Integrated Test Range (ITR), is also situated by the Bay of Bengal.

An additional operation area is required as the existing ITR at Chandipur near Balasore has become saturated with work related to testing.

Since its inception, the DRDO has aimed at designing and developing state-of-the-art sensors, weapon systems, platforms and allied equipment in defence and security domains of land, air, sea, space and cyber, an official said.

"As timely trials of weapon systems are of paramount importance, a plan is being implemented for an additional operation area at Junput near Digha, about 70 kilometres from Chandipur," the DRDO official said.

Junput is also 177 km from Kolkata and 40 km from Digha, a popular sea resort town.

"Located in the coastal zone of West Bengal, this proposed site covers 8.73 acres of land and also meets the requisite safety norms. The project has got recommendations from the central and the West Bengal governments," the official said.

The test site also got approval from the Ministry of Environment, Forest and Climate Change.

"According to the standard, while undergoing any flight test, DRDO always keeps the safety and tranquillity of humans and nature at utmost priority. All the people living in the vicinity of the test site should freely continue with their day-to-day activities.

"Further, DRDO ensures that its tests or trials do not impact the life of people, especially fishermen and farmers, dwelling in its surroundings," the official said.

<https://economictimes.indiatimes.com/news/defence/drdo-starts-work-to-set-up-test-centre-in-bengal-official/articleshow/109043464.cms>



Press Information Bureau
Government of India

Ministry of Defence

Thu, 04 Apr 2024

Pan India Emergency Landing Facility Activation by Indian Air Force

As part of the ongoing exercise Gagan Shakti-24, Indian Air Force (IAF) aircraft recently operated from the Emergency Landing Facility (ELF) in the northern sector in Kashmir valley. A large number of troops were airlifted and subsequently air landed utilising Chinook, Mi-17 V5 and ALH Mk-III helicopters by night.

IAF also plans to practise similar drills in coordination with administration of State Governments for activation of ELFs in other sectors. Various IAF fixed and rotary wing platforms will carry out coordinated landing and operations at these ELF, requiring good planning and coordination with civil administration employing Whole-of-the-Nation-Approach (WNA). ELF operations provide an opportunity for IAF aircraft to undertake operations from such restricted landing surfaces while also being able to undertake Humanitarian Assistance in Disaster Relief operations during times of natural calamities to provide succor and relief. The capability to operate by night at these stretches of highways, and the capability to transfer troops from such surfaces will greatly enhance the operational capabilities of Indian Armed Forces.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2017167>



Press Information Bureau
Government of India

Ministry of Defence

Thu, 04 Apr 2024

Army Medical Corps Celebrates 260th Raising Day

Army Medical Corps celebrated its 260th Raising Day on 03rd April 2024. Raised in the year 1764, the Corps has rendered selfless service to the nation over centuries of progress, development, dedication & sacrifice, both in combat and in peace, living up to the Corps motto of 'Sarve Santu Niramaya' meaning 'let all be free from disease'.

Chief of Army Staff Gen Manoj Pande, and Chief of Air Staff Air Chief Marshal VR Chaudhari attended an event in New Delhi that was organized to mark the Raising Day, and to honour the achievements and celebrate the Esprit-de-Corps of AMC. A video commemorating distinguished achievement of the Armed Forces Medical Services was also screened during the event which was attended by more than 700 veterans of AFMS as well as by civil & service dignitaries.

The AMC Raising Day celebrates the contributions of thousands of Officers, JCOs and other ranks of the Army Medical Corps who have been successful in impacting the lives of the Armed Forces personnel, families and veterans. As part of UN Peace Keeping Missions and HADR activities on foreign soil, the Corps has excelled in every sphere of medical care.

In its endeavour to enhance optimal Combat Medical Care and superlative state-of-the-art peace time medical care, the AMC in its 260th year has set a benchmark in professionalism, courage & compassion beyond the call of duty while relentlessly marching towards the ultimate goal of 'Swastha Bharat, Viksit Bharat'.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2017125>



Press Information Bureau
Government of India

Ministry of Defence

Thu, 04 Apr 2024

Army Commanders' Conference Concludes Calling for Greater Impetus on Ongoing Transformation

The Army Commanders' Conference concluded in New Delhi on 2nd April 2024. The biannual event, held in a hybrid format, commenced with a virtual session chaired by General Manoj Pande, Chief of Army Staff (COAS), on 28th March 2024, and was followed by in-person discussions on 1st and 2nd April 2024. The senior leadership of the Army brainstormed a wide array of security-related aspects, including ongoing transformation initiatives, leveraging technology and innovation for capability development, enhancing operational preparedness, addressing emerging security and HR-related issues.

Shri Rajnath Singh, Hon'ble Raksha Mantri, in his keynote address on 2nd April 2024, reaffirmed the nation's trust in the Indian Army, acknowledging its indispensable role in national security. He applauded the stellar role of the Army in guarding the borders, fighting terrorism and providing aid to the civil administration during crises. The Hon'ble RM exhorted the Army leadership to constantly review doctrinal, structural, & organisational reforms to meet future challenges in view of the evolving security dynamics.

The Raksha Mantri also appreciated the efforts of Indian Army in developing niche technologies in collaboration with indigenous industries and premier educational institutions. Further underscoring the importance of investing in modernisation and technological advancements, he acknowledged appreciable progress made towards the aim of achieving 'Modernisation through Indigenisation' under the abiding mantra of 'Atmanirbharta'.

The Raksha Mantri also reaffirmed the commitment of the Government to the welfare of soldiers, veterans and their families. He emphasised the importance of developing a trained and motivated workforce that can handle the challenges of contemporary combat while being adept at futuristic evolution in warfighting. He called on the leadership to invest in human capital by adhering to the

traditions and principles of mutual respect, loyalty, and discipline. Shri Rajnath Singh also released Indian Army UN Journal -2024 encapsulating the theme of 'Resilience and Adaptability' on the occasion.

The senior leadership of the Army was also addressed by General Anil Chauhan, Chief of Defence Staff (CDS), General Manoj Pande, COAS, Admiral R Hari Kumar, Chief of the Naval Staff (CNS) and Air Chief Marshal VR Chaudhari, Chief of the Air Staff (CAS).

The CDS complimented formations and the soldiers for their commitment towards security of the borders with a professional approach while at the same time dealing with challenges and embracing the transformational changes enthusiastically. He also exhorted the senior leadership to embrace the aspects of jointness, integration, and technological absorption in sync with the call of the 'Third Revolution in Military Affairs'.

The COAS during his address complimented the Army fraternity for successfully wading through myriad challenges and embracing the transformational changes with enthusiasm. He called upon the senior leadership to continue pursuing the process of transformation and technology absorption besides adopting the best practices of sister services and modern armies. He also emphasised the need to ensure seamless situational awareness between commanders at all levels and troops on the ground. The COAS also highlighted that there is a constant need to undertake doctrinal and structural reforms by embracing change and being open to new ideas to meet future operational challenges.

The CNS and CAS emphasised the importance of enhanced jointness given the lessons emerging from contemporary conflicts. They underscored the importance of synergy at the grass-roots level between the services for optimum operational outcomes. Sharing the highlights of ongoing initiatives in their respective services, the Chiefs emphasised the necessity to ensure seamless coordination during joint operations and exercises.

The senior hierarchy of the Army was also addressed by Shri Amitabh Kant, G20 Sherpa & former CEO of Niti Aayog and Shri Pankaj Saran, former diplomat and Deputy National Security Advisor. The distinguished speakers alluded to the changing geopolitics, impact of developments in the neighbourhood and the global arena on India, and underscored the ever-growing role and importance of armed forces in India's rise and future trajectory. They emphasised upon the importance of strategic planning and readiness in order to effectively navigate these complex dynamics in future.

Over the two days, senior Army leadership delved deep into current and emerging security landscapes, contemporary subjects affecting the Indian Army and HR aspects affecting serving personnel, their families and the veteran community. The necessity to align the training with technological advancements to harness the innovation potential of the Indian defence industry was also emphasised. The senior leadership reviewed the progress made on the ongoing transformative initiatives and future thrust areas were identified. The Commanders expressed their satisfaction with the steady pace of achieving 'Atmanirbharta' in line with the national resolve.

Key Takeaways

- Organisational and procedural transformation will be undertaken to ensure induction/absorption of niche technology towards futuristic Capability Development with a focus on Atmanirbharta. Towards this, the innovation potential of Army Design Bureau will be upscaled besides Army Design Bureau Cells being established at Command Headquarters. This is aimed at empowering Command Headquarters, formations and unit commanders in facilitating greater outreach to the industry and identification/ trials of niche technology.

- To further bolster the initiative, option of creating a separate Fund Head will be explored. In addition, test bed brigades/ formations will be nominated to ensure greater efficiency and continuity in trials and finalisation of trial reports. Moreover, to ensure lifetime support, future procurements will include aspects catering for holistic sustenance requirements during contract finalisation stage.
- More opportunities to collaborate with other ministries will be explored, to optimally utilise resources and synergise efforts for enhanced capability building and infrastructure development in border areas.
- Human Resource Management policies will be revised and attuned to facilitate absorption of niche technology with matching training infrastructure. The revised policy will be more innovative towards meeting the requirements of a tech-enabled future-ready Indian Army.
- To ensure realistic wargame and training, feasibility of creating a tailor-made organisation to function as Adversarial Force will be explored.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2017141>

THE ECONOMIC TIMES

Fri, 05 Apr 2024

In Tech Drive, Army Plans Test Bed Brigades, Adversarial Force

The army is planning to significantly expand its outreach to the industry by expanding its internal design bureau that promotes innovation in military technologies and is looking to create special structures, including brigade-level formations that can be used to test bed new tech and creation of an adversarial force for wargaming future challenges.

The Army Design Bureau (ADB), which is tasked with induction and absorption of futuristic technologies, will be expanded and cells will be established at formations and units for greater interaction with the industry.

"Organisational and procedural transformation will be undertaken to ensure induction and absorption of niche technology towards futuristic capability development with a focus on Atmanirbharta," an army official said. These initiatives were planned at the Army Commanders Conference that was held in a hybrid format this week.

The army is looking to create a new fund head to promote these initiatives. It plans to set up test bed brigades that will be specially tasked with trying out new equipment being developed by the industry.

Officials added to ensure a more realistic training environment and creation of wargaming for future threats, a new body that will function as an 'adversarial force' is also being considered by the army.

<https://economictimes.indiatimes.com/news/defence/in-tech-drive-army-plans-test-bed-brigades-adversarial-force/articleshow/109045216.cms>

Indian Army Boosts Air Defence Capabilities with 'Akashteer Control and Reporting Systems'

The Indian Army has embarked on a significant step towards bolstering its defense capabilities and technological prowess with the introduction of the 'Akashteer Command and Control Systems' into the Corps of Army Air Defence.

The rollout of Akashteer commenced with the ceremonial send-off of the initial batch of Control Centers from BEL Ghaziabad on April 4, 2024.

This initiative, developed by Bharat Electronics Limited (BEL) under the Atmanirbhar Bharat initiative, is anticipated to greatly enhance the operational efficiency and integration of the Army's air defense mechanisms, according to defense officials. The Akashteer Project represents a cutting-edge endeavor aimed at automating Air Defence Control and Reporting processes through digital transformation.

Emphasizing the significance of technological advancement, the Indian Army has designated 2024 as the "Year of Tech Absorption," undertaking various endeavors to incorporate niche technologies and systems into its arsenal. The induction of Akashteer Control Centers marks a significant milestone in the Army's transformation journey, aligning with both present requirements and future complexities of air defense operations.

Defense officials elaborate that Akashteer integrates radar and communication systems into a unified network, promising unprecedented situational awareness and control. This integration is expected to enable rapid engagement of hostile targets, minimize the risk of friendly fire, and ensure the safety of friendly aircraft in contested airspace.

Of note, Akashteer underscores mobility and resilience as key features. The system's vehicle-based and mobile Control Centers are designed to maintain operational capabilities even in challenging communication environments.

Overall, the deployment of Akashteer signifies a leap towards complete automation of air defense operations, signifying a substantial enhancement in India's air defense posture.

<https://timesofindia.indiatimes.com/india/indian-army-boosts-air-defence-capabilities-with-akashteer-control-and-reporting-systems/articleshow/109041273.cms>

The Statesman

Chief of Defence Staff Calls for Jointness, Integration of Armed Forces

Chief of Defence Staff, Gen Anil Chauhan has called upon the senior leadership of the armed forces to embrace the aspects of jointness, integration, and technological absorption in sync with the call for a 'Third Revolution in Military Affairs'.

He complimented various formations and soldiers for their commitment towards security of the borders with a professional approach while at the same time dealing with challenges and embracing the transformational changes enthusiastically.

The Chief of Defence Staff (CDS) was addressing the Army Commanders' Conference which concluded in New Delhi on Tuesday. The biannual event, held in a hybrid format, commenced with a virtual session chaired by General Manoj Pande, Chief of Army Staff (COAS), on 28 March, and was followed by in-person discussions on 1-2 April. The senior leadership of the Army brainstormed a wide array of security-related aspects, including ongoing transformation initiatives, leveraging technology and innovation for capability development, enhancing operational preparedness, addressing emerging security and HR-related issues.

Defence Minister Rajnath Singh, in his keynote address, reaffirmed the nation's trust in the Indian Army, acknowledging its indispensable role in national security.

Chief of Army Staff, Gen Manoj Pande, in his address, complimented the Army fraternity for successfully wading through myriad challenges and embracing the transformational changes with enthusiasm. He called upon the senior leadership to continue pursuing the process of transformation and technology absorption besides adopting the best practices of sister services and modern armies.

He also emphasized the need to ensure seamless situational awareness between commanders at all levels and troops on the ground.

Gen Pande also highlighted that there is a constant need to undertake doctrinal and structural reforms by embracing change and being open to new ideas to meet future operational challenges.

Chief of Naval Staff, Admiral R Hari Kumar and Chief of Air Staff, Air Chief Marshal V R Chaudhari emphasized the importance of enhanced jointness given the lessons emerging from contemporary conflicts. They underscored the importance of synergy at the grass-roots level between the services for optimum operational outcomes.

https://www.thestatesman.com/india/chief-of-defence-staff-calls-for-jointness-integration-of-armed-forces-1503287020.html#google_vignette

ThePrint

Thu, 04 Apr 2024

Indian Navy Team in Germany to Inspect AIP Tech for New Submarines, Spain Next

An Indian Navy team is currently in Germany to conduct a field inspection of the Air Independent Propulsion System (AIP), being offered by the country for India's next big submarine programme — Project 75 (India) or P75I — ThePrint has learnt.

Sources in the defence and security establishment said the team reached Germany last week and was in the process of evaluating the AIP system that will allow a vessel to stay underwater for a longer time.

They will look into the efficiency claims of the German submarine maker ThyssenKrupp Marine Systems (TKMS), which is the frontrunner to bag the mega contract. Sources also said that once this trip was completed, the team would also travel to Spain to check the AIP system of Spanish submarine manufacturer Navantia, the other foreign contender for the Navy deal.

The Navy has insisted on a proven AIP system for the next generation of submarines that is to be built under P75I, a plan formulated 24 years ago in 2000. While the French have already built six Scorpene class submarines for India, they don't have a demonstrated AIP system.

As per the plan, the Scorpene submarine will be equipped with the indigenous AIP system being developed by the Defence Research and Development Organisation (DRDO).

Even this indigenous development is behind schedule. The last two of the Scorpene-class submarines were to be fitted with the indigenous AIP technology at the building stage itself, but the delay means the plan has to be tweaked to ensure AIP fitment during the refit stage.

However, this is also not sure because the first of the Scorpene class INS Kalvari, which was commissioned in 2017, is scheduled to come in for refit in the middle of this year — the system is still not fully ready.

“A proven AIP is very important for the Navy because the force cannot afford to have the entire programme delayed further, whether this is because of slow development of indigenous systems or by a foreign company claiming they have developed it but not yet proven it. The Indian submarine programme cannot be a test bed for anyone,” a source said.

Because the P75I programme has been delayed, the Navy has gone in for stop gap arrangement by deciding to go in for three additional Scorpene submarines that were being pushed by the French.

However, the formal cost negotiation process is yet to start even though the programme was cleared last year.

Germany, Spain push for G2G deal

Both the German and the Spanish governments are pushing for a government-to-government deal for the P75I programme just like Narendra Modi did in 2016 for the 36 Rafale fighters.

TKMS has tied up with India's state-run Mazagon Dock Shipbuilders Limited (MDL) for the project while Navantia has tied up with private company L&T.

The project is being pursued under a strategic partnership — to be built in India through a collaboration between a foreign original equipment manufacturer (OEM) and an Indian entity.

It remained in limbo over the past few years because multiple foreign companies had chosen to stay away, including the Germans.

The OEMs originally in contention besides TKMS and Navantia were Russia's Rosoboronexport Rubin Design Bureau, France's Naval Group, South Korea's Daewoo Shipbuilding & Marine Engineering and Swedish firm SAAB. SAAB was the first to exit from the race in 2019, even before a formal tender was issued, citing “unbalance” in the strategic partnership.

The Russians also expressed their inability to be part of the project, saying they are willing to go in for a government-to-government deal for the joint design and manufacturing of submarines.

The Russians are believed to have also offered six new improved Kilo class submarines to India, deliveries of which it said would be fast tracked, but the Indian Navy was not so keen.

France expressed its inability to participate in the project because they did not have the proven AIP.

However, Germany had initially been reluctant, as they felt the strategic partnership was skewed in favour of the Indian entity, which would have the majority share in the joint venture. On the other hand, the OEM was to be responsible for delivery and even shortfalls.

Germany relented only after several meetings with the Navy.

Such was the poor response to the first tender (request for proposal) issued in 2021 that the Navy had to twice extend the deadline.

Project 76

Another proposal in the works is Project 76.

While India has managed to design and build its own nuclear submarine with help from the Russians, the country has never designed or manufactured a conventional submarine.

The Naval Design Bureau is working on a conventional diesel-electric submarine with AIP technology that will be the future of India's submarine plans.

It will be an in-house project and the Navy is already focusing on systems and technology the submarine will have and designing the vessel around that.

<https://theprint.in/defence/indian-navy-team-in-germany-to-inspect-aip-tech-for-new-submarines-spain-next/2027506/>



Thu, 04 Apr 2024

IAF Apache Attack Helicopter Sustains Damage During Precautionary Landing in Ladakh

An AH-64E Apache attack helicopter of the Indian Air Force (IAF) sustained damage while making a precautionary landing while on a training sortie in Ladakh area on April 4.

“An IAF Apache helicopter carried out a precautionary landing during an operational training sortie in Ladakh AOR on 03 April 24. During the process of this landing, it sustained damage due to undulating terrain and high altitude,” the IAF said on April 4.

Both the pilots on board are safe and have been recovered to the nearest airbase, the IAF said adding a Court of Inquiry has been ordered to ascertain the cause.

The IAF operates 22 Apache attack helicopters procured from Boeing under a ₹13,952 crore deal in September 2015.

The Army is now preparing to induct six Apaches between May and July this year and last month raised the 451 Aviation Squadron at Jodhpur that will operate them. These six helicopters were contracted at a cost of around \$800 mn in February 2020.

<https://www.thehindu.com/news/national/iaf-helicopter-makes-emergency-landing-in-ladakh-pilots-safe/article68027648.ece>



Thu, 04 Apr 2024

Defence Exports have Witnessed a Considerable Uptick, even as some Bottlenecks Need Removing

By Harsh V Pant and Kartik Bommakanti

It may not be the age of war, as Narendra Modi reminded Vladimir Putin in September 2022, but a year later, India's defence exports have witnessed a significant surge in 2023-24 with a growth of ₹21,083 crore. In fact, the last few financial years have witnessed steady and methodical increase

in India's defence exports to countries including the Seychelles, the Maldives, Mauritius and Ecuador.

These y-o-y increases started primarily in 2017-18, with the trajectory of defence exports hitting ₹4,682 crore, followed by a significant jump to ₹10,745 crore, which represented an increase of an impressive 129.49% in 2018-19. Then, a dip of 15.16% in defence export performance in 2019-20 to ₹9,115 crore was induced by the pandemic. A further decrease ensued in 2020-21, due to the continuation of Covid, by 7.47% to ₹8,434 crore.

The decrease in 2019-20 and 2020-21 was not as precipitous as the surge in defence export growth in the pre-pandemic phase. In the post-pandemic phase, defence exports regained their footing with an increase to ₹12,814 crore in 2022-23, which was higher than in the pre-pandemic year of 2018-19 when exports actually experienced a significant rise.

2023-24 has witnessed a further increase, from ₹15,920 crore in 2022-23 to ₹21,083 crore, representing an increase of 32.43%. Notwithstanding the pandemic serving as a dampener, at no stage before the last decade have Indian defence exports experienced such a steep upward trajectory.

This increase is a direct result of reformist policies instituted by GoI. Three critical factors have enabled this growth:

Importantly, less imports Reduced dependence on foreign equipment manufacturers by way of greater thrust towards tapping into the design, production and manufacturing capabilities of domestic defence PSUs.

Indigenous India Private companies and startups as part of GoI's Atmanirbhar Bharat initiative. Another critical policy is GoI's decision to create positive indigenisation lists comprising 4,666 items that are now sourced from domestic industry. These items include line replacement units, subsystems and spares, and components.

Of the 4,666 items identified for indigenous development and production under the positive indigenisation list, 2,920 items, or 62.5%, have already undergone indigenisation. With 75% of the acquisition budget under the capital head dedicated to sourcing from Indian companies, GoI has permitted over 40 companies and JVs with overseas original equipment manufacturers (OEMs).

Supplementing this effort is GoI's launch of 'Innovations for Defence Excellence' (iDEX), geared to fostering an ecosystem that generates innovation and stimulates development of technologies through tie-ups with academia, R&D institutions, startups and industry.

Def Dip GoI has engaged in an intensive level of defence diplomacy critical to defence exports. Marketing products to potential buyers from overseas also explains the export surge, coupled with lines of credit, Exim Bank financing for defence exports, and a defence offset policy that allows for integration of weapons or systems in India, which are then exported.

Further, GoI has also assiduously incorporated the role of MEA in augmenting defence exports. Essentially, enlarging the ecosystem and framework for exports - and pivoting towards a whole-of-government approach.

MEA has provided a line of credit to African countries to purchase weaponry and military platforms from India. India's embassies are also being roped in to promote defence exports from India, an additional fillip for dealmaking. The standout feature from the latest export data is that India's private sector has been the source of 60% of all defence exports, with defence PSUs accounting for the remaining 40% this year. This is significant to the extent that defence PSUs in the Indian military-industrial complex tend to be privileged, in terms of defence contracts and resources by MoD and GoI.

This is why the private sector dominating the defence export pie is all the more remarkable. The 40% contribution of defence PSUs is not negligible. This also reflects the extent to which standards of their products have improved making them exportable.

Yet, challenges remain. Foremost among them is bureaucratic inertia, and obstacles to genuinely integrate the private sector into India's defence innovation and industrial ecosystem. A robust defence industrial base with a dynamic private sector that also shows a readiness to run risks to develop weapons systems is still to be fully realised.

Also, lack of sufficient budgetary allocation, and investment in defence R&D that produces reasonably competitive products for use by the Indian armed forces, as well as items that are export-worthy, remains an issue.

Once the new government takes charge in June, doubling down on defence reforms should be key to building on the present momentum in this space.

<https://economictimes.indiatimes.com/opinion/et-commentary/view-defence-exports-have-witnessed-a-considerable-uptick-even-as-some-bottlenecks-need-removing/articleshow/109044801.cms>

Science & Technology News

नवभारत टाइम्स

Fri, 05 Apr 2024

चंद्रमा की सतह पर इतना हौले से उतरा चंद्रयान 3 कि ठीक से धूल भी नहीं उड़ी, लैंडिंग की पूरी कहानी जान लीजिए

भारत के चंद्रयान-3 मिशन ने 23 अगस्त, 2023 को अविश्वसनीय रूप से सॉफ्ट लैंडिंग के साथ इतिहास रच दिया था। पिछले महीने टेक्सास में चंद्र और ग्रह विज्ञान सम्मेलन में इसरो वैज्ञानिकों की तरफ से पेश एक नए पेपर से पता चलता है कि उतरने के लिए आवश्यक शक्तिशाली इंजनों के बावजूद, लैंडर ने न्यूनतम चंद्रमा की धूल उड़ाई। यह स्टडी अमिताभ, के सुरेश, कन्नन वी अय्यर, अजय के पराशर, श्वेता वर्मा और अब्दुल्ला सुहैल की तरफ से की गई थी। इसरो के अंतरिक्ष अनुप्रयोग केंद्र से। चंद्रयान-3, जिसने पृथ्वी पर इतना शोर मचाया, चंद्रमा पर बमुश्किल धूल उड़ाई। इस धूल का भविष्य के चंद्र अन्वेषण मिशनों पर महत्वपूर्ण प्रभाव पड़ता है।

सॉफ्ट लैंडिंग की कला

चंद्रमा की सतह पर उतरना कोई आसान काम नहीं है। अंतरिक्ष यान को धीमा करने और नियंत्रित तरीके से नीचे उतरने के लिए शक्तिशाली इंजन चालू करने चाहिए। हालांकि, यह इंजन निकास चंद्रमा की सतह के साथ संपर्क कर सकता है, धूल और मलबे के ढेर को उड़ा सकता है। इसे लैंडिंग स्थल के चारों ओर फैला सकता है। पिछले चंद्र लैंडिंग मिशन, जैसे कि प्रसिद्ध अपोलो मिशन और चीन के चांग'ई-3, ने 60 मीटर (लगभग 200 फीट) तक की ऊंचाई धूल के गुबार उठाए थे। ऐसे विशाल धूल के बादल संभावित रूप से संवेदनशील उपकरणों को नुकसान पहुंचा सकते हैं। साथ ही लैंडिंग स्थल का दृश्य अस्पष्ट कर सकते हैं। यहां तक कि रोवर्स या अंतरिक्ष यात्रियों की तरफ से एकत्र किए गए साइंटिफिक सैंपल को भी दूषित कर सकते हैं।

कम से कम धूल का असर

चंद्रयान-3 के लैंडर विक्रम ने केवल 8.7-12 मीटर (28-39 फीट) की धूल का गुबार उठाया। ये बात लैंडर, ऑर्बिटर (चंद्रयान -2 से) और रोवर प्रज्ञान पर लगे कैमरों से ली गई तस्वीरों से पता चलता है। इसके अलावा, धूल फैलने से प्रभावित क्षेत्र अपेक्षाकृत छोटा था, जो केवल 145 वर्ग मीटर (लगभग 1,560 वर्ग फीट) को कवर करता था। यह एक दिशा में लगभग 17 मीटर (56 फीट) और दूसरी दिशा में 14 मीटर (46 फीट) तक फैला था। सॉफ्ट टचडाउन से पता चलता है कि लैंडर के डिजाइन और इंजन कॉन्फिगरेशन को इंजन प्लम और चंद्र सतह के बीच न्यूनतम संपर्क के लिए अनुकूल किया गया था। चंद्रयान-3 की उपलब्धि कई कारकों के संयोजन के कारण होने की संभावना है। इसमें लैंडर का हल्का डिजाइन, इंजन के जोर का सटीक नियंत्रण और लैंडिंग स्थल पर चंद्रमा की मिट्टी के विशिष्ट गुण शामिल हैं।

रियल टाइम मोड में 835 तस्वीरें भेजीं

लैंडर विक्रम, चंद्रमा के दक्षिणी गोलार्ध में 'मंजिनस-यू' और 'बोगुस्लाव्स्की-एम' क्रेटर के बीच एक बिंदु पर उतरा। इसे बाद में प्रधान मंत्री नरेंद्र मोदी ने 'शिव शक्ति' नाम दिया। इसके लैंडर इमेजर (एलआई) ने लगभग रियल टाइम मोड में कुल 835 तस्वीरों को कैप्चर किया और धरती पर भेजा। इससे लैंडिंग प्रक्रिया और चंद्र सतह के वातावरण में महत्वपूर्ण जानकारी मिली। लैंडिंग के दौरान, चंद्रयान -3 के सभी चार इंजनों ने फायरिंग शुरू कर दी। मंटी के लिए लगभग 30 किमी की ऊंचाई और लैंडर के 800 मीटर की ऊंचाई पर पहली बार मंडराने तक काम किया। उसके बाद, टचडाउन तक केवल दो डायगनल इंजन चालू रखे गए थे। जब लैंडर के फुटपैड में चार सेंसर ने टचडाउन का संकेत दिया, तो शून्य के एक्सेलेरोमीटर रीडिंग के कॉम्बिनेशन में, इंजन 30 मिलीसेकंड के भीतर बंद कर दिए गए। इससे लैंडर की चंद्रमा की सतह पर एक हल्की और नियंत्रित लैंडिंग सुनिश्चित हुई।

डिजाइन में सुधार की राह

चंद्रमा धूल की कम से कम गड़बड़ी भविष्य के चंद्र अन्वेषण मिशनों के लिए महत्वपूर्ण प्रभाव डालती है। यह न्यूनतम पर्यावरणीय प्रभाव के साथ चंद्रमा पर अंतरिक्ष यान उतारने की संभावना को दर्शाता है। साथ ही वैज्ञानिक अध्ययन के लिए चंद्रमा की सतह की प्राचीन प्रकृति को संरक्षित करता है। साथ ही संवेदनशील उपकरणों को नुकसान के जोखिम को कम करता है। इसके अलावा, इस कम धूल गड़बड़ी के पीछे के तंत्र को समझने से इंजीनियरों को भविष्य के मिशनों के लिए अधिक कुशल और पर्यावरण के प्रति जागरूक लैंडर और रोवर्स डिजाइन तैयार करने में भी मदद मिल सकती है।

<https://navbharattimes.indiatimes.com/india/chandrayaan-3-mission-lander-vikram-landing-on-moon-like-a-feather-raised-dust-just-39-feet-high/articleshow/109054978.cms>



Thu, 04 Apr 2024

President Launches India's First Homegrown CAR T-cell Therapy for Cancer Treatment, Calls it 'New Hope'

President Droupadi Murmu on April 4 launched India's first indigenously-developed CAR T-cell therapy for treatment of cancer, hailing it as a "major breakthrough" that provides a "new hope for the humankind" in the battle against the disease. During the launch event held at the Indian Institute of Technology (IIT) Bombay located in Powai in Mumbai, she also said the development of this therapy is an example of the 'Make in India' initiative. Developed by the IIT Bombay and the Tata Memorial Centre, this gene-based therapy will help in curing different types of cancer. This NexCAR19 CAR T-cell therapy is the country's first 'Made in India' CAR T-cell therapy, which will significantly bring down the cost of cancer treatment.

Speaking on the occasion, President Murmu said the CAR T-cell therapy is considered as one of the phenomenal advances in medical sciences.

“The development of this therapy is also an example of the ‘Make in India’ initiative and speaks volume about Indian scientists and physicians,” she said.

“The launch of India’s first gene therapy is a major breakthrough in our battle against cancer. As this line of treatment, named CAR T-cell therapy, is accessible and affordable, it provides a new hope for the whole of humankind,” she said.

Sudeep Gupta, Director of the Tata Memorial Centre, said the CAR T-cell therapy has been an enormously expensive treatment which is out of the reach of an overwhelming majority of people.

“NexCAR19 has been rolled out at approximately one-tenth of the price at which it is available outside India,” he said. IIT Bombay Director Prof. Subhasis Chaudhuri said the treatment costs approximately ₹4 crore abroad.

The low-cost CAR T-cell therapy is a huge achievement for our country and for cancer patients in India, and it places India firmly on the global map of cell and gene therapy, he said.

Mr. Gupta said the creation and rollout of NexCAR19 is a historic milestone in the field of cancer care and genetic engineering.

“This treatment is not only a scientific achievement of the highest order, but also has immense practical application. NexCAR19 will save many, many lives and wipe many, many tears,” he said.

<https://www.thehindu.com/news/national/president-launches-indias-first-homegrown-car-t-cell-therapy-for-cancer-treatment-calls-it-new-hope/article68028031.ece>



Thu, 04 Apr 2024

DESI Unveils the most Detailed Map of the Universe

An international team, including Indian physicists, has created the largest and most complete 3D map of the universe - a chart that shows how the cosmos evolved over the past 11 billion years, more than two times the age of the Earth itself.

The celestial map reveals the distribution and movements of galaxies since the universe’s youth in unprecedented detail, much like tracking geographical changes over time using maps created by the explorers in the 18th and 19th centuries to make sense of the world.

With an array of 5,000 robotic "eyes" stitched to a mountaintop telescope in Arizona, the scientists measured light from over 6 million galaxies as far back as 11 billion years ago, peering deeper than ever before into the cosmos’s formative years. “We recorded galactic light fingerprints across billions of light-years to map the universe’s expansion history,” Shadab Alam from Tata Institute of Fundamental Research, Mumbai and one of principal investigators at the Dark Energy Spectroscopic Instrument (DESI) collaboration told DH. The largest 3D map until now created by a preceding mapping project called the Sloan Digital Sky Survey had acquired only 3 million galaxies after over a decade of observations.

The new larger map depicts a “cosmic web” of galaxies clustering along filamentary structures tracing the densest regions where matter gravitationally collected over billions of years into an intricate web-like pattern.

It also gives scientists clear ideas on the extent of dark energy's presence in the universe. "But it doesn't tell us the nature of the dark matter," he said.

Though the universe is 13.7 billion years old, the team was able to peep into a time three billion years after the universe was created from the Big Bang.

"We're seeing basic agreement with our best model of the universe, but we're also seeing some potentially interesting differences that could indicate that dark energy is evolving with time. Those may or may not go away with more data. So we're excited to start analyzing our three-year dataset soon," Michael Levi, DESI director and a scientist at the Lawrence Berkeley National Laboratory, which manages the project, said in a statement.

For centuries, astronomers puzzled over why the universe appears to be expanding. This remains a mystery even after the discovery of the Big Bang. Accurately measuring the expansion and understanding of the underlying mechanism is the key to solve the mystery.

But, detecting faint cosmic signals from the universe's infancy that hold clues to its expansion history is an immense challenge as it requires advanced theoretical models and supercomputer simulations to separate these extremely faint, ancient signals from noise and extract their profound significance.

This is where the critical contribution of Indian scientists from TIFR proved invaluable. Alam's team developed cutting-edge galaxy models and simulated their evolution over billions of years, using powerful supercomputers. The simulations acted as a benchmark, validating DESI's cosmic cartography efforts.

"Our complex modelling ensured DESI could accurately chart the universe's expansion from its infancy to present day," said the TIFR physicist. "Achieving a mapping precision for such faint, ancient signals was extremely challenging but crucial for the groundbreaking discoveries."

The results were published in multiple research papers that were released online on Thursday.

Over its one-year survey, the DESI collaboration involving 900 scientists from 70 institutes, precisely measured the universe's expansion rate at 68.5 km/sec per megaparsec (a measurement of astronomical distance equal to one million parsecs or 3.26 million light years).

The precise value, however, is not exactly the same if the expansion is measured using other methods. "Three different ways to measure the expansion has given rise to three different values, which should not have happened. This indicates that we may be missing something," Alam said.

Interesting clues have emerged about the nature of accelerated expansion, slightly increasing in strength around 5 billion years ago (coincidentally just before earth was formed), hinting at new physics.

Over the next five years, the collaboration plans to map over 40 million galaxies and quasars, opening the gates for cosmological discoveries at an unprecedented scale and precision and opening up avenues to explore a multitude of cosmic mysteries.

"From reconstructing the universe's earliest epochs to unraveling the growth of supermassive black holes and testing the limits of gravitational theory, the detailed cosmic map promises to reshape our understanding of the universe's origins, evolution, and fundamental laws," he added.

<https://www.deccanherald.com/science/desi-unveils-the-most-detailed-map-of-the-universe-2965729>

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